Issue 91 • 4 August 1990 • 58p

NEW COMPUTER EXPRESS

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PC PRICES PLUMMET

As fear of IBM's new PS/1 prompts cut-price power, there has never been a better time to buy a PC.

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Roadshow replaces presence at London CES

ATARI AVOIDS SHOW TO GO ON THE ROAD

***Express* can exclusively reveal that Atari won't be appearing at September's Computer Entertainment Show at Earl's Court.**

Although the company's stand often dominated the equivalent event in previous years – the PC Show – this year Atari will be organising a national roadshow instead, beginning in mid-October.

An Atari spokesman described the decision to pull out as being "nothing to do with the quality of CES itself. We're looking for a broader market and prefer an alternative calendar of events."

The roadshow alternative will take in at least five major conurbations with Glasgow pencilled in as the first city to host the weekend event. Atari intends to hire a city centre hotel and in conjunction with local press and media attract a wide range of users.

Each event will be organised together with local user groups and provide hands-on access to graphics and music applications for the general public. In addition there will be seminars and technical workshops. The roadshow is being planned to coincide with schools' half-term holidays and admission will be completely free.

Atari is also keen to attract would-be exhibitors to the events and is asking home users engaged in interesting software projects to contact either their local user group or the Atari press office (0753 33344) for details on how they can show off their wares.

"A roadshow is a better investment for us in any case", said Atari's spokesman, "how many people from Glasgow, for instance, are going to travel down to London for a computer show?" ■

EXPRESS AT LAST WEEK'S BRITISH MUSIC FAIR IN LONDON

Direct to disk makes its mark

Having it's first outing at the the British Music Fair was the new US package *Studio Vision* from Opcode, with which for the first time you can both control MIDI instruments and sample and store stereo digital sound direct to hard disk.

Running on the Mac, *Studio Vision* captures the sounds at 44.1KHz in 16 bits – the same as CD.

The hardware is the same as used in Sound Tools, a direct-to-hard disk recording and editing package available for the Mac and ST. The software is an upgrade of *Vision*, the Mac-based 99-track sequencer.

Meanwhile over at the C-Lab camp it is heavily rumoured that the German music software company is working on an upgrade to *Notator Creator* 3 that will perform similar feats. This comes as no surprise as C-Lab has the European distribution for Sound Tools, which is also available in an ST version. The tapeless home recording studio gets closer. ■

• More British Music Fair reports can be found in Steve Carey's ST column on page 10.



• Funlab (above) consists of a Kawai keyboard, a MIDI interface, sequencing and voicing software and an Amiga A500 bundled together and colour co-ordinated to match the Amiga. The software is custom written by Steinberg. The keyboard can be used entirely independent of the hardware and software. It costs £329 for the keyboard and software. The price including the A 500 had not been finalised. ■

Music news in brief

Optical fibres form an integral part of the Disklavier, the self-playing piano range from Yamaha. Two sets of optical fibres sense the note played and the velocity of the hammer and the resulting data is converted to MIDI and output to a floppy disk. Playback uses magnetically-actuated rods under each key.

Evidence of co-operation between instrument manufacturers and software houses is the set of disks available from Kawai for its successful K4 synthesiser. These are ST based and consist of a pair of disks, one containing sounds and the other 300 new drum patterns arranged in sets. They are compatible with *Cubase*, *Pro24* and *Creator Notator*.

As reported in *Express* back in June, the Californian company Lone Wolf has developed an optical fibre system that replaces standard MIDI cables. At the BMF Lone Wolf had two systems on display. The first was simply a replacement for standard MIDI cables called FiberLink which will set you back £552.

The second system takes a leap into the world of communication networks. It's an £2,000 intelligent box called the MIDITap that can address each MIDI device by name and handle all the different forms of data in one go. Up to 253 MIDITaps can be linked together giving a mind-boggling number of possibilities as you still have control over each MIDI device.

Audio Visual Research (formerly Two Bit Systems) was showing its new 16-bit sampling module for the ST. At present it is monophonic, but gives CD quality as it uses the same sampling rate.

A stereo version that will dump straight to hard disk is planned for about six months time with a 'guesstimate' price of £500.



• The powerful ATonce board which lets an ST run PC software at speed.

ST gets PC AT power

The first 80286 hardware emulator for the ST, capable of running all current IBM applications, was unveiled last week by its UK distributor Silica Systems.

The £199 8MHz ATonce board, from German firm Vortex Computers, will also be made available for the Amiga. With a claimed Norton speed rating of 6.7, the ATonce offers 75 per cent of the performance of an IBM 286 compatible and delivers CGA and Hercules video emulation modes.

The board, fitted directly onto the ST's 68000 chip, also supports hard disks and on a 1040 offers MS-DOS users 740K of DOS memory. ATonce, compatible with STFMs, STEs and Mega STs, also reconfigures mouse, printer and modem ports to run under MS-DOS and uses all available ST RAM using extended or expanded DOS memory. Silica is on 081-309 1111. ■

Screen as sharp as a laser printer

An extremely high-resolution 300 dot per inch (dpi) monitor as sharp as the printout from a laser printer has been developed by Hampshire-based Computer General.

The Megascan range of monitors can cope with both 300 and 165 dpi and are said to provide 13.5 million pixels per image. The three screens in the range are the monochrome Document Display System (DDS), the UHR-4120 – again mono but giving 165 dpi – and finally, the Medical Display System (MDS) which gives 256 levels of grey. The UHR-4120 also allows for 90 per cent of full scale twin page viewing.

All three come with a plug-in controller card which allows them to be used with PCs. This is combined with 72Hz refresh rate and brightness, contrast, pan and zoom controls. Multiple monitors are also supported.

Software support is available for MS-DOS, Windows, AutoCAD, X-Windows, Sun OS and Unix. There is also an IBM monochrome monitor emulation.

Hardware compression and decompression is also provided to help with storage of large image files. The DDS monitor is already being used by the German Patent Office to read prospective patents clearly at text sizes as small as 4 point.

The screens cost from £4,500 and you can contact Computer General on 0442 874006. ■

Mirrorsoft's ninja game mysteriously withdrawn

NO AMIGA TURTLES IN NEW A500 BUNDLE

Confusion reigns over the new Amiga bundle (see *Express* 90) with one major game, *Teenage Mutant Hero Turtles*, being withdrawn. Compounding the mix-up is the fact that Commodore is saying one thing while its public relations firm is saying the complete opposite.

Express was told by Commodore this week that: "There will definitely be no new bundle for the Christmas market." However, a spokesperson for Commodore's public relations company, Quentin Bell, told us: "Yes there will be a bundle. It will be called Screen Gems and it will be launched at September's Computer Entertainment Show."

The only solid fact about Screen Gems is that it will include the game of the Tom Cruise film *Days of Thunder*. It was expected that it would have three other movie titles: *Teenage Mutant Hero Turtles, Back to the Future II* and *Nightbreed. Shadow of the Beast II* was also to be included.

However, it appears that *Teenage Mutant Hero* (or Ninja) *Turtles*, has been dropped from Screen Gems, to be replaced with the less than film-like *Deluxe Paint II*.

The reasoning behind this appears to be pressure from an outside source. Industry sources have it that Nintendo wanted its NES Mutant Machine bundle to be the only boxed Turtle game available in the UK. It may have pressurised Konami, the European title holders, into further pressuring Mirrorsoft – the publisher of the Turtle title in the UK – into withdrawing the game from Screen Gems. Mirrorsoft refused to comment directly on the issue. ■

Someone to watch over PC

Eye-Gard is a new gadget aimed at protecting your PC from intruders. A small device, shaped like a PC monitor, sits on your desk and senses anyone coming into the room.

As soon as an invader is picked up by the system, an animated eye which has been shown as half-closed on screen, opens wide and attempts to seek them out. This is followed by a message of your choice which can be bolstered by various sound effects such as bombs exploding and guns going off.

Eye-Gard also comes with a passwording facility so that any intruder not put off by the terrifying vision and sounds has to get the correct word before access to your PC is allowed.

