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Issue 71 • 17 March 1990

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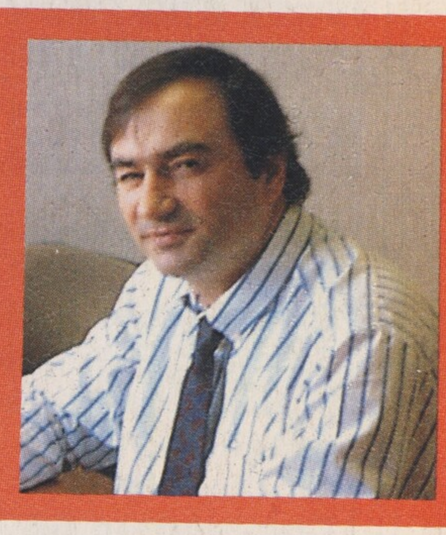
What's all the fuss about the Apple Macintosh?

And how on earth do they get away with charging so much for it? page 53

VOICE CONTROL PC IS ALMOST HERE

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DOES THIS MAN GIVE A DAMN?



Not about the opposition, says Bob Gleadow. Atari's UK boss talks about the company, the competition, CD and even the STE page 54

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FAST unveils anti-piracy phone line and audit kit

HOT LINE TARGETS CORPORATE PIRATES

Anyone fancy blowing the whistle on a few pirates? The anti-piracy organisation FAST (The Federation Against Software Theft) has announced that it is to set up a piracy hot line to enable members of the public to do just that.

The 0800 number, which costs nothing to the caller, takes its lead from a similar toll-free line which has been in use in the United States since last September, operated by the Software Publishers Association. The Washington-based SPA, which represents 600 members of the computer software industry, has contributed $25,000 to establish the FAST line.

In London for the initiative's press announcement, SPA director Ken Wasch sang the praises of FAST, which represents the UK arms of a number of SPA members. Wasch stated that the SPA had "marvelled at FAST's success" and FAST had "done more to fight piracy than any organisation in the world".

According to Wasch, the US hotline takes between 10 and 20 calls per day. As well as tip-offs on piracy – mostly from former employees of companies using illegal software, or from disgruntled workers shopping their bosses – the line also takes many calls from honest software users who want to be sure that they are not violating copyright.

FAST will hope for much the same from its own telephone service, which will help to direct interested business callers to its simultaneously-launched Corporate Self-Audit Piracy Program, designed to help systems managers cross-check for discrepancies between the applications found on their staff's PCs and the quantity of software the company has actually paid for.

The self-audit kit, which can be obtained free by writing to FAST, comprises of a list of proposed audit procedures, a suggested memorandum to employees and a sample corporate employee agreement for staff to sign stating that they understand the company will consider software piracy a disciplinable offence.



• Hay: action on corporate piracy.

The SPA, which already distributes a self-audit pack in the States, is also in the process of completing a software product to help companies with the cataloguing side of the audit. The program is designed to search machines for the 1,000 most popular software products and list them if found. It should be available free through FAST some time in the early summer.

FAST chief executive Bob Hay said that neither dishonest nor 'bad' management was to blame for most piracy, but that most managers were ignorant of the problem. "Your average member of senior management knows as much about computers as I do about brain surgery," he commented.

"The vast majority of British companies want to operate within the law, and that includes the law on copyright," said Hay. "Thanks to the self-audit program we will be able to help them to do so on a very practical level."

Of the hot line he stated: "We intend to use it exactly as the name implies and we will be prepared to act on any suitable information that we receive from this source."

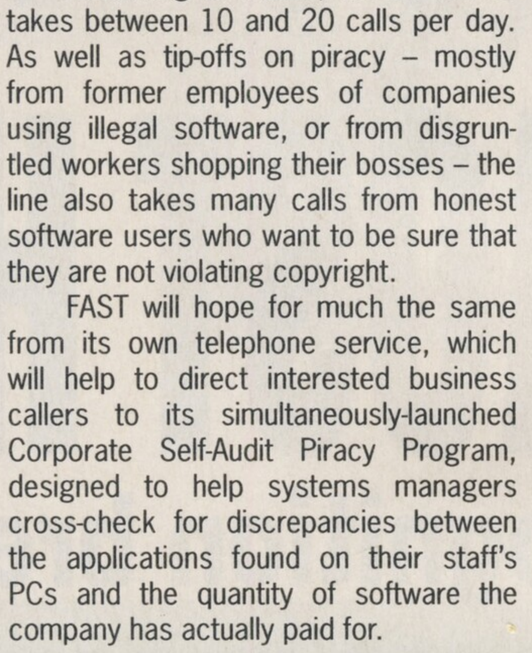
Ken Wasch said the most pirated piece of software found in almost all of the major companies which the SPA had helped to audit in the US was *Norton Utilities*. Ironically, the most-pirated application found in the UK by FAST, according to Bob Hay, is *Copy II PC* – a program used for making copies of other software.

FAST's hotline will be 0800 181502, but will not be in operation for about three weeks. Until then FAST can be contacted on 01-240 6756. The address to write to for a free self-audit pack is: FAST, 132 Long Acre, London WC2E 9AH. The SPA's European office in Paris can be contacted on 010 331 4692 2703. ■

• Meanwhile, FAST has seized counterfeit materials from a Surrey-based dealer. The raid came about after a piracy operation had been busted in Barcelona, Spain. Items had been posted from the UK to Spain.

That was the fourth major scoop for FAST in the UK this year.

A sense of déjà vu...



• Bodo Illgner: Gazza's cultural exchange.

Bodo Illgner's the name and football's the game. Bodo who? Empire's *Super Soccer* game has been converted to a variety of formats in a number of countries and is best known in the UK as *Paul Gascoigne's Super Soccer*. But in Germany, young Gazza's become the West German goalkeeper Bodo Illgner.

Apparently Franz Beckenbauer was the first choice but, as distributor Entertainment International were quick to point out, in Germany "you have to go through God to get to him".

In Sweden, Gazza has become Anders Limpar – the midfield player. In Italy Gazza remains on the box, while the game graphics feature Italian teams. Just shows what an adaptable player our Gazza is. ■

Mega Amiga in the air

A new Amiga-based system has been launched which will help train the next generation of air traffic controllers.

The SAAST System Control Workstation is to be installed at all the major Civil Aviation Authority centres around the UK.

Software for the souped-up Amiga 2000 has been developed by air traffic control experts. The computer, which features a 68020 processor running AmigaDOS, uses a graphics card giving a resolution of of 1,280 x 1,024 pixels on a touch-sensitive screen. ■

Dawn of the intelligent television set promises a new age of communication

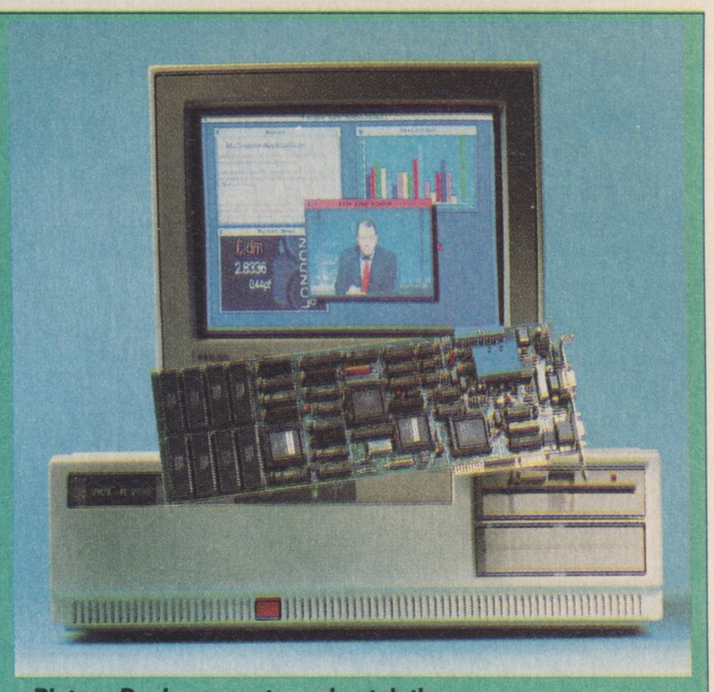
A new add-in PC board brings the age of the intelligent television one step closer.

Digithurst's Picture Book PC system allows live or recorded digital video to be superimposed on a VGA screen display. But the transputer-based video processing board and software is more than just a genlock device.

Digithurst is pitching the device at broadcasters using the new ISDN phone-line standard, which allows simultaneous transmission of video, voice and text data. Thus, specific information relating to an object or person in the video frame could be accompanied by associated voice and text material like background notes and library references – an ideal facility for news studios and picture researchers.

But the company believes its technology will go beyond even this. Billing the Picture Book as a major advance towards the introduction of the intelligent television, Digithurst expects such systems to find their way into the home. In such a scenario, a domestic viewer could interrupt any programme to receive data on its subject material via the phone line to their home computer.

Alternatively, the Picture Book could be used for the telephone transmission of full-colour magazines – who knows, *Express* could soon be faxed direct to your terminal for print-out! ■



• Picture Book: compute and catch the news



• Spectravideo IR: neat and tidy

Look, no strings!

A new joystick is to be launched utilising infra-red technology similar to a TV's remote control.

The Specravideo joystick will not need to be linked to your computer via messy wires. You simply have to plug a control box into the back of the computer. It works from a distance of up to 30 feet.

"Like a radio our new joystick sends signals over the air. The similarity does not end there either, because our product is also wireless," chortled sales director Richard Sekula.

"If you look at computers, with all the wire that is coming out of the back linking them to monitors, disk drives, keyboards and joysticks, the resulting entanglement is enough to make Birmingham's Spaghetti Junction look simple. Our new joystick is a positive contribution, you can play your favourite computer games without having yards of wire making the place look untidy."

It costs £39.95.

Spectravideo is now the official UK distributor of the Konix range of joysticks including the well-regarded Speed King and Navigator models. Meanwhile the Quickshot range, formerly distibuted by Spectravideo, are now being sold directly by the manufacturer, Bondwell.

Call Spectravideo for more details on 01-900 0024. ■

'Wide implications for the home and work' claim

BREAKTHROUGH FOR 'LISTENING MICRO'

A revolutionary speech recognition system capable of running on IBM-compatible PCs was previewed in London last week.

The software-with-board combination promises to push computing into a new age by rendering the traditional keyboard redundant. Osprey, developed by the Centre for Speech Technology Research, has already proved capable of allowing use of a spreadsheet by vocal commands alone.

In the near future it should be possible, using such a system, to word process by simply talking to your computer, or even to control flight simulations through spoken instructions.

CSTR, based at Edinburgh University, has been working on the project for more than seven years. It has set out to avoid mistakes made by other developers in the search for a real-time voice recognition system.

Instead of treating words as basic units, Osprey has been designed to recognise speech sound 'building blocks', known as phonemes. There are only 44 of these in 'British' English, yet all words can be constructed from them.

This means that a new word can be added to Osprey's vocabulary simply by looking it up in a phoneme dictionary and feeding in the data given. In other systems a new word would have to be learned from scratch – a far more cumbersome process.

The other problem CSTR has overcome is that of systems being speaker-dependent – that they can only recognise the voice of the person they have been trained to work with. The research team has designed a data acquisition system which produces a database of the way in which a wide range of people speak, and this lets Osprey understand anyone who speaks without a strong accent.

By Colin Campbell

The research has been based on the design of continuous speech recognition system operating in real-time using commercially available circuit boards which can plug into an IBM-compatible PC.

At the heart of the recogniser is the parallel processing power of the Inmos Transputer which can handle 10MIPS (millions of instructions per second).

At the London launch the system was put to work monitoring voice commands between commercial aircraft pilots and air traffic controllers, showing aircraft movements and warning if these did not match traffic control instructions.

Although not yet commercially available, it will soon be possible to plug the card and microphone into a PC – from a 286 upwards. CSTR is also working on a system which could work with portable or hand-held computers.

The chairman of CSTR, Professor John Laver, commented: "Speech computer interface is a new and potentially revolutionary technology with wide implications for the home and workplace. The Edinburgh Osprey represents a major step towards the commercial exploitation of computers operated by speech rather than a keyboard, and I would hope to see a product marketed in the near future. We are now seeing the beginnings of a speech technology industry in Europe."

The research unit has been awarded a £500,000 funding grant from the European Community's Information Technology program to assist in the development of speech recognition in a total of seven European languages.

CSTR is also involved in speech synthesis research – applying its phoneme techniques to the development of improved text-to-speech systems – and plays a role in Edinburgh University's pure research program on neural networks.

The logical conclusion to this would be a real-life version of the sci-fi computer which not only understands you but talks back. ■

Amstrad User Group Expo to help newcomers

A month-long computer exhibition is to be staged this month by The Amstrad User Group. The professional outfit is inviting the public to meet technical experts from Amstrad, who will be based at the Group's headquarters in Sunderland.

There will be demonstrations and explanations based on word processing, databases, spreadsheets and desktop publishing. Youngsters are also being invited along to play computer games.

It will be open six days a week at the Pallion Residents' Enterprise Centre until the end of the month.

"With this exhibition and our experts we aim to help the public familiarise themselves with the new technology now available, and to gain a better understanding of modern computer systems," said managing director Eric Innes. Call the AUG on 091-510 8787. ■

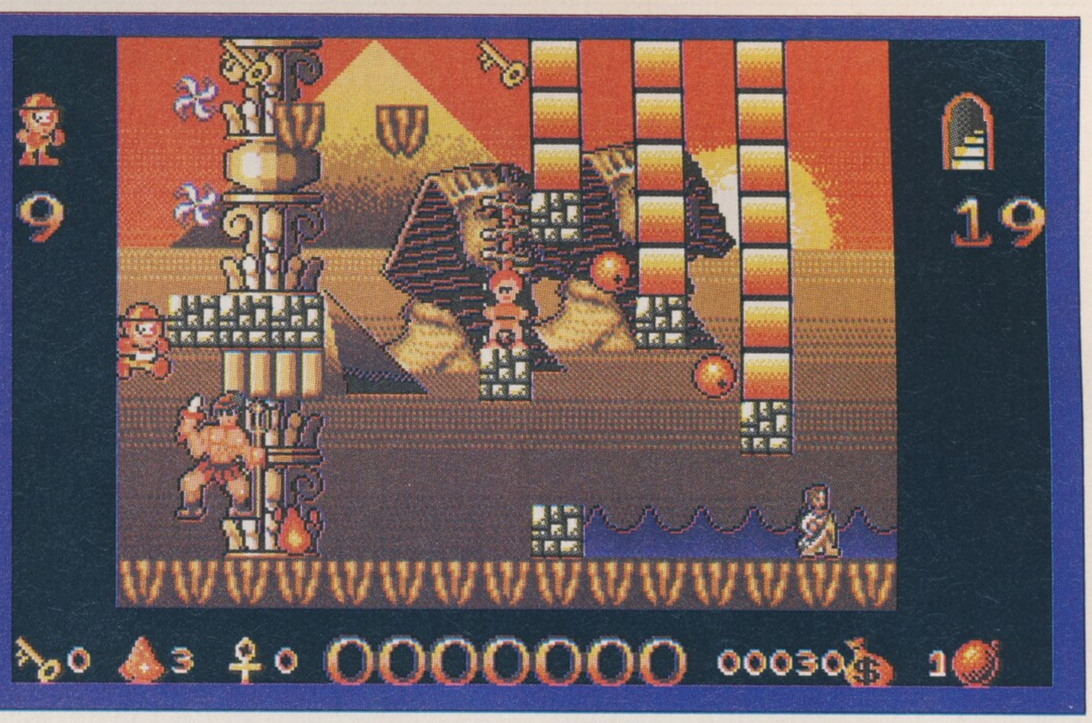
Logotron handles Millennium label with Kid Gloves

Logotron Entertainment has launched a new label for the new decade – it's called Millennium.

The new umbrella label will cover games written not only for home computers but also for games consoles and hand-held machines. Logotron hasn't singled out Millennium for any specific task – it will encompass arcade action titles as well as adventures, simulations and strategy affairs.

Logotron – already responsible for the warmly-received *StarRay* and *Archipelagos* – will be kicking Millennium off with a light-hearted game called *Kid Gloves* for the ST and Amiga. *Kid Gloves* is a multi-level object collection game featuring scenes from the Ice age, Egypt and California among others. The price is £24.99. ■

• *Right:* Kid Gloves, *Millennium's first release.*



PC pics with Davrelle

The corporate PC graphics program *Davrelle* is to be made available to home and small business users following drastic price cuts by Electric Distribution.

The firm has taken over the product and is selling it for £129. Formerly it was retailing at over £400. Electric says the new price will make top-end PC graphics presentations affordable to those looking for a low-cost solution.

The program can transform data from spreadsheets and databases into full colour graphs, charts and tables. You can use the provided chart templates or design your own, depending on individual requirements. Call 0480 496666. ■

Drive firm hits Scotland

Hundreds of jobs are to be created by US electronics firm Conner following the announcement that it is opening a disk drive manufacturing plant in Scotland.

The firm is claimed to be the fastest growing company in American business history. It was set up in 1986 by Finis Conner – founder of computer peripherals firm Seagate. Last year it achieved sales of $705 milion through its disk drives and notebook computers. Customers include Compaq, Olivetti, Epson and Apple. The manufacturing plant will be based in Irvine. ■

Hong Kong giant brings vast catalogue to Britain

LASER'S PC RANGE TAKES ON THE UK

Laser Personal Computers has launched a vast range of new PCs, totalling 81 different models.

Laser is an unfamiliar name in this country, but it is the 11th largest PC supplier in the US, and holds the number two slot in Canada and Holland. The Hong Kong-based company is hoping that its huge new series of PC-compatibles will help cement its future in the UK market.

Bottom of the range is the stylish-looking XT/SL. Unusually at this level, the machine is 3.5-inch disk drive based, and does not offer a 5.25-inch option. The XT/SL features a built-in joystick port and clock. Its 8086 processor runs at a fast 10MHz, and the basic machine comes with a high-resolution mono monitor. Prices start at £775 for a twin floppy model, with a 20Mb hard disk costing an extra £170.

If you need more expansion options the XT/3 offers six free expansion slots (as opposed to three on the XT/SL), and can accommodate three half-height disk drives, including 5.25-inch models. There is also a fast processor option which pushes the speed to an outstanding 12MHz. You pay an extra £60 on top of the XT/SL price for these extras.



• **Laser 286: one of many.**

Three different 286-based AT clones are offered, running at 12, 16 and 20MHz respectively. All feature 640K of RAM, expandable on the motherboard to 3Mb, and five free expansion slots – one 8-bit and four 16-bit. Mass storage is a 20Mb hard disk and high-density floppy drive. Prices for the AT models start at £1,250 for a monochrome 20Mb 12MHz system, running up to £2,275 for a 20MHz colour VGA model with a 122Mb hard disk.

At the top end, Laser offers a number of 386 PC options, and here real power begins to show. Even the basic 386SX (the SX is a cut-down version of the 386 chip) offers 'shadowed' ROM for top performance. Memory starts at 1Mb, with space for up to 10Mb. RAM can be interleaved for extra speed. Prices start at £1,675 with a 20Mb disk.

Topping the range are a number of 25MHz 386s with mouth-watering specs. Coming complete with a minimum of 2Mb of RAM, the machines feature a 64K memory cache, which massively speeds up data flow. The basic hard disk option is a 65Mb device with a fast 28ms access time and a data transfer rate of more than 550KB/s.

With power like that it's worth advertising the fact, and there is the option of a posey tower case for the speed king. Prices start at a corporate-level £3,090 and head skywards. ■

Nordic organiser

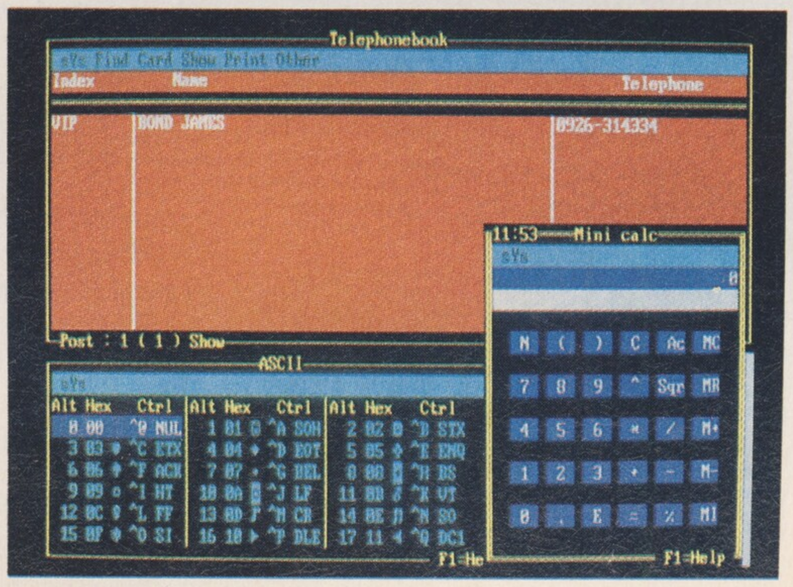
There's a new memory-resident personal organiser available for your PC.

Called *Help*, it originates from Scandinavia and has apparently proved to be quite a success in the Nordic countries. Costing £29.95 it can be accessed straight from any application, is able to store up to 10,000 names and addresses, and can print the addresses onto envelopes or labels.

There's also an alarm clock, text editor for personal notes, and calculator.

A built-in diary displays a month at a time and allows the alarm to be set to coincide with the appointments you enter.

Call Scandinavian Systems on 0926 336595. ■



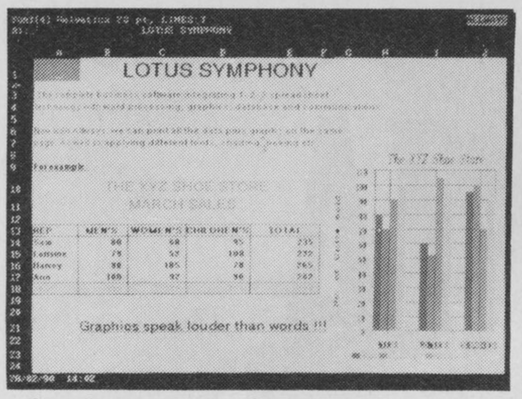
• **Help:** *Scandanavian organiser*

Going Loco in the USSR

Locomotive Software is to show its Russian version of *LocoScript 2* for the PCW at this week's computer show in Moscow.

Comtek '90 is the first computer expo to be held in the USSR, and interest in the PCW is likely to be high. It's one of the best-selling computers in Eastern Europe.

"This show provides us with an exciting opportunity to offer *LocoScript 2* to the new market created by *perestroika*," said commercial director Howard Fisher. ■



• Symphony: *new version*

Symphony due soon

A new version of Lotus' integrated PC business package *Symphony* is to be launched within the next two weeks.

Version 2.2 includes file linking to *Symphony* as well as certain versions of Lotus *1-2-3* and *Magellan* files. It has extended the database by incorporating direct access to disk-based databases. There's also a new display and printer drivers as well as a simplified macro debugger.

"We believe that the 100,000 *Symphony* users in the UK will find the new version an even more capable platform for building and extending a range of business solutions," said Lotus UK boss Paul Bailey.

Symphony is a combination of a spreadsheet, database, word processor, and graphics and communications modules. It requires a hard disk to operate, and costs £595. Bargains are available to upgraders. ■

• £20,000 competition • Support from publishers

BIG PRIZE OFFERED FOR SAM SOFTWARE

MGT has laid down plans to back up its recently launched SAM Coupé with a much-needed software base.

Last week the firm presented a tentative list of those packages which will be appearing over the next few months. Since the machine's long-awaited launch, users have found themselves restricted when searching for software. The much vaunted Spectrum compatibility is far from comprehensive.

There is also an incentive deal to users who may be contemplating writing their own software. MGT is offering a total of £20,000 to software authors.

A first prize of £15,000 will be presented to the best program at the end of this year. In the meantime there are interim prizes of £500 every two months. The added special prizes of £1,000 will go to the best entry from authors under 12 years of age, to the best 12-16 entry, and to the best non-game. The entries must be original and will be judged by industry newspaper *Computer Trade Weekly*.

In the meantime Coupé owners can look forward to a number of games, educational and business packages over the forthcoming months. First up will be Audiogenic's *Emlyn Hughes Arcade Quiz* at £9.95 later this month. Other games include *Snoball in Hell* from Atlanta, *Delta* and *Sanction* from Thalamus as well as *Armalite*. Zeppelin is launching a number of games including *World Soccer, Mountain Bike Racer, Blinky's School, Full Throttle II, Spaghetti Western Simulator* and *Kick Box Vigilante*.

Also, all Spectrum releases from Domark will have a SAM-compatible version on the B-side.

Educational titles include *Fun School 2* and *3* as well as *Junior Quiz* from Kosmos. PCG is to launch a DTP and word processing package, while *Tasword 2* from Tasman should be out within a few weeks.



• *MGT's Alan Miles with the obligatory 'large cheque' promo shot.*

MGT claims that many more companies are working on projects, but says those firms are keen to keep any plans secret. ■

LCD monitor prices cut

Philips has drastically cut the prices of its emission-free LCD monitors.

The monitors have a distinct advantage over normal screens in that there is no radiation emission – which some fear is harmful.

The PM11211 CGA model is now available for £499, while the EGA version costs £549. Both prices have been cut by £200. Call 01-689 2166. ■

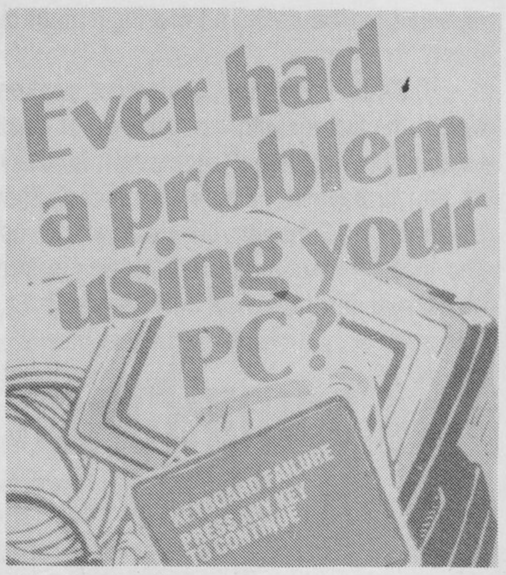
The PCW gets some games

When it comes to state-of-the-art gaming the PCW is not generally regarded as the first choice. But for those owners tired of all the old gags there's some light relief thanks to CDS.

The firm is to launch eight titles over the next few months, most of which have already proved themselves on, well, more mainstream games formats.

Among the titles are *Brian Clough's Football Fortunes* and *Tank Attack*, both of which come with accessory board games. TV licence *Sporting Triangles* is also promised along with *European Superleague*.

CDS says there are still plenty of PCW owners who want to play games – it's just that not enough software houses are taking advantage of that. ■



• *Fax for details*

The ST Discovery pack: all the details



Comprehensive details of Atari's new Discovery Pack have been released.

The 520 STFM machine comes with four games – *Carrier Command* from Rainbird, US Gold's former number one *Out Run*, and Elite's *Bombjack* and *Space Harrier*. More impressively there is the popular games creation program STOS, with art program *Neochrome*.

There's also the BASIC programming language, a disk-based tutorial and a book called *Discover Your ST*. It all costs £299.

Atari says the pack "enables even the entirely inexperienced user to work, learn and play with one of the most advanced systems in the world".

For £399 buyers are offered an upgraded model, the 520STE, and for £499 the 1040STE comes with several business packages from Kuma. All packages will be in the shops by the end of this month. ■

PC Indie: all the facts

The Independent PC User Group has announced the availability of a new helpline – by fax.

Members who find their problems too complex to explain over the phone are invited to fax in their query, then they can send in examples of printer problems or screen dumps illustrating their difficulties.

The Group can send back notes already prepared by their technical support staff. The service is free to members – it costs £26 to join with special rates for students. Fax 0732 771513 or call 0732 771512. ■

IBM joins in race for Euro superchip

IBM has been allowed to join in the £3 billion Euro superchip project currently being run by some of the continent's major players in the electronics field.

The US giant has been attempting to join in the project for some months, since it will benefit from any breakthroughs. It's also involved in a similar project in the States. In return to letting IBM in, companies such as Siemens (West Germany), SGS Thomson (France) and Philips (Holland) will have access to some of the breakthroughs made by the Americans.

The JESSI project aims to produce a DRAM chip capable of storing 64 million bits of information. The Europeans and Americans fear that top-end multimedia projects are being hampered by the slow chips currently available.

With IBM involved in both projects the company will be able to act as a gateway for technical information. The Japanese superiority in commercial chip technology calls for co-operation between the two. ■

Furniture thrills

Are you sick of all that computer equipment cluttering up the desk and making a right old mess?

Bulldog Computer Equipment reckons it's got the answer with a new range of "fashionable and functional" computer furniture. At the forthcoming *Which Computer?* Show the firm will be showing off a new and trendy line of black ash furniture including printer stands and desktops. Call 0455 844913. ■

C64 compilation

A four-game compilation for the C64 has been launched by Digital Dynamite.

Called *Gems*, it's the first such product from the firm. Games include a graphic adventure *Citadel of Corruption*, a spooky game called *Castle Boy*, vertical shoot-'em-up *Starburst* and *Stratagos* which apparently requires "frantic joystick dexterity". It costs £8.99 for the tape version and £11.99 for disk. It's mail order only from Digital Dynamite, 54 Watermill Road, Fraserburgh, Grampian AB4 5RJ. ■

New Apple

Apple is to launch a top-end version of its Macintosh computer utilising Motorola's super-fast 68030 chip, running at a much higher clock speed than the current Macs' 16MHz.