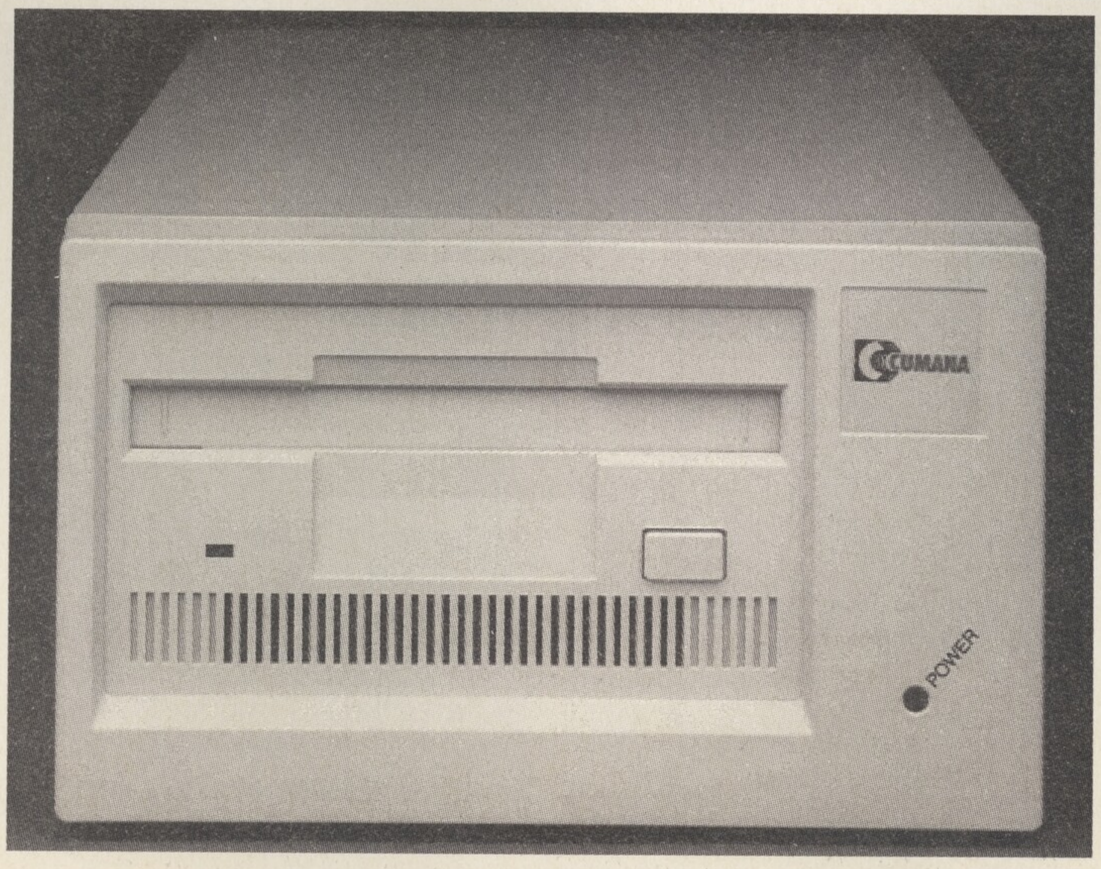
For more information, contact Scott Ellis Systems on 071-839 4572. ■

Amiga big one

The Amiga is to have rewriteable optical storage in September. The removable drive is said to be able to store up to 594Mb of data.

The system (right) comprises a 5.25-inch optical disk cartridge and 256K memory buffer with an average access time of 67 milliseconds. There is also a built-in SCSI controller, error detection and reporting and an ID setting procedure. The system can be 'daisy-chained' with up to seven others using the SCSI interface.

It weighs 7kg, and Cumana, the manufacturer, claims that it is the smallest rewriteable optical drive available. Price was unavailable at the time of going to press. For more information contact Cumana on 0483 503121. ■



Contest still open

The Amiga Centre Scotland has extended the deadline for its animation competition.

Entries on floppy disk or PAL video tape can now be received up until August 11 and not July 30 as previously stated. Finalists will have their work displayed at the Edinburgh Festival from August 11 – 18. For entry and prize details call 031-557 4242. ■

As top-end 386 machines take over in businesses, ordinary 8086 PCs ar

Purchasing 286 power

In buying a 286 you do have to watch what it is you are actually getting for your money, as this bears a lot of relation to what you'll be able to do with it.

For example some vendors offer a hard drive but no colour display, fine for accounts in a medium or large business, but no use for graphics and games.

Some on the other hand have excellent 286s with VGA or EGA displays, but just a single floppy drive, ideal for games and graphics but totally useless in a business environment. So watch those spec sheets very carefully.

One thing to look out for is the service, whereby some makers, Dell springs to mind, give complete after sales service, telephone hotline, and all the technical bells and whistles, whereas some other smaller 'boxshifters' give a guarantee covering bad manufacturing and servicing in the first year and that's it.

There are bargains to be had from the smaller PC suppliers if you look around. Shopping Express is a good starting point for searching for a low-cost PC.

Suppliers worth investigating for sub-£1,000 machines include:

- Technology Centre, Hole House Farm, Burnley Road, Cliviger, Lancs.
- Silica Systems, 1-4 The Mews, Hatherley Road, Sidcup, Kent.
- Blackmore Electronics, 4 The Plocks, Blandford Forum, Dorset.
- Evesham Micros, Unit 9, St Richards Road, Evesham, Worcs.
- 3-TH, PO Box 482, Oxford OX2 5RP.
- Dolan, Dolan House, Johnstown Industrial Estate, Johnstown, Carmarthen.
- Watford Electronics, Jessop House, 250 Lower High Street, Watford, WD1 2AN.

Cheap DIY upgrades offer ATs to PC owners

All is not lost if you already own an XT (8088 or 8086) machine – in many cases upgrades are possible. There are two approaches to the upgrade; to add an accelerator card or to change the motherboard.

Accelerator cards plug into an expansion slot and have a cable which connects to the microprocessor socket on the main board. They can push the processing speed up substantially, and give access to the special features of the better chips, but you are still hampered by the XT bus and the slow peripherals, such as hard disk controllers, which the XT uses.

Accelerator cards provide a workable option if you don't want to rebuild your PC from scratch, and work well with most systems – this item was written on an XT with a 386 accelerator card which now runs almost as fast as the office 20MHz AT.

Devices such as the Intel Inboard PC are common and well suported by software. Upgrades are also available from 286 ATs to 386 systems. Prices for a 286 card start at around £300.

Alternatively you can get the screwdriver out and take the PC to pieces, then simply swap the XT motherboard for an AT one. All the other bits will work – some of them albeit inefficiently – and you can save a vast amount over buying a new machine. AT motherboards cost only a couple of hundred pounds (Shopping *Express* has several suppliers), and provided you are confident enough to take a screwdriver to the machine's innards provide an extremely cheap upgrade.

There are many points to watch with this approach – whether the new mother board will physically fit being a major one – but it is a very cheap way of getting a faster machine.

• We will be running an article in *Express* in the near future on just how to upgrade your XT to a 286 machine, letting you in on the problems and pitfalls of the operation.

THE FALLING PRICE OF 286 PC POWER

The cost of fitting yourself out with a power PC began to drop in 1989 as the 286 began to establish itself as the leading platform for personal computer owners.

With demand stimulating supply, competition forced prices down and boxshifters with little technical support can afford to pump machines out at knockdown prices.

The price of the base level bundle of a 286 with 20Mb hard disk took this downward curve:

January	Vision Technology	£995
April	Viglen	£896
May	Philips	£780
August	CAS	£600

Although these are just the CPU box and keyboard, and up-an-running prices are still just peaking under £1,000, the trend is clearly shown in these figures, showing that if you shop around you really can get power without the price.

What is it makes these machines better?

PCs break down into two broad categories which between them use six different microprocessors. The two categories are known as the XT and the AT, and to explain the difference we have to get technical for a moment.

XT machines use the 8088 and 8086 processors. The 8086 is a 16-bit chip, while the 8088 is an 8-bit version which can run the same programs. These can use a maximum of one megabyte of memory, although with the aid of extra hardware some programs have limited access to a special type of memory called 'expanded' memory.

The bus – the connection to peripherals such as the display or hard disk – in an XT is eight bits wide; that is it can transmit one byte at a time.

AT machines originally featured the 80286 processor, which has since been joined by versions using 80386, 386SX and i486 chips. These chips can use varying amounts of memory, but the minimum is 16Mb. Any memory they have over 1Mb is known as 'extended' memory.

The 386 and i486 chips are 32-bit while the 80286 and 386SX are 16-bit. The bus of an AT is 16 bits wide – it can shift twice as much data as the XT. New buses can now shift data 32 bits at a time.

Even without going in to the technical side in great detail it's easy to see that AT class machines have a lot going for them compared with XTs – more memory, more powerful chips and a faster bus for moving data around.

There are still more advantages to using the more powerful chips. The 386, 386SX and 486 chips have the ability not only to emulate the 8086 (which is necessary to run ordinary PC software) but to emulate several 8086s at the same time.

This is known as hardware multi-tasking, and is much superior to the Amiga's version as if one of a 386's 'virtual' 8086s crashes the others just carry on unharmed.

386 chips also have the ability to use a disk drive as if it were memory – a program running will never know the difference.

Increasingly, modern software is designed to run on AT machines. High-end stuff like OS/2 only ever ran on ATs, but now a lot of programs give extra features and performance on the better machines.

For example, Windows 3 – reviewed in *Express* 83 – will run on an XT machine, but it will only multi-task properly on an AT. The latest release of Lotus *1-2-3* will only run on an AT.

Over the next few years we can expect to see more and more, possibly even most, software require an AT class machine to work at its full potential.

The guide to the major manufacturers' sub-£1,000 machines

IBM

Big Blue really got the sub-£1,000 286 market cooking when it announced the £999 VGA IBM PS/1 a month ago.

Since then all its competitors have realised they had to take this niche in the market very seriously indeed. If IBM was putting money into it, goes the thinking, then that had to where the action was.

The machine will have MS DOS 4.01 running in ROM with a graphic interface and a mouse, plus Microsoft *Works*, the popular suite of integrated productivity programs. The footprint of the machine is deliberately very small, with only one 3.5-inch disk drive in it as standard, and an optional hard drive fitted internally. But the unit is expandable by adding other similar sized boxes containing 5.25-inch drives and other peripherals.

We shall see what sort of an impact the PS/1 has on the punters, especially if Dixons and Wildings won't be stocking the thing, but it has already shaken up the industry for sure even if in the end it proves to be the PC Jnr II.