The IIxi machine will come with a minimum 40Mb hard disk and full colour display, and will be shown for the first time later this month. ■

Trade show host to dozens of games launches

EASTER BONANZA FOR MICRO GAMERS

An Easter bonanza of new computer games is being promised in a concerted effort by the whole games industry.

Most of the major software publishers are to congregate at the forthcoming European Computer Trade Show with dozens of launches. While the event is only open to dealers and people in the trade it means gamers can take their pick from hundreds of different titles this Easter.

Among the new Amiga titles are: *Powerboat USA* (Accolade); *Asterix and the Enchanted Stone, European Space Shuttle, No Exit* (Coktel Vision); *European Superleague* (CDS); *Laurel & Hardy, The Last Stuntman, International Athletics, Sorcerer's Apprentice, Search for the Titanic* (CRL); *Colditz, Rotate* (Digital Magic); *Imperium* (Electronic Arts); *Escape from Singe's Castle, Team Yankee* (Empire), *Wild Street, Crazy Bikes, Fire & Forget II* (Titus); *Venus, Combo Racer* (Gremlin); *Paradroid '90, Scavenger, Nebulous II* (Hewson); *Circle of Blood* (The Edge); *The Last Starship, Rourke's Drift, Web of Terror* (Impressions); *Voodoo Nightmare* (Palace); *Starblade, Maya* (Silmarils), *Persian Gulf Inferno, USS John Young* (Innerprize), *I Was Kidnapped by a Flying Saucer* (Tynesoft), *Jumping Jackson, The Toyottes* (Infogrames); *The Spy Who Loved Me* (Domark); and *Yogi's Great Escape, Hong Kong Phooey Number One Super Guy* (Hi-Tec).

There are also plenty of ST launches. Many of the above games are included but there will also be: *West Phaser, Crazy Shot, Moonblaster, Tennis Cup, Panza, Superskweek, The Magician, Sherman M4* (Loriciel); *The Final Battle, Theme Park Mystery, Paradox, Back to the Future II* (Mirrorsoft); *First Contact, Fire and Brimstone* (MicroProse); and *Dan Dare III, GrimBlood, Hunter Kiler* (Virgin/Mastertronic).

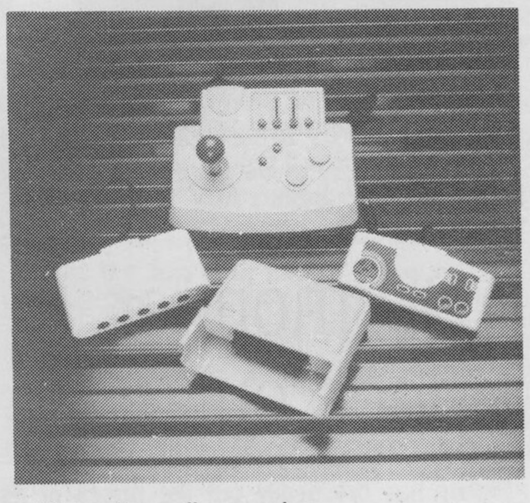
There are also 73 game launches for the PC, as well as many for the 8-bit computers. ■



• These software publishers are a batty lot, eh readers? One minute they're zooming around in posh cars and the next they're mincing around in dodgy props. This sorry-looking trio are none other than Ian Andrew from Incentive (he's the one looking extremely tough), Dominic Wheatley from Domark, and his chum Mark Strachan (she's the one without any shoes on).

But what the devil are these buffoons up to? Mmmm, could it be that this is a promo shot designed to remind us that a new game is around the corner? Indeed, it's none other than the 3D extravaganza called Castle Master, *in which you have to dispose of baddies and rescue jolly pretty maidens (hence the togs).*

Trivia fans will no doubt be fascinated to learn that the clothes were used in Monty Python and the Holy Grail *and the 'castle' is in fact Fulham Palace Church where some of that famous rib-tickler* The Omen *was filmed.* ■



• Nintendo: on-line gaming

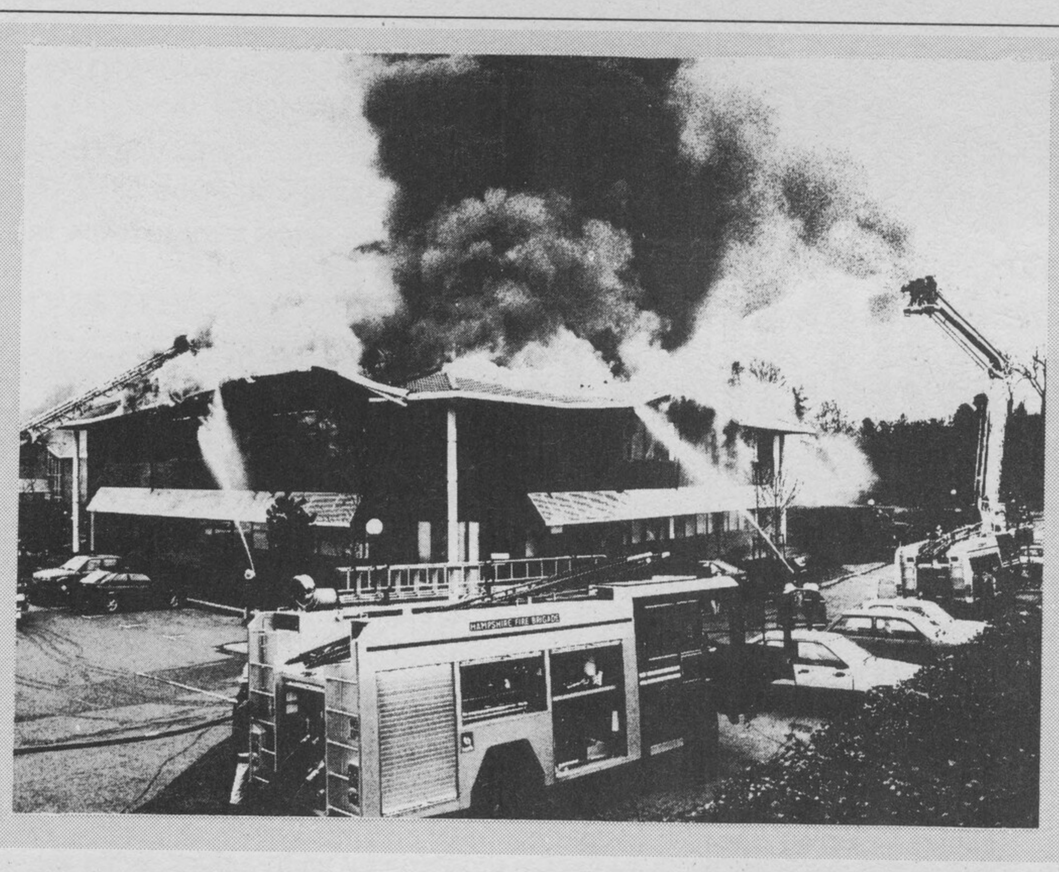
Nintendo's games go on-line

Nintendo has announced that it will be setting up a unique 'on-line gaming' network for its consoles in Japan later this year.

The test exercise will connect people who own Nintendo consoles to other families via telephone lines. This will allow someone in, say, Osaka, to do battle on *Super Mario Brothers* with someone in, perhaps, Kyoto.

But only families already on-line and using the Nintendo home trading system will be able to participate. The console, linked to a phone via the home trading communications adapter, will access Nintendo's host computer.

By using only a relatively small number of people Nintendo hopes it can iron out any bugs. It all begins in July. ■ (Newsbytes).



COMPUTER FIRE STRIKES AT DEC BUILDING

Millions of pounds worth of computer equipment was saved last week thanks to prompt action by firemen.

On Tuesday last week the Hampshire Fire Brigade was called out to deal with a blaze at DEC's £28-million customer support building. Despite extensive damage to the building itself, the firemen managed to save most of the valuable computer equipment.

They had moved in to swathe six valuable Vax 6000 machines in fire-resistant blankets, and had then attempted to beat off flames from around the machines while putting the main fire out.

However, personal computer terminals worth up to £10 million were destroyed.

DEC says it fears some data will have been lost, but the firm always takes weekly back-ups which are stored at another site, as well as daily back-ups which are kept in a fire resistant safe.

No-one was injured in the fire. An inquiry into its cause is to be launched. ■

• Basingstoke fire brigade battles against computer fire.

Honeypot success

The American and European hacking community was buzzing with rumour and speculation last week following talk of a large scale action against US hackers by the FBI.

As yet no official details have been released although it is understood that up to a dozen computer operators have been arrested. This follows a seemingly successful ploy by the FBI to set up a 'honeypot' bulletin board which attracted hackers from all over the US to leave details of their exploits.

The hackers had presumed the board was simply another medium to boast about their latest break-in. ■

An Wang in hospital

An Wang, one of the pioneers of the computer age and founder of Wang, has been admitted into Massachusetts General Hospital this week. It is not known whether his confinement is related to surgery for cancer which was undertaken last July.

The 70-year-old chief executive of the veteran computer firm is said to be continuing work from the hospital. He set up his company in 1951. Despite years as one of the world's major forces in computing, his business is now in trouble. The company reported losses of $72 million for the six months ending December 31, 1989. (Newsbytes).

Gold rocked

Two senior staff from games publisher US Gold have been arrested and charged with deception.

David Baxter, software development manager, and his assistant Tony Samuels both left US Gold earlier this month. They were charged on Wednesday and Thursday respectively last week.

US Gold stresses that its release schedule has not been affected. ■

MIRRORSOFT PLANS HUGE GAMES RANGE

Mirrorsoft's second International Conference, held in Nice earlier this month, greeted assembled journalists with a range of new products.

The computer version of *Back To The Future II*, out soon on the Imageworks label, signals the start of a heavy investment in film licenses. This is traditionally a difficult area as development time is short and it is all too easy to ride a poor game on a good film. Mirrorsoft has a full-time scout in Hollywood on the look out for future releases and has already signed *Back To The Future III*.

A recent signing with Sega means that *Back To The Future II, Speedball* and *Xenon II* are currently being converted for the Sega Master games console.

The company's link with Cinemaware means a heavy investment in CD-ROM entertainment too. We were shown a video of the making of *It Came From The Desert* featuring real actors, just one of six new CD products currently under development. On more conventional 16-bit formats are *Wingz* (a World War I flight simulator), and *TV Sports Baseball. TV Sports Boxing* is due soon.

Flight Of The Intruder, on the Spectrum Holobyte label, is the successor to *Falcon* and puts the player in control of four separate planes during the 1972 Linebacker campaign over Vietnam.

Dungeon Master is at last to appear on the PC, together with an adapter that plugs into the printer port and contains a joystick socket and a lead to connect the adapter's built in sound chip to your hi-fi. This will be bundled as a limited edition at £39.99, after which the adapter will be available as a separate items.

Vektor Graffixis writing *Killing Cloud* for the Imageworks label. This uses techniques developed for flight and driving simulations to produce a futuristic graphic adventure.

Dr Peter Turcan, author of *Waterloo, Borodino, Austerlitz* and *Armada*, is working on a new gaming system for his next series of battle simulations. Meanwhile *Battlemaster* on the PSS label introduces role-play elements to the traditional strategy game.

Duster is being written by the authors of *Carrier Command* and puts the player in the shoes of a 'bug hunter', hunting mutants.

All titles are being launched for the Commodore Amiga, Atari ST and PC compatibles. ■

Lynx and STE make Atari's future look bright

Atari has announced healthy figures for the quarter-year ending December 1989. The company made profits of $45.7 million compared to a loss of $97 million for the same period in 1988.

Total sales amounted to $170.6 million compared to $152.6 million. For the whole year Atari made $4 million, compared to losses of $84.8 million. That was on sales of $423.6 million – down from 1988's $452.2 million.

The company is putting that dip down to a slowing of sales of its traditional video game units. However, it says the emerging popularity of new PCs, the Portfolio and Atari Lynx point to a healthy 1990.

Atari president Sam Tramiel commented: "For Atari, 1989 was a transition year. It witnessed the introduction of a new generation of hand-held machines – the Lynx and Portfolio, and the disposition of an extraneous business segment." He was referring to the Federated chain of electronics stores, bought by Atari and then offloaded following poor financial performances.

"For 1990, Atari is fully committed to regaining its market share in the video game sector with products like the Lynx, increasing our market share in the personal computer sector with products like the Atari STE, and maximising our opportunity in the hand-held or palmtop computer business with the Portfolio." ■

Computer dinner

If you're one of those people who likes to throw dinner parties, then you will be interested to hear of a new computer which can take the headache out of these difficult occasions.

It's well known that one of the biggest problems is pleasing everyone – especially if some of your guests are vegetarians or have peculiar fancies. A new expert computer, called Julia and developed at the Georgia Institute of Technology, can solve this problem.

All you have to do is program in all the favourites and no-nos of your guests. Then the machine will come up with a meal to suit everyone.

And it will store details of everyone's tastes for future reference. ■

COMMENT

So now computers can hear you speak. Will that give the computer addicts of the future a true friend at last?

It would be easy to take the Edinburgh Speech Technology Research and hype that breakthrough up into a frenzied vision of the cybernetic world of tomorrow. So let's do just that.

We're really into Neuromancer and Max Headroom territory here, but what the hell. It's a way of life which must surely come. The steps taken by organisations such as CSTR bring that era closer than ever. Certainly it can no longer be confined to novels and movies.

Imagine your computer, without a keyboard, but with both the ability to understand what you say, and to reply utilising speech synthesis. Take that a step further and donate neural technology and pretty staggering memory capabilities to your machine. Here goes:

• **Word processing:** The typist is a thing of the past. All you have to do is talk to your machine. For instance: "Dear mum comma par tab how are you?" The computer would put capital letters and the question mark in.

Forget spelling checkers. Every word is taken in context by the processor, so there is no confusion as t whether you meant 'pale' or 'pail'.

Also, if, as is likely, you get ahead of yourself, you can use the speech synthesis and ask for the last paragraph to be read back to you.

Using palmtop computers you can take transcriptions of interviews or conversations as they happen. You can also dictate faxes by remote phone.

• **Business:** Apart from word processing you can also send orders from a site back to your computer by phone and into a spreadsheet or accounts package. All business is immediate and portable. You no longer have to telephone an appropriate person who keys in the relevant data. Just call the computer and it will have employees hanging on every word.

• **DTP and CAD:** Tricky jobs are handled by voice. For example: "main pic left eight mil" dispenses with difficult mouse co-ordination.

• **Expert systems:** Your computer is linked to an expert system based on the medical knowledge of the day. Switch it on and there is a kindly video face and soothing voice.

"What seems to be the trouble?"

"My knee hurts."

And so on until the computer has a diagnosis.

You can actually converse with the machine. If the computer addicts of today consider their micro to be a best friend – imagine what tomorrow will bring.

• **Commercialism:** Movie stars are licensing out their phonemes to computer users. You can have the voices and faces of maybe Jerry Hall or Jack Nicholson – whoever takes your fancy.

The voices of the dead could be resurrected. It would not be difficult to re-create Elvis Presley or Marylin Monroe as a computer simulation.

• **Gaming:** Adventurers can forget typing in those commands and reading responses. You say: "Enter the hut" and inside a goblin is talking to you.

Simulations would be more accurate. As the captain of a submarine you don't type in your orders. You say them in the same way as real sub skippers.

Just thinking of this world of computing can turn your mouth dry. It is full of fearsome and intriguing possibilities. Perhaps you have some ideas? ■

FROM The ARCHIVE

ONE YEAR AGO

Nothing changes much from year to year. Twelve month's ago the headlines were being made by Atari, which had just announced its latest bundle. Entitled the Powerpack, it contained some 20 top-selling games including *Gauntlet II* and *Afterburner*.

Atari boss Bob Gleadow predicted that the pack would still be strong come Christmas, and he was right – the bundle has only now been discontinued after a highly successful year.

The Amiga was also being bundled up this time last year, but Commodore's offering was considerably less successful. The strategy centred around Air Miles, the promotional flight gift tokens, 500 of which were given away with each machine – enough for a return flight to Paris. Computer buyers proved a ground-loving lot however, and the bundle was soon phased out in favour of the Batpack.

One of the sickest games to date surfaced in Scotland where a bunch of warped hackers converted the popular *Sidewinder* game into the racist *Paki Basher*. The game graphics had been altered to depict attacks on Asians instead of jet fighters. The police were called in, but the culprits escaped capture.

US Gold made a brave but short-lived attempt to reduce the extortionate prices of 16-bit games by releasing a series of titles at £14.99.

Unfortunately for gamers, the trend, led by the likes of *Vigilante* and *Out Run Europa*, failed to catch on and prices soon went back up.

The cracks began to show in the specialist computer show arena when Database closed down the long-running BBC Micro Show. Other Database shows were to follow suit later in the year.

Atari's portable ST, the Stacy, saw the light of day for the first time at the Hanover show. Featuring a built-in trackerball, hard drive and MIDI ports the machine was instantly hailed as the touring musician's dream machine.

TWO YEARS AGO

RAM price hysteria gripped the trade as Atari, Amstrad and Acorn all claimed that prices might have to go up by up to a third. In the event the manufacturers took a deep breath and absorbed the price rises into their margins.

Atari announced a huge rise in turnover from just over £200 million to around £500 million, with profits up 36 per cent. The relatively low profits were put down to its American retail chain subsidiary Federated, which Atari is still embroiled in legal action with to this day.

Top games release of the week two years ago was the Amiga version of the classic *Star Wars*, which had finally been converted from the 8-bits. Other titles released that week have sunk without trace. Where are you now *Championship Sprint*, *Power at Sea* or *Slagon?* Topping the charts was *Ghostbusters*. *Plus ça change...*

FIVE YEARS AGO

Sir Clive Sinclair announced his aim of taking his company into the manufacturing of wafer-scale chips. He predicted that production of the devices would start in 1986, but four years after his prediction the industry still awaits the volume production of the silicon-based disk drives

Sources: *New Computer Express*, *MicroScope*, *Computer Trade Weekly*

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ABC audited circulation July-December 1989: 22,277 copies per week

© Future Publishing Ltd • 30 Monmouth Street, Bath BA1 2AP • Tel: 0225 442244 • Fax: 0225 446019 • Subscriptions: The Old Barn, Somerton, Somerset (0458) 74011
• Printed by Redwood Press, Melksham, Wilts
• Distributed by Comag, West Drayton, Middx

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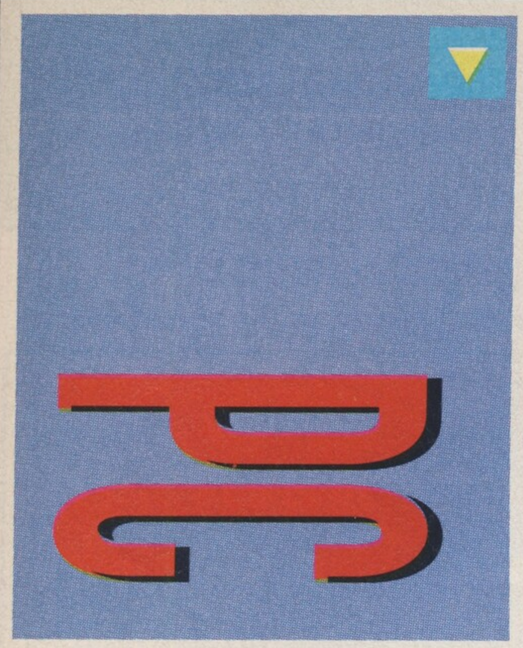
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THE BIG BUILD UP

OK, Nigel Nock of Software Paradise, I take it all back. Even though you didn't include a photocopy of the packaging of *The Builder* last week, I have to admit that it does exist. This, as no doubt you guessed, is because the real thing arrived a few days ago.

It does most of what it claims. It takes an existing batch file, converts it to its own format and then compiles it to machine code. The resulting COM file can be run independently of *The Builder* with no licence fee due to hyperkinetix inc [*sic*], the producers.

For some reason, the program changes the syntax of some of the elementary MS-DOS batch file commands. Quoted filenames must be enclosed in speech marks, for instance and all calls to `COMMAND.COM` for functions such as COPY, must be preceded by RUN. This is fine if you're running an existing batch file through *The Builder*, but annoying if you're writing in native mode to make use of the extra structures and commands.

And there are plenty of extra structures and commands. *The Builder* programs can include CASE, REPEAT and WHILE statements, can read the size of disks and files, can get and return keypresses and can provide a complete library of automatic menuing utilities. The program supports variables, simple box drawing and cursor positioning and reading.

The finished programs are compact – minimum size around 3K – and execute more quickly than an equivalent batch file. They do take some memory space while running, though.

All in all, *The Builder* is an excellent utility. Just the thing for building installation systems or short menuing utilities. It's almost a language in itself.

The Builder is available from Software Paradise 0222 887521 for £79.35.

FLIGHT SIMS TAKE OFF

But if you're me, they rarely land again in one piece. Nonetheless, while taking the trouble to send through *The Builder*, Software Paradise sent through its new recreational software catalogue. It's worth a mention, if only for the wide range of games stocked by the company. Further details on the SP number.

LASERJET II SUPERSEDED

Hewlett Packard has launched a replacement for the industry standard LaserJet II laser printer. The LaserJet III – how did I guess? – is a touch smaller than the present machine, comes with a megabyte of memory as standard, and will retail at the same RRP of £1,999.

It's main innovation is in the firmware it comes with. The new machine emulates the Epson FX and IBM Proprinter, includes eight scalable fonts from Compugraphic, and Resolution Enhancement Technology (RET). This is perhaps the most interesting advance in the machine.

All lasers to date have used tiny but uniformly-sized dots to create an image. This is fine for small characters and graphics, but as the size increases the dots begin to show and the well-known 'jaggies' appear. This is particularly noticeable with diagonal lines, such as the sides of an 'A'.

RET gets around this problem by using a set of dots of varying sizes. This means it can fit even complex shapes a lot better, giving a smoother picture, at the same resolution.

Ironically enough, this harks back to traditional typesetting, where a screen is made up of many dots of differing sizes. A 100 line picture, as used in most newspaper photographs, has a lower resolution than a 300 dpi laser, but because of the variation in dot size, the newspaper photo looks a lot better. Find out more about HP's new technique and the LaserJet III by ringing 0344 360000.

STONING APRICOT

I've noticed from reports (in *Express* news and elsewhere) that the all-UK PC company, Apricot, is set to sell off its hardware division, which includes state-of-the-art 386 and 486 PCs. You may recall that the company originally set out to raise money on the strength of its PC prowess in January, looking perhaps more for a part sale than a full sell-out.

Now it seems that a main contender for taking over Apricot has emerged in the form of Commodore, the company currently claiming to be the number two computer company in the world. I think that this ranking is stretching the imagination somewhat, as the company's sales figures are boosted by the Commodore 64 and 128. Its PC sales look a lot less exciting.

A purchase like Apricot would make a lot of sense for Commodore, whose main PC models are rather run-of-the-mill. Indeed, the high-tech image of Apricot would slot in well, and give Commodore direct access to MCA and EISA technology – Apricot has stakes in both camps.

Neither company is prepared to make any comment at this stage – it would be surprising if they did – but Commodore would almost certainly be after a full buy-out, not a 'strategic partnership'.

HYPERPADDERS

No relation to Black Adder (alas), but a proposed user group for *HyperPad*, the easy to use hypertext-style tool on the PC. The idea is great, as the product is engineered to assist anyone in producing useful programs for their own purposes.

If, by chance, you would like to learn more, you may contact Mr Dave Langstaff, 78 Harrison Road, Swaythling, Southampton SD2 37J.

Simon Williams

JOURNO MISSES FREE DRINK!

Unlikely though this headline may seem, I missed a Press Launch the other day which included wine and a finger buffet.

The event which accompanied the goodies was the launch of a new range of PCs from Laser Personal Computers.

I am not able to tell you much as the company has not sent me details through, but I do know the new machines include two 25MHz 386s, a 386SX, a 16MHz 286 and an XT. This is undoubtedly good news as far as the PC industry is concerned.

SHORTENING BATCH FILES

Whether you're using *The Builder* or not, the following tip from Meir Greenfield of Sheffield might tidy up your batch files, if they need tidying, that is.

The tip concerns the usual technique for making multiple choice branches within a batch file.

Using an external program to generate an Errorlevel (such as the one in evidence on the *SHOWCSF* utility on the *PC Plus* SuperDisk), you would normally use a section of code like this:

```
IF ERRORLEVEL 10 GOTO LABEL10
IF ERRORLEVEL  9 GOTO LABEL9
IF ERRORLEVEL  8 GOTO LABEL8
```

and so on to...

```
IF ERRORLEVEL  0 GOTO LABEL0
```

But this is an awfully long-winded way of doing things when you can use:

```
FOR %%p IN (0 1 2 3 4 5 6 7 8 9 10)
DO IF ERRORLEVEL %%p SET ERRVAL=%%P
GOTO LABEL%ERRVAL%
```

The second technique makes use of the environment variable `%ERRVAL%` in a FOR loop. The FOR loop is one of the less well known structures within batch programming. The %%p parameter is given each value within the brackets in turn.

The test at the end of the line then checks if the errorlevel equals the current value of %%p and, if so, sets the variable `ERRVAL` to the same value.

The last line branches to the the label with the name LABEL0, LABEL1, LABEL2 or whatever.

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DRAGON WARS

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There are two different types of graphic adventures around at the moment. On the one hand games like *Leisure Suit Larry* or *Neuromancer* are essentially graphic versions of the classic adventure format. On the other hand RPGs (role-playing games), based on the Dungeons and Dragons formula, provide a party of adventurers the chance to explore a dungeon with the players' performance depending on a complex system of attributes attached to each character.

Deja Vu II, reviewed a few weeks ago, is a fine example of the first, while *Dragon Wars* is an RPG, developed by the team responsible for the excellent *Bard's Tale* series. It takes you to the legendary islands of Dilmun, on the watery world of Oceana, which your party finds under the spell of a beast called Namtar and you are seized, stripped of all your possessions and left to die in the disease-ridden hovels of Purgatory.

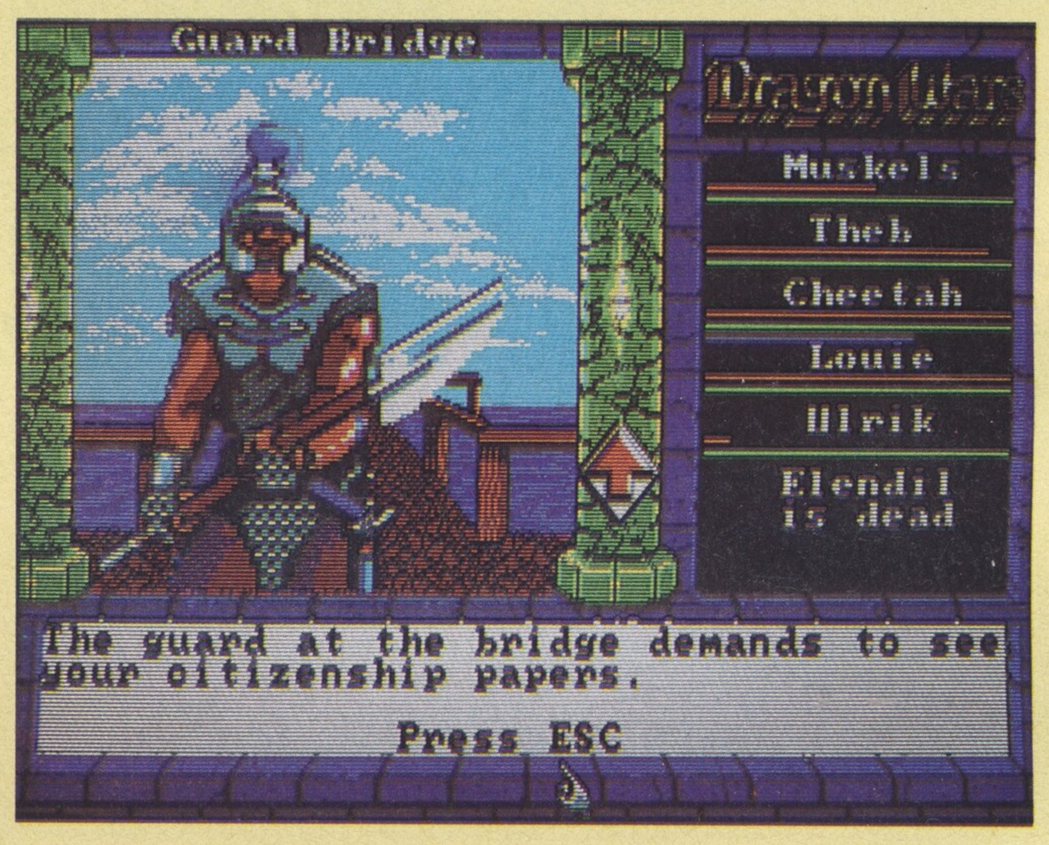
Characters are suitably-complex, with six attributes determining performance and some 20 skills for each to master. There are 65 spells for those with magical skills, and a sophisticated combat system that you can test against creatures ranging from Shadow Spiders to prison guards.

The world is large and normally viewed in perspective through the leader's eyes, although this can be confusing. It is possible to take a top-down view using 'Auto-map', but this takes you away from the main action and is not sufficiently detailed.

Dragon Wars has a good plot, augmented by nearly 150 'paragraphs' in the manual that can be read at strategic points.