AMSTRAD

Not to be outdone by IBM and the others, Amstrad recently cut the price of its 286 by £200 for a limited period. This limited offer was mysteriously extended, ducking a mono monitor, single floppy model with 40Mb hard disk below the grand at £999, with the double and single floppy only versions shedding £100 to be £899 and £799 respectively.

As well as price cutting, Amstrad has also gone for bundling software to add value rather than cut cost. Amstrad PC2086 machines will be bundled with Lotus *1-2-3* 2.01 software, which adds £395 to the value of the deal. We shall see if the new metal boxed or 'high build integrity' machines slated for an autumn release show a similar low price, or if the then displaced current 2000 range show a further price drop to make room in the market.

COMMODORE

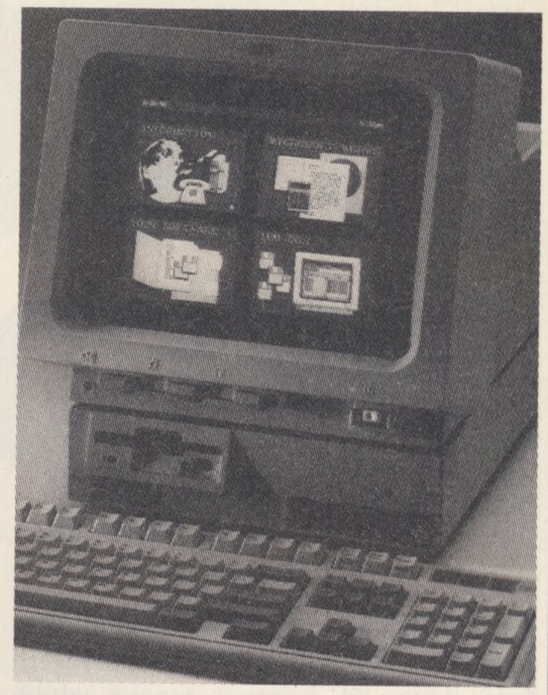
Commodore has never really had the success it'd hoped for in the clone wars, having trouble shaking the 'games machine' image it got during the Eighties with the C64 and Amiga. But it's coming back strongly with a price drop on the the Commodore PC30 starter pack of £300, bringing it down to £899 with mono or £1,099 with EGA. Perhaps the new low pricings will stimulate the much needed interest, although we suspect Commodore will have its hands full pushing both PC and Amiga machines to a by now specification-addled public this autumn.

ATARI

Atari has had a limited success with its PC-based engines, but fully intends to hang in there, pitching in a 8MHz PC-AT clone with EGA, MS DOS 3.3 and a 32Mb

PCs are being forced out by dozens of cheap but powerful 286 AT clones

POWER PC PRICES DROP IN CLONE WAR



• *The IBM PS/1: overstocking in the High Street may hamper its chances.*

Special report by Phil South and Stuart Anderton

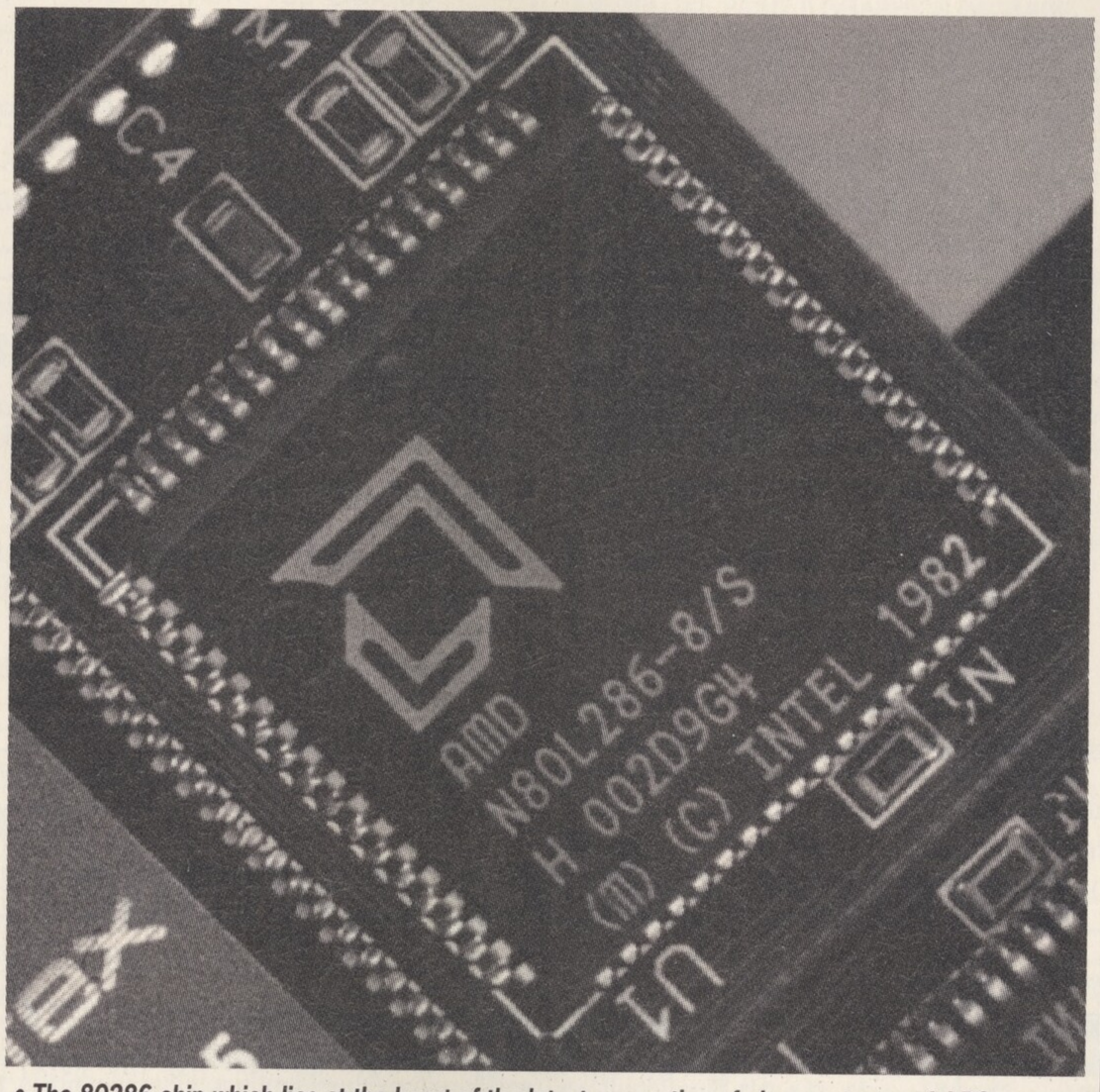
There has never been a better time to buy an 80286-based PC computer system.

All year the trend among producers of powerful 286 computers has been to axe prices to bring them down to below the £1,000 price-point. But after the downward spiral of DRAM prices lopped pounds off production costs and IBM announced its budget priced PS/1, the major players in the PC market have now turned to creative pricing to undercut each other in terms of value.

This follows a trend towards putting PC-based computers in the home which rivals the big Christmas games console push in both its ferocity and the big names involved. Commodore, Atari, Olivetti, Sanyo, Philips and Tandy are all joining Big Blue on the starting blocks as the annual autumn wrestling match for the springtime market share begins in earnest.

The current league table of UK sales has Amstrad running just ahead of IBM, followed by Apple, Tandon, Compaq and Olivetti in 3rd to 6th places, so it remains to be seen whether the likes of Commodore, Philips, ICL or Atari can make any kind of impression.

Reasons for this sharp turn in the market are many and varied, centring mainly on the early release last year of 386 and 386SX chips onto a market demanding ever greater power for ever lesser price. According to the monthly report on PC sales for May compiled by Romtec, 286 machines only account for 34 per cent, while 386 and 386SX figures combined snap up around 45 per cent. Prices for 286s therefore have to be very competitive to lure buyers away from the faster machines.



• *The 80286 chip which lies at the heart of the latest generation of cheap yet powerful PCs.*

The general feeling about the industry at the moment seems to be that the days of the 8086 are numbered and PC makers in the UK agree on this point. Many expect that as early as January next year 386s will serve as the real work horses in most businesses with the 286 used as a network terminal.

At home, the new low price 286 will become *de rigueur* for the high tech home office, and with a VGA display should oust the now unattractive 8086 machines to become the standard PC games machine of the early Nineties. ■

Question over High Street stocking PS/1

Rumours have been circulating around the industry this week that leading High Street retailers will not be stocking the PS/1.

The reason given for the apparently illogical move on the part of these retailers was that they are swamped in cheap XT clones and can't afford to give the PS/1 the boost it deserves with all these other computers still sitting on the shelves.

Express can only assume that these rumours were started by parties with something to gain from such a statement, as when we spoke to the retailers concerned they told us that the PS/1 was still in fact under consideration for the coming year.

No firm date has been given for confirmation or denial of the rumour, but it's understood that the parties concerned are keen to scotch rumours either way as the decision is thought to be important for the future of the PC market. ■

hard disk for just £999.99. Cheaper versions with a single floppy drive come in at £799, making Atari the cheapest way into 286 without building it yourself. Interestingly Atari says that the price will not come down any further, as this affects the after sales service. What you pay for is being able to solve your problems afterwards it seems, so you have a clear choice between buying from a major and getting the service, or buying your box from a boxshifter and then you're on your own.