However this new game, however good it may be (and it is good) cannot match Origin's *Ultima V* – let alone the forthcoming *Ultima VI* – for either size or graphics quality.

Matt Nicholson



Technology Centre

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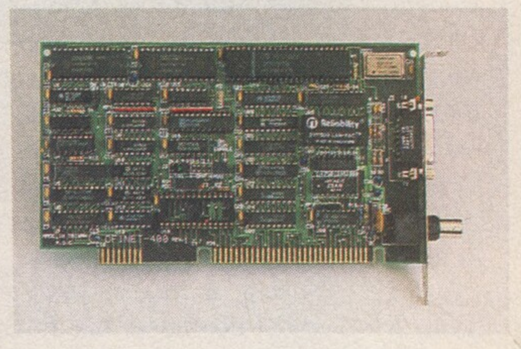
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YOUR FORMAT

MACHINE SPECIFIC COLUMN

MOUSE MAGIC

If it happens to be your ST's birthday and you feel inclined to give it something for a present, you could do worse than offering it a new mouse. After all, the standard issue item is remarkable only for its ugliness and its ungainliness.

The latest would-be replacement is the all-new high-resolution Kempston Daatamouse, featuring two superb microswitched buttons that are a world away from the dull clunky switches on the Atari mouse. There's also a clever little raised line on the left-hand button which helps you locate it without having to take your eyes off the screen.

At £35 (including a mouse mat) it's hardly an essential purchase: but if your present mouse falls to bits or seizes up, this is the one to opt for. The Kempston Daatamouse is on sale from Pandaal Marketing: phone 0234 855666.

UPGRADE UPDATE

News from Gribnif, producer of the justly popular *Neodesk*, indicates that a new version of the program will arrive soon, featuring support for all three ST resolutions, a two-window facility and faster file sorting. And, what is more, version 2.65 of the extraordinary Mac emulator Spectre GCR is soon to be released in the States.

Incidentally, HiSoft says all back orders for Spectre GCR have now been honoured, and further supplies are in stock. So if you've taken a fancy to owning a big Mac, but don't have the necessary folding, this could be your lucky day!

Meanwhile, still on the subject of STs with personality changes (er, emulators) Gasteiner has released two new additions to the PC Speed range, fitting the Mega and the STE and requiring no soldering – always a bonus, I feel. Give Gasteiner a bell on 01-365 1151.

SOCCER SHOCKER

Is there no end to the mounting pile of footie managing games? The two latest versions to thud onto the *Express* office floor are *Football Crazy*, from a small company called ESP Software (I seem to recall a game a couple of years ago called *Football '88* from the same source); and, at the other end of the scale, the *Player Manager* from Anco, written by Dino Dini, author of the astonishingly successful *Kick Off*.

Now I have to be totally honest (makes a change, doesn't it) and admit that this really isn't my thing at all. Give me a playable footie sim and I'm in heaven, but having to muck about buying and selling players, training and wheeling and dealing and I instantly start wondering what's on telly.

But in fact both these £20 games, in their separate ways, are good examples of the type. Of the two I'd have to plump for *Player Manager*, since it involves what I enjoy best: playing. Your decisions actually do influence a 'real life' game, and thereby involving the 'player manager' to a greater extent.

On the other hand, *Football Crazy* may well appeal more to the purist, who is interested solely in strategy and finds the lack of joystick waggling much more to his or her liking.

Incidentally, the programmer of *Kick Off* and *Player Manager*, the aforementioned gentleman referred to by the name of Dino Dini, is currently hard at work on *Kick Off II*, which in and of itself is expected to be ready in good time to cash in on the footie fever that is bound to surround the World Cup, which Holland is going to win (you heard it here first, folks).

But the prize for the earliest bid to cash in on this year's big sporting occasion goes to those monsters of budget, CodeMasters for *Italia 1990*, a £4.99 feast of footballing fun, or something. Ah well, we might as well get used to it sooner rather than later.

If by any chance you're not a footie fan I'd be inclined to move your ST into the cupboard under your stairs and move yourself in after it.

YOU CAN DO EVERYTHING

Reports of an ST multi-tasking package being developed in the US have been circulating for some time, though it appears it is, at least initially, to be aimed at musicians.

Apparently the program enables the user to have up to six separate programs running simultaneously. Don't hold your breath, though, for the program is unlikely to be seen on the European side of the Atlantic during this current year.

Steve Carey

PLAYING TIPS

VOYAGER

Before we go, just enough room to squeeze in a quickie *Voyager* cheat:On the option screen, type 'when the sweet April showers fall'. The cheat option screen should now appear. When playing the game, use F1 to go back a level, F2 to go forward, F7 to pause and F8 to show your position.

Also, on the option screen, you can press enter to call up an object designer where the arrow keys and keypad numbers can produce some very interesting results. Hit space to return to the option screen.

IMPROVE YOUR SIMS LIFE



• The Advanced Gravis joystick, featuring unique tension adjuster

A while ago I went to see Bob Sidgwick in Bristol to report for one of the *Express* sister magazines, *ST Format*, on the £200 Aerochopper, which might fairly be described as the ultimate flight simulator. It's a hand-held device used by fliers of radio controlled planes to practice on, and it enables the user to reproduce flying conditions on an ST.

The hardware feels and behaves exactly like the radio controller that is used to fly the plane itself. The beauty of it is that it lets the user put in simulated flying time without having to put his or her plane at risk.

Does it work? You bet – if I can learn to fly using it, anyone can! After a couple of hours on Bob's ST with Aerochopper I went out and, under Bob's expert supervision, actually flew a plane. It's a marvellous experience, and requires far more skill and precision than I'd imagined.

Anyway, the point about all this is that Mirrorsoft has now got involved, releasing *Falcon* and *Mission Disk One* in Aerochopper-compatible form. So now you can enjoy the ultimate flight simulation on the ultimate flight simulator.

And though it can hardly be thought of as a casual purchase, Bob told me that many radio-controlled plane buffs had bought an ST just so they could run Aerochopper! And that's not all, for I hear that another famous flying name is soon to become available in *Aerochopper* form. More on this when the story firms up.

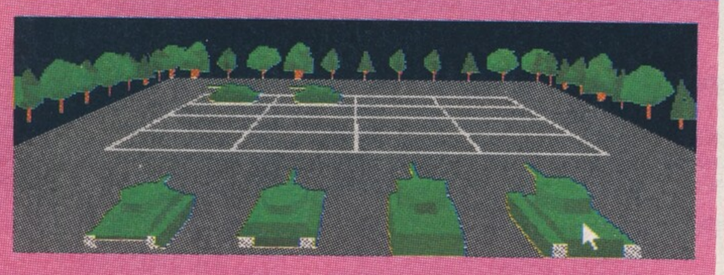
By the way if you're a flying freak and you don't happen to have 200 pounds in ready money, there is a cheaper way to improve your sims life. RC Simulations has begun importing the Advanced Gravis Switch Joystick.

It's a peculiar-looking object, as so many new joysticks these days are, with the special feature of adjustable handle tension with eight settings. The result is a choice completely slack right up to wrist-wrenchingly firm – with all points in between. It makes a big difference to flight sims such as *Falcon*. The Gravis costs £39.91.

For more information on either of these items get yourself in touch with Bob Sidgwick at RC Simulations on 0272 550900.

ST GAME of the WEEK

CONQUEROR



RAINBOW ARTS • £19.99

Several years ago a tank sim called *Conqueror* appeared on the Acorn Archimedes, but no one took much notice at the time. Now the game, written by David Braben of *Elite* fame, has surfaced on the ST – and it was well worth the wait.

When you see the screenshots of *Conqueror* the first thing to hit you is their remarkable resemblance to *Virus*. That's because the unusual playing environment designed by Braben and first used in *Virus*, reappears in this, his latest game.

Conqueror is a tank game with a difference. It doesn't intend to be a straight tank simulator but instead fuses action and strategy modes to come up with a fully-playable and long-lasting challenge.

The game is arranged in three levels – arcade, attrition and strategy. Arcade mode is a standard action level where you must move a tank around the battlefield, searching out other tanks and blasting them to smithereens. The keyboard is the best method of controlling the tank and a logical set of keys enables you to control the direction of the tank and dictate the position of the turret.

When you tire of the arcade level, you can move onto attrition mode which is a combination of action and strategy events. Here, you control one light tank, two medium and two heavy-duty. By conjuring up a map you can see the location of enemy tanks on the battlefield and send your tanks out to destroy them, putting some tanks into automatic mode and controlling one yourself.

Finally, there's the action mode. When you look at the map in this level, you can spot a large circle encompassing roads and a town. Using the same number of tanks from the attrition mode, you must move into this zone and capture the area for a full minute. In essence, this means ensuring that no enemy tank can breach the circle but with so few tanks under your command, it isn't always easy to fend them off. The answer is to spend much of the game blasting other tanks and amassing a large score which can be used to purchase other tanks and establish a stronger army.

There are few games as addictive or challenging as *Conqueror*. With the three levels, you are eased gradually into the game so that by the time you come to play the strategy mode, you are already experienced at controlling tanks and reading the map. As a result, *Conqueror* has a very high long-term interest value. Indeed, even if you're not a tank fan, you'll go mad playing *Conqueror*.

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MACHINE SPECIFIC COLUMN

SAMPLING SUCCESS

Microdeal's AMAS Amiga sampler has established itself as one of the top sound sampler systems available. Indeed, with its combination of high-quality sampling and comprehensive MIDI capabilities, AMAS has earned itself many friends throughout both the Amiga world and the music industry.

According to MicroDeal, AMAS is even used by Paula Abdul, who is considered to be one of America's top female vocalists. The sampler can be seen being used by Paula in her song *Cold Hearted* which is just one of the many songs on the video *Straight Up*, which itself is available from Virgin Records.

AMAS's master editing screen can be seen in full at the start of the video running on an Amiga 500, with the camera actually panning in onto the computer screen before eventually fading into Paula singing.

AMAS is available for £99.95 from MicroDeal, who can be contacted on 0726 68020.

C FOR YOURSELF

Learning to program the Amiga's Intuition windowing environment form a language such as C can be a long-winded, and often frustrating experience. After getting over the initial shock of learning the C language (which can be a barrel of laughs at times), the user is suddenly confronted with a multitude of complicated data structures and routines that must be pulled together to produce even the simplest of C applications.

For all you struggling C programmers, however, help is at hand in the shape of *The Amiga C Manual* from that prolific PD software programmer, Anders Bjerin. Anders has been responsible for several PD utilities and games including the popular *Car*, *Sys* and *Miniblast* games. During his time as a C programmer, Anders has collected together a wealth of information which he has now passed on in the shape of his latest project.

The first edition of the *Amiga C Manual* is finished and is being launched as a shareware product (registration fee £15). The manual consists of more than 200 pages of incredibly concise documentation plus 71 fully executable examples together with source code. All this comes on three disks.

The manual covers all aspects of Intuition including screens, windows, gadgets, requesters and the IDCMP (Intuition direct communications message port).

The Amiga C manual can be bought directly from Anders for £20 (registration fee + £5 for three disks) by writing to the following address: Amiga C Club, Anders Bjerin, Tulevagen 22, 181 41 Lidingo, Sweden.

PRINTER PROBLEMS SOLVED

Printers are one of the greatest sources of frustration with the Amiga. To ease the pain, here are a couple of scorching hints to help you get a decent graphics printout from an Epson FX-compatible printer. Thanks go to reader A Edmonds of Latchford in Warrington.

1. Check the current density settings within Preferences – if you are using density 1 or 3 then watch out because the paper type setting effects the line feed distance (thereby leaving gaps between lines). If the paper type is set to single, then the line feed must equal the number of dots printed minus one third of a dot.

The wrong value here can result in horrible horizontal banding, which can make your print outs look pretty awful! The best way of working out the ideal setting for your printer is simple – experiment.

2. Try checking the printing gap setting inside your printer. Don't be put off by having to delve inside your printer – the results are worth the effort! On the Star LC-10, this adjustment is carried out using a small lever located at the left-hand side of the metal bar on which the print head travels. If in doubt about its location, refer to the manual that came with your printer.

Adjustment can make a surprising improvement in print quality. I have found that the different density settings in preferences tend to require different gap settings to obtain good results.

3. Remember to use a white background colour or select 'negative' in Preferences in order to save your printer ribbon (not to mention your ears).

EDUCATING AMIGA

LCL, a leading educational software house, has announced the release of the first ever complete GCSE courses for the Amiga. These GCSE courses cover the three most popular GCSE courses, maths (*MicroMaths*), English (*MicroEnglish*) and French (*MicroFrench*).

Each takes the user step by step from about age eight years to GCSE level, and consists of 24 programs, two books and a voice tape. All three courses have previously been available for other machines, and have sold very well indeed with units being sold in 24 different countries around the world.

MicroMaths covers algebra, geometry, trignonometry (brings back some bad memories), statistics (brings back some even worse memories) and arithmetic.

MicroEnglish covers all aspects of English language and because of its voice tape, can also be used as an EFL course (English as a foreign language).

MicroFrench covers spoken French, vocabulary, verbs and grammar, and is suitable for travelers and holiday makers as well as students.

Each course is available for £24 from LCL on 0491 579345.

Jason Holborn

AMIGA GAME of the WEEK

INFESTATION

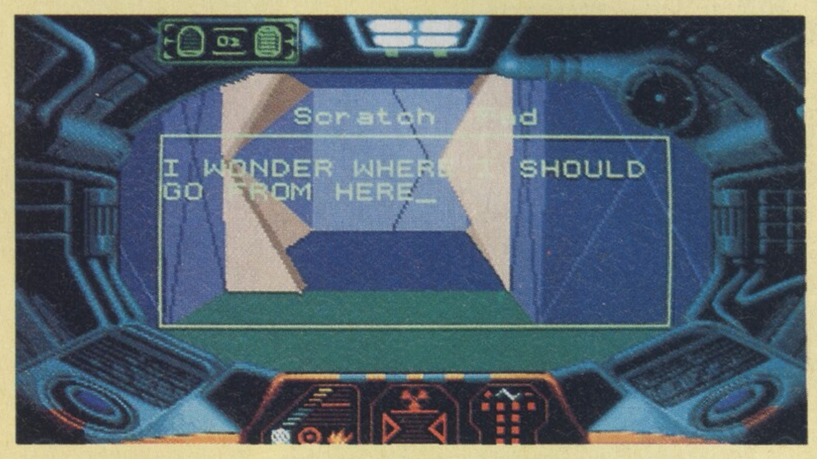
PSYGNOSIS • £24.95

It seems that everywhere you look these days there are games that have taken ideas from classic science fiction films *Alien* and *Aliens*. Psygnosis is the latest company to follow the trend with *Infestation*.

The plot tells of a scientific research station based on the desolate moon of Xelos in the outer reaches of the Galaxy. Intelligent and dangerous life forms have wiped out the crew and are using the base as a stepping stone to the invasion of other inhabitable planets.

The alien fighting force is waiting to hatch from eggs, which have been layed around the complex. You play Kal Solar, a mercenary soldier, in his mission for the Interplanetary Federation Governing Committee.

He must gain access to the research complex on Xelos and use cyanide cartridges to kill the eggs before they hatch. Throughout the complex there are all manner of dangers that Kal must watch for – changes in atmosphere, deadly guardian robots and decaying building-work to name but a few. There's no time to hang about though – take too long and the complex core will reach critical mass, which means goodbye Kal Solar!



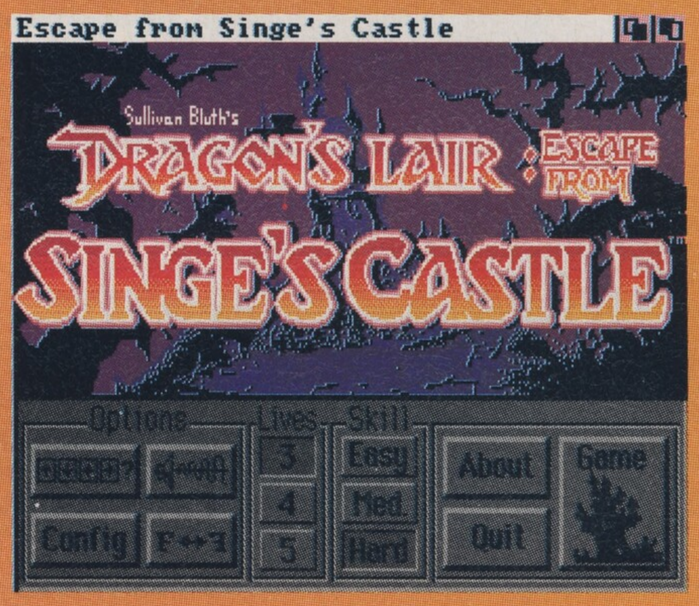
***Infestation* manages to produce a claustrophobic cyberpunk atmosphere, with its dark, oppressive scenery and tense sound effects. Filled 3D has rarely been put to better use on the Amiga, and the superb introductory sequence sets the feel for the game ahead.**

The atmosphere serves to draw the player slowly into an involved and fascinating science fiction adventure which should have players stuck in front of their screens for weeks.

Followers of alien-filled movies and dedicated futurists alike should try the delights of *Infestation* for themselves, they will find plenty here to get the old teeth into. Good fun, and very playable.

Maff Evans

SINGE STRIKES BACK



Fans of the original *Dragon's Lair* game will be pleased to learn that Visionary Ltd of Rockville, USA has released a follow up in the shape of *Escape From Singe's Castle*, which sees the hero of the first game, Dirk the Daring, once more attempting to save the beautiful princess Daphne from the clutches of Singe the Dragon.

Unlike its predecessor, *Escape From Singe's Castle* will both multitask and run happily on a 512K Amiga. The original was also criticized for the amount of time it took to load each screen; thankfully Visionary has fixed this problem with the implementation of new burst loader technology that knocks the loading time up to 10 times faster than the original.

To make things slightly easier, *Escape* includes a hint option that will draw arrows indicating which direction the joystick must be moved during the game. New screens included in this latest release feature the Lizard King and Mud monster.

PLAYING TIP

DRIVIN' FORCE

Load the game as normal and once the title screen appears, use the mouse pointer and left mouse button to click on the dots above the 'i's in the word "Drivin".

Once you have done this, start to play the game as normal but once the game starts up, press the HELP key. From this point onwards your vehicle will not fall off the hills. Notice that the words 'You Cheat' will appear on all countries when the main world map screen is displayed.



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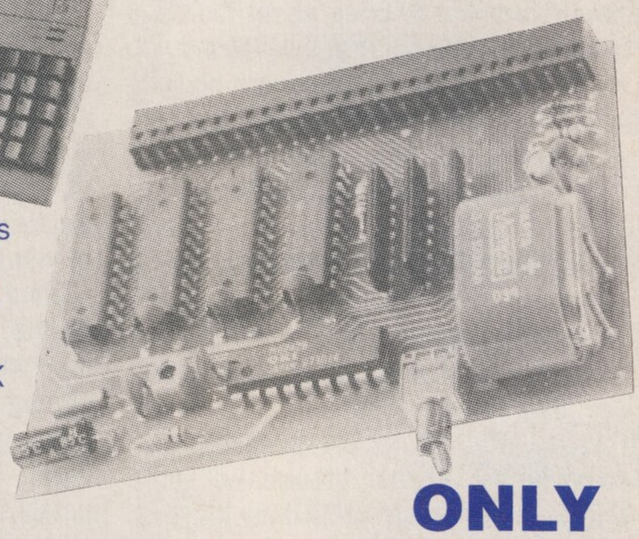
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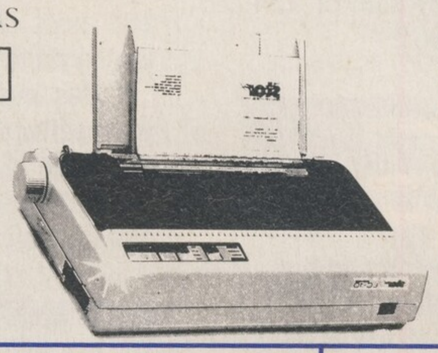
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SPECTRUM

SPACE BABIES

Who said sequels can't be better than the original? OK, so just about anybody who saw *Ghostbusters II*, *Back to the Future II* or *Son of the Flesh Eating Zombie Tomatoes from Zorch* did, and loudly. But in the case of Grandslam's recent follow up to Elite's original *Space Harrier*, any such comments would be down right nasty as well as untrue.

Yes, *Space Harrier II* is a sequel worthy of the original and, although the years since the first one came out haven't seemed to bring about the huge advancements in graphics or sound you might expect, the 3D monster blasting action is even more frantic and life endangering this time around.

Of course, if the rather bizarre concept of controlling a hovering hero, viewed from behind, and blasting a large range of alien baddies as they fly towards you didn't appeal when the first *Space Harrier* came out all those aeons ago, then this won't either.

Those who wrote off countless joysticks on the original, though, will find a brand new challenge when they buy this. Grandslam should be offering, at much reduced rates, a darkened room to lie down in after play.

CALLING ALL EDS

A few years back it seemed like every Speccy owner worth his rubber keys and dodgy power lead was hidden away in a back bedroom somewhere, putting together his own fanzine.

Alas, the alternative publishing sector has slowly dwindled until now only three or four titles turn up for a regular inspection. A rum state of affairs, I'm sure you'll agree.

So if you edit, contribute to, or read a fanzine which covers the Spectrum and fancy an increase in readership, prestige and photocopying bills, send full details to me, Robin Alway, at *New Computer Express*, 30 Monmouth Street, Bath BA1 2AP.

Furthermore, I know I keep ranting on about public domain software for the Speccy, but it is for your own good. I'd never forgive myself if you missed out on a constantly-expanding source of free, or ridiculously cheap, software that you can copy and distribute among fellow Spectrumers without fear of a dawn raid from the boys at FAST.

Anyway, I bring the subject up yet again because I've just received the latest list of tempting PD treats from The Speccy Sector.

From a starting collection of 15 programs, the library has grown like a horror film monster and, at last count, had an impressive total of 65 titles on offer. Basically, if you don't find one piece of PD that interests you from The Speccy Sector's range, you're either not trying or just being thoroughly unreasonable.

Chief librarian Owen Brown is making all the PD on his shelves available for the price of an envelope and return postage only, suggesting he's a lot more generous than the librarians you meet in more traditional, book-filled establishments.

So, if you want to see the kind of program that resides in the Spectrum public domain send an SAE for a list to 1 Roxwell Road, Chelmsford, Essex CM1 2LY. Owen tells me it's all Coupé-compatible as well.

Moreover, Global Games has got a few new releases out for your delectation. *The Limehouse Mystery* is a 48K adventure that expects you to recover a Byrrium Accelerator which a dastardly chap called Dr Sin has stolen, and charges you £1.99 for the privilege.

Global's other new adventure, *Survivor*, has an eco-disaster plot with the object of the game being to escape the floods that have flooded the world. Again, it costs £1.99 and, as with *The Limehouse Mystery*, is incompatible with Plus 3 and Plus 2A Spectrums.

Global Games resides at 4 Kilmarton Lane, Carluke, Lanarkshire ML8 5RT.

Robin Alway

COWBOYS AND INDIES

The supply of home brewed Spectrum software seems to be on the increase and now drops through my letter box with almost bill-like regularity. But the sparse, photocopied instructions and humble packaging of indie software makes a change from the fridge-sized boxes and thousand-page novels that come with professional products.

The latest piece of grown-at-home software I've received is from Vinsoft – a pretty enterprising outfit by all accounts – with three games already jolted into life and loads more planned for release this year.

The free sample of Vinsoft's wares that I received just two mornings ago is entitled *Spi Droid*, the latest maze/platform extravanganza. The idea in this one is to guide a rather basic-looking droid through lots of trecherously-designed screens in a game not dissimilar in structure to that elderly 10p-guzzling arcade brontosauraus – *Marble Madness*.

Unfortunately, it's pretty much unlike that old classic, both graphically and also in terms of addictiveness. While it's not badly programmed, the jerky scrolling and unresponsive controls provoke swear words and, even compared to your average, run-of-the-mill budget effort, it looks somewhat unprofessional.

However, the actual game design is sound enough and the whole thing proves surprisingly addictive although maybe not quite to the point of justifying the £2.99 price tag. Still, if you fancy checking out the underground world of independent Speccy software, this wouldn't be a bad place to start.

***Spi Droid* costs £2.99 from Vinsoft, 11 Willow Grove, Bare, Morecambe, Lancs LA4 6JJ. If you want more details on any of Vinsoft's games which include boxing and grand prix strategy simulations, heave an SAE in the right direction.**

PCW

LET THIS BE A WARMING

It seems amazing that, despite being warned of the dangers of the greenhouse effect every day on TV and in the newspapers, greenhouses are still openly on sale and people are still buying them. Doesn't anyone care about the environment anymore?

Anyway, ecological types can now enjoy a new game that doesn't involve the usual activities of shooting things. *Green*, from Classic Software, urges you to save the rainforests by sabotaging the effects of the lumberjacks.

At £12 this new offering is great value and fun to play – if bewilderingly fast to begin with. Details can be had from 12 Manor Drive, Stewkley, Leighton Buzzard, Bedfordshire LU7 0JE.

RIDICULOUS LINK

Unlike the Arctic fox, the polar bear and people who can't swim, accounts packages are not species endangered by the greenhouse effect. In fact, the latest addition to the accounting pack is *Total Accounts* from Derek Rogers Computing of Glasgow.

It covers invoicing, sales, purchase and nominal ledgers, and has been designed for ease of use – all data is checked on entry. The Amstrad Professional User Group has called it 'astounding', hopefully for the right reasons – the package costs the tidy sum of £84.50. Details on 041-334 8902.

SPACE TRAVEL

If you find your disks fill up too quickly, here are two tips on getting the most out of your disk space:

1. Try keeping any letters to the same correspondent in the same file. Add new letters on to the end of the existing letters in the same document as follows.

Edit the file and go to the end with `[SHIFT] [DOC]`. Go to a new page with `[ALT] [RETURN]`. Now press [f1] (*Loco* 2) or [f7] (*Loco* 1) and 'Insert file'. Give the `TEMPLATE.STD` as the file to insert.

Back in the main file carry on as usual. When printing, choose 'Print some pages' and just print the relevant section. This saves space and has the advantage of letting you easily look up what you wrote before.

2. Old files that you only need for archive or backup purposes can be stored as ASCII. This loses all bold, italics etc, non-alphabetic letters and layouts, but saves you loads of space. Use [f1] from the disk manager, ([f7] *Loco 2*) select 'Make ASCII file', give a name and choose 'simple text'.

Then erase the old version. To view the ASCII version, create a new document and 'Insert text' ([f1] *Loco 2*, [f7] *Loco 1*) giving the ASCII file as the one to insert.

AND FINALLY...

Ever spilled coffee on your keyboard? If it doesn't work afterwards, the solution may be to put the keyboard in a bucket of water and then dry it out. No, this isn't a premature April fool; I have it on good authority from a number of correspondents who swear they cured their sticky keys like this. I haven't tried this myself and would recommend it only as a last resort – but there it is anyway!

Rob Ainsley

MSX

LETTERS

It's about time that I answered a few letters, several of which deal with the apparent lack of MSX software stockist, particularly in the north and north east of fair old England.

A Mrs Ivey of Consett, Co Durham has searched high and low in the Tyneside/Durham area, and has been unable to find a stockist of MSX software. This is also the case in Blackburn, Lancs, according to Dr Tunde Gbolade.

I have had many more letters from MSXers in these areas who find the same sorry state of affairs. It's not as if there is a shortage of MSX software, because to my knowledge there are at least 100 titles still currently available.

If you live in any of these areas, and know of a stockist of MSX software, can I beg you to write in to the MSX column in *Express*, and I will add these stockists to my list. In the meantime, it appears that these MSX users in the North will have to use the excellent mail order facilities that companies such as Tavistock Hi-Fi, DL Chittendens and Capri Marketing have to offer.

The aforementioned Dr Gbolade also asked in his letter if I could recommend a colour printer for use on his Pioneer PX/7 computer. As I have never used a PX/7 I am sorry to say that I have no idea which type of printer is supported by the software you are using for titling, but most programs support MSX and Epson printer standards.

If this compatibility is the case with your software, I suggest you try out the excellent Star LC-10 colour printer, which offers exceptional value for money and Epson compatibility.

AND MORE QUESTIONS

You're going to have to wait another week for more pokes from the Shadow Weaver, because this week I am going to answer a question of his. He asks if I can explain how to input pokes without the software overwriting them.

Well, Weaver, most pokes, particularly short ones, can be inputed before the game is loaded. For example, on my MSX 2, to make some MSX 1 games work, I have to first type in the poke -1170. I then load the tape in the usual way. This will not work with disks that auto-boot, as a reset is needed after the poke, and this clears the memory, and removes the poke.

If a longer poke is needed, and you find it a chore to type it in each time you wish to load a game, make up a short program which contains the poke statements, and make the last line of the listing a command to 'LOAD' the game you wish to play. Here is a short example ...

```
10 rem * MOLECULE MAN POKE *
20 SCREEN 0: KEYOFF
30 PRINT:PRINT" ** LOADING **"
40 POKE 38379,0:POKE 38384,0
50 RUN"CAS:"
```

Save this program to tape, using `SAVE"poke:"` and load it into the computer before you load in the game, using the `LOAD"poke:"` command. The above program will auto run, and line 50 will load in the game.

I would normally enter pokes this short in direct mode, but the example serves.

Keith Neal

CPC

DRIVING AMBITION

Ocean's toughie *Chase HQ* has, it seems, a built-in cheat. All you have to do is re-define the keys as S,H,O,C,K,E,D, and 'TEST' will appear at the bottom right. While you're playing you can now simply press '1' to restart the level, '2' to move to the next level, '3' to see the end game display (only if you're too weedy to do it the hard way), and '4' to get an extra life.

VIRGIN GOES GUNNING

OK, so you've got your snazzy new Virgin/Mastertronic lightgun – now all you need is something to shoot! And Virgin has obliged, with three budget releases you can play either with your weapon or off the keyboard.

You see each of these games is recorded on both sides of the cassette. Side A contains the lightgun-compatible version, side B the conventional keyboard offering.

And at only £1.99 apiece, can you go wrong? Well, er, yes you can, actually...

Billy the Kid , for example, looks perfectly cut out for release on Lightgun format. After all, what better game for a gun-toting gamester?

First of all, though, you have to practice your shooting skills. I mean, you can't just pick up a gun and go robbing banks and holding up stagecoaches willy-nilly, you know. No, you've got to be able to shoot straight, first. Which is why you have to hit the required number of bottles on the first stage.

Amass enough points, and you get to try your hand at bona fide bank robbing. Unfortunately, things go wrong, and you have to shoot your way out...

Get through that stage, and you must face the sheriff in a final showdown. You stand back-to-back, take five paces, turn – and shoot. Which is why all that target practice at the start was such a good idea...



• Wanna be an outlaw? First you gotta learn to shoot straight.

Billy the Kid is a pretty obvious Speccy port, but it doesn't look bad for all that. Graphics are unambitious, but they do the job. The only real criticism is the gameplay – or lack of it. Still, it'll keep you occupied for a couple of hours on a wet Wednesday afternoon.

Which is more than can be said for *F-16 Fighting Falcon*. It's a rear-view flying shoot-'em-up that looks more like *Afterburner* than *Afterburner*. So far so bad (depending on what you think of *Afterburner*, that is).

The worst of it, though, is that you control your aircraft by shooting it! Land a slug in the right place and you can make it perform a quick evasive move to get out of the way of an attacking plane/tank, etc.

But when you consider that you're



• Shoot the bad guys. Shoot your plane. Shoot everything in sight.

shooting at them as well, the whole thing becomes ever so slightly indiscriminate. It's tempting to just sit there waving the gun around and shooting everything on sight. If you hit the bad guys – good. If you hit your own plane...

After that little airborne outing, you could be forgiven for thinking that the third in Virgin's trio of budget Lightgun releases would have to be better. Well, wait no longer, because it ain't.

American Turbo King is an overhead-view stunt car race where you have to guide your motor across hazard-infested territory, negotiating ramps and belligerent attackers all the way.

So how do you control a car with a lightgun? Well, after playing *Turbo King* for half an hour I still couldn't tell you. The idea is that you steer by shooting at two arrow icons on either side of the screen. You can select forward or reverse by shooting at your car. The packaging says to 'be merciless –it's the only way to survive'. If you ask me, it should be 'play the keyboard version –



• You're lined up with the ramp now, so DON'T TOUCH THE CONTROLS.

it's the only way to control the ?!*&er!'

Still, at only £1.99 apiece, and since you get a keyboard version too, well... yes, OK... they're really not too bad.

SCHOOL'S IN!

OK, so we all know what a wonderful machine the CPC is for playing games on. We all know what a wealth of darned good serious software there is out there, too.

But have you ever thought of your CPC as a serious educational tool? Well, maybe you should start.

Apart from the obvious commercial successes like the *Fun School* series, a lot of specialist educational suppliers are now writing for the CPC. That moth-eaten old relic – sorry Andrew – er that fine mainstay of educational computing the BBC still gets the lion's share of new releases, but other micros – including the CPC – are catching up.

Rickitt Educational Media is the UK largest distributor of educational software, and it has a list of 250 CPC titles! These include Mirrorsoft's *First Steps* with *Mr Men* for 4-8-year-olds, *Physics I* from School Software for 12-16-year-old Einsteins and *Renaissance Europe* for 16-plus-year-old history students.

Rod Lawton

C64

OUT ON LOAN

We've all become familiar with the idea of renting video tapes, but what about software tapes? Now for Commodore 64 owners the software library has arrived in the form of a company calling itself Ace Software Library.

As far as I know this has nothing to do with *ACE*, the magazine. Tapes are charged out for a fee that ranges from £1 to £1.50, (with another 50p for disks) on a seven-day hire basis, and there's also a generous helping of software and hardware discounts, which are no doubt advertised in the Ace Software Library monthly newsletter.

For a free catalogue send a stamped, addressed envelope to Ace Software Library, who live at 14 Chippendale Court, Finaghy, Belfast BT10 0DU.

OOPS!

Slight error in *Express* 63, in the program listing for that week. Line 20 should have read:

```
20 POKE 49152+N,A:N=N+1:GOTO 10
```

and the first data statement in line 30 should have been a 238 and not what was printed.

I've checked my original file and found that I had got it right! Makes a change, I know. Anyway, thanks to Stuart Monteith for pointing this out to me, but then he should know because he wrote the program in the first place.

COUNTING THE PENNIES

For the many fanatical followers of *Defender of the Crown*, a few helpful POKEs from an unknown person from Guildford. (If A Grue is a real name then he or she should sue Infocom and get in touch with the 'real' Grue in Ormskirk).

Each of the following POKEs affect the price of the item named after them, so put in whatever you feel like. 0 is acceptable as a price, by the way. So:

```
POKE 7189,price of soldier:
POKE7190,price of knight:
POKE 7191,price of catapult:
POKE 7192,price of castle.
```

FAST REPAIRS

If you're the sort of person who suffers withdrawal symptoms when you are deprived of your C64 for more than 48 hours, then panic no more. A company in Wigan promises a 24-hour turnaround by post of any damaged C64.

It only does this rapid turnaround on 64s, by the way; readers straying over from other columns may have a longer wait. The standard charge for an ailing computer is £25 (including fully-insured return postage, but not covering peripherals) and the people to write to are Hindley Electronics.

The company resides at 97 Market Street, Hindley, Wigan, Lancashire WN2 3AA, or give a call first to sort things out on 0942 522743.

ADVENTURERS UNITE!

Adventure fanatic Martyn Westwood has decided to form his own company, Interactive Technology. For details of software to date, write to PO Box 146, Sheffield S13 7TY.

Pete Gerrard

YOUR FORMAT

PC 10
ST 12
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QL

FORTH

One language I haven't mentioned in this column is Forth. Forth was invented by one Charles Moore as an efficient way to control a telescope – moving it around, switching filters in and out and so on.

Moore developed the languages in the good old days when most minis and micros had 16K of RAM, maximum. Forth is a very compact language, and Forth programs are extremely compact, owing to the use of 'threaded code' – the program is transformed into a set of sub-routine calls.

One writes programs in Forth by defining 'words'. Once a Forth word has been defined, it effectively becomes part of the language – Forth is 'extensible'.

Owing to the use of threaded code, Forth programs run quite quickly and, if programs need to be speeded up even further, in-line assembly language can be used, as with BASIC on the BBC.

For several reasons, Forth has never been particularly popular. Perhaps its biggest drawback, as far as most programmers are concerned, is its use of a stack in conjunction with Reverse Polish arithmetic notation.

Thus, to add two numbers you have to push them on to the stack, followed by the addition operator. The sum of the numbers is now on top of the stack and may be printed, or used in another calculation. To give you some idea of what Forth looks like, the following statement creates a new Forth word called 'add1', which adds 1 to a number and prints it:

```
: add1 1 + . ; [Enter]
```

The new word is used as follows:

```
5 add1 [Enter]
```

printing '6'.

Forth is one of those languages that you either love or loathe. Forth aficionados does claim that they can write an application in Forth in a fraction of the time it would take using one of the more conventional languages.

A good implementation of Forth is available for the QL from Digital Precision. SuperForth was written by Gerry Jackson (who also developed DP's Small C compiler) and costs £39.95.

The good people at DP can be reached on 01-527 5493.

John Torofex

68008 CONTROLLER

Leon Heller has designed a simple 68008 system which can be connected to the QL via a serial port. Using about 10 devices and, with its own EPROM programmer, it is ideal for learning about 68000 hardware. Software can be developed on the QL, and downloaded to the controller, for testing and debugging.

The prototype system was built using wire-wrap techiniques on a single Eurocard (160mm x 100mm) and cost less than £40. Details will be published in the QUANTA newsletter.

BBC

GENIE DOES

Confusion, exhilaration and frustration. Everybody who has ever used a computer for their work goes through the same three stages. You start off cautiously, not sure what to do. Then you master the machine, and suddenly you can do everything. Finally, you seem to spend all your time waiting for the computer to finish some small task. A familiar story to most people, but what can be done about it?

The simplest way is to buy a faster computer. But another, cheaper, route is to get more out of your present hardware. One way is by switching from program to program with no waiting. On IBM or Macintosh cornputers many such programs, called respectively TSRs and DAs (terminate-and-stay-resident and desk accessories) exist.

Three components are necessary: an area of memory set aside for the new program and its data, a way of switching to that program, and a method of returning the computer to its original state when finished.

On the BBC two out of three are fairly easy, but finding enough memory can be a problem. Genie from PMS is a solution. Coming with its own 64K of battery-backed RAM, it's an address book cum diary cum notebook. Cousin to Genie is Genie Junior, but I would not recommend it unless you have the Challenger RAM disk to reduce access times.

Another practical application is screen dumping; notable products include Screenprint and Colour tool. You could try *Anchor*, available from Argus Specialist Publications.

A word of warning – although these programs are legally written, many BBC programs are not. Compatibility checking is therefore strongly recommended.

Following on from the above comments about compatibility of programs for the BBC, here are steps you can take to avoid some common problems:

Program expects 'page' to be of a particular value.

Solution, add a small routine to check 'page', then download the main program in memory.

Program uses keywords only supported by BASIC II.

Often occurs when opening files an gives a 'No Such Variable' error in BASIC I. You should re-write using BASIC I keywords – best to acquire BASIC I for testing purposes.

Program runs out of memory – a particular problem for owners of the Electron model.

Try switching to a lower mode, or load and run the program in parts. As a last resort, you may use some of the memory allocated for tape or print buffers.

VETERANS DELIGHT

The end of the Master 128 has been widely predicted (even by me). But nothing has yet been announced by Acorn. So could it be that the old warhorse will carry on for some time to come? Let's hope so.

Andrew Brown

XE

COMMS CAPERS

I hope you've all logged onto The City by now and experienced the thrill of finally discovering a bulletin board written for, running on and supporting the Atari 8-bit. By the way, as well as the V21/V23 speeds (300/300 and 1200/75 respectively), The City also supports V22 1200/1200, which increases the efficiency of file transfers and scolling on-screen text by leaps and bounds. Once you've used V22, you'll never go back to 300/300 baud communications.

If you haven't logged on, perhaps I ought to tell you about some of the goodies that await you. Product news, hardware and software reviews and programming sections make up the some of the most interesting 8-bit sections this side of page 6. There's a post box to enable you to send E-mail (electronic mail) to other users and a 'pub' where you can let off steam about the 8-bit and its lack of support and the generally poor state of the computer industry.

A support line offers a helping hand when needed, and there's a bulging public domain software section where you can download everything from word processors to programming and communications utilities. And of course, there's the Antic's Roadshow section, where you can make – almost – direct contact with me. A special mail-box in this section enables you to tell me what you'd like to see in column (or tick me off about things you *didn't* want to see).

Next time, I'll describe the equipment needed for accessing the comms world.

Edmund Blake

ARCHIMEDES

SECOND IMPRESSION

I've held back from commenting on *Impression*, the document processor from Computer Concepts, as the version the company supplied last autumn was very much pre-release.

But just last week CC sent in a more recently released version of the product, which on first look seems still to have some problems.

First you should know that the system I'm running it on is not ideal. Although CC makes much of the fact that the program is entirely ARM-coded, therefore small, and therefore quite suitable for a 1Mb Arc, it's really less than happy with that amount of memory.

My machine has a second floppy – 5.25-inch – and between the two there should be ample disk storage for small documents. The program needs a three disk start up, with the program and drivers on one disk, fonts, font manager and system folder on another, and the document on a third which replaces the program disk once it is loaded.

This all works pretty well, though you also have to increase the font cache allocation to around 128K or every redraw forces the program to re-read its fonts from disk, which is painfully slow. There still seem to be a lot of errors coming through from the program, all neatly handled in RISCOS alert boxes. However neat and witty the messages, though, too many force a re-start.

The main problem is in getting any output from the LaserJet driver supplied with *Impression*. The program has the very useful facility to reproduce more than one page on a sheet of paper, ideal for draft prints, but even on a one to one basis, things are not good.

The program seems to create a small part of the page image on the printer, but then starts sending straight ASCII characters – around 10 of them per sheet and an awful lot of sheets. Unless you want to complete the destruction of the Scandinavian pine forests, all you can do at this stage is abort the printing.

Computer Concepts technical support line runs from 1pm to 5pm only, and the deadlines on this column mean you'll have to wait a week for the next exciting instalment.

MAKE MINE MONO

The *Impression* manual, which is an excellent and helpful guide by the way, makes several good points about the choice of monitor for DTP. It starts by stating that multisync monitors are a good deal better than the medium-res Acorn-style units.

It then goes on to point out, though, that a mono multisync sports several and distinct advantages over some of its colour counterparts.

Not only can it display all the modes the colour unit can, but the picture will be sharper – only one electron gun instead of three – and it's likely to cost about a third of the price.

Personally, I'd go so far as to recommend a NEC Multisync GS, which is a full grey-scale unit and can be picked up for around £120.

ULTRA IMITATIVE MACHINE

***UIM*, from Fourth Dimension, promised to be one of the best games to date for the Arc. It is certainly a massive game, with many thousands of underwater ports to visit, and numerous enemies to sink. But methinks the scenario was changed at a late stage to try and make it a little bit less like *Elite*. And, unfortunately, it hasn't worked.**

Indeed, the game is very like *Elite* – it involves trading, flying and shooting at things, it has similar controls and the playing screen with its forward view and 3D scanner beneath is a dead ringer for Braben's space game. That's not to say this new offering is bad – just that the rejigging is rather transparent.

And the effects don't have Braben's flair, either. The stars – or are they bubbles – are all square, the other ships, while solid, are rather sluggish and you're left feeling that there's little new here. If you liked *Elite*, I'm sure you'll be interested in *UIM*,.

I cannot guarantee that you'll love it, though. At any rate, the good people at Fourth Dimension can be reached on 0742 700661.

FONTS DEFERRED

Yes, I know I said there would be more about the Font Foundry's fonts this week. But, I am dreadfully sorry, but the company hasn't sent them in yet.

Bertrum Carrot

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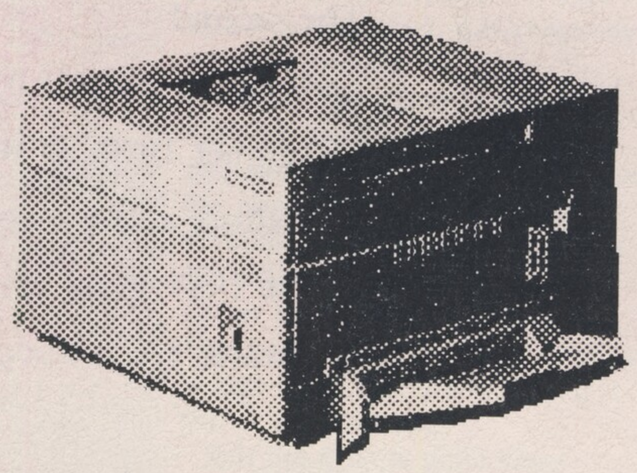
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▼ Manual needs a better index

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▼ No automatic reflowing of text
▼ Relatively slow and unfriendly

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▼ A little expensive

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▼ Editing is peculiar

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▲ Easy to use
▲ Established program
▲ Easy editing

▼ Price

● VIRTUOSO
The Digital Muse/Audio Software
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A new all British program having its first outing this year. Initial reactions are favourable and it has many things in its favour. It has all the features that are available on much more expensive packages and still remains quite easy and friendly to use.

▲ Very fast – thanks to re-writing of screen management
▲ Very accurate
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▲ Many excellent features

▼ New and therefore untested in the general market
▼ Price

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▲ Suitable for beginner
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▲ Controls internal sound chip
▲ Good if you want to control MIDI via data

▼ Editing not too easy
▼ Quantize limited

● EZ TRACK PLUS
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▲ Good price
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▲ Compatible with Hybrid Arts EZ Score
▼ Limited on editing and quantizing

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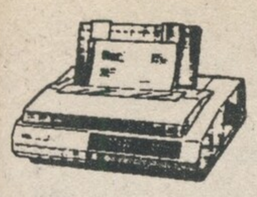
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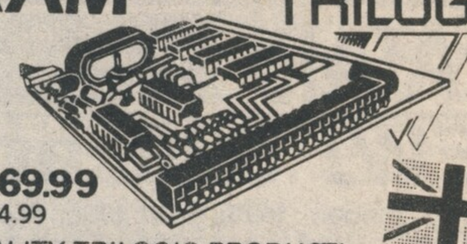
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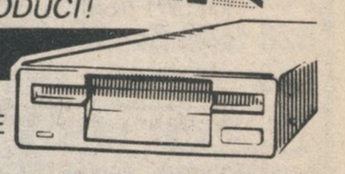
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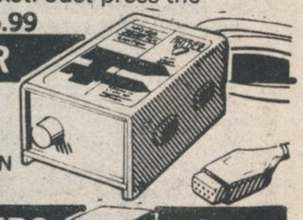
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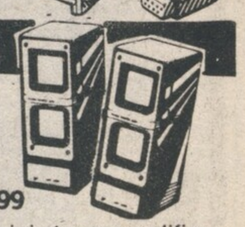
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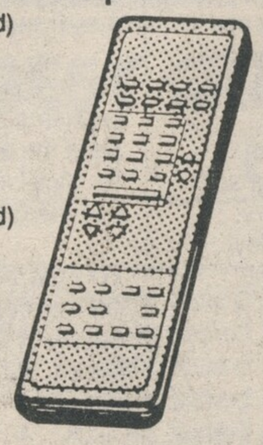
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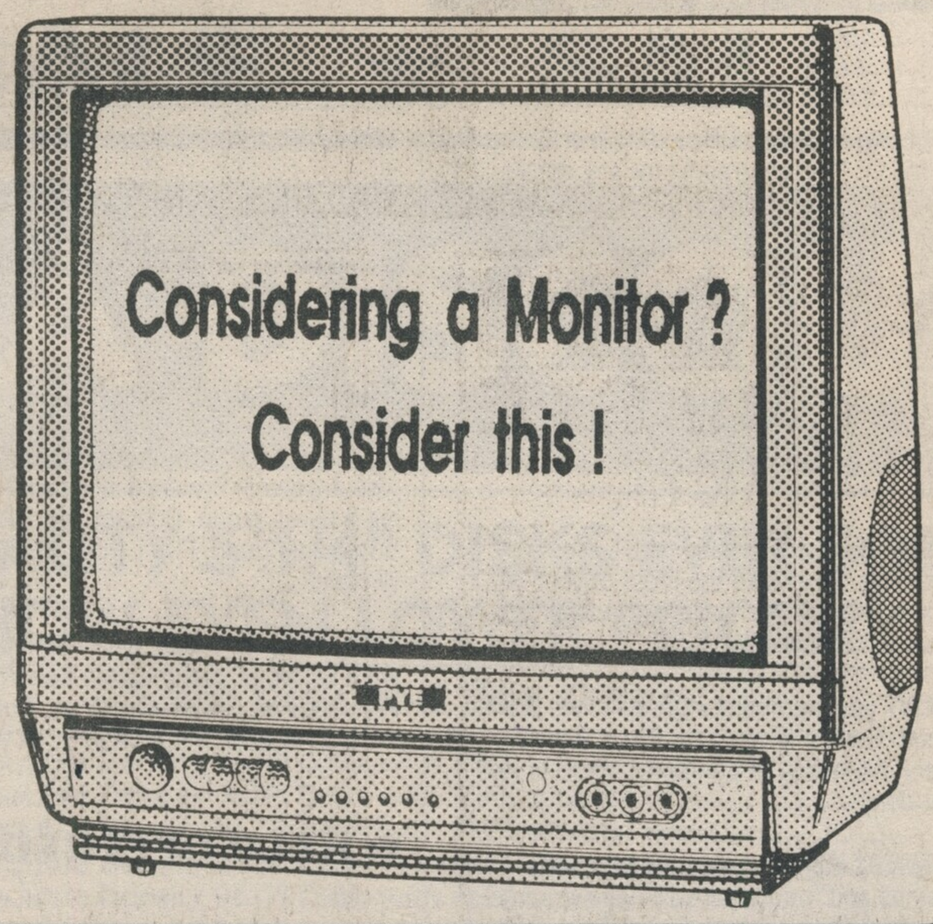
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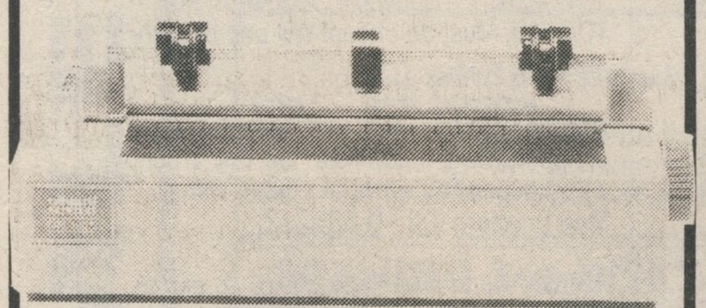
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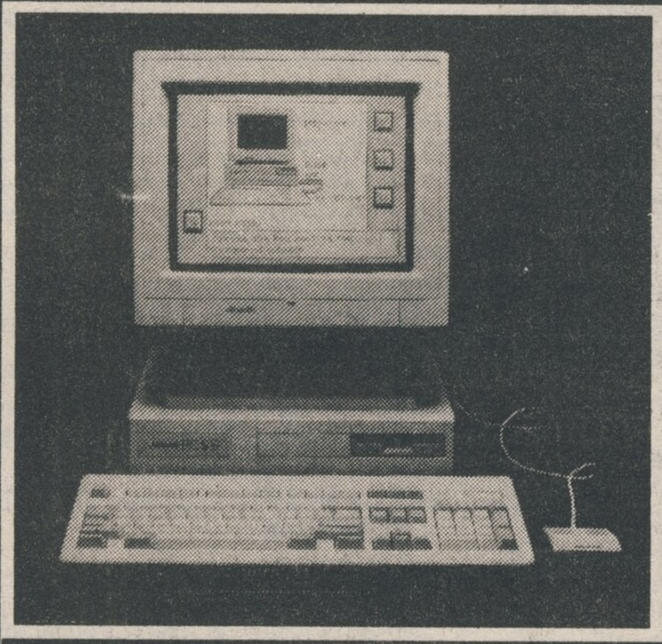
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AMIGA contacts wanted. User Group, demo's etc. Cheats disks. List sent. Send S.A.E. to Steve Hayward, 29 Effra Road, London SW2 1BY. 100%.

AMIGA contacts wanted: Write to Danny, 5 Beckside North, Beverley, North Humberside HU17 0PR. Send disk or letter, 100% reply posted next day. Also Amiga cheats disk for sale £2 each.

AMIGA contacts wanted to swap latest stuff, must be fast 100% reply, send list etc. R Hadden, 17 The Rise, Norhawram, Halifax, West York. or tel (0422) 206614.

AMIGA newcomer, contacts wanted, usual stuff – swap games, tips etc. Where do I get cheap disks? Write to Kev: 20 Cypress Avenue, Ellesmere Port, Cheshire LG6 2UU.

AMIGA owners in Nottinghamshire! Please mail details to help create a local user network. S.A.E appreciated. Replies guaranteed. Be patient! Mansfield A500, 4 Poplar Street, Mansfield Woodhouse, Mansfield, Notts NG19 9LB.

AMIGA owners in South East (Essex) wanted to start free! Club, with regular meetings. Write now to Neil, 53 St Marks Road, Canvey Island, Essex SS8 9NJ.

AMIGA users contact Andy at 80 Central Drive, B'Pool, Lancs, FY1 5QD, England to get demos, utils, tips for the Amiga!!!

AMIGA users group. Every Thursday night in South East London. All welcome, beginners, male or female, also wanted. Programmer to help with club. Contact: Alan, 01-708 0146.

ANY computer users who use Klaver Music Notation interested in forming/joining a user group; ring Mike on 01-520 5223.

BBC contacts wanted to exchange software, hints, tips etc. All letters replied to, write to K. Scotney, 17 Cromer Avenue, Burley, Lancs BB10 3HA.

BOURNEMOUTH and POOLE Atari User Group. Support for 8 Bit and ST. Monthly meetings. Membership £8.00. Quarterly Newsletter 8i16, £3.80 four issues. Details write to: 248 Wimborne Road, Oakdale, Poole, Dorset.

CALLING all hackers anyone interested in setting up a society write to me, Whizz Kidd's and hardware freaks welcome, all letters answered and treated in strictest confidence.

COMPUTER Student Contacts Wanted. Write to A. M. Drewett, 37 Longdon Ave, Aylesbury, Bucks HP21 9UW.

DISK magazine for Amiga freaks. Send Submission on disk to: Arthur Wyatt, 68 Shefford Road, Meppershall, Shefford, Beds. Submission disks get returned with magazine on, blanks returned as blanks.

FAST Amiga contacts wanted, repeat fast! Send Discs or Letters to: Andy, 35 St Annes Drive, Aylestone, Leicester LE2 8HU.

GWYNEDD, N. WALES. ST User Group. I want to get in touch with all local ST Users to form a new group. Contact S. Rammerling, Clogwyn Plas Gwyn, Pwllheli, Gwynedd, N. Wales, LLS 36UA.

HYPERPAD – interested in forming a user group? SAE to Dave Langstaff, 78 Harrison Road, Swaythling, Southampton, SD2 37J.

IF You want to spread your groups in Asia. Send your latest + your demos to: Tariq, P.O. Box 3581 Safat, 13036, Kuwait. 100% reply, Amiga Only. Also will swap spot.

INTERESTED in joining a Kick Off League in London? With trophies for winners? Contact Ray at 30 Windsor Crescent, Wembley Park, Middlesex, HA9 9AW or ring 01-904 0555 between 6pm-11pm.

IS there a Clipper/DBase 3+ User Group in London? I will be grateful for any details. Guy Ellis, 23 Sussex St., Pimlico, London, SW1V 4RR.

ISLE OF WIGHT PC User Group. Anybody wishing to join should contact I.O.W. 0983 614277/614649 and ask for Sean.

JOIN CMUG the best Christian Micro Users Group. S.A.E. please to CMUG, 15 Howard Street, Gloucester GL1 4US.

JOIN the first free national ST user club. Register now! Make the most of your ST. David Dean, 5 Alpine Drive, Hednesford, Cannock, Staffs, WJ12 5NL.

KENT youth computer group at the Bowen Youth Centre, Kingsnorth Road, Ashford, Kent. All makes of computer. Write to Kris for details.

LAMER? Want to swap software, tips, demos and form a Lamers against Lamers Society? Then contact, Faisal Patel, 73 Track Road, Batley, W. Yorks, WF17 7AB.

LIST the low income ST User Group for students and the unemployed send two blank disks to Marcus, 9 Days Green, Chapel Street Mary, Ipswich, Suffolk IP9 2HZ for details.

NINTENDO contacts wanted for swaps and setting up of User Group! Write to: Ashley Middleton, Amberley, Park Drive, Little Aston Park, Sutton Coldfield, B74 27A, 100% reply.

PC200 user I think it's OK! Did you buy the other one? What do you think of it? Give me a ring 0432 266451 Neil.

PCW Users Interested in P.D. send S.A.E. to: PCW-File, 18 Sunbrow,Haslemere, Surrey GU27 2QP. The PCW-File is on Boog BBS 0252 626233, 24hrs, V21/V23. No Fees.

READ this now! Amiga contacts wanted to start a group or just swap stuff. Contact Phil at 52 Altofts Lodge, Drive Normanton, West Yorks WF6 2LD. No lamers!!!

SCOTTISH QL Users Group. Your chance to meet other QL and Thor users north of the border. Contact Alan Pemberton, 65 Lingerwood Road, Newtongrange, Midlothian, Scotland.

SHARP users. Sharp users club, any model. The only one left for full support. Andrew Ferguson, 11 Harcourt Close, Henley-on-Thames, Oxon, RG9 1UZ. (0491) 514850 evenings please.

SOLIHULL, West Midlands Atari ST User Group meet second Tuesday of every month, other machines also accepted especially ARC's and even Amiga's. Phone 0564 770132 after 6.30 ask for Richard.

SPECTRUM Owners Join Indug, the World's largest Spectrum Users Group. Monthly Magazine, Discounts, Support + much more. Send A5 S.A.E. for full details to INDUG, 34 Bourton Road, Gloucester, GL4 0LE.

SPECTRUM User Group monthly magazine hints, tips, pokes & demos. For full details send S.A.E. to Rob Tronics, 61 Doyle Road, Bolton BL3 4SA.

ST contacts wanted if into Agtomation or any other, then write or phone 110% reply, almost. Lee Edwards, 24 Topllan Road, Glan Conwy Clwyd, LL28 5NP tel: 0492 580447.

ST users in Bradford, I'm starting a users group, just contact Dave on: 614945 and get the most out of your ST. NO FEES!!