OLIVETTI

After kicking the market in the posterior with its PC1 computer when the 8086 was king, Italian computer giant Olivetti has gone into the 286 marketplace with the PCS range, and for a very short time between June and August has dropped the prices of colour configurations by £200 and mono by £100. This makes a 1Mb twin floppy 286 with a mono screen run out at £949, with colour VGA just peeking over the £1,000 price point at £1,099.

SANYO

Sanyo also has a strong presence in the 286 war, with the 12MHz MBC-25 mono VGA, 640K machine with VGA on the motherboard. Sanyo hasn't had much of a high profile in the PC world, but the quality of its products is well known, although sales don't as yet match Amstrad or IBM.

DELL

Dell builds computers to the users specifications, and although it gets very close to the £1,000 barrier, it doesn't go under it. The firm is one of the very few which sells direct to its customers, and has a reputation for customer service that wins it awards in the US and UK. It makes no bones about this reputation, and sets great store by its telephone hotline, more than able to sort out the simpler problems on-line. Dell's System 210 features a 20Mb drive, mono VGA and 640K of memory, plus the usual options for on-site maintenance for which it is quite rightly renowned.

ICL

ICL has been out of the frame for a short while, but you will have read in last week's *Express* that it is now following in the path of Apricot, recently bought by the Japanese, by being bought by Fujitsu.

Obviously this puts a whole new complexion on its marketing strategy for the coming year and should strongly affect its presence in the PC market, which it previously shunned, for instance in using Sinclair QL technology in the One Per Desk.

Although previously involved in mainframes, ICL is slated to put more money into the production of Fujitsu products in the UK.

This will obviously have a bearing on the market, but not for a few months while Fujitsu gets settled in and decides what it's going to do.

PHILIPS

Philips is all set to storm the market with its PCD range of computer, which although not below the £999 threshold, are to be pushed aggressively when they appear this September.

It's hoped that the reported £2 million ad budget could include TV coverage for the range, but this is by no means certain. It's expected that the big autumn push, not to mention the huge wedge of cash being thrown at the campaign, should be enough to lift Philips PCs out of the crowd.

Fibre link will make for cheap, fast data transfer

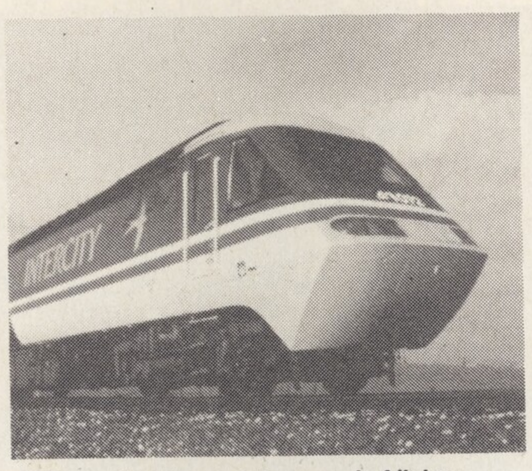
BR TO USE TRACKS FOR OPTICAL COMMS

British Rail is to get into telecommunications with an optical fibre system laid down its existing tracks which may make comms considerably faster.

BR is setting up a subsidiary company called BR Telecommunications Ltd (BRT) to handle this enterprise. The new company will have rights to BR tracks and facilities but will, in effect, be an autonomous entity.

BR has some 2,500km of optical fibre cable at its disposal as well as 17,000km of track. Along with this, its internal telephone network has 65,000 extensions, 275 exchanges, 11,000 data terminals and 15,000 radios. It also provides lines for the majority of Mercury's telephone system.

Optical systems offer enormously increased data transmission rates, allowing digitised sound and video data to be communicated in real time. Eventually such systems will open the way to interactive TV and videophones, and will cut the cost of comms.



• BR: getting there at the speed of light.

Peter Borer, BRT's managing director who was drafted in from Hull – a city which has its own telecommunications network – told *Express*: "Although we are hampered by Government policy relating to the British Telecom and Mercury duopoly, the new White Paper relating to this will, we hope, clear the way for us. We will be quite happy to work with other companies from cable television to other telecommunication firms."

BRT is currently seeking a licence from the Department of Trade and Industry as a Specialised Telecommunications Operator. Once it gets it DTI licence, BRT, will be able to use British Rail's 'wayleaves' (rights of way into city centres via rail track) in order to extend its own internal telephone network. These rights have already been granted to it by British Rail.

It is interesting to note that some of the privatised water companies are already allowing telecommunications lines to be run through their pipelines. ■

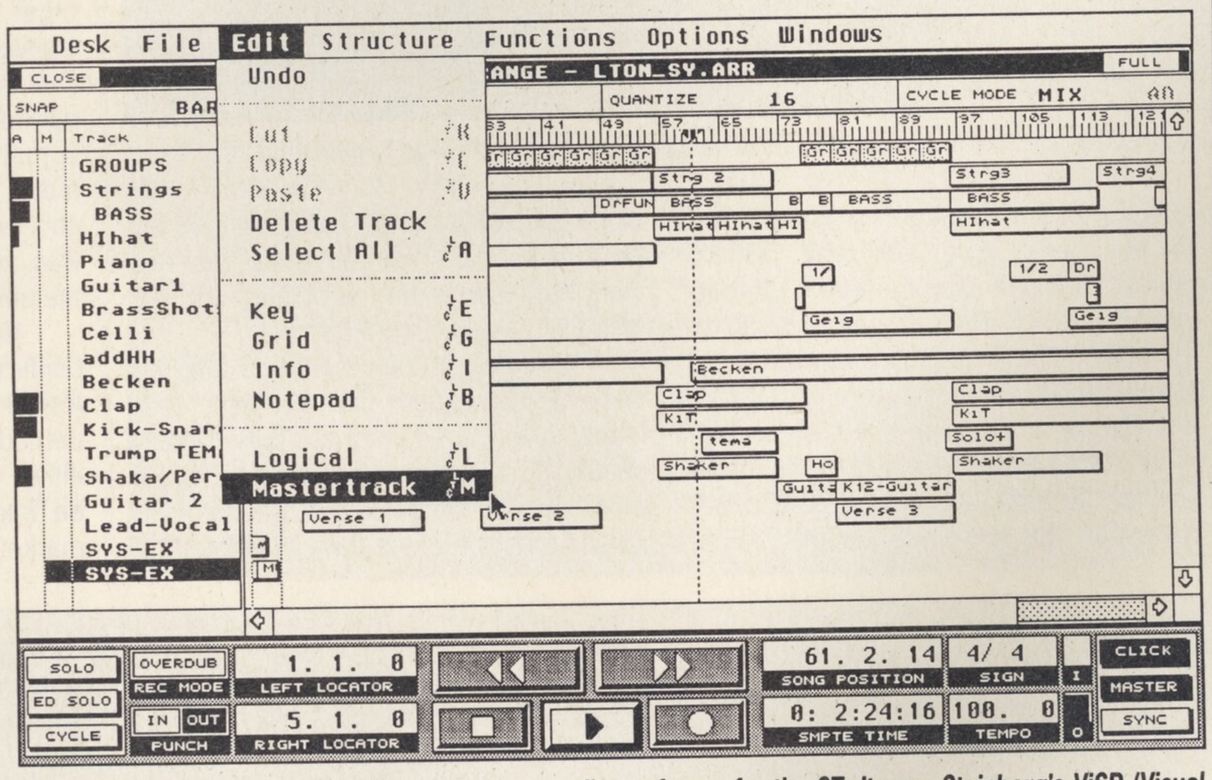
Cubase gets a music editing upgrade

A new version of Steinberg's *Cubase* MIDI recording software for the ST will be available in early August. Upgrades for existing owners are free.

Cubase 2.0 **includes score printing at up to 360DPI and support for all Epson printers as well as Atari's own laser printer. This means that you no longer have to flip from the recording section to a separate notation system. WYSIWYG music editing is also included in the package.**

A cut-down version of *Cubase*, called *Cubeat*, is already available. It lacks score printing and editing and MIDI management functions.

Cubase 2.0 **costs £550 and *Cubeat* goes for £285. For more information call the distributor, Evenlode, on 0993 898484. ■**



• Cubeat, a cut down version of the Cubase recording software for the ST. It uses Steinberg's ViSP (Visual Song Processing interface.

Sega contest

Sega has launched its 1991 UK Sega Championship. The Sega double decker bus will be touring the country in an attempt to find the best Sega console games player and the highest scores.

Venues will be the Surfmasters in Newquay, the Sega British BMX Championship and the Sega Splash for Starlight.

The last of these is a celebrity charity bash to be held at the Princes Waterski Club near Heathrow on August 12. It will be attended by such celebrities as Sonia, Aswad, Kim Wilde, Big Fun and Beats International among others. ■

Stay Sharp

Sharp plans to launch three new computer 'organisers', two for world-wide release and one for its home market in Japan.

The ZQ-5000 and ZQ-2000 both come with standard QWERTY keyboards with the ZQ-2000 being pitched as the entry-level machine. The 5000 includes a diary, phone number store and a notepad. There will also be an 'expenditure management function'. The 2000 will be a cut down version. Both machines will have RS232 ports for data transmission.

The third machine is as yet unnamed but is expected to have a pen-sensitive screen and be able to store graphic images such as maps. ■

COUPE HOTLINE

A telephone hotline has been set up for SAM Coupé owners. Alan Miles and Bruce Gordon, of erstwhile SAM manufacturer MGT, have set up the 0898 system in order that SAM owners can 'find out what is really happening as soon as it happens.'