TAKE advantage of the free helpline service, get in touch with other C-64 users, etc.... Join 'Crystal Unicorn'. No fee's!!! Adam, 'Redways', Harps Hall Road, West Walton, Wisbech, Cambs. PE14 7DJ.

THE Computer Information Club. A Club for PCW, PC, CPC, Spec+ and Atari, producing a Newsletter with hints, tips and discover software. Contact The Editor, 345 Western Way, Letchworth, Herts.

ST user: Help!, I'm Australian and have just bought an ST (used to own a C64 in Oz) Anyway, I am looking for good contacts and also anyone in Bradford interested in starting a users group. Contact David Marshall, 5 Highfield Road, Five Lane Ends, Bradford, W.Yorks.

TI99/4A User Group. Quarterly Mag, software Libraries. Membership Secretary: Peter Walker, 24 Bacons Drive, Cuffley, Herts EN6 4DU. TI99/4A lives on yet!!

● HELP OFFERED

HELP available for "Future Wars" and "Manhunter New York". Help on Phone or printed solutions available. Phone: (0992) 716149 after 6pm, ask for Kevin.

HELP offered on Dungeon Master and Chaos Strikes Back. Have finished both. Phone 0222 567596 and ask for Adrian.

NEED to store disk details? Send £3.00 to receive C.A.T. which will store up to 100 disks in each filename given. Written in machine code. Phone 0424 714116.

67 pokes for the Atari ST. Only £2 and S.A.E. (Cheque or PO) to Scott Tompson, 11 Pollards Hill East, Norbury, SW16 4UX.

NEED some software? Got a CPC? Let me write it for you. Simon, 6 Ramsgate Road, Reddish, Stockport, SK5 6TN. Don't delay write today.

HELP offered on serious topics. Music system contacts wanted. Ring (061 799) 8504 after 6pm weekdays or anytime Sunday.

"DUNGEON Master", any problem, any level. Completed 7 times! ST/Amiga. Will assist any way I can. Please phone (most evenings 7-10pm) (Weekends) Mike: 0743 249094. (Also SSI's – "Rings of Zilfin" and "Sword of Sodan").

AMIGA contacts wanted. Any experience level. Workbench/CLI etc, help offered if needed. Keith Lee, Security Squadron, RAF Marham, Kings Lynn, Norfolk, PE33 9NP. 100% fast replies.

ANYONE with PC hardware/software compatibility problems or having trouble deciding which PC compatible to buy. Call Paul on 061-962 7934, evenings. Completely free service!

BEEB help offered, including BCPL Basic and machine code. Write to Owen Astley, Dunelm, Durham Moor, Durham City, DH1 5EU. No SAE, no reply

COMPUTER freak offers help with any BBC B problems, however complex, also on use of DEC VAX 8800 in DCL, Pascal, ADA. S.A.E. to T.F.T., 5 Riversdale, Gilsland, Cumbria. Also 6502 work undertaken.

DO you need programs written on the Amstrad CPC range? Write to me now! Keith Grimsditch, 12 Reddish Vale Road, Reddish, Stockport, SY5 7HE. The sooner the better!

HELP given on Indy Jones the Adventure, also Dungeon Master. Please phone Paul on 0222 567596. Hi to the Pompey Pirates keep up the good work.

I can help with spares for Amstrad Commodore Sinclair computers, also TV and Video recorders. Can anyone help new Amiga operator? Ring Paul on 0332 760353.

MIMI 802 help! Erased system disc please phone 0737 823498 ask for Stupid John.

SOMEONE who can video digitise photos, mags etc..... will gladly sound sample anything they want done – write now! To: Neil Mansell, 53 St Marks Road, Canvey Island, Essex, S58 9NJ – don't delay!

STUDENT offers help with all aspects of MS-DOS, including Batch Files and Pipes/Filters. Send Query to: N Stubbs, 6 Lindrum Ave, Lyme Green, Macclesfield, SK11 0LG

TO all Pascal programmers: If you have any problems or just want to write something. Send me a letter and I will try to help you! To: Sioe-Lin Kwik, Richmond College, Queensroad, Richmond, Surrey, TW10 6JP.

TO PCW beginners. Locoscript, Newsdesk International. SAE to: John Peters, 299 Southway Drive, Southway, Plymouth, Devon, PLL 6QN. Share a problem, find an answer!

WANT help with any Amiga Software? Contact Pete, 15 Milford Close, Tonteg, Mid Glam, S. Wales, CF38 1HG.

● GOODS WANTED

1541 manual wanted. Also any software for Commodore Plus/4. Steve Rogers, 6, Bakers Park, Holne, Newton Abbot, Devon TQ13 7SN.

ACTION Replay Enhancement disk C64 one that covers over 90 titles will pay original price of disk if in good condition. Tel: Grimsby (0472) 73881.

AMATEUR music maker needs disk drive for MSX computer. Yamaha CX5M. Would like FD-03 drive with FD-051 cable and sys/com files. Phone (0483) 502936 evenings.

AMIGA 2nd Drive or half meg wanted. Write Jon Gajos, 17 Dounehill, Jedburgh, Rox, TD8 6LJ. Must be cheap! Will pay delivery costs.

AMIGA A500 wanted, with accessories and some software if possible. Will pay around £250 depending on what comes with it. Ring Bradford (0274) 635212.

AMIGA wanted. Must be cheap no extras necc. Must have mouse & modulator only. Write: Paul Rennilson, Netherwells, Nr. Jedburgh, Rox, TD8 6QU. Phone (0835) 62229.

AN Atari XC12 data recorder in P.W.O. for use with an Atari 800XL. Reasonable price paid. Contact: Gerard Griffin, 11 Carraig lia, Shannon, Co.Clare, Ireland.

ANYTHING for ORIC Atmos; eg. disk drive with system disks, 5.25-inch drive interface, old magazines with ORIC related articles, books, software. Norma, (0787) 61615 (NW Essex).

APPLE III computer wanted urgently with or without hard disc. Tel (0623) 441481.

ATARI XE Games on cassette wanted contact: Andrew 1 Eastbrook Ave, Dagenham, Essex, RM10 7UL.

BOOKS wanted: ST logo users guide will pay £8 starting forth 2nd edition (Brodie) will pay £12 or swap for ST S/W (0432) 761086 John.

BUBBLE BOBBLE wanted for Amiga, Robocop and a good copier. Tel: 01-390 2068 evenings.

CALAMUS instruction so that I can use the Demo. I will pay for postage or photocopies. Please help me. Phone Jim on (0232) 794812.

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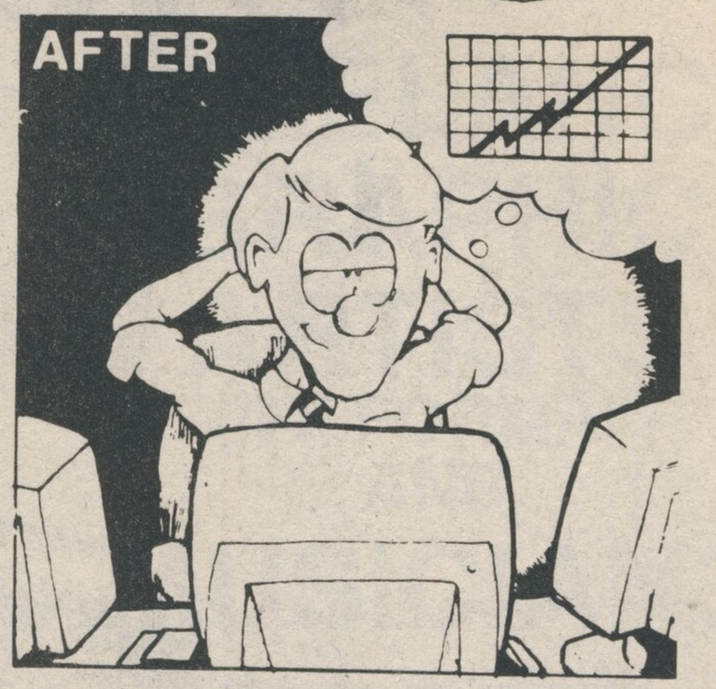
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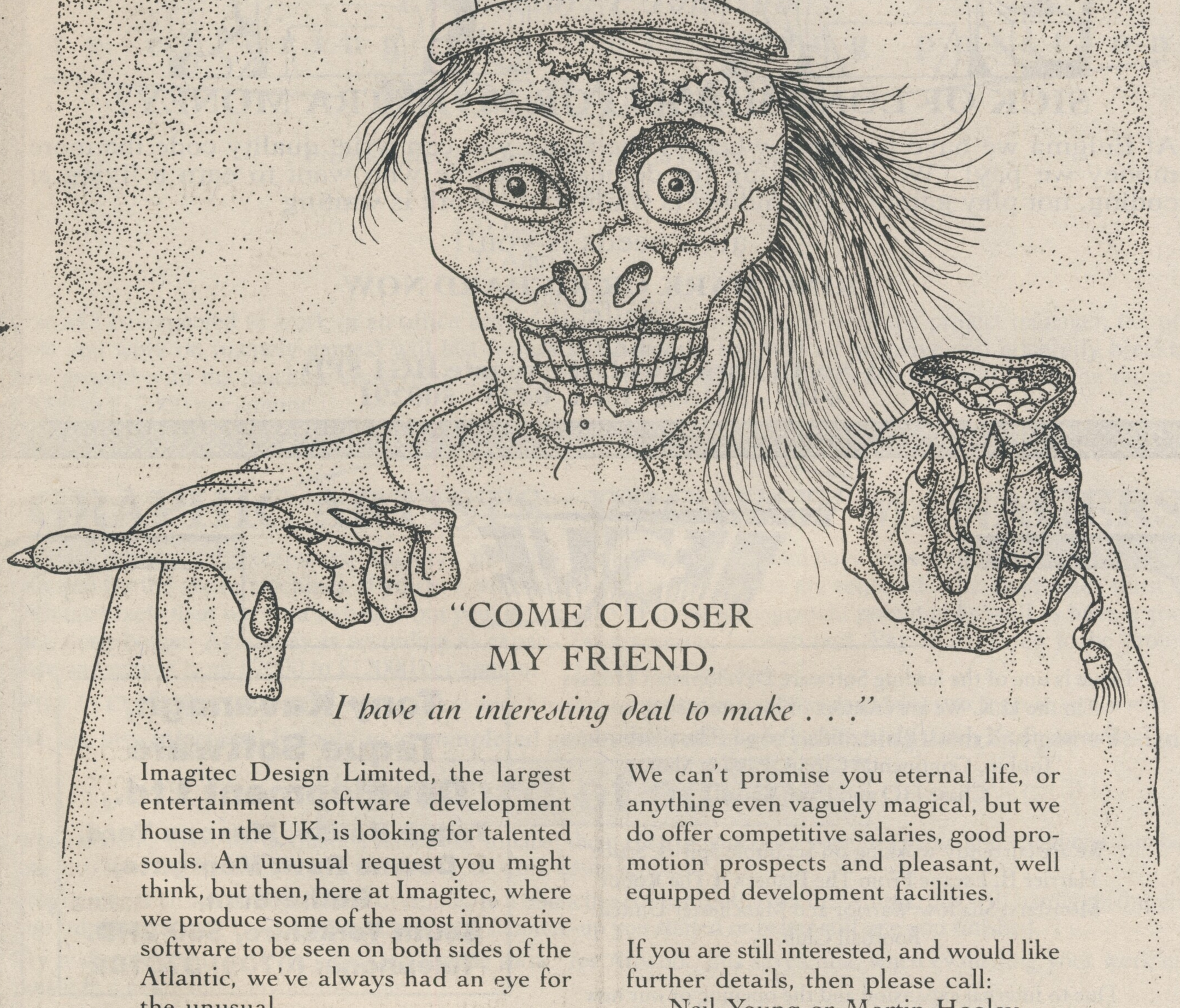
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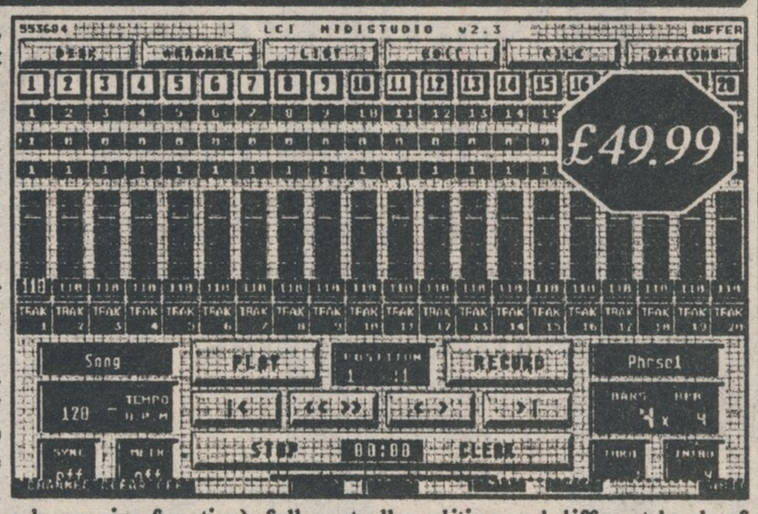
Amiga

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Open Mon. to Sat. 9:00 am to 5.00pm
Dealer enquiries welcome.

Phone us for best prices. We will try to match any price.

We were voted Best Dealer by the readers of ST World because we give our customers the best available service from, both our shop premises at 33 Ormskirk road and through our Mail order department at the same address. FOR THE BEST SERVICE AND PRICES, SHOP WITH US. All Software and Hardware is fully tested prior to purchase. All hardware is supported by on site engineers so that quick turn around on all repairs is guaranteed. There are no hidden extras. All prices include VAT. Delivery is free on orders over £100, in Mainland UK (add £5 for courier delivery). All prices are correct at time of going to press and are subject to change without prior notice. Phone for up to date prices and advice, we are always happy to help.

Midistudio 20 track ST Midi sequencer



Midistudio is an attractively priced, 20 track Midi Sequencing package. It can record up to 682 bars per phrase (pattern) on up to 100 phrases. Any phrase can be placed on any track. Tracks can be soloed and muted and tracks and phrases can be named. Program numbers can be displayed in a variety of ways including 0-127, 1-128, in banks from a11-b88 or a01-b64. The Desk features sliders to set relative volumes on each track and you can even do a mix on the fly. Midistudio also has a clock to display the length of the last playback. Step time note edit functions are available including copy, split, merge, append, transpose, velocity editing (including a humanize function), full controller editing and different levels of quantizing. Midistudio works in medium and hi res. Demo disk £3.99. Not compatible with STE.

Midistudio Master. 30+ new features £129.99

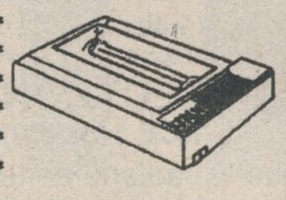
IMG scanner Scan at up to 1000 Dpi



The IMG scanner is a realistic, low cost scanner which can offer high quality graphics digitising for a tenth of the cost of other scanners. This simple unit plugs into the cartridge port of the ST and accepts scanned information via optical cables which fix easily to the head of any Epson compatible dot matrix printer. The software allows grey scales to be replaced with colours, 4 in medium resolution and 16 in low resolution and offers scanning resolutions of 75, 150, 216, 300, 360 and 1000 dots per inch horizontally. Best results are achieved with photocopies. Greater than screen resolution images are saved in IMG file format and can be edited with any compatible art package. Screen resolution images can be saved in Raw data, Degas or Neochrome formats and edited with compatible art packages.

Low resolution demonstration disk £3.99

Best Selling Printers



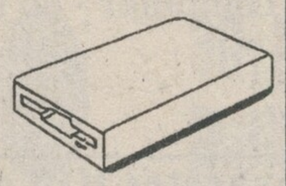
Star LC-10.	140/36cps	£ 164.99 *
Star LC-10 Mk II.	180/45cps	£ 189.99 *
Star LC-10 Colour.	7 colour	£ 209.99 *
Citizen 120D.	120cps	£ 134.99 *
Star LC-24/10.	170/57cps	£ 239.99 *
Citizen Swift.	192/64cps	£ 319.99 *

Star Professional Series Printers

Star FR-10.	9 pin, 300cps draft, 76cps NLQ.	£ 527.99 *
Star FR-15.	15" carraiage version.	£ 688.99 *
Star XB-24/10.	24 pin, 80 cps SLQ, LQ.	£ 688.99 *
Star XB-24/15.	15" carriage version.	£ 907.99 *
Colour upgrade for Star XB & FR range.		£ 39.99 *
Star Laser Printer 8, 1 Mb RAM.		£ 2287.35 *
Star Laser Printer 8DB, Double bin version.		£ 2977.35 *
Atari SLM804 Laser with 90 days on site warranty.		£ 1099.99

*. All these printers carry a 12 months on site maintenance warranty and come complete with Centronics cable. On site warranty UK mainland only. All printers are top quality products for the UK.

ST & Amiga Disk Drives



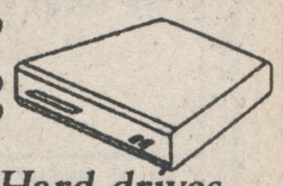
Cumana 3.5" CAS 354.	(ST)	£89.99
Ladbroke's 3.5" 1Mb	(ST)	£69.99
Cumana 1Mb, internal.	(ST)	£74.99
Please note, ST's case requires modification for this internal drive.		
A/B boot switch, fitted.	(ST)	£24.99
Cumana 3.5" CAX 354, disable switch etc.	(Amiga)	£74.99
Ladbrokes 3.5", 1Mb, disable switch etc.	(Amiga)	£64.99

Monitors & Peripherals

Atari SM124 Mono	£109.99 *	Joysticks from	£ 4.99
Atari SC1224 Colour	£279.99 *	Portfolio add-on's from	£ 39.99
Philips 8833 Colour	£249.99 *	Trak ball (ST / Amiga)	£ 19.99
Philips 8802 Colour	£239.99 *	Mouse mats from	£ 5.99
Philips 15" FST, remote, Scart input, Tv with 60 tuner presets, timer and teletext.	£259.99	Mouse/joystick extension	£ 5.99
		Amiga modulator	£ 19.99
		Hawk scanner	£ 1249.99

* Deduct £10 if bought with computer, Scart cable included

ST & Amiga Hard Drives



Megafile 30	(ST)	£399 .99
Supra 30	(ST)	£474.99
Third Coast 65Mb	(Amiga)	£659 .99
Vortex 40Mb	(Amiga)	£499 .99

Ladbroke Computing Hard drives

We have a range of high quality ST hard drives at affordable prices. All have a minimum specification of: full metal case with push button on/off switch mounted on front and 60 watt PSU, Autopark mechanism, has room, power connections and controller capability for second mechanism, external push button DMA device No. selection. The controller is full SCSI and can support up to 8 drives. The software includes Autoboot and up to 14 GEM partitions.

40HD	42Mb formatted, 11Ms, 64K on board cache.	£ 549.99
50HD	48Mb formatted, 40Ms average access time.	£ 499.99
60HD	61Mb formatted, 24Ms average access time.	£ 639.99
85HD	84Mb formatted, 24Ms average access time.	£ 699.99
110HD	111Mb formatted, 15Ms average access time.	£ 799.99

Phone for Larger capacity drives.

Repair Centre & Upgrades Ex - stock

512K STFM RAM Upgrade fitted.	£ 74.99 *	512K STFM RAM upgrade, kit.	£ 49.99 *
512K STM RAM Upgrade, fitted.	£ 74.99 *	512K STE SIMM's, SIP's	£ 49.99 *
512K populated ST board, fitted.	£ 109.99	512K populated ST board, kit.	£ 99.99
2Mb populated ST board, fitted	£ 224.99 *	2Mb populated ST board, kit	£ 199.99 *
2Mb unpopulated ST board, fitted.	£ 59.99 *	2Mb STE SIMM's, SIP's	£ 249.99 *
STFM Blitter chip,fitted	£ 49.99 *	STFM Blitter chip, kit	£ 39.99 *
512K unpopulated Amiga board	£ 19.99	512K populated Amiga board	£ 59.99
512K unpopulated Amiga board+clock	£ 29.99	512K populated Amiga board+clock	£ 69.99

* Please check configuration before ordering. Our Atari trained engineers can repair all hardware, including Amigas, in minimum time at competetive prices. Fitting prices quoted for machines not previously tampered with. All upgrades and repairs carry our 3 months parts and labour guarantee.

Networking & Mac Emulation

- Network up to 32 ST's.
- Up to 500 Ft between ST's.
- 31K Baud data transfer rate.
- Full data correction.
- File locking.
- Networking permissions.
- Allows upto 12 hard/RAM disk partitions.
- Turn your ST into a Mac Plus.
- Reads and writes to Mac disks.
- Supports 99% of all packages.
- Supports Hard drive and second floppy drive.
- Compatible with STE.
- 30% bigger screen area than Mac Plus.
- 128K ROM's in stock.

SGSnet Starter kit £ 149.95
SGSnet add-on kit £ 99.95
Spectre GCR £ 284.99
With 128K ROM's £ 384.99

Entertainment packs

520 STE Explorer	*£279.99*
520 STE Power pack	*£369.99*
1040 STE Hyper pack	*£459.99*
520 STE upgraded to 1Mb	*£339.99*
Amiga Batman pack	*£369.99*
Amiga Batman + pack	*£399.99*

STE Prices While Stocks Last

Power pack consists of Organiser software, First Basic, First music and games including, Afterburner, R-Type, Gauntlet II, Super hangon, Space harrier, Mousetrap, Buggy boy, Super huey, Eliminator, Nebulus, Pacmania, Predator, Bombjack, Bombuzal, Xenon, Double dragon, Blacklamp, Outrun, Stargoose, Starray.

Hyper pack includes Hyper Paint art package, Hyper draw vector drawing package, Borodino strategy game and Metacomco Basic.

Batman + pack includes A500 Batman pack, mouse mat, joystick and the Tenstar games pack with Photon paint.

Quality 3.5" Disks

Quantity	Unbranded Loose	Unbranded Boxed	Sony Branded Boxed
10	£6.99	£7.99	£9.99
100	£64.99	£74.99	£89.99

All disks are Sony, Maxcell or Kao and carry an unconditional lifetime guarantee. Please add 60p P&P for each pack of ten disks.

Connectors & Dustcovers

ST Centronics lead	£14.99	Monitor covers from	£4.99
Atari Monitor lead	£5.99	LC-10 printer cover	£7.99
Pair of Midi leads	£7.99	Hard drive cover	£4.99
Amiga Scart with sound	£14.99	ST cover	£3.99
Null Modem cable	£10.99	Amiga A500 cover	£3.99
8 bit Printer interface	£29.99	Mega 2 cover	£7.99
Atari DMA cable	£15.99	Disk drive cover	£2.99

Disk boxes from £4.99. Phone for care kits.

Business & DTP Systems

Mega ST1 + SM124	£	*599.99*
2Mb upgraded 520STE	£	*449.99*
4Mb upgraded 520STE	£	*624.99*
Portfolio (pocket PC)	£	*224.99*
Atari PC4 (80286)	£	*1349.99*
Atari PC5 (80386)	£	*2069.99*
DTP Mega 2 pack	£	*1674.99*
DTP Mega 4 pack	£	*1999.99*
A4 Flat bed scanner	£	*449.99*

This high quality 200dpi flat bed scanner is also a thermal printer and photocopier. It can scan high resolution images in up to 16 grey scales. Software runs on Amiga and ST (ST software includes editor) and requires 1Mb of memory. This is probably the most cost effective piece of office equipment you could own. Centronics cable included.

VISA ACCESS

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SST3.5



• The Mac Plus with third-party hard drive comes in at around £1,450 – but with the price comes arguably the best personal computer on the market.

THE PRICE IS RIGHT

The Apple Macintosh. Everyone raves about how good it is. Everyone moans about how much it costs. Andy Storer finds out the facts behind the most user-friendly computer there is.

The Apple Macintosh range of computers are generally accepted as being the friendliest computers for everyday use. Their much copied – but never equalled – windows, icons, menus and pointer system, provides an easy means of navigating the machine's excellent range of applications, and what's more, all software conforms to the same 'front-end'.

Even function and combination key presses are identical across a wide range of programs, allowing you to quickly familiarise yourself with new packages. All the machines are bundled with *HyperCard* and those featuring 1.44Mb disk drives come with *File Exchange* software enabling you to read and write to MS-DOS format.

With the built-in systems software there is also a good range of different fonts, utilities and desk accessories supplied as standard. So from an owners' point of view, the Mac is probably unequalled in terms of sheer usability. But becoming an Mac owner doesn't come cheap!

STATESIDE SHOPPING

Once upon a time it made sense to fly to the States to buy a Mac. There, you could pick up a machine for 40 per cent of the cost here.

To some extent it's still worth making the trans-Atlantic trip. For instance, the entry level Mac Plus is £1,100 here yet only £600 in the US, while a top-of-the-range IIci, costing you £7,700 in the UK, can be picked up for only £3,600 in New York. But you will have to declare it to customs on return where duty of 4.5 per cent and VAT of 15 per cent will be added to the receipt you show. So you will be paying somewhere between £100 and £700 extra, and will also have to include at least £300 for air and hotel costs.

You would also have to take Apple's policy on 'grey imports' into account. To put it in a nutshell, any warranty on Apple kit purchased outside of the UK would be invalid. Therefore the cost of any repairs would have to be borne in full by yourself, and you would probably have to import any spares from the States for yourself too, since authorised Apple dealers here are mostly reluctant to let them go to non-AppleCare subscribers.

But then as Apple kit is well-built and very reliable you might think it a risk worth taking.

VARIETY PACK

Altogether there are 14 different configurations of Mac machines, but these can be divided into two main varieties – the self-contained units represented by the Plus, SE and Portables and the modular systems comprising the II range.

The Plus is the entry-level model and comes with 1Mb of RAM, a keyboard and 800K internal floppy drive. As with the basic SE, which has a faster chip and two 1.44Mb floppies, the Plus only really comes into its own when used in conjunction with a hard disk. This is because part of the Mac operating system is loaded in from disk each time rather than residing in ROM chips. As such, and despite the sophisticated yet easy to use interface, even the most simple system calls – say to copy or delete files – require a lot of floppy disk swapping.

So it's essential to have either an additional floppy or a hard disk, otherwise operations can be painfully slow. Just loading an advanced piece of software such as the DTP classic, Quark *Xpress,* can take over a dozen disk swaps! But with a hard drive included, and the SE range come with 20 and 40 Mb versions, the system is a dream. Especially if you have the 2Mb or 4Mb of RAM fitted as standard in the other four models of the SE range, and particularly if you have the 68030 chip found in the top two.

SE STARTING PRICES

Prices for the SE range start out at £1,995 for the double disk drive version, while a 2Mb RAM SE with a 20Mb hard drive costs £2,525 – £2,829 for the 40Mb version.

Moving up to the 68030-based SE/30s, £3,536 will buy you a 2Mb RAM, 40 Mb hard disk model while the same machine with 4Mb of RAM goes for £4,075.

PRICEY STUFF

If you think the prices for the self-contained units (See box) are a little high you should take a look at those for the Mac II modular range. But to be fair, in both ➤

JUST FOR STARTERS

The Mac is blessed with huge range of software including tens of thousands of PD and shareware products. Although software, like hardware, does tend to be expensive, you're paying for excellent packages that perform reliably. Just for starters, compare the number of packages in the list below to those available for your machine

- 8 Accounts
- 8 Project management
- 14 CAD/CAM
- 13 Databases
- 20 DTP
- 21 Graphics
- 15 Word processors

Authorised Dealers for Claris

NEWTECH SYSTEMS LTD

9 Wallis Gdns
Waterlooville
Hants PO7 7SA

Tel: (0705) 267550/598835 Fax: (0705) 255190

Our Customer Care Policy

Are you buying on price alone?? *Or are you discerning enough to know that you may need support!!*

- *Some dealers offer you unbelieveably low prices on a range of products but what do you do when things go wrong, and how much will it cost you?? What about service, registration and upgrades?*
- *Some dealers will offer you good support when you buy from them, but it can be painful on the wallet*
- *At **Newtech Systems** we firmly believe we have the balance right. We are able to offer you competitive prices and the service and support you need, the care you are entitled to as a customer. In addition we can also offer a range of training courses that can be tailored to suit your requirements.*
- ***Finally, a couple of words about Grey Imports - We Don't!!***

Training - Service - Support

DTP & Graphics

PageMaker 3.5	425.00	545.00
Quark Xpress	545.00	695.00
Design Studio	465.00	596.00
RSG 4.5	483.00	550.00
Adobe Illustrator	429.00	550.00
Aldus Freehand	378.00	450.00
Letra Studio	390.00	500.00
Studio 8	230.00	303.48
Claris MacDraw II	275.00	325.00
Claris Cad	510.00	599.00
Dreams	250.00	320.00
MiniCad	495.00	595.00

Monitors

Radius FPD SE/SE30	925.00	1125.00
Radius TPD SE/SE30	1295.00	1595.00
Radius Greyscale	1950.00	2495.00
Radius DirectColour/8	3595.00	4595.00
Radius DirectColour/16	4700.00	5995.00
Hitachi SilverMac	1784.00	2250.00
Hitachi ColourMac	3167.00	3950.00
Sigma Page View FPD/SE	845.00	1066.00
Sigma Page View TPD/SE	1582.00	1995.00
Supermac 19" Monochrome	935.00	1270.00
Supermac Greyscale Monitor	1215.00	1495.00
SupemMac 24/Mac II	4500.00	5994.00
Supermac 8/Mac II	3120.00	4344.00

Scanning & OCR

Sharp JX-300 (A4)	1768.00	2070.00
Sharp JX-450 (A3)	5490.00	6430.00
Abaton Scan 300GS	1430.00	1675.00
Microtek MSF300Z	1546.00	1950.00
Microtek MSF300G	1253.00	1580.00
MicroTek MSF300Q	1300.00	1650.00
Omni-Page	550.00	695.00
Image Studio	429.00	550.00
Digital Darkroom	240.00	339.00
Logitech Scanman	289.00	345.00
Sharp HandScan Col.	458.00	545.00
Howtek Scanmaster		POA
Agfa Focus II		POA

Business & Presentation

Microsoft Excel	209.00	275.00
Informix WingZ	248.00	295.00
Claris MacProject	375.00	395.00
Microplanner Vs 6	423.00	495.00
Omnis 5	425.00	595.00
C.A.T.	315.00	450.00
FileMaker II	195.00	225.00
MicroSoft Word IV	209.00	275.00
Claris MacWrite II	155.00	175.00
WordPerfect	175.00	249.00
Aldus Persuasion	378.00	450.00
MicroSoft Powerpoint	209.00	275.00
Cricket Presents	300.00	425.00

Disk Drives

Rodime Plus 20Mb	415.00	500.00
Rodime Plus 45Mb	550.00	702.00
Rodime Plus 60Mb	620.00	795.00
Rodime Plus 100Mb	846.00	1083.00
Rodime Plus 140Mb	1055.00	1350.00
Cutting Edge 20Mb	365.00	439.00
Cutting Edge 45Mb	512.00	609.00
Cutting Edge 105Mb	1029.00	1225.00
Microtech 40Mb	584.00	625.00
Microtech 80Mb	862.00	1010.00
Microtech 100Mb	930.00	1090.00
Microtech 150Mb	1132.00	1325.00
Microtech 45Mb Removable	765.00	895.00
DataPak 45Mb Removable	1095.00	1395.00
DataPak Duet Twin 45Mb	2095.00	2595.00

NetWorking & Comms

Tops 3.0	160.00	219.00
Tops DOS 2.1	100.00	140.00
Tops Flashbox	115.00	150.00
Tops Flashcard	125.00	165.00
Vicom III	135.00	175.00
Inter Talk 2	650.00	795.00
Intertalk 2i	484.00	595.00
DaynaTalk Mac	130.00	159.00
MacLink Plus	135.00	179.00
LapLink Mac Vs.3	117.00	140.00
Abaton Interfax	315.00	375.00
NeuNet		CALL

Multi-Media

NeoTech Imagegrabber	1095.00	1395.00
ColorSpace IIi	1895.00	2395.00
Voice Navigator	1025.00	1295.00
VideoWorks II	203.00	259.00
MacroMind Director	475.00	595.00
MacRecorder	169.00	199.00
Screen Recorder	125.00	149.00
Swivel 3D	355.00	425.00
Micro TV Mac	235.00	279.00
Nu-Vista		POA
VideoBox		POA
RasterOps Framegrabber		POA

Printers & Plotters

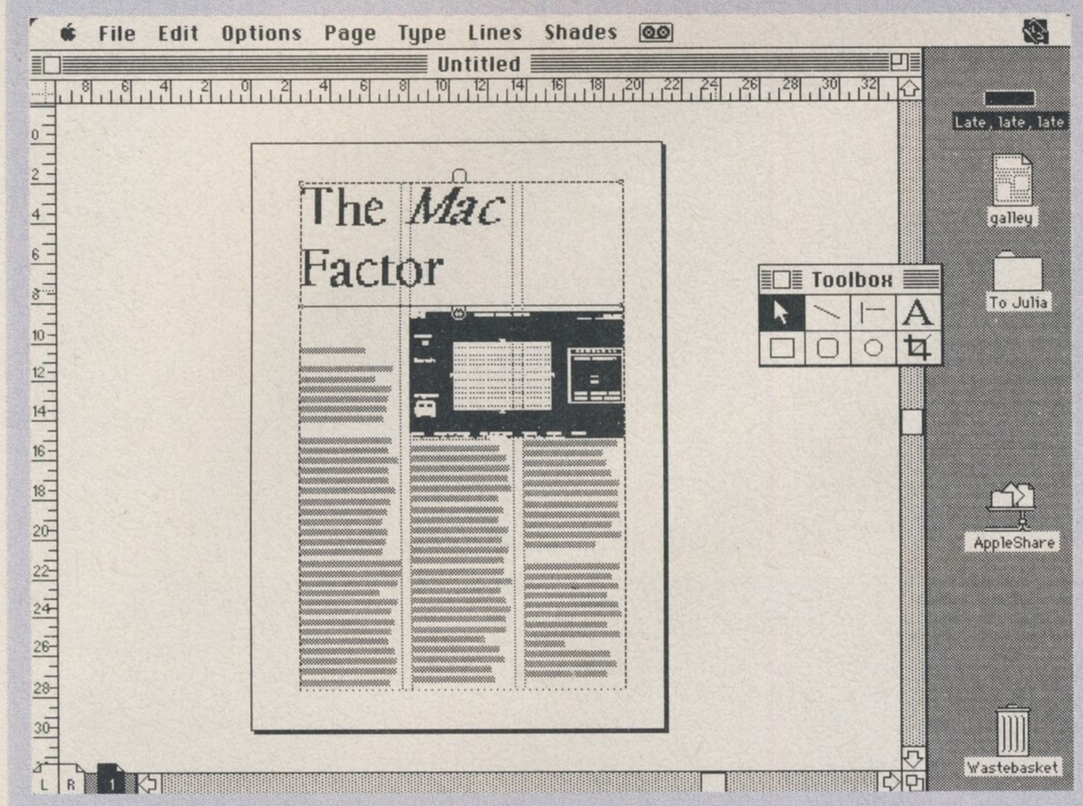
GCC Business Laser Printer	2100.00	2595.00
GCC Personal Laser Printer	1300.00	1495.00
Hewlett Packard Deskwriter	725.00	895.00
Hewlett Packard PaintJet	860.00	995.00
Hewlett Packard Xl	2095.00	2450.00
Mitsubishi G650 Colour	5876.00	6995.00
Hitachi Colour	9650.00	10500.00
HowTek Pixel Master		POA
Roland DXY 1000 Series		POA
Roland DPX 3500		POA
Roland DPX 2500		POA
Roland LTX 420		POA

How to Order

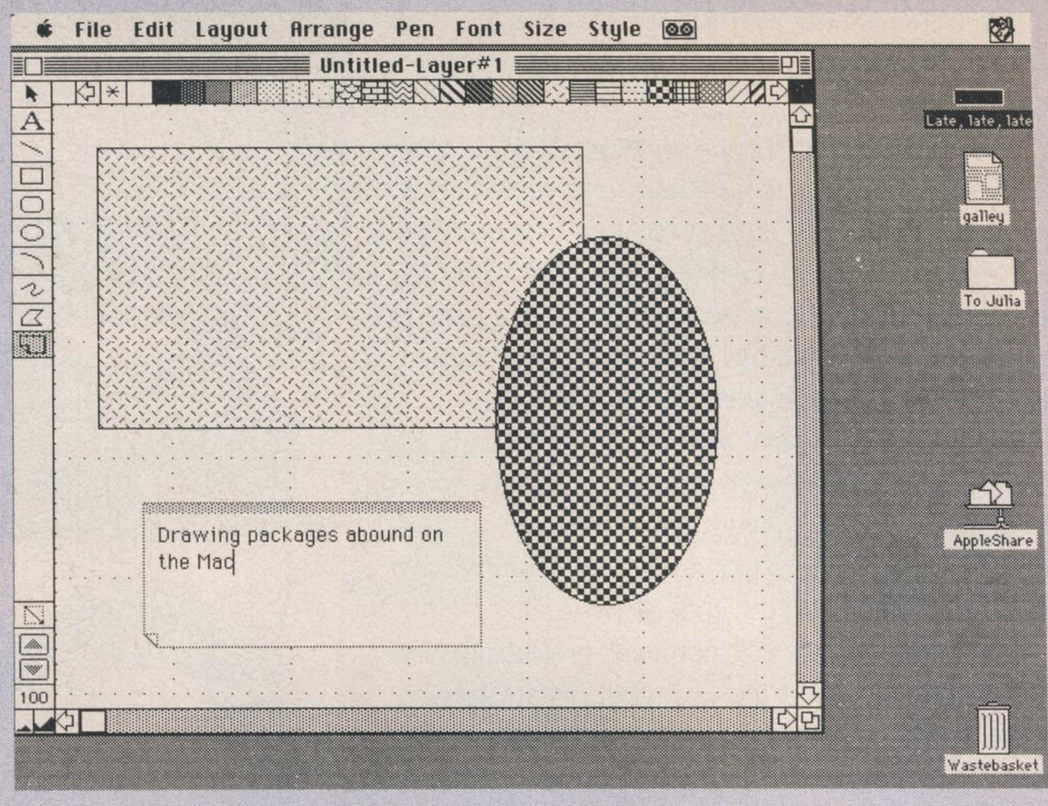
Lines are open 9am - 6pm Mon-Fri. Alternatively you can send your order by post or Fax direct. We accept major credit cards. We also welcome orders from Govt., Education and military establishments. Prices are exclusive of VAT, Postage and Packing. NewTech Systems reserve the right to alter prices without prior notification.

Access VISA

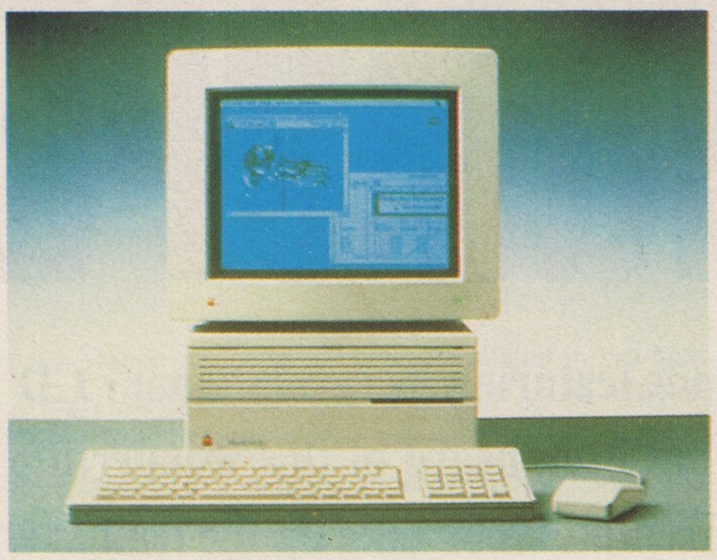
THE SECRET'S IN THE SOFTWARE



• *Much of the attraction of the Macintosh lies in its superb serious software.* PageMaker, *above, was the first desktop publishing program, and has been joined by the likes of Quark* Xpress, Design Studio *and* Ready Set Go!, *all of which are far superior to any equivalent programs on other machines.*



• *Another strong Mac area is graphics. The Mac II's superb colour potential makes it the machine of choice for multimedia work. This is* MacPaint *– note the desktop in the background and the icon in the top-right corner which switches between programs when in multi-tasking mode.*



• *The top of the range, the Mac IIci, a 68030-based powerhouse with 4Mb of RAM and an 80Mb hard disk*

cases you are paying for the build-quality and reliability that everyday professional demands require. Nevertheless, Apple's pricing strategy remains a moot point. Last year's decision to cut the price of the Mac Plus by 25 per cent was warmly greeted, but only led enthusiastic commentators to suggest 50 per cent would have cleaned the floor of competitors. By the time you've added a £300 20Mb hard disk to the Mac Plus to make it properly functional, you're still talking nearly £1,500 for a 1Mb, 68000 machine with a single floppy.

But for those seriously interested in professional use, the cost of a Mac II system won't appear that excessive.

All the Mac II machines have a 68030 chip fitted as standard and come with either 2Mb or 4Mb of RAM, and either a 40Mb or 80Mb hard disk. For these configurations, prices start out at just under £5,000 and go up to £6,250. These sums will buy you just the central processing unit, mouse and systems software with *HyperCard* and MS-DOS drive readers thrown in for good measure. So you'll have to pay another £340 for a 12-inch mono monitor or £800 for a 13-inch colour monitor, along with the appropriate video cards to support them, costing between £160 and £575. Also you will need to include a keyboard in your costing here – at £110.

Since at some stage you'll want to print out your various works you might want to opt for the essential Mac add-on – the LaserWriter for between £2,300 and £5,285 or the Apple Imagewriter at between £500 and £1,150. Other makes of laser can be used as long as they support the PostScript printer standard. Everyday Epson-compatible printers can be used as long as you have the necessary drivers available from PD sources for around £30.

THE ULTIMATE PORTABLE?

For sheer sophistication, portability and reliability they don't come much better than the Macintosh portable. Racing along at 16MHz and containing some high-spec sound and video ports, the machine is being touted as the mobile multimedia tool *par excellence.* Designed for the up-town businessman as well, the portable might cost you £5,170 with a 40Mb hard disk but it really is the bee's knees.

SO ARE THEY WORTH IT?

Yes. You will be hard pressed to find anyone who has ever used one to tell you otherwise. The Mac is easily the most addictive hardware ever devised. Not only does it look good and have a crisp operation, but most of the software is entirely compatible with everything else. Thus you can easily create a picture in one and paste it into another, no problem at all.

With *HyperCard* you have access to the hippest collection of PD software in the world, and, if you have the money, the sky's the limit on video, sequencing and sampling kit. DTP was born on the Mac, and the machine remains its main platform.

So if you like the look of the Macintosh range, fly to America, use other people's money, or start saving. But there are another two possibilities. If you are a student you can get up to 25 per cent discount on the prices quoted for the entire range.

Of course if none of these appeal, or your finances make them completely impossible, then you can always transform your ST or Amiga with an emulator. Models for the ST and Amiga cost £380 and £240 respectively, and generally speaking work well and reliably, although you are denied some of the more sophisticated Mac features, such as the built-in networking capability.

In the final analysis, the Mac is well worth the financial effort it takes to get hold of one. ■



• *The Mac portable is the ultimate machine for the top executive. Its high-resolution screen is astoundingly good.*

MAC-SIM-ISE YOUR ST OR AMIGA

If you fancy a cheaper alternative to all this expensive Mac kit, but like the sound of the world of software, you might like to take a look at emulation on the machine you already own.

GST's Spectre GCR Mac emulator for the ST sells for £378, supports hard drives, and effectively converts your ST into a Mac running some 20 per cent faster than a Mac Plus, with a larger screen display, and a high degree of compatibility. The manufacturer claims it will run all Mac software except those applications specifically designed for the 68020-based Mac II. More from GST on 0954 81991.

Meanwhile Amiga owners should take a look at A-Max from Entertainment International on 0268 541126. Available for the A500, 1000 and 2000 for £240, A-Max allows Mac format disks to be used directly during Mac emulation and, ironically, Spectre disks too! However, unlike when using Spectre you won't be able to run a hard disk while in Mac emulation mode. This is a shame since on the ST, Spectre's hard disk access times are faster than those of Apple's own and make disk-intensive programs fly along. Plans to incorporate this into the A-Max specs are said to be in the pipeline.



SO WHAT HAPPENED

Last year CodeMasters placed large ads featuring its revolutionary CD games disc for £20. Since then little has been heard of this wonderful-sounding device. Adam Waring and Trenton Webb take up the trail...

At Christmas, CodeMasters was poised to take the 8-bit gaming world by storm with its revolutionary CD Games Pack. Advertisements were places, massive press coverage was recieved. Months later it is still not here. So what has happened to 8-bit CD?

CodeMasters – previously simple budget game specialists – was touting a system that contained 30 games, could load them in seconds from any domestic CD player, and would cost a mere £20. The CD Games Pack was set to make loading errors a thing of the past, and bring the 8-bits back into the fray as serious games machines. At least, that was the plan.

It's three months since those early boasts, and the CD Games Pack has already conspicuously missed it's chart-storming target. Indeed, of the three systems – Spectrum, C64 and CPC – planned, only the first two have so far made it onto the shop shelves.

Speculation about the purpose, profitability and even common sense of the project is understandably growing. Is there room in the market for yet another gadget to be plugged into the back of your friendly neighbourhood micro? Is it possible for a company to successfully assume the mantle of hardware manufacturer and software house simultaneously?

A STARTER FOR 10

CodeMasters spokesman Mike Clarke explained the initial reasoning behind the project: "The CD Games Pack is in fact a spin-off. It's something we thought we could do, call it a starter for 10. Nice and easy technically, although there with a bit of sourcing and manufacturing involved. Practice, I suppose.

"Our hardware team needed something to cut their teeth on, and they thought they could do it, no problem. Remember, we're only talking about a lead here! It's not like Miles Gordon, who had to get a whole computer assembled. We also had the benefit of Richard Darling's trip to Taiwan, where he'd met a lot of manufacturers and made a lot of connections."

The reason for this searching out of technical expertise, however, is still shrouded in secrecy. It appears that the CD Games Pack may have been a 'dry run' for another product, one that may debut this year – more than likely at one of the big consumer electronics shows such as the CES in Chicago or the ECT in London.

Concentrating on the present 'revolutionary' system, though, pushes other questions to the fore. How did a software house, especially one with such a cheap and cheerful image as CodeMasters, become convinced people would want to buy the Games Pack?

"Initially, our techniques were fairly simplistic. Included with our higher price games was a registration card, and a large number of people sent them back. So we sat down with a massive stack of these cards and rang around asking a list of questions. 'Do you have CD player in the house? Would you be able to use it with your computer?' Which was practically all we needed to know."

This research revealed the following: two metres was the optimum length for the cable; a surprising number of people had CDs and computers (40 per cent); and a lot of houses had more than one CD player! Commented Clarke: "It also showed that most people don't know the first thing about how their CD player works. They didn't want to begin messing around with the connections at the back, so we had to work out of the headphone jack."

ADVERTISING CAMPAIGN

CodeMasters was willing to back up this initial optimism with a massive advertising campaign to push their baby in the vital Christmas market. The company found to its cost, however, that hardware projects can be hit by as many delays as can software – and missed the boat.

"We were anticipating getting it out in the first week of December, whereas it was only finished a week before Christmas. It probably didn't even reach the shops before the New Year – which could be described as a monumental cock-up – but there's no way we could avoid it. It's made a little headway in the Commodore charts, which is quite surprising because there haven't been many of them around!

"Regard it's position now in the same light as the Atari Lynx, which was only obtainable in New York over Christmas, because they restricted the market. Something similar has happened here, it's still a very fresh and happening product that's got long way to go. There are a lot more people out there who actually want these things than have managed to get hold of one. The Press has seized on it as a wonderful idea."

The CD Games Pack did appear briefly in the shops, but mysteriously disappeared almost immediately. This only fuelled rumours that the system didn't meet the specs, or even didn't work at all! The reason for such a disappearance is put firmly at the door of the CD player manufacturers by CodeMasters, as certain systems forced a product re-vamp to guarantee 100 per cent compatibility.

"A few people were unable to coax it into working with a certain brand of CD player. But the new version works with it, and on the loading menu it now actually states brands. It's given us the chance to offer a few more options on the loader cassette. There's the normal option which will work with 99 per cent of CD players. Then you've got an option which loads more slowly but is even more reliable. Finally you've got an option in which you can't reset out and load another game, but is totally reliable. And on the CPC version you've also the option of transferring the loader cassette to disk, because that's one bit of software we don't mind getting spread all over the world!

COMING SOON

Mike Clarke is eager to make the best of the situation: "The response has been so good it has, if anything, encouraged us. It was definitely a step in the right direction and we want to do more 'firmware' – something between hardware and software – it's a nice place to pitch ourselves. We're often perceived in some areas of the press as a 'budget house', a company that just throws games at people. We've made some money on the £2.99 stuff and can now start sinking it into other ventures. We're very happening and set to get a whole lot more exciting.

"It's too early to say for certain that it's the medium of the future, but there are four other CD products in development at the moment. It's an idea we definitely want to push, we're not scared of the thing. As for the future with the 16-bits, we'll have to see.

"The £2.99 stuff is our bread and butter, a little measure to keep the wolf from the door. Whatever anybody says, it keeps selling and it keeps selling in quantity. People out there want to play our games and it's really good news, because it's money we can rely on. We don't want to lose any impetus in the budget market because of the CD."

WHAT DO YOU GET FOR YOUR MONEY?

Opening the box reveals a whole host of goodies. The lead is truly immense. The unusual length is vital, as not everybody's parents will be willing to disassemble the hi-fi whenever a game needs to be loaded. An adapter is included so that the lead can fit into both the standard 3.5mm headphone sockets or the miniature plugs found on portable equipment. The electronics are moulded into the computer end of the cable, which connects to the joystick port of the computer.

The inclusion of a cassette tape may seem odd at first, but before the computer can load anything from the CD player it must have the software to do it. The tape contains a loader which is only a few hundred bytes in length. Once loaded then the tape need not be used again – each game has a quit option that will reactivate the loader. CodeMasters toyed with the idea of recording this loader at standard tape loading speed on the CD, but dropped the idea as it would involve too much lead-swapping and generally add techno-fear to an already confusing concept.

The CD itself is crammed full with the games. Each game is recorded twice just in case there are any problems with dirty discs. Although the advertising claims there are 30 games on each disc, CodeMasters have generously added one or two more, utilising all the available space.



NED TO CODEMASTERS' CD?

The Press generally is as interested in the technology CodeMasters has pioneered as the Games Pack itself. Surely other software houses must be queuing up to licence the technology, now that someone has got it working?

"No-one in Britain's come to us about licensing. I think they're all sitting back and waiting to see how we do, because we're breaking into a new market. We've got to establish awareness, gain consumers' confidence, get them to accept the product for what it is and not to be scared of games on CD. We're working on that now, so if it does go really high up in the charts, people will start talking about it as a product and not an oddity."

Licensing would make a lot of sense, though, if the 'oddity' fulfills its financial promise. CodeMasters has already spent an estimated £22,000 on designing, building and filling the market with the CD leads. Add this to a cost of only 90 pence per CD itself and the margins start to look pretty healthy.

"It's more profitable to sell games at £20 than £2.99. Now that sounds obvious, but there is a lot more behind it. When you take into account distributors' and retailers' margins, we're making the same profit on one of those at £20 as we are on five budget games at £2.99."

CodeMasters has begun a profitable revolution with its CD Games Pack, but has found the process can be pretty painful for all the parties involved. It remains to be seen whether it's the beginning of a CD-based coup – or whether it was the manufacturing experience CodeMasters sought, and not a user base for a new system. The future for the CD relies on licensing, as even their own vast back catalogue can't stand much raiding at 30 games a shot.

If nothing else has been gained from this adventure in hardware, CodeMasters has enhanced its reputation and stated its intention to become a major player in the future of the leisure industry. ■

CHANNEL TROUBLES

There were the inevitable teething problems with the CD. To get the system loading as fast as possible, CodeMasters designed the lead to read both left and right channels – doubling the speed of transfer. Unfortunately, some brands of compact disc player suffered from cost-cutting design.

Instead of having a digital–audio converter (DAC) for each channel, these models share a single converte, switching rapidly between the two channels to give the effect of continuous stereo. The resulting stereo signal is slightly out of phase.

The phasing effect is not too noticeable to the ordinary punter (although the hi-fi purist would object), but to a computer the signal is rendered incomprehensible.

The system has now been modified to take into account these older machines – by using a slower but more reliable recording – and should now be compatible with 100 per cent of CD hardware.

CD GAMES PACK – CD-ROM?

CD-ROM is in. Everybody wants one, but nobody can afford one.

These hi-tech gadgets load data ultra-fast from conventional Compact Discs containing a vast amount of pre-recorded information. The devices are totally computer-controlled, making them highly interactive. As well as an enormous amount of raw data, CD-ROMs can also hold high-quality music and video.

The data is stored digitally on the Compact Disc and can be read directly by the computer.

There is price to pay for this leading-edge technology, though. Even if these up-to-the-minute gadgets were available for 8-bit micros, they would be well above the price range of your average Speccy owner.

The CodeMasters device is not a CD-ROM. It does not interact with the computer, and it does not read the information digitally. Instead, the data is stored as a series of two-tone 'beeps'.

It can be described more accurately as a glorified tape loader that owners of these down-market micros have come to know and hate. Play the CD games pack through speakers and you will hear that horrendous howling noise that only tape-based 8-bit computers can bear to listen to.

However, a CD-based loading system offers many advantages over the more traditional tape. Because the information is recorded digitally, there is no trace of the 'noise' associated with audio recordings – the cause of many a load error. This more accurate sound means that the signal can be replayed more quickly, certainly several times faster than tape, and still retain excellent reliability. CDs offer better 'data integrity' – they are not susceptible to distortion from magnetic sources and can withstand a relatively high quantity of dirt and scratches. Finally, although the system is not computer interactive, CDs can be split into tracks. By recording each program on a separate track, the search facilities that all domestic CD players feature can be used to manually select the required games.

TECH TIPS



Does your PC keep packing up? Is your Amiga less than friendly? Would your ST try the patience of a saint? Write to Uncle Tech Tip, he'll see you right. Send your sorry stories to Uncle TT, 30 Monmouth Street, Bath BA1 2AP. There's a prize for the most pitiful tale

HELP! Train me!

Please could you help me with a small problem I have with my Atari ST? At the moment I only really play games with the machine, but I would like to start programming. Is there any place where I could go to learn programming, or would I have to learn it on my own?

Also, please could you send me a signed photograph?
Samantha Brook, Doncaster, South Yorkshire.

Doncaster is, I believe, a large town. Large towns almost invariably have a technical, FE or HE college (particularly in the North, where 'local-boys-made-good' decide to invest some of their pile in a public building or teaching establishment, in order that their name will live on). To determine the location of any college in Doncaster, pop along to your local library, they will have addresses and probably even a prospectus or two.

Depending upon your age and status, a basic course in programming will cost somewhere between nothing and £100. Sounds like a lot, but you will get expert tuition and help to support the concept of education for all.

If there isn't a college near you, you don't have the time to attend it or you can't afford to pay the course fees, get back to the library and run your fingers over their computer section. I guarantee almost all of the books will be out of date, mainly dealing with machines such as the Spectravideo, TRS80 and TI994/a, but in among the antique computers there will be several texts detailing BASIC, Fortran, Pascal, COBOL and the like which, with a modicum of application on your part, will teach you everything you need to know about programming the Atari ST.

You will, of course, need to have implementations of the languages you wish to learn. BASIC is easy – the ST comes complete with a copy, but Fortran, COBOL and the like will have to be purchased separately. If you can't afford compilers (programs which take the language commands you've written and convert them into a form the ST can understand), they're available from public domain libraries for a nominal fee. Buying a couple of these will enable you to try out several languages to determine which one is best for you.

Signed photograph? Only if you send me one first...

HELP! Shared TV

I have recently bought a new television, and my ST now comes through on the same channel as the video, which louses up the respective signals. The TV manual states that a computer can be connected to the SCART socket.

Will this stop the interference? If so, where can I buy such a cable? How much will this SCART lead cost and where would it plug into the back of the ST? If not, please suggest some other connection method, as I cannot use the video while the computer is on.
Glyn Wade, Stoke on Trent, Staffs.

Connecting your machine via a SCART socket will almost certainly help with the problem of interference.

You can buy a SCART lead for the ST from Evesham Micros for around £10. This cable will have a SCART connector at one end and a standard ST monitor plug at the other.

One end goes into your ST's monitor jack socket, the other into the TV.

HELP! Serial solution?

Last year I scraped together enough money and bought an Amiga together with an A501 512K memory upgrade. I was – and still am – very happy with my machine, but my problems started when I decided to get a printer to make listings of my programs and to produce some low-resolution graphic dumps.

A friend of mine had an old printer that he didn't use any more, that had been attached to an Atari ST. He offered it to me for free and I accepted because I could not afford the £150 for a new printer. The printer he gave me was a C-Itoh M8510 Plus serial device which did not have a manual. I acquired a serial printer lead, connected the printer to my Amiga, selected the serial printer mode from Preferences but nothing happened!

I've spoken to Commodore's technical department and ! was advised that the problems could be with the pin-outs from the printer or the settings of the dip switches. C-Itoh have said that special driver is required for this printer. As I have no manual for the printer, I'm totally clueless! Could you tell me how the dip switches should be set, and where I can get a suitable printer driver that would enable the printer to work with my Amiga?

I am also looking to buy a word processor when finances permit. Would one of these have the correct driver I need?
Mark Lee, Slough, Berks.

OK. Back to basics. The printer worked perfectly well with your friend's ST, right? Why not borrow the serial lead they used.

In this way, you'll be able to discover whether the fault lies with the serial cable you've acquired. The Amiga and ST have exactly the same serial port, and leads are entirely interchangeable between the two.

How did your friend use the printer with his word processing and graphics programs? Did they have to get a special printer driver? There's no reason why your printer – given the correct lead – shouldn't print in the serial standard ASCII mode supplied with all word processors (although this won't enable you to print graphics).