The number to call is 0898 299380. Calls are charged at 2p per minute cheap rate and 38p for peak. ■

Big Blue sees red at whites only

In a show of corporate non-racism, IBM has decided not to run any television advertising during the US PGA Championship.

The reason given for this is that Shoal Creek, the PGA course, operates an all-white policy. When *Express* contacted IBM UK we were told: "That's a situation in the US and I can't comment on that." ■

COMPUTER EXPRESS MEN

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We regret we cannot enter into any personal correspondence or answer telephone queries. Technical enquiries should be addressed to Tech Tips at the address below.

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IMPROVING UPON EXCELLENCE

MicroSystems software has upgraded its well-received word processing system, *Excellence!. Excellence! Professional* boasts faster screen updates and unlimited graphics per document as well as an expanded dictionary, thesaurus with definitions and hyphenation.

MUSIC FOR WEIRDOS!

Amiga musicians may be interested in a couple of new releases from the snappily named Hologramaphone Research of Miami, in the good old US of A.

First up is *Hyperchord*, a dynamic riff sequencer that can be used to create anything from simple scale runs to complex 'riff waves' using functions such as smear, rotate, weave, reverse and mix (sounds more like a paint package to me!). For the ultimate in riff creation, you can switch between 60 user-definable scale modes and 40 rhythms. Even stranger is the unique 'cyber-musical' tools such as holistic and vector play. What these actually do, only Hologramaphone Research seems to know!

Ever wondered what your favourite painting would sound like if it was a piece of music? No? Well nor have I, but nevertheless Hologramaphone has produced *Pixound*, the world's first visual musical instrument. *Pixound* can use standard IFF pictures, or you can create your own custom 'sound pictures' using *Pixound*'s unique screen generators. No UK distributors have picked up either product yet (wonder why?), but as soon as they do arrive, I'll bring you an in-depth look at both.

MULTI-MEDIA MANUALS

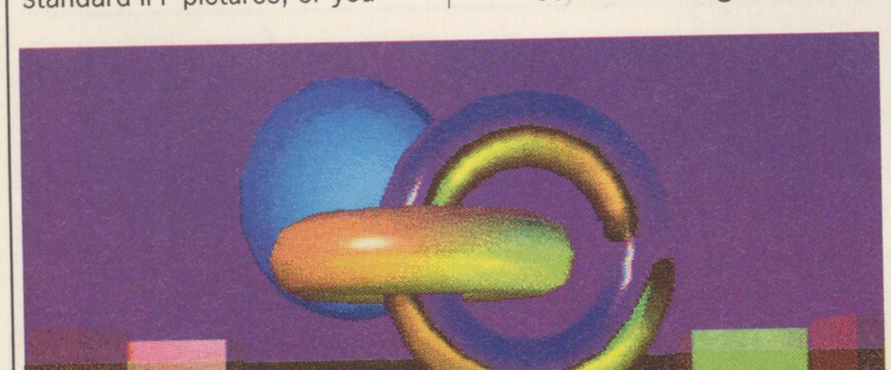
Getting to grips with 'professional' applications software such as high-end ray tracing, CAD and DTP packages can be one of the most frustrating aspects of buying a new piece of software. I'm sure you all know what I mean – you've just shelled out a three figure sum for a particular item of software, got it home, loaded it up and then thought to yourself 'what now?'

As your friendly software supplier will then advise you, it's time to dip into the manuals (RTFM?). But, as is steadily becoming the norm these days, more often than not those manuals usually end up being about as useful as a hair dryer in a hurricane. Even us so-called 'professional' computer users sometimes end up totally confused and non the wiser about how to use a new program. What happens then? Well, if you're anything like me, that so-called friendly piece of software ends up filed where all other programs of the type spend the rest of their days; namely, gathering dust on a shelf.

Just recently, however, I have seen the future of software documentation... and it's name is video tape (sorry, Mr King!). Several major product releases from the States (and they only seem to originate from the States) have come complete with a VHS video tape to accompany all the usual documentation. In particular, Progressive Peripherals & Software's *3D Professional* is bundled with a two-hour VHS tape that provides a series of extensive tutorials, backed up by a running commentary. This form of documentation really is just like having someone from the software company sit down and take you through the program on a first hand basis – if you get confused, all you do is just rewind the tape a bit and go through the particular section again.

Some would argue that this is perhaps a rather expensive option, but I'm quite sure that users paying £100-plus for a piece of software would be more than happy to pay something like an extra £10 for a video tape tutorial. I'm not quite sure about the cost of such an exercise, but I know for sure that it would cost considerably less than the price mentioned above for tapes to be bought and duplicated.

If software houses were to catch onto the idea of VHS-based tutorials, I'm quite sure a lot more software would be saved from being relegated to some dusty shelf. So come on software houses, think video tape!



• 3D Professional, *reviewed in next week's Amiga column.*

FIXING THE FIXER

Those those of us not fortunate enough to be able to afford A3000, there really is no alternative but MicroWay's Flicker Fixer card if you want to rid your Amiga 2000 of the dreaded interlace jidders. While this may be fine for some, it does have the effect of hogging that all-important video slot, therefore rendering your Amiga useless if you want to use other cards such as frame buffers etc (and NewTek's soon-to-be-released VideoToaster).

MicroWay has kindly fixed this problem with the release of its DEB2000 card, which allows you to use the flicker fixer card without using up that valuable video slot. The card costs a mere £60 and is available from your nearest MicroWay stockist. Failing that, give MicroWay a call on 0101 508 746 7341.

VIDEO VISUALS

Eschalon Developments has announced the release of *Title Page*, a powerful video titling tool for desktop video fanatics. Here's a list of what the program has to offer:

- Powerful copper list editor lets you use thousands of colours on-screen simultaneously without the limitations of HAM mode.
- Handles any level of user-definable overscan.
- Supports both standard mono fonts and new colour fonts. The program comes complete with nine regular fonts and four colour fonts.
- Apply any effect to brushes, text or images. If the 40 built-in effects aren't good enough for you. *Title Page*'s Graphical Effects Editor lets you create your own.
- Provides complete support for ARexx. For true power users, *Title Page* has its own set of 65 ARexx commands.

CHUCK'S BACK

Budding supersonic fly boys (and girls, of course) will be pleased to hear that Electronic Arts has decided to release an Amiga version of its *Chuck Yeager's Advanced Flight Trainer*.

The games lets you fly 18 different aircraft, ranging from F18s, the FY-177A Stealth Fighter to the Space Shuttle, through a number of different missions.

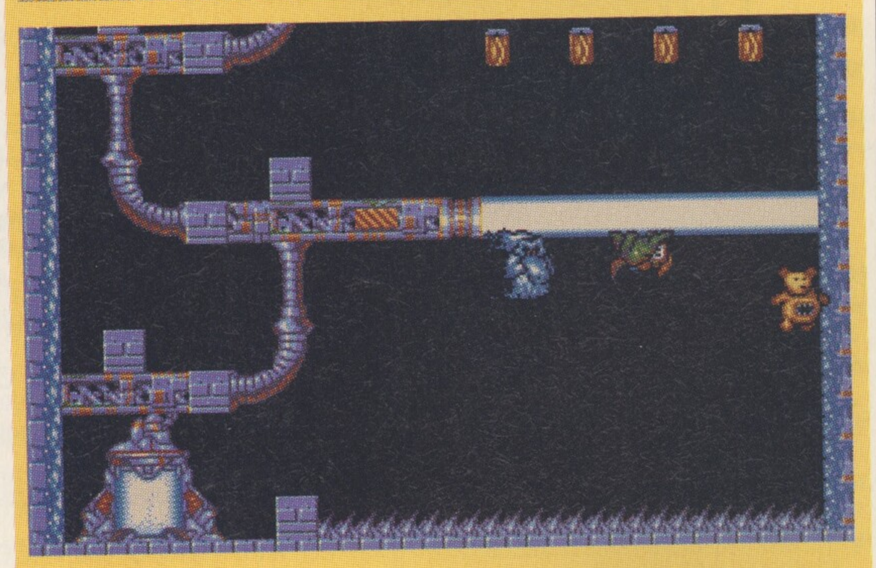
These include night flying and a whole host of different manoeuvres. Check it out at your local software store.

FLOOD

AMIGA GAME of the WEEK

Electronic Arts • £24.99





Poor old Quiffy. The last of his race, trapped in a series of underground caverns with creatures out to get him and no-one to help him. What could be worse? Well the Taps of Wrath could start filling the caverns with water I suppose! Ha-ha! As if that could happen! Wait a minute... where's all that water coming from?

Sadly, Quiffy's worst fear has come true. After years of watching the underground creatures squabbling with each other, the Taps have decided to wash out the caverns and cleanse the world of these nasty creatures. Quiffy has made a decision too – he's decided to get the hell out of there!

To escape the flood, Quiffy must battle through 42 caverns, cleaning up the rubbish as he goes. After all if he is to be the only survivor, he wants the place to be found tidy in the future! Once all the rubbish in a cavern has been collected, Quiffy can enter the exit portal, which will transport him to the next level. The going won't be easy though, as there are all sorts of nasty (and rather stupid, since they're ignoring the flood) creatures trying to stop you, including the messy Bulbous-Headed Vong who throw more rubbish around for you to collect and the evil Psycho-Teddies, who have their mouths on their stomachs, so that the food gets there quicker.