As for the dip switches, unless one of the esteemed Techtippers has a manual or some information to spare, I'm

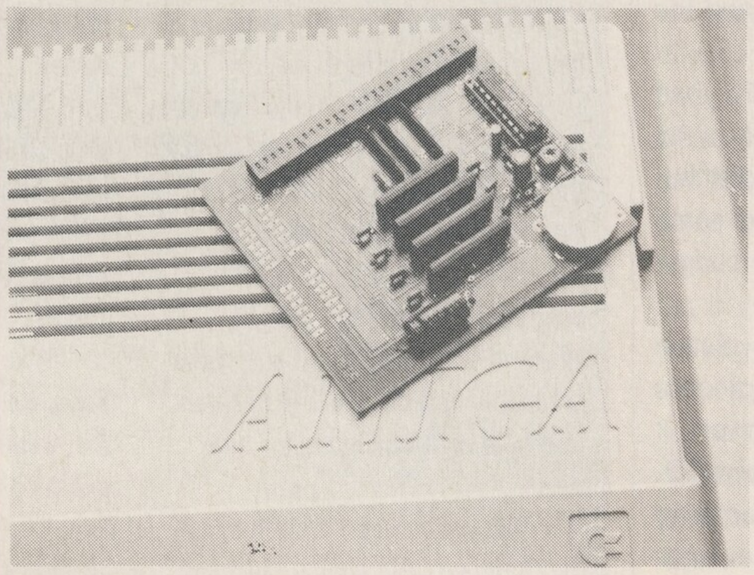
HELP! Upgrading the Commodore Amiga

Please could you tell me where I can buy an Amiga 1084 monitor and can you tell me the price of one?

Also, I am thinking of buying a A501 memory upgrade, can you tell me what it can do?
Lee Hanson, Portsmouth, Hants.

Sure. The 1084 monitor can be had for £299.99 from Silica Shop. Call the company on 01-580 4000.

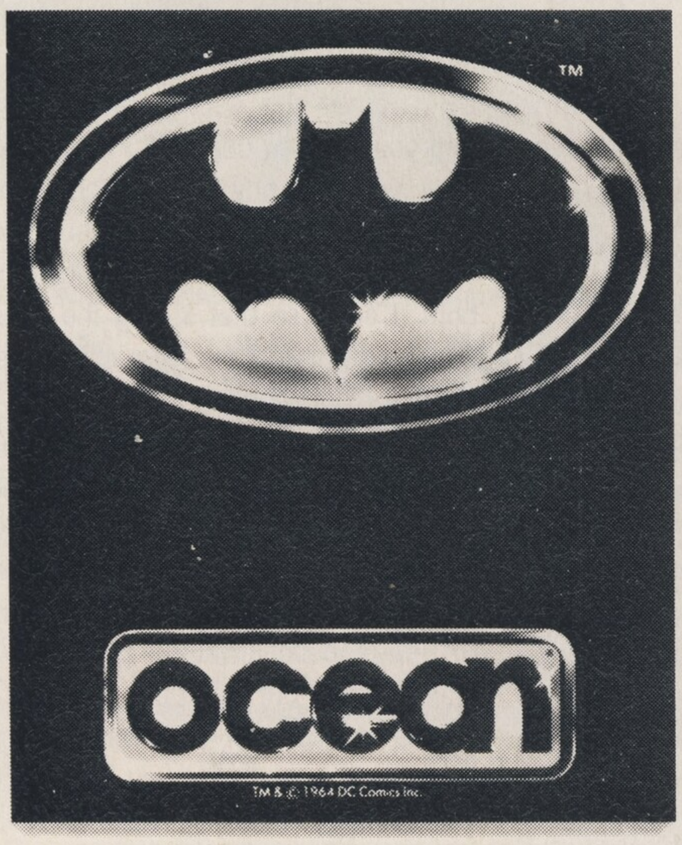
What can the A501 memory upgrade do? It can expand the amount of RAM memory your Amiga is equipped with. Expanding the amount of memory a computer has at its disposal will enable you to greatly increase the performance of the machine. You will be able to make better use of databases, spreadsheets and word processors by holding far more data in RAM, desktop publishing applications benefit by being able to manipulate far larger documents with more fonts, pictures and the like. Many games also benefit by being run on larger memory machines providing better graphics, more digitised sounds and speech, and faster animation (the computer can store more animation frames in memory and does not need to access the disk quite so often). If you can afford it, a RAM expansion is one of the best upgrades you can give to your machine.



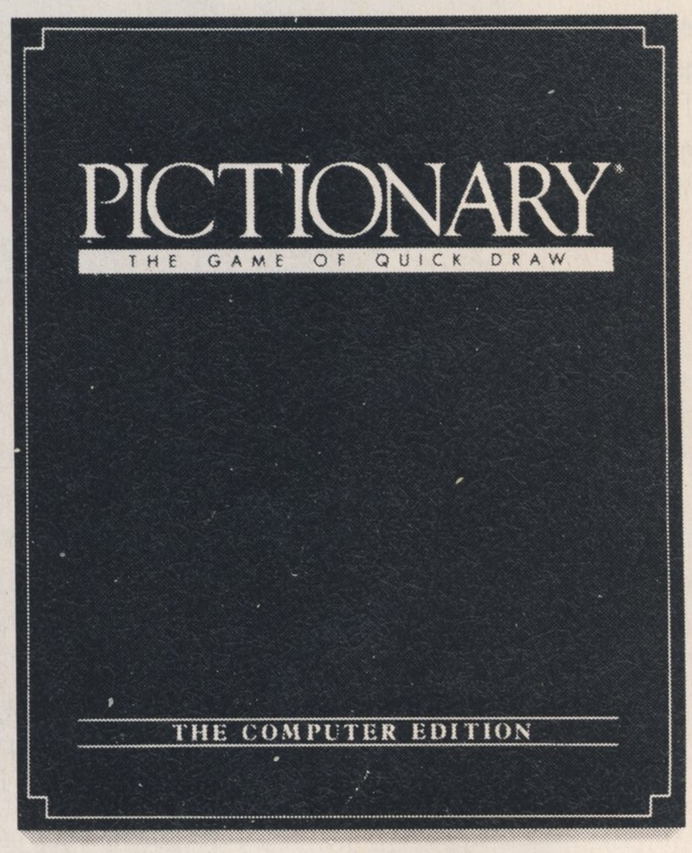
• Commodore memory upgrades aren't the only possibilities – third parties produce many, including this one from MicroMegs

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afraid I can't help – C-Itoh is not exactly brimming over with information!

If you try a different cable and get some print-out – however unintelligible – experiment with the dips. Don't worry, you can't damage anything and may discover the true setting. As with any obscure bit of kit, you're going to have to burn the midnight oil in an effort to discover the correct configurations. Frustrating, but it's all part of the fun of computing.

HELP! Time warp

Our family are newcomers to the world of Amiga computing, having recently upgraded from a Spectrum. We bought the machine in October last year and soon after, bought a second drive. A few days before Christmas we treated ourselves to an early present and bought ourselves a Commodore PN 312600 expansion kit.

A few days after Christmas we realised that the clock was gaining time at quite an alarming rate (the year had advanced to 2000!). We took the expansion kit back to the shop where we bought it and it was replaced with another.

Unfortunately, we now find that the new clock is behaving in exactly the same way. We have reset it several times but it still gains. The shop suggested that perhaps the computer was not being used enough to keep the battery charged. We did charge the battery for 24 hours when we first installed it, and the computer is used for several hours every day.

Is it possible that we are doing something wrong, or could it be a fault with the computer?

The other question concerns our printer. We bought a Star LC-10 colour printer last week and are very pleased with it, but there are a couple of queries that we can't find the answers to.

We have installed the printer with the correct driver and it works fine through Workbench and with *DPaint* and a working demonstration copy of *Protext*. What we cannot understand is if you open the System drawer, there is an icon for initialising the printer. When we have clicked on the icon it is rather like double Dutch! We can find no reference to this anywhere. Can you help?

The last question concerns the use of the graphic dump in the Workbench. We have managed to print out a nice copy of the Workbench screen, but cannot work out how to do anything else with it. There must be another use. Is it possible to use it to print screens from games for example? If so, how do we do it?
Ann Sporne, King's Lynn, Norfolk.

What could be wrong with your clock? The problem may lie with the battery, but I doubt it – you seem to be giving the machine enough use. All I can suggest is that, being new to computing on the Amiga, you may have it connected incorrectly. Try taking the whole machine plus expansion along to the store that sold you the clock and ask them to have a look at it.

Don't worry about the printer initialisation icon in the System drawer. It's there so that you can create the necessary driver (a littie list of commands to get your printer to perform with paint packages and other applications) for printers that don't have a driver. As you've said, the LC-10 works perfectly from the Workbench, *DPaint* and other applications, so leave well alone!

The graphic dump is for doing exactiy what you've already been doing with it – reproducing computer screens on your printer.

Unfortunately, although in theory you should be able to print screens from your favourite games, in practice this is extremely difficult as most games have code to stop you tampering with them (this is primarily to stop users making pirate copies of the games).

However, many clever Amiga owners (yes, there are one or two) have written little utilities to enable you to stop games and copy their screens, and there are several of these programs available from the public domain. Contact Senlac Software on 0424 753070 for an example.

HELP! Upgrade query

I have recentiy sold my Atari 520STFM with a view to upgrading to an STE, but with all the problems being encountered by those who own the STE, I would like to change format to an IBM PC compatible which would also be more useful at college and work.

Fortunately, I'm in a position to be able to afford a 386 machine. However, as this is a 32-bit chip would there be any problems with the 16-bit software available for PC compatibles? Will there be problems with my Star LC-10 printer? Finally, are you aware of a good manual which gives an overview of the PC, and instructions on connecting devices to the expansion slots?
Peter Gordon, Glasgow, Scotland.

Fortunately, the 386 PCs are downwardly compatible with their smaller brothers – the common or garden PC and compatibles. You can run any software on a 386 that you can run on a less powerful PC. Likewise, all peripherals such as printers, drives, monitors, modems and the like will work perfectly. You can continue to use the Star LC-10.

An excellent manual detailing the hardware specifications of the PC is the *PC Upgrade Handbook* (ISBN 1 85058 118 5) by Clive Smith and published by the Sigma Press. It's available from all good High Street book stores for £9.95

HELP! Wear the mask

Could you please advise on the possibilities of using a BBC emulator and a PC emulator on my newly-acquired Commodore Amiga 500? Should I be considering an IBM PC 5.25-inch disk? What other hardware do I require to access the software for the above mentioned makes of computer? How much will it all cost? Should I consider buying a cheap BBC B or Master *(There's no such thing – Unc)*.

My main reason for buying the Amiga was to acquire the latest technology I could afford. The BBC computers are not made now, so I'm told, and the IBM PC appears to be entirely business-based. I think BBC educational software is a vast area from which my children could benefit greatly.
Gerald Harris, Heath, Cardiff.

Hey Gerald, haven't you bought rather a white elephant?

You're anxious to use BBC educational software (the Beeb Master is still available and there are thousands of BBC Bs on the second-hand market) and you want to use IBM PC software. Why didn't you buy either of those computers, at least then you would only have to emulate the other rather than both. I suppose that selling the Amiga and buying one of the latter machines is out of the question?

OK. Beeb and PC emulators are available for the Amiga and work with varying degrees of success. The BBC emulator is not an emulator at all, but a language which enables you to run BASIC (and only BASIC) programs on your Amiga, but as there are lots of BASIC educational programs around, this should cover what you want to do. The emulator written by Ariadne is available from Commodore itself.

Until recently, the only PC emulator available for a Commodore machine was the Bridgeboard for the A2000. The launch of KCS's Power PC Board changes all that however, by bringing PC compatibility to the unexpanded A500. The board supports the Amiga's internal 3.5-inch drive, and as most new PC software is available in this format, you'll have access to almost everything.

Fairly simple to fit, is priced at £299 and can be bought from Bitcon Devices, 88 Beswick Road, Gateshead NE8 1RS The price includes MS-DOS. ■

HELP! Some advice on setting up screen shots

I am writing to ask if you could give me any tips on how to produce quality photographic screen shots from the Amiga screen. I am producing a fanzine for my A-level communication studies project and have encountered a few problems when trying to photograph the screen. So if possible, could you tell me how to produce the quality shots that I see in your magazine. Also, have you any tips on the editing and designing aspects when creating a magazine. I hope to create a new and original format so I will send you the finished product and see what you think of it.
John Safa, Lenton, Nottingham.

You will need a 35mm SLR camera for best results. Buy some 100ASA colour transparency film – be prepared to use lots and lots of this – load your camera, secure it to a tripod and attach a cable release to the shutter trigger.

Place the tripod in front of the Amiga's monitor or TV so that the camera lens is at the same height and square relative to the screen. Darken the room or drape a large velvet cloth over the screen and camera. If you want to shoot a game, pause the action at the point you wish to photograph.

Open the lens aperture as wide as it will go (usually around f1.8). Set the shutter speed to a 1/2 second and release the shutter. Wind on, set the shutter speed to a 1/4 second and release the shutter again. Repeat with shutter speeds of 1/8th and 1/16th. You now have four exposures of the screen you wished to photograph, one of which will have just the right balance of tones to be perfect for reproduction. It's wasteful of film, but that's how it's done (or rather, that's how we do it).

Design tips? Don't listen to anyone. And don't read any of those trashy pamphlets by 'popular' computer writers purporting to tell you how to design like the experts.

Good design is exceedingly difficult to quantify, but is generally that which doesn't get in the reader's way. Let loose with a desktop publishing program and access to a hundred fonts, most novices pepper their publications with typefaces and end up with something that looks like a Victorian circus poster – absolutely appalling! In Tech Tips, we use Placard for headlines, Helvetica for the text, and that's it!

When you design a page, try roughing it out with a pencil and paper first. The temptation is often to fiddle endlessly with an on-screen version in the DTP package, but unfortunately most budget DTPs don't have the speed or flexibility to design 'on-line'. You are much better off working out what you want to do first.

The best tip is to cut along to a newsagent and examine every magazine you can lay hands on.

520ST-FM SUPER PACK



The Atari Super Pack is ideal for you if you want to get off to a flying start with the best in entertainment software. The Pack includes a 520ST-FM with ½Mb RAM, a built-in 1Mb disk drive, over £450 of top games and a joystick. If you buy the Super Pack at Silica Shop, we will add our own ST Starter Kit (worth over £200), Free Of Charge. Return the coupon for details.

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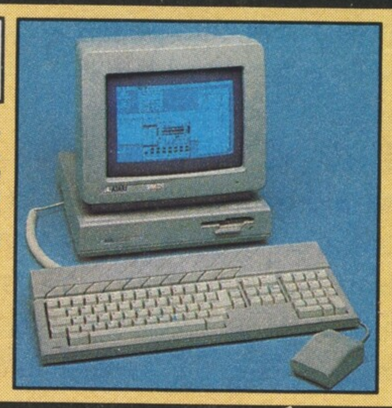
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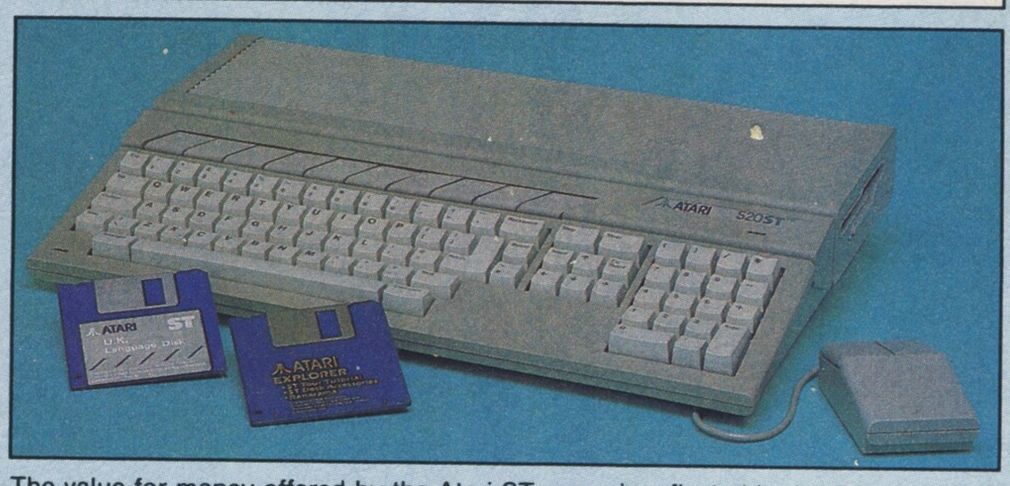
ATARI ST

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FROM THE TOP



In the last year Atari has never been far from the headlines with a series of major releases and controversial problems. Bob Gleadow, Atari UK's managing director, is the driving force behind the British end of the company, and Colin Campbell went to meet him...

Atari's ST, while far from the autumn of its years, has reached the safety of middle age. It is neither state of the art, nor outdated junk – but it has passed its prime as an admired piece of hardware. With characteristic savvy its maker and guardian has performed the necessary transition with common sense. That is, to position the machine not as a bright new thing for the computer literate, but as a no-nonsense entry level option for the masses who have yet to fully comprehend that there's more to computing than bytes, floppies and *Pacman*.

Atari would rather be selling computers than positioning them in some grand scheme. But position it must in order to introduce the five year-old ST to what continues to be the most important person in home computing – the first-time buyer.

TOP MAN

Bob Gleadow, for the past three years Atari UK's top man, is fronting the operation. He's not just the managing director of Britain's sales operation, but more significantly, a touchstone for the decision makers in Sunnyvale, California. With the UK so important to Atari Inc, his performance is vital.

His ruffled hair and amiable manner belie a wolf-like approach to business that incorporates aggression with a subtlety, which opposite numbers lack.

Like most businessmen he says 'we like to think we can afford to be nice', but he'd rather like to think he can thrash his competitors if he has to.

He is most certainly faster at making decisions than his adversaries, but this can have an unpleasant effect. Buyers of the STE – shipped-in at short notice last December to cope with yet another Christmas shortage – will testify to this.

It was Gleadow who picked up the telephone and dragged the computers into Britain when seasonal demand and a dock strike threatened to mangle up sales plans. And, despite predictable compatibility problems, he'd probably do the same again.

But his immediate concern does not centre around supplying demand – more with generating it. Bargain hunters may be pleased to learn that this will be achieved through the ST Discovery Pack (*Express* 70).

• Bob Gleadow, Atari's UK boss: never said the STE was an Amiga beater.

Bundles are bundles are bundles, and they are usually cobbled together with a degree of sales cynicism. Atari is no less guilty of that than any other company, but this time there appears to be a genuine attempt to give people what they really want: a good computer, a guiding hand, and some freebies to boot.

"What we want to do this year is position the 520ST as a first-time buyer's machine with a £299 pricepoint. We're trying to separate out the first-time buyer and the second-time buyer – one with an attractive £299 package, and the other at £499 where we'll actually look to sell the 1040."

This may smack of marketing mumbo-jumbo, but therein sits the future of one of Europe's most popular home computers. Gleadow is no longer content to fight it out with the Amiga – he's now after those people who would normally be wondering whether a CPC would be better than a Spectrum.

"It's a better deal. When you buy an 8-bit computer you still have to look at a disk drive and other extras. With the 520 you're getting a superior machine with a 1Mb disk drive and access to a wide range of software packages."

POINT TAKEN

He has a point. Buy a tape-driven CPC and you're looking at £299. Buy one with a disk drive and that's £399. The Speccy isn't much better. A Plus 3 will cost £100 less than the ST – but it's largely based on a computer introduced almost 10 years ago.

It has to be noted that the ST has been selling for £299 for ages. But people don't simply want a piece of hardware, they want a fully-fledged computing option – hence the new emphasis. The 520 ST is no longer in a head-to-head battle with the Amiga. It's an alternative to the 8-bits. At least that's the theory. ■

GLEADOW ON THE STE

"We released the STE prematurely. We brought in 20,000 last December and they all sold through. The justification for our doing that was that there was a dock strike at Folkestone and we had to fly them in," says Gleadow.

This isn't exactly saying 'sorry we did wrong' but it is something of a departure from the arrogant attitude displayed when the STE compatibility fiasco was in full swing.

Then, when leading ST software packages were not running on the upgrade, Atari was adamant that it could not be held responsible for the follies of over-ambitious programmers who saw fit to break the rules on earlier models.

Nevertheless, these follies are well known to all in computing and really should have been added to the formula.

Gleadow explains: "We all know that programmers take short cuts. The problem was that they were violating Atari guidelines. The problem with the Atari guidelines is that you could go round them with one version of a product with no problem. But of course when Atari comes to do the next version it takes those guidelines as the Bible and sticks to them. That's how we guarantee compatibility."

Except of course, in the event, real-world compatibility could not be guaranteed.

Whatever, the wails of 'I should have bought an Amiga after all' from disgruntled buyers have floated away. Software publishers are falling into line, and with the STE now priced at £100 more than the STFM, Atari is saying that those 20,000 buyers can count themselves pretty lucky.

The STE is a 'serious' computer. "You can upgrade it to almost anything you want. 4Mb packs are already available from third-party dealers, proving that there is a market demand for the serious user."

The STE costs serious money. Atari is deliberately steering prospective purchasers toward the £499 option with extra goodies. One suspects the basic £399 model will not be one of Atari's big sellers this year.

But is the STE an 'Amiga beater'? "I never said it was," he replies. "It's an improvement on the existing machine."

GLEADOW ON BUSINESS

"Over the last two or three years Atari has become a multi-product manufacturer. By the end of this year you'll see Atari being successful in consoles, with the Lynx, in business machines and there will be the beginnings of a workstation presence. So as we have evolved over the last three years we have had to change our style."

With such a broad range of gadgets and computers within his remit, it's no wonder Gleadow is looking to "be in the background". When he started at Atari, life was a good deal simpler. But now he's controlling everything from games software in the ARC division, through old consoles, the new ST console (still pencilled in for the autumn), Lynx hand-held, Portfolio pocket PC, to all the STs, as well as the forthcoming TT, a line up of PCs and the top end ATW Transputer Workstation.

With that kind of job spec it's no wonder he has to leave the nitty gritty to employees. But how much of what we see is dreamt up by the boss? "A degree of that does happen but before we do anything we get a group of people together and have what I call a 'bullshit session'.

"We look at what we're putting together, what we're asking people to buy, and we throw ideas at each other.

"Ultimately though, I have the casting vote."

The best thing about being the boss of a hardware operation is, he says, the salary, but pay cheques tend to demand a lot of graft. "I think so. When I come in every morning I think I'm going to be leaving at six o'clock, but the hours tend to drag on."

He considers his greatest success at Atari to be the firm's current standing. But what of his biggest regret? Surprisingly it's in that area where the ST has really proved its worth as a serious tool – desktop publishing. Gleadow says he should have moved faster two years ago when DTP was still more of a buzzword than a reality. "We should have recognised the capabilities of the ST in DTP early on."

Gleadow views it as a real alternative to the Apple Mac rather than being the poor imitation some have suggested (including the market in general).

But he sees the TT as "my second chance to get into DTP and graphics".

GLEADOW ON THE COMPETITION

Much is made of the rivalry between Commodore and the firm it spawned – Atari. Behind the scenes you can just imagine Gleadow grinning every time Commodore (or indeed Amstrad) fumbles the ball.

And of course Mr Franklin (Commodore) and Mr Sugar (Amstrad) will also have a good chuckle when Atari trips over its own ambitions. Such is the nature of intense competition – but you'll never get any of them to admit it.

"It never crosses my mind. Every step we take is to look at what we think is good for us in the market. We're not interested in what everyone else is doing because we don't have their logic." A little dig there. Gleadow then goes on to claim that Commodore is obsessed with Atari.

And Amstrad? "The minute Atari starts looking at what Amstrad is doing and we follow that, we immediately relegate ourselves to being behind Amstrad, because we're looking at what he does. Instead we are looking at what we can do that is good for us.

"If you're in a car race and you start to follow someone, or you look in the mirror and see what everyone else is doing, then it starts to distract you from driving as fast as you can. We're into driving as fast as we can ."

But surely you can't ignore your competitors? "There's nothing they can do which specifically influences anything we do. It might cause us not to something. For instance, if we were planning a headline and then Amstrad went out and did it before us, then we would scrap it, that kind of thing."

GLEADOW ON CD

Given that Atari introduced a CD-ROM device three years ago, it may come as a surprise that Gleadow does not share the enthusiasm expressed by much of the market.

When will we see Atari introduce an all-in-one CD ST device akin to the much publicised Amiga machine? After all, isn't CD where it's all happening?

"Is Compact Disc happening? You're looking at a man who has had Compact Disc players in his warehouse for 18 months now. Where is the software commitment? Show me a CD standard. Is it CD-I?

"Look at the MSX. That had a Laserdisc which gave you the best graphics I've seen. It was true video with a computer image superimposed. Outside of Japan it didn't do very well..."

He turns on the notion of CD/computer combos. "They're going to cost £600 or £700. How big is the market opportunity at that price range? We think computer buyers should become CD buyers. It's better to offer computer buyers the CD as an extra rather than offering a highly-priced integrated system."

GLEADOW ON THE PRESS

While Commodore and Amstrad generally like to wait for things to happen before announcing them, Atari is constantly toying with the press – hinting, leaking, suggesting and otherwise making implications. It sometimes moves into the realms of absurdity, although for those with a vested interest in information (like magazine news editors) it's all rather jolly.

Uniquely, Atari isn't so much concerned with the public's perception of it as a company, rather with the perception of each individual project.

This has the effect of providing magazine readers with lots of juicy titbits from 'highly-placed sources' as well as supplying Atari's formidable PR machine with cheap market research.

Doesn't this take, well, a certain degree of manipulation of the press? Gleadow is suitably shocked at such a suggestion. "I wish we could manipulate the press," he jests. And he is jesting.

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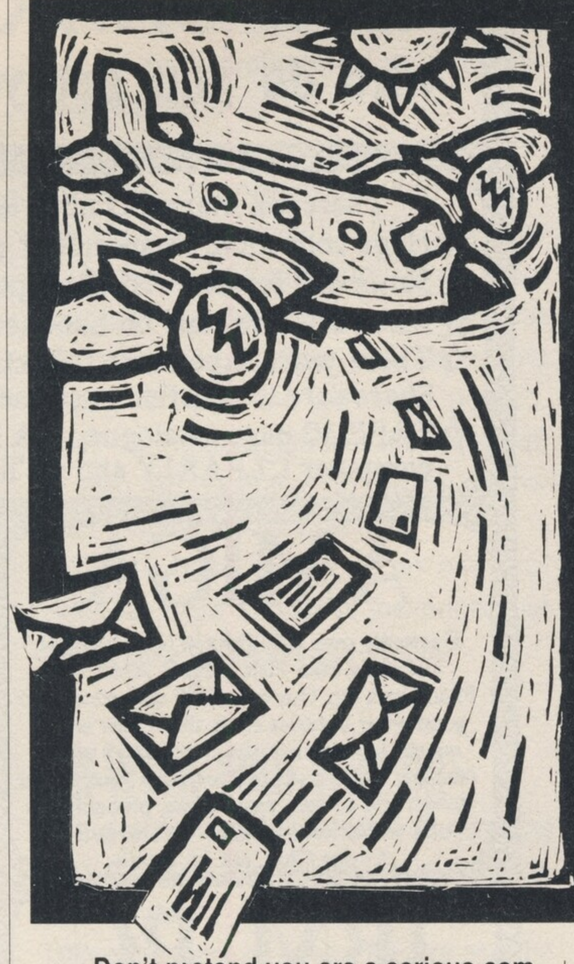
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EXPRESS MAiL

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Rave from the grave

I sold the computer to which I refer many moons ago, but here is my contribution to the 'my-computer-was-better-than-yours' argument.

• My computer had a waterproof, wipe-clean keyboard.

• My computer was coloured in super-stylish, cool black.

• My computer was the first to have switchable speeds.

• If you put your coffee in the right place on top of my computer, it could keep it hot for hours.

• It had a freely accessible expansion port (none of this under-the-computer business for my computer).

• It was small enough to be a laptop if you had a lap big enough to fit a TV on.

• Its power consumption was so low, so very very low that I had it running for an hour on a single 9V PP3 battery.

• The power pack could keep your feet warm even in the coldest of rooms.

• Absolutely none of the Ben Elton 'Farties' bought one.

The computer to which I refer is, of course, the noble Sinclair ZX81.

Mark Beevers, Castleford, West Yorkshire.

Plus, says our office aficionado, the best of all versions of *Galaxians*. Not to mention the fact that Sir Clive still regards it as his favourite computer. And he should know.

Varsity challenge

This is a letter that needs to be written, but I am not trying to upset anyone – just bring a few things to the attention of the the people who write my-computer-is-better-than-yours letters.

The things which make a successful computer are: enough quality software which is useful and easy to use; a large user-base; and fast reliable hardware. A lot of very good PD shows that there are experienced, dedicated programmers using the machine.

For desktop publishing, I hope you have access to a laser printer or cheap laser printing services and also a lot of memory and a very large, fast, hard disk.

For music, I hope you have access to MIDI keyboards and MIDI equipment and lots of it, for serious music-making requires it.

For graphics, you need a very high resolution multi-sync monitor and a few transputers or graphics co-processors. I am not talking about the future, I am talking about ray-tracing and 32-bit colour, right now.

For serious computing, you must have 4Mb before you count the memory for graphics, digital sound and data, and enough expansion slots so you don't run out of room for the 'necessary' hardware.

This may sound funny to a lot of you. I am not knocking computing as a recreational pastime, but think about what kind of computer you need to do professional work. This is what I mean by serious.

Don't pretend you are a serious computer user until your computer needs to be faster just so that it won't inconvenience you. Don't pretend to be what you are not.

If you need to mult-itask more than two big applications at one time you are a serious user. A serious working arrangement for one-man DTP in my books is multi-tasking a wordprocessor, an art package, a DTP system and a few other necessary utilities for macros and such.