Fortunately, Quiffy can pick up and use various weapons he finds along the way, such as flamethrowers, dynamite and grenades, to fight off his enemies, leaving him to pick up the trash.

Can Quiffy make it? Or will his snorkelling goggles be found washed up in some drain? Who can tell? But it's worth playing *Flood* to try and find out! The game is filled with character and (as you'd expect from the near legendary Bullfrog) the graphics are some of the most cute and cuddly you'll see for a while. The gameplay itself is fun too, with some pretty difficult traps and puzzles to overcome before the game can be completed.

The password system helps to keep you glued to the game, as finding them allows you to enter the game at almost any point, so that you don't have to battle through the earlier levels to get to the screen you're trying to crack.

***Flood* is one of those games belonging to an almost forgotten breed – a well-designed, fun and playable platform game. Even if that sounds dull, try playing *Flood* for yourself, and you'll soon find that it isn't!**

Maff Evans

NEXT WEEK...

Thanks to the people at Marcam, I've been lucky enough to have had the opportunity to play with its latest product, *3D Professional*, a 3D rendering package for the Amiga. Review coming next week.

Jason Holborn

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MACHINE SPECIFIC COLUMN

ST

AT THE BMF '90, ST RULES OK

The 1990 British Music Fair, held at Kensington Olympia right in the middle of a heatwave (July 20-22), was the biggest and best attended to date. And I'm very pleased to report that the place was positively teeming with STs, now very firmly ensconced as the musician's choice. The one or two Commodore Amiga games machines and Macs ('price without the power') I saw looked positively bewildered, as if they'd received someone else's invitation by mistake.

As usual there was the customary clutch of 'celebs', mostly of the "I'm wearing sunglasses, you've got to recognise me!" variety. My favourite story came from the rubberneck who proudly told me he'd bagged autographs from Captain Sensible – a big ST fan, by the way – Gary Moore, Jeff Lynne (remember him? unfortunately so do I) and living legend Keith Richard. Keith Richard! I demanded to see at once the proof that he had indeed encountered the Glimmer Twin – only to find the name of ex-Fab George Harrison on the page! Fortunately the autograph hunter hadn't actually addressed the Quiet One by the wrong moniker, otherwise a severe case of Tortured Artist (and, indeed, Tortured Autograph Hunter) might have ensued.

There was, though, it must admitted, little that was very new. Sound Technology's Mark Knopfler look-alike Will Mowatt, appearing at his zillionth show (a conservative estimate), was doing a rather good demonstration of *C-Lab Notator* 3, due later this month, and Tony Williams, the company's MD, confirmed that a budget version of *C-Lab* would indeed be appearing at around the £200 mark, as revealed exclusively in this column.

That price-tag makes the description 'budget' sound a bit sick – but then you are buying into what is now generally thought to be the best supported and most widely used professional music software in the world. Unless, of course, Steinberg knows different...

YOU NEED TRENDS: I

Two fairly clear trends were confirmed by the show. The first is the price breakthrough on direct-to-disk recording, a non-destructive Compact Disc quality system that uses ordinary hard disk drives to capture sound. The rate is generally about 10Mb per minute and the cost can be under £1,000 – astonishing when you consider that most recording studios around the world still use physical tape.

As well as the obvious economic savings, direct-to-disk systems can also make editing, sampling and looping incredibly fast. There's little doubt among the professional musicians I've talked to that this has to be the most important hardware breakthrough since MIDI stopped being the name of a medium-length skirt.

Besides the better known Digidesign Sound Tools system, distributed in this country by Sound Technology and demonstrated to very impressed audiences at BMF, there was also a new system, from a company new to me called D2D.

Now, although the Digidesign system has a much higher profile, something its compatibility with *C-Lab* will do nothing to harm, the D2D arrangement actually has four clear and obvious advantages.

Firstly, it is intended for use with Steinberg software. So, for anyone who got into ST MIDI early and therefore bought Steinberg, this is the one to go for. Sound Tools, on the other hand, should pick up most of the bigger *C-Lab* market. Secondly, it is a more convenient system, since it fits between your hard disk drive and your hard disk port: no opening up your ST. Sound Tools includes a plug-in card which requires the old crosshead screwdriver.

Thirdly it works with any ST, from a 520 upwards, whereas Sound Tools recommends a Mega 4 (though I do know of at least one musician who runs Sound Tools on an expanded 1040 and *C-Lab* on another!).

Fourthly, and most importantly, the D2D costs less than half the price of the £2,000 Sound Tools. And for all but the richest among us a grand is still a lot of dosh.

Still, in the demonstration stakes Digidesign won hands down. Visitors to the Sound Technology room saw direct recording from Compact Disc onto a 1.4 gigabyte hard disk (that's 1,400Mb), and an excellent series of examples of what could be done.

Meanwhile D2D had to make do with shared speakers and a 30Mb drive. It would be a pity if something as banal as marketing were to be the undoing of a technically excellent system. Let's hope a promising idea isn't lost before it can get up and going.

YOU NEED TRENDS: II

It's all very well to slaver over the latest high technology hardware advances – indeed, for many people that's one of the principal reasons for attending the BMF in the first place – but for most of us (your correspondent included) the direct-to-disk idea remains a dream, something to spend money on when that elusive pools win finally comes in.

But back in the real world the second clear trend emerging in ST/MIDI and in evidence at BMF is for excellent, value-for-money, all-in-one budget systems. And once again Sound Technology was showing the way, with a truly impressive £300 system called the EVS-1 that offers everything but a controlling keyboard all in one sexy little matt-black box. The software looks excellent and the hardware convincing. In short, *I want one.*

At the other end of the hall was the Roland 'Desktop Music System', which may not be so perfectly integrated but offers a more flexible entry into MIDI and all that jazz. Starting at £469 it's a pick-and-choose system that enables you to get exactly the system that suits you – and then gives you the lot, it boasts, right down to the cables.

Incidentally I understand that Dr T's *Tiger Cub*, the sequencing software currently bundled with the Roland kit, is about to be replaced by a specially commissioned package from Steinberg called *Ten Trax*.

I had a brief demo, and it certainly looks the biz, with a very friendly front end and a layout that emulates the good old mixing board appearance. It will be available separately at £99.95 later this month.

LEADS UNTIED (OUCH)

Probably the most practically useful – and cheapest – bit of kit at the whole show was being sold at the United Kingdom MIDI Association stand. Anyone who's ever spent frustrating hours trying without success to get a proper set of MIDI leads will appreciate this one, for it's a clever little box that enables you to see at a glance the precise connections within a lead.

For example, I recall some while ago a company started selling as a MIDI lead a two-core screened cable with one lead soldered across pins 1 and 4 and another across pins 3 and 5. So what? says you. So, on the ST MIDI out socket, as cognoscente know, Atari used pins 1 and 3 as a MIDI thru to save on a third socket. Result? Severe grief for anyone trying to use one of these wretched things. And of course there was no easy way of telling what connections there were on the lead you'd bought. Trial and error, in fact, meant mostly error.

Enter the MIDItest 5, which uses LEDs to show at a glance connections within any MIDI lead, including any broken connections or a pin touching the casing (a common source of that infuriating buzz you sometimes get).

The MIDItest 5 is available exclusively at £15.50 (including post and packing) from the United Kingdom MIDI Association, 26 Brunswick Park Gardens, New Southgate, London N11 1EJ.

Steve Carey

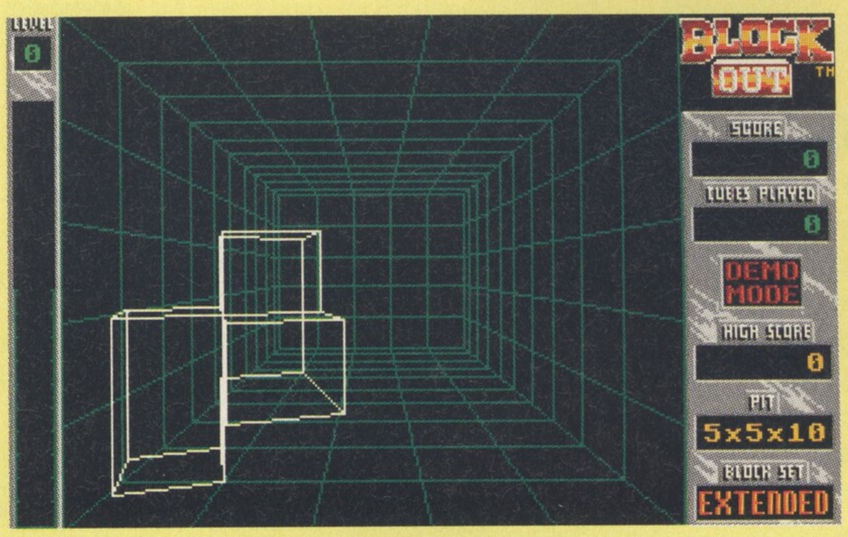


• BMF '90: nice show, shame about the heatwave!

BLOCKOUT

ST GAME of the WEEK

Rainbow Arts • £19.99



This is an unashamed 3D *Tetris* rip-off which aims to recapture the atmosphere of its parent. Though the programming skills were negligible and the graphics were tedious, *Tetris* was a classic game which is still played today.

The idea in *Tetris* is to move oddly-shaped falling blocks backwards and forwards around the screen so that they land in such a way as to form a neat line. Each complete line that's created is removed and the game comes to an end when incomplete lines reach the top of the screen. *Blockout* is played in much the same way except that you look down into a well. Here, the blocks are three-dimensional and using keys or the mouse you move the blocks around the four walls. The blocks fall at their own speed and you must line them up so that fill gaps left by previous blocks.

The blocks are all colour-coded so that if they've been correctly placed they make a complete square of a single colour. In this instance, the square is removed and all the blocks on top of it fall down. The game could be compared to dropping oddly-shaped bricks from a great height to build a skyscraper. If they fall correctly you can build up the floors in turn. Lay them badly and some bricks fall on top of others so that chunks of the skyscraper are missing. Only complete levels are removed.

Infogrames is currently working on a game called *Welltris*, written by the same Russian programmer who designed *Tetris*. The theme is going to very similar though early demos suggest that the control method is likely to be better. This is superb news because the only real criticism of *Blockout* is that positioning the falling blocks in the correct place is more down to luck than skill. The different colours of the blocks and guide lines down the side of the playing area help to a limited extent but it's still difficult to judge if blocks are being correctly positioned until they've almost fallen into place.

This is a much tougher game than *Tetris* and more colourful. It's frighteningly addictive and well worth getting your hands on. If you're a seasoned *Tetris* fan and can stand the wait though, we recommend you hang on and check out *Welltris* before spending your hard-earned cash.

Mark Higham

PC

HARD DRIVE TROUBLES

Last weeks' statement about the clash between Windows 3 and disk partitioning software on large drives has proved a nuisance. My own PC uses *Disk Manager* to handle its half-height 80Mb drive which has 1,186 cylinders. The MS-DOS partitioning routine, FDISK, won't handle anything over 1,024 cylinders, but the CMOS memory of the 386 offers a type 47 setup which can be used for virtually any size of drive. The drive still needs *Disk Manager* to format and drive it, though.

Taking *SmartDrive* out of the CONFIG.SYS for safety certainly did make Windows 3 run slower and it also put a lot of pressure on the hard drive, which now has to handle every file transfer and the virtual memory which Windows uses. Virtual memory is 'pretend' RAM, which is actually an area of disk; slow but cheap.

The amount of chugging the drive does for every operation under Windows, and particularly when running *Ventura Gold* (see next item), leads me to fear for its longevity. So what are the options?

I could forget 10Mb of the formatted drive and format the first 1,024 cylinders under DOS, removing the need for *Disk Manager*. I could run DR-DOS 5, which everyone in the world seems to be recommending at the moment. As a software reviewer, though, I need to run a lot of new and sometimes flakey software. There's only one answer a software producer will give when you admit to having a problem with its program running on anything but MS-DOS; 'I'm sorry, we don't guarantee the program on any operating system other than Microsoft's'. End of story.

The current favourite option is to use an alternative disk cache to *SmartDrive*. Although *SmartDrive* is Microsoft's option, it's not the only one. *PC Kwik* is one cache product which has been well received, but there are several others.

DON'T LEAVE IT TO MOTHER

The current trend is to put as many of the working parts of a PC on the main motherboard of the machine as possible, thus freeing up expansion slots. The idea seems sound, particularly if you're after a low-profile machine, until you consider two things.

First, the display circuitry. VGA may be the current top whack in high-res PC displays for general use, but there are more and more super VGA cards. These commonly have resolutions of 800 x 600, and 1,024 x 768 is not unheard of. To tie one of these high-spec cards into a PC with VGA on the motherboard can be problem. Although most such motherboards offer dip switches to 'disable' the on-board display chips, many try it with a single switch, and there is usually more than one place where they need to be isolated from the rest of the system. Much better to physically disconnect the graphics circuits altogether.

Second, if you have two serial ports, a parallel port and other extraneous bits on the motherboard and you inadvertently blow one of the ports, what do you do? Replacing the chips may be completely impossible if they're all surface-mount devices, and you then have the cost of a replacement motherboard – anything up to £500 at trade prices.

If you put the circuitry for ports on a separate board, however, and blow one of them, the most it'll cost is a replacement expansion card. Even the multi-function card I heard of recently will only cost you around £50, and that's for two serial ports, a parallel port, a game port and hard and floppy drive controllers.

Such good value can be had from Datamation on (0753) 696499.

POSTSCRIPT ON DISPLAY

Have you wondered what happens to screen fonts when your printer is providing all the scaled goodies under PostScript? The answer on all systems, except the NeXT machine and some Macintoshes, is that they approximate. The fonts which are made up inside the printer at print time have to have equivalents held in memory for use on screen.

Since most DTPs can handle fonts from, say, 5 to 256 points in half point increments, it's obviously not possible to hold the full 35 fonts in the standard PostScript set on disk or in memory. The best you can hope for is a good selection of the more popular faces and sizes.

Most products provide a good range of sizes in a limited range of faces and substitute fonts for nearest equivalents. This is why font widths are so important. Although your system may offer Times for all serif fonts and Helvetica for all sans serif, the characters will be spaced along the line according to the widths of the characters in the substituted font. That's why pages displayed on screen sometimes look over-spaced. The substitute font has narrower character widths than the chosen font.

The spacing is right, though, so the lines still break at the right points on the screen. This is generally of more use than having the right font in a silly size and spacing on the screen.

In the long term, of course, the answer is to create fonts 'on the fly' in the same way that PostScript creates printer fonts when printing. Trouble is, screen fonts have to be generated much faster as the page is being worked on when they're called for.

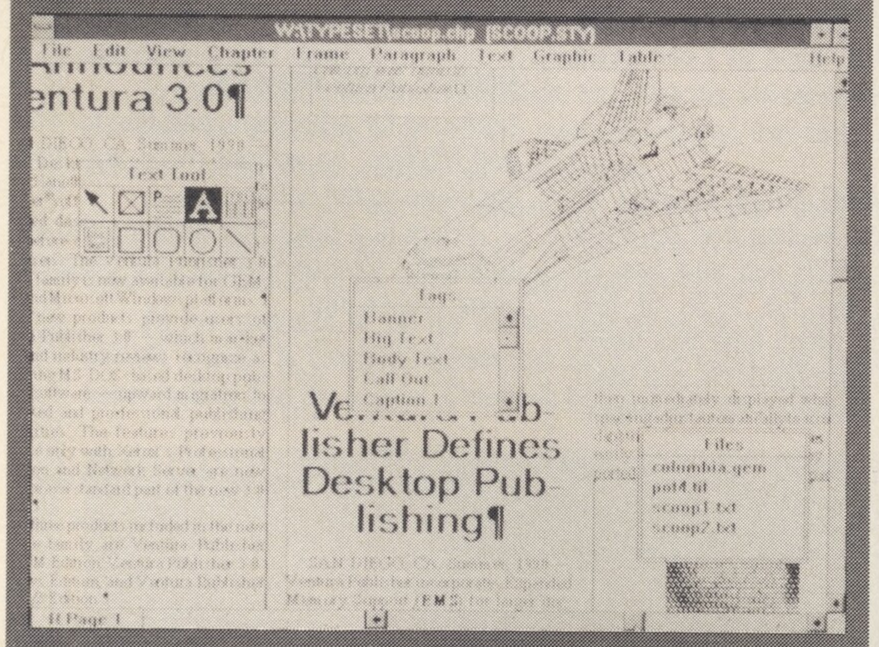
Display PostScript, as will be used on the NeXT machine, is under development, but won't ever be available for your Amstrad PC 1512.

Simon Williams

VENTURA FOR WINDOWS

Last week's launch of Xerox *Ventura Gold* for Windows is another stage in the company's widening of product horizons. As well as the current GEM version and a forthcoming Macintosh product, a fourth incarnation under Unix was also confirmed. This isn't due until well into next year, though.

The Windows 3 version is a pretty straight port from the GEM program, though the special features supplied before by the Professional Extension option have now been incorporated into the basic product. The display itself looks remarkably familiar, even though the make of WIMP has changed. The biggest change in physical appearance is the lack of a tool bar down the left-hand side of the screen. It's been replaced by three separate windows under Windows 3: one for the toolbox, one for the paragraph tags and one for the text files used by the current chapter.



• Ventura Gold *brings the king of the long document desktop publishers to the graphics environment of the Nineties*

A pertinent question was asked at the launch of *Ventura Gold*. The exchange went something like this:

"How fast is the Windows version in comparison with the existing GEM product?"

"It's about the same in its recommended configuration."

"But a normal or extended mode Windows 3 installation demands at least a 286, so *Ventura for Windows* is slower."