This requires, by my reckoning, about 8Mb to be convenient, and that isn't including some good hardware. I am not implying that DTP is not a good application for computer users, just that everyone seems to think that its the best thing since sliced bread.

All anyone 'needs' is a computer which does everything that he or she needs to be done by computer. But serious computing is in another realm from using an ST at home to do a lot of different little tasks (not multi-tasking), and some people don't seem to realise this.

Many people can't seem to separate what they want their computer to do (usually in some incredible fantasy), and what they need the computer to do for them in a way that is cheaper and more convenient than any other.

Cade Roux, Gonville & Caius College, Cambridge

I think you have both added perspective to the debate and (to mix metaphors – I am sorry) muddied the waters at the same time.

Yes, the rivalry between owners of various models seems petty judged by the standards of people who have to carry out complex and memory-consuming tasks. And, indeed, it is petty.

I find it difficult to understand why people who are pleased with their computers need to validate their ownership by knocking someone else's machine – it smacks of insecurity and most probably immaturity.

You cloud the issue by attempting to differentiate between serious and frivolous users on the basis of their computers, and as such you are falling into a very similar trap to people you criticize. You are in danger of replacing the 'my computer is better than yours' squabble with the 'my work is more serious than yours' debate.

There are plenty of musicians using the ST in the course of earning their living. There are plenty of good writers who work on the 'humble' PCW and whose livelihoods depend on it. They are all 'serious' computer users.

You put your finger on the nub of the matter by stressing the word 'need'. The sort of people I refer to above have machines which will do all that their owners need them to, and setting arbitrary RAM sizes as a measure of 'seriousness' is no more than a distraction from the real question of matching the equipment to the demands of its user.➤

What about the workers?

I feel that I really must write and congratulate you on your publication's support of the 'Ant-Hacking' Bill (*Express* 68). This is the first time that the disgusting practice of dismembering small, hymenopterous insects had come to my attention and I believe that it should be stamped out.

There are, however, a few things that puzzle me.

Firstly, why is this behaviour restricted to computer users – is it something to do with the 'bugs' that we hear about? Secondly, where would you find an axe small enough to carry out the aforementioned hacking? Perhaps you could spread some light on the subject.

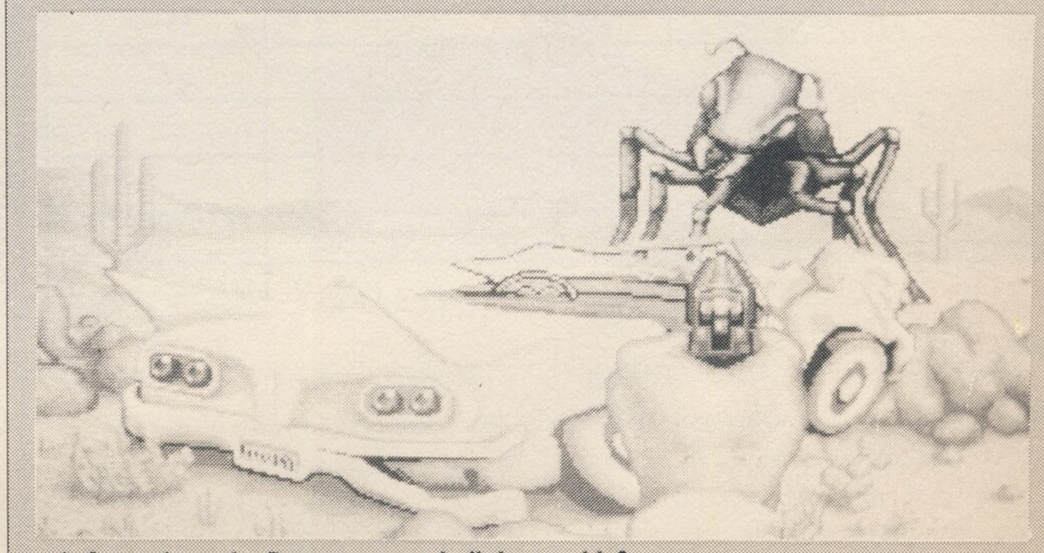
Anyway, it seems like a very emotional subject and I have no intention of stirring up antagonism by pouring boiling water on it.

Your article further mentions the existence of "bedroom hackers". I expect that it is due to their guilt that they feel it necessary to carry out this horrendous activity in the seclusion of their own bedrooms. Think of their poor mothers trying to remove the stains from their sheets and emptying waste baskets full of dismembered limbs.

The sooner Colvin Bill gets his act on the committee stage the sooner law-abiding ants will be able to sleep in their beds without the fear of being hacked around.

Neil Traylen, Home for the Easily Amused, Camberley, Surrey

I blame the whole problem on Cinemaware for putting all of those ants into *It Came From The Desert*. Unwitting gamers bought the thing from Mirrorsoft, and the next thing they knew there were overgrown formicidae all over the option.



• It Came from the Desert: *started all the trouble?*

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Budgie licences

Following the letter of Simon Daniels (*Express* 69) you asked someone to throw some light on licenceware. Well, I think I have some authority on the matter as I was one of the guys involved in setting up one of the first schemes on the Atari ST.

I help run Budgie UK, the cheapest provider of decent games for the ST. In fact, we now manage 37 varied titles, including shoot-'em-ups, simulations, adventures and strategy-based products.

The initial idea came from the ST Club and basically runs along the following lines:

• Library: A PD library obtains a written licence from Budgie UK to sell our games and agrees to pay 15p for each game disk that it sells; a serious disk costs the library 50p.

After three months the library counts up the total sales and sends a cheque for that sum.

A minimum fee of £15 per quarter is payable and, if necessary, the library must make up the difference.

• The author's representative: In this case Budgie UK. We check the new disks received from the authors to make sure that things work and are good enough to be enlisted and distributed.

We then send these disks to the library and, when fees are received, divide the money according to the number of titles each author has under the scheme.

In December, when this was last done, Gary Wheaton, who wrote four titles, got about £70 for the three-month period. It's not going to make anyone rich, but it would pay for a memory upgrade or some new books.

There are currently 21 libraries enlisted by Budgie and one of them is in Australia, while the now-famous Andrea Ramos handles the whole of Scandinavia.

We think licenceware will catch on once more people find out about it. By the way, it is up to the PD authors to write to us and see if we will handle the distribution for them.

Indeed, Budgie has just started to accept more serious titles, which include an electronic bank statement and sprite package. These more serious titles are sold for £3.95 while games are £2.95.

Please send an SAE, for a list of libraries covered by the scheme, to Budgie UK, 5 Minster Close, Rayleigh, Essex, SS6 8SF.

Amiga authors are advised to write to PD-Soft which is a new PD service starting up such a scheme for anyone interested – demo writers, game creators, anything at all.

This is a new PD library which specialises in demos for the Amiga. Please write to PD-Soft, 1 Bryant Avenue, Southend-on-Sea, Essex, SS1 2NY.

Sandra Bright, PD-Soft, Southend-on-Sea

I like the sound of this wheeze, I must say. PD is clearly struggling to live up to the 'no profit for anyone' ideals of its conception, and at least licenceware realistically accepts that some libraries are run on a professional or semi-professional basis.

As long as product is kept at budget prices, somewhere close to the levels already charged for PD, schemes such as this one may provide an extra rung on the ladder for aspiring software professionals. Product will be cheap enough to sell and get them noticed, while the modest remuneration involved is also an incentive to produce programs which are up to scratch.

Let's hope it catches on and provides an extra source of low-priced but reasonably-impressive products.

Work your way up

The debate that has started in *Express* Mail recently concerning jobs in the computer industry is very timely. With the falling numbers of school leavers and the importance of IT to the future of this country, it is essential that the issue is addressed straight away.

If the Govenment is as committed to furthering Britain's computer literacy as it would have us think, then it must put its money where its mouth (policy) is. It must encourage mature people, like Neil Foster (*Express* 69), who are genuinely enthusiastic about computing work, and implement a 'workable and realistic' scheme for training people with the prospect of decent jobs on completion of courses.

In schools, both equipment and staff need to be near state-of-the-art, which is very far from the case at present. In the school where my wife teaches they are the proud (eh?) owners of three Nimbus and three BBC Bs and what little software they have is hardly exciting. This is not going to instil a sense of technical excellence in the little treasures is it?

For those older people seeking work in IT, I can only offer these words of encouragement: I am 38 years old and have been applying for jobs in computing, on and off, since 1982. All my experience was in an unrelated field but, through the introduction of computers in my place of work, I got the chance to get involved.

After a couple of years a job in support, within the same company, was circulated and I applied successfully.

I am now in the process of moving to another employer with whom I shall have what I consider to be an excellent job in applications support. I now think of myself as an IT professional which was my goal from the start.

The point is this, sometimes there has to be a compromise. Go for the nearest thing to what you want, and wait for the next opportunity.

A final thought, most of the employers I have encountered have been as interested in my commercial and business experience as in my computing skills – so no experience is wasted.

Just keep on keeping on, as they say in Motown.

Steve Laing, Windsor, Berks.

It does make a change to hear an encouraging tale, and I go along with your assessment. For next week, though, I already know of one reader who wants to call me a loony lefty. Any more contributions to the work and training debate?

Humour in uniform

Letter to be read in the voice on an ex-army colonel who served in India and likes pink gin.

"I was shocked and amazed by Neil Foster's comments in *Express* 69. Imagine having the tenacity (that means cheek, Mr Foster) to criticise our Government and its glorious leader over unemployment. It must surely be his own fault for not having job experience.

Moaning and complaining...I don't know...

What he needs is a kick up the backside and a year in the army. That would sort him out. Long live Maggie! I have only one thing left to say to Mr Foster and that is: Get on your bike."

PS Sorry about the crayon – we're not allowed sharp objects in here and my printer's slightly broken.

Dooby Dolan the Psycho Duck, Zappaland, Barking Madshire.

The army is far too good for these people. Put them in the stocks, pelt them with rotting vegetables, give them a good birching and then string 'em up – that's what I say.

Now can I have a job with a Latin American government, please?

By the way, the word for cheek that you are trying to think of is 'temerity'.

The mind machine wasn't Soviet after all

Regarding your article entitled 'Soviet mind micro on sale in States' in *Express* 64, may we make the following points:

• The MC² was developed by Light and Sound Research Inc, Scottsdale, Arizona

• The MC² has been sold nationally in the US since 1987 and internationally in Europe and abroad since 1988.

• Light and Sound Research has not licensed its technology to any company or country.

• Light and Sound Research has signed a protocol with the Electroacoustical Centre of the USSR Academy of Sciences (Echo) in Moscow.

Terms of the protocol state Echo will have the opportunity to manufacture and market the MC² non-exclusively world-wide including Soviet and Eastern European markets.

• The MC² accesses hertz frequencies from 13+Hz to 4Hz, focusing the majority of the time within the 4-7Hz range known as the Theta state.

Lynn D Gillen, Director of Advertising, Light and Sound Research

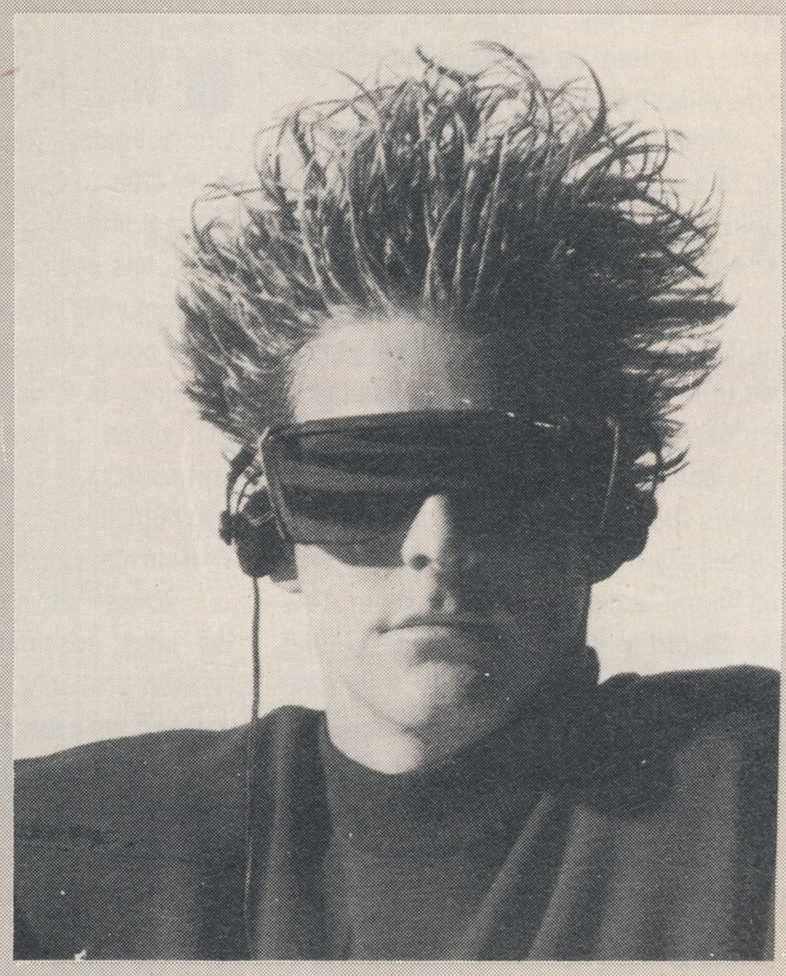
Whoops! After a lot of back-tracking I have nailed down the boob to an ambiguously worded on-line news story from a US bureau which referred to a protocol with Echo 'under which Light & Sound will manufacture its 'mind machines' in the USSR...'

We mistakenly attributed the 'its' to Echo, hence the misunderstanding of which direction the technology was moving between the signatories.

It was sloppy work, though. We own up. You have us bang to rights. Our only consolation is that at least one other UK magazine made precisely the same error, proving at any rate how easily these things are done.

We are pleased to say that we have now been contacted by a UK outlet for the MC², and hope soon to strap our News Editor into a review model, though we are not sure if wearing the device will improve his skateboarding.

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CRYSTAL BALLS

EXPRESS MAIL SPECIAL

The subject of astrology and predictions has generated more letters over the last few months than any other barring the 'my machine is better than yours' saga.

Ex-editor Rob Ainsley called it "old tosh", then it was riduculed again in my name a couple of weeks ago. A number of readers disagree..

On prediction

I think I have the right to say that I can speak with some authority on the subject of predictions as this is something that I did for some years.

Astrology seems like a very hard way to analyse and predict. I used numerology, hand-reading, the Tarot, dowsing and the I Ching. Actually, none of these methods are really necessary to know. I can look into someone and tell them what is wrong with them or if they are healthy.

I have not done this for some time now, as I found that people were looking for easy answers and the truth is that the best way to know the future is to strive to live well today. If you do this, then the future does not matter, for you will have peace of mind.

There are ways in which it can be helpful, though. I will give you an example. If you look at your wrists you will see three rings around it at the base of the hand. These rings, called the bracelets, are of value to women. If the first bracelet has an arch upward into the hand, it warns of difficulty in child birth.

I saw this in a lady whose hands I read and warned her against pregnancy. I advised her to seek medical advice in this matter. She did so and was able to confirm the advice that I gave her.

Perhaps it may help you to know that I feel that the best astrologers are good psychics anyway, and do not need the charts, but they do not have the courage to do without them.

From my own experience, I just used the hands as a link to get started. If I could achieve this link, then whatever came into me came easily.

I have used pendulums to find a lost dog which I tracked across the countryside from Hickling to Acle. I did this using map dowsing.

Because I could not travel, I rang the owner's friend to tell him that the dog had reached Martham. I told him where to look and he got in his car and went there. This was Saturday night and it was getting dark, so it was no surprise when he rang me to say he could not spot the dog.

I did not mind, though, as I had a picture of the dog laying outside the corner of a lawn by a house with a wall around it, so I knew that she would be returned.

This is what happened, exactly as I saw it. The house was in Acle and the route that I traced on the map was correct.

I cannot convince anyone that astrology works, as I have never used it. I do know that the future can be seen. I also know that the future can be changed. It is not fixed. This is important to understand.

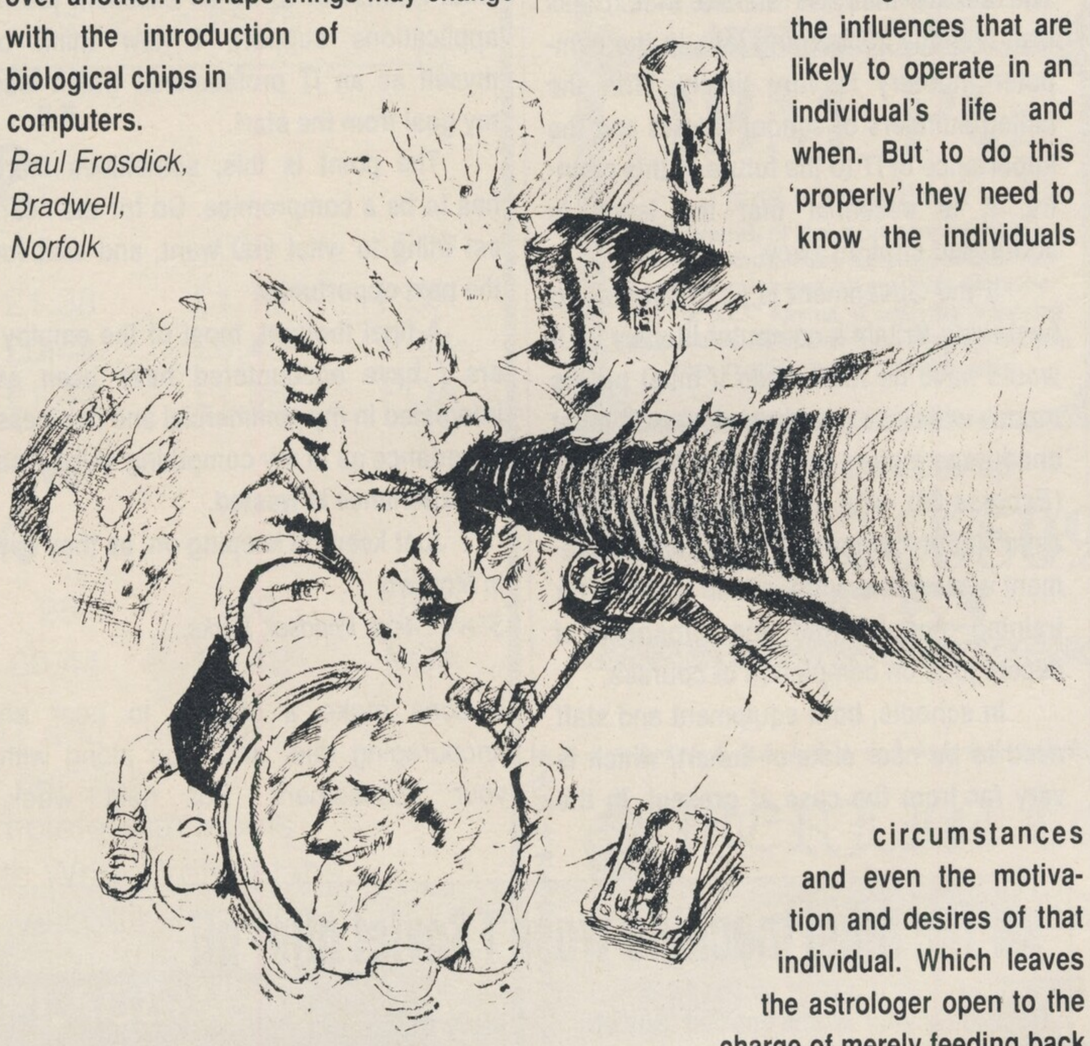
It is as if you were driving a train and you received a signal telling you that the bridge in front of you had collapsed. A wise person would act while there was still time. A fool would rush head-long into danger. For me this has been the only real value of prediction. Helping others to avoid pain.

One more thought on astrology. It is not possible to produce a program that could make accurate predictions. This is entirely dependent on the 'instinct' of the person interpreting the chart.

All that a program could do is give guidance, as an expert system can help a doctor. The program cannot take the place of the doctor, nor could it in the case of an astrologer.

As yet, only animals, including man, can sense the importance of one factor over another. Perhaps things may change with the introduction of biological chips in computers.

Paul Frosdick,
Bradwell,
Norfolk



The real astrology

Our company, Astrocalc, has advertised fairly often in *Express*, as well as advertising regularly in *ST Format* and *8000 Plus*, and it has been selling and advertising in the computer press since 1982.

I point this out because you say that astrology is a load of bull and, as far as that which appears in most newspapers and magazines goes, I entirely agree with you. But then, that is not real astrology. What is real astrology?

To set the record a little straighter, the latest research would indicate that Newton probably didn't believe in astrology and the comment to Halley that reputedly had astrological overtones was probably never made.

Furthermore, the researches of Nelson into the influence of the planetary aspects on the radio reception have now been largely discredited, despite the high commendations that he received from many institutions, including the American weather bureau and NASA. What is more, both of these re-thinks are the result of work by real astrologers.

Indeed, the only astrological work which has stood up to scientific scrutiny is that by the French psychologists, Michel and Francoise Gauquelin. Their work has withstood scrutiny by scientists of all 'denominations', including those belonging to CSICOPS (the Committee for the Scientific Investigation of Claims of the Paranormal).

The Gauquelin work shows that exceptional individuals are more likely to be born with certain planets near the four angles of the chart – ie, when they are rising, setting, culmination or at the IC. Different planets are prominent for different types of individuals and the results are not always in accordance with tradition. Mars is prominent for athletes, the Moon for writers, Mars and Jupiter for the military, Jupiter for politicians, etc.

In forecasting, astrologers should be able to give an idea of the influences that are likely to operate in an individual's life and when. But to do this 'properly' they need to know the individuals circumstances and even the motivation and desires of that individual. Which leaves the astrologer open to the charge of merely feeding back to the individual what he wants to hear. In addition to this psychological influence in astrology, there is also the issue of free will.

If you are told that you are likely to be in a quarrelsome mood and find that you are, and then you are careful not to quarrel with people, are you exercising free will or is it an illusion? Further, are you proving astrology or disproving it? After all you were told you would quarrel with everyone and you haven't.

There are computer programs which interpret charts. Yes, there are computer programs which will predict your future. How accurately? This can vary with the individual concerned and there should be no programs which claim absolute precision. Better still are those programs which allow the output to be modified before printing out, to take account of individual circumstances.

Would we let *Express* test them? No, we don't think that you have the time or expertise. What we would suggest is that you concentrate on computers and do more 'comparative' research between types of computers.

How about telling your readers how long AmigaDOS takes to load a disk, or how many disk swaps you might make in doing that simple exercise?

We have written programs for many computers – we still have more than 25 different makes – and have grown to love them all. I even sort of love the Amiga. But to make it 'best buy' as you did at the end of last year! Come on now, tell it like it is.

Colin Miles, Astrocalc, Hemel Hempstead, Herts

Common sense

Your remark in the January 27 issue cracked my resolve.

You said: "I don't see how a bunch of stars billions of years away can affect my life." Well, of course you can't; because they don't. But let me ask you a question.

How does a thermometer affect the temperature in a room? The answer is, of course, that it doesn't. What happens is that certain events take place – a fire is lit, a door opens, etc – the physical manifestations of which seem to be closely linked.

Some of these manifestations can't even be seen, let alone measured – but some can. We can use those phenomena we can see in order to understand and measure those we can't. (When we look at a thermometer we say we are measuring temperature. We are not – we are measuring the changes in a column of mercury.)

On a more complex scale, 'things' are happening in the universe, the manifestations of which are inextricably linked. Some of these can't even be seen, let alone measured and understood – but some of them can. Is the penny beginning to drop? That's right, the shape of the universe is not the cause of what is happening within it but the reflection.

The fact is that something is happening in this universe and you don't have to be an Einstein or Mandelbrot to begin to see what it is. I'm not saying that this 'something' has meaning or significance. My view is that it means sod-all.

Nevertheless, the universe is unfolding around us and it behoves us with any scientific inclination to simply observe what is going on without prejudice.

David Cooke, Stoke, Coventry

There is a positive use for any genuine attempt at individual character analysis, in that it encourages people to examine their strengths and weaknesses, if only to see how far they agree with what has been said or written about them. If astrology helps, fine.

But note that I say 'individual'. Categorising people into only 12 character archetypes based on their month of birth – which the more idiotic so-called astrologers do – is about as useful as a fortune cookie.

The horoscopic superstition printed in the daily newspapers is not simply tripe – it is positively dangerous. People should attempt to take control of their own destiny. It is not easy to do, and encouraging the idea that folk might as well give up because their lives are predetermined is irresponsible.■

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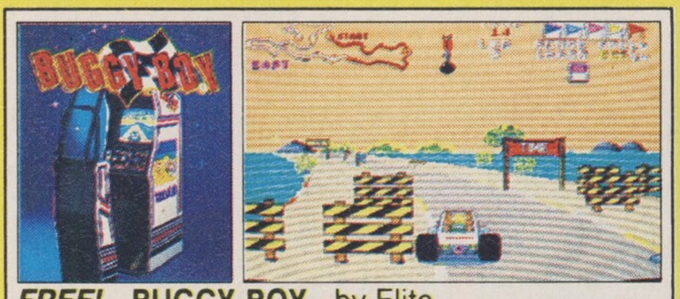
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COMPUTER CHAOS

A selection of computers which perpetrate disasters from the copious annals of Mel Croucher

ORLANDO, FLORIDA

Traffic around Walt Disney World is controlled by a synchronised system at 34 road intersections, all controlled by one central computer, costing $3 million. At 12.30pm at the height of lunch-hour traffic, a maintainance engineer forgets to connect one jack plug. Immediately, all the lights turn red and stay that way, paralysing the entire downtown area within six minutes. The situation is remedied by a decidedly low-tech solution: traffic cops on horseback.

The Mayor's spokesman, Joe Mittiga, says things could have been worse: "We're lucky the lights didn't stall on green!"
(United Press International)

VOLGADRAD, USSR

A systems programmer at the Gorky Automobile works is charged under Soviet Criminal Article 206, the so-called Hooligan Law, with "violating public order in a coarse manner and expressing a clear disrespect towards society". In a dispute over working conditions, he shuts down an assembly line by trashing the control computer with a home-made virus. Maximum sentence: six years.
(Radio Moscow)

PARIS, FRANCE

Twenty-two-year-old computer buff Philippe Gombert is arrested by the Securité, after gunning down Jose Pereira, an electronics expert.

The two men have devised a system whereby they can draw unlimited amounts from French cash dispensers, but start arguing when Gombert insists the system is not yet fool-proof. During a trial scam, they make six successful withdrawals before the target machine swallows their card. Officials report that with his gun still smoking, Gombert's first words are "I told you so!"
(*Le Monde*)

FRESNO, CALIFORNIA

The city water authority installs a $2.3 million computerised metering system, designed to eliminate foul-ups in 106 water pumps and 850 miles of piping. One of the automatic burglar alarms sends a scrambled signal back to the control computer, which shuts down the pumps. An automatic over-ride tries to turn them back on, resulting in a tidal wave of sewage surging through the city at 75 pounds per square inch. The city's older mains immediately explode, but one fail-safe device does manage to work: the one that automatically turns on the fire alarms!
(*San Jose Mercury*)

LAKEWOOD, NEW JERSEY

90,000 orders are received for special UNICEF Christmas cards, and are fed into the telemarketing computer run by TMI Inbound Ltd. The orders are then collated and squirted down the line to BSA-Fulfillment Service Incorporated where they disappear into an electronic black hole. Mr Colin J Rainsbury, Vice President of UNICEF's greeting card division, explains that "we have a little bug in the system" but promises delivery of the Christmas cards before the spring.
(*New York Times*)

BIOSPHERE, SWEDEN

After an 18-month delay, the first of Saab's JAS39 Gripen combat fighter takes to the skies. The computer flight control has a triplex digital fly-by-wire system with a triple analogue backup, but it experiences "problems with lateral oscillations", in other words it crashes. The reason for this multi-billion krona cock up is found to be that the software misreads the movement of the joystick (something that any bog-standard home micro has no trouble in achieving.) Saab then issues the following press release: "Delivery of the first production aircraft... is now expected in 1933".
(*Flight International*)

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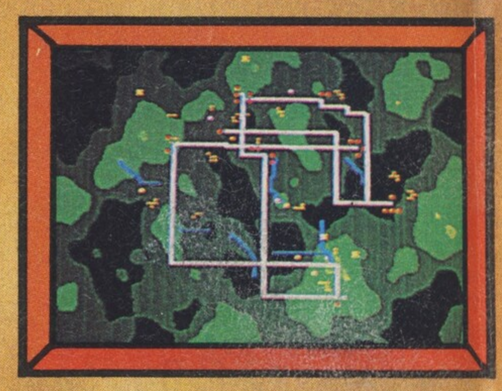
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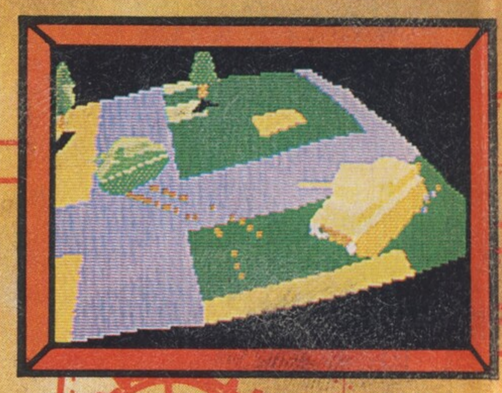
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