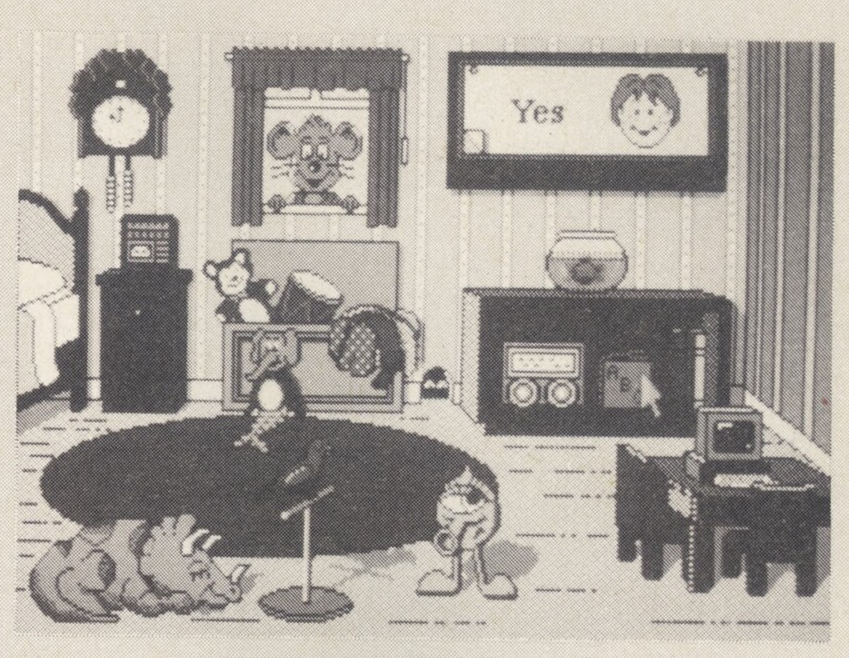
The reply remained: "It's about the same speed when run on its recommended configuration."

Does this say more about the conversion of *Ventura* from GEM to Windows, or the relative speeds of the two interfaces?

THE PLAYROOM

PC GAME of the WEEK

Broderbund • £42.55



Why is it that only the Americans seem capable of writing decent software for kids, and I mean kids that are still learning to read and write, not kids that can beat you at *Defender* while hip-hopping to Bomb the Bass? So far I've seen *Cartooners*, *Manhole* and *King's Quest IV*, all ideal for the sub-teens. Now here's *The Playroom* (imported by Software Paradise on 0222 887521) and once again it's American.

What is refreshing about these games is that they are professionally produced, although often with a price tag to match. The Americans seem to take their kids more seriously, and it shows in the software.

***The Playroom* opens in the playroom itself, scattered with furry animals and toys. You can select any of these by moving the pointer with either keyboard, joystick or – ideally – mouse, and clicking or pressing the appropriate key.**

Many of the items simply wag a tail, sing a song or fall off a window ledge, however others take you to another screen. There are six such gadgets, each designed to teach a particular skill. The Cuckoo Clock, for example, teaches your kid to tell the time; the Computer helps develop reading, typing and spelling; the Spinner Toy teaches them to count from 1 to 12.

The most advanced are The Mousehole and The ABC Book. Inside the mousehole is a well designed counting game that teaches not only addition and subtraction, but strategic planning as well. The ABC Book presents two scenes, one rural and the other urban, into which you can place a whole range of characters and objects. Pictures can then be printed out on a wide range of printers.

It's all very colourful, and a fine example of what can be done for younger children. Whether it'll keep them going for long enough to justify the price is another matter.

Matt Nicholson

SPECTRUM

VIDEO WIZARD

One re-release you might want to keep a shelfwards eye out for is *Time Scanner* on Ocean's Hit Squad label. This is a Speccy conversion of a coin-op of the same name which will probably prize a few quid off you on any forthcoming seaside arcade visits. It's basically a snazzed up, hi-tech, video pinball game with each level of the table based on a different theme. As usual the Speccy version was the best version outside the arcades and the definitive *Your Sinclair* review was very favourable when it was first released. It really stands out from the mass of other re-releases and, at £2.99, is just the thing to banish those summer gamesplaying blues.

NOT SEXY

Character set designers might not be the sexiest software around but they're very useful when you want to, erm, well, redesign your character set I suppose. I must admit I've never had an overwhelming urge to do this, but if you fancy some new fonts you could do a lot worse than sampling the ones included on *The Character Set Directory*. It costs £3 (or £2.50 plus a tape) and there are 45 different character sets to choose from which equals a very reasonable 6.66667 pence per font, I think. Volume One of *The Character Set Directory* is available from Nick Humphries, 84 Debden Road, Saffron Walden, Essex CB11 4AL.

MISTOOKS

Arrgh, arrgh and arrgh again. A few mistakes have somehow managed to worm their way into the zenith of journalistic excellence that is the *Express* Spectrum column. Cock up number one was in the poke for *The Race* which appeared in a recent column. Line 40 should have read:

```
40 DATA 23482, 26, 9, 175,
50, 50, 206, 62, 201, 50,
235, 216, 233.
```

Another mistake appeared in my review of the magnetic magazine *Outlet* (*Express* 89). The line which read "And, if you're playing games, *Outlet* is well worth buying," er, quite simply, shouldn't have. What I wanted to say was "And, if you're into using your Spectrum rather than just playing games, *Outlet* is well worth buying." You have the most sincere apologies I can muster without written notice but, naturally, it was a computer error/the printer's fault/the bus was late/I overslept/the government's to blame. (Delete as applicable.)

SECRETS

The wacky old Spectrum is full of undocumented little wrinkles and secret features. Ashley Price of Sussex has just found one and written in to tell everyone about it. Apparently on the Plus 3 (and probably other 128K Speccies) the GRAPHICS key and letters V to Z on the keyboard can be pretty useful when used together in BASIC. Pressing the GRAPHICS key and then the desired letter has the following effects:

V – Moves cursor to end of your program.

W – Takes you to the start of the program.

X – Takes you to the end of the line.

Y – Takes you to the start of the line.

Z – Acts like the EDIT key.

Incidentally, Ashley is also looking for public domain software for inclusion in DATA RUN, his PD library. He also apologises to everyone who contacted him but haven't received a catalogue yet. Send your PD to Ashley at 11 Spencers Court, Spencers Lane, Lewes, East Sussex BN7 2HE. Remember to send me a disk, Ashley.

Robin Alway

SAM COUPE

LERM TIPS

Here for your delectation, delight and lots of other words beginning with d is another tip for Lerm Software's *Address Manager* 1 utility. It puts a firm stop to the program's naughty habit of underlining surnames for you and again, all round good egg and generous human being Barry Walton is the bloke who formulated it. Applaud him at will!

"The basic program is configured to underline the surname on printing. Should you not require this (I wanted bold print) then alter the program as follows:

Load *AM1* and go into BASIC. Alter line 1545 to:

```
1545 PRINT £4; CHR$ 27;"G":LPRINT K$4( TO a);: REM Bold print ON
```

Then alter line 1550 to read:

```
1550 FOR a=z1 TO z5:LPRINT TAB Y;y$(ZG*a-z2 TO ZG*a+21);:NEXT a: PRINT £4; CHR$ 27;"H";:REM Bold print OFF
```

You could substitute any printer control code you wish. Having made the alterations type `GOTO start`. This will run the program and allow you to select option 5 from the main menu. This will then save the modified *AM1* to disk for future use."

FANS

Here are details of another SAM user group for you to bundle off an SAE to.

The SAM Coupé Newsletter is going to be a leaflet of Coupé news and reviews appearing on a doormat near you every fortnight.

Launch date is September and the proposed subs price is £8 for six month's worth of newsletters. Sounds good, for more details send the obligatory SAE to SAM Coupe Newsmail, c/o Stirling, 23 Mayfield Street, Glasgow G20 9RQ.

Robin Alway

PCW

ORGANS OF ORGANISATION

English is a rich language, but it needs careful organisation to avoid confusion of ideas in its flexible and versatile syntax. Genuine examples from some of the letters I've received:

a) Your grandmother has had the last of her teeth taken out and a new carpet put in.

b) We saw a charity concert for the deaf in the village hall.

c) I was told about how young Charles next door was nearly drowned by his mother.

Fortunately PCW owners have a major new program that can help with organisation of written ideas. Details have now emerged about the text processor I mentioned last week. Called *Foreword*, it comes from Software Imperative (maker of *Flipper* – hence the clue). It's being touted as an ideas-and-text organiser, forming the bridge between the back of an envelope and *LocoScript* or *Protext*. You can bang down your ideas and then shuffle them around, edit and expand them, collapse them down to their bare outline at the press of a key, do a quick word count and so on.

But the great thing about it (which marks it way out in front of other 'ideas organisers' like *Brainstorm*) is that it runs as a desktop utility. In other words, you can be running *LocoScript* or *Protext*, and at the press of a key (well, three – [SHIFT] [ALT] [EXTRA]) you can hop over to the *Foreword* editing screen to work out some ideas. The same keys instantly drop you back into *LocoScript*, and then you can transfer the text you'd organised in *Foreword* over to *LocoScript* (or *Protext*) at the touch of a button (at a claimed rate of 200 words per minute).

It can edit up to eight documents at once, has no restriction on file size, and costs £39.95. Details from 0225 425315. Review as soon as I can get a copy.

DISCOVERY

Can you beat this? David Cowans of Leicester tells me he has had his PCW since December 1985 and now has 74 disks containing the full 173K of text both sides, during which time he's never had a single file corrupted. He just can't bring himself to overwrite his correspondence files.

SCROLL CALL

Here's a ridiculously quick and easy way of scrolling the screen up in BASIC:

```
1000 FOR j%=1 to 255 : OUT 246,j% : NEXT
1010 a$=INKEY$ : IF a$="" THEN GOTO 1000
```

PUZZLE ANSWER

How to protect a file from being looked at in *LocoScript*: rename it to end in .$$$ – *Loco* will refuse to edit it. Of course you can easily make it editable again by renaming it, but it should put off most casual snoopers!

JUST THE TICKET

This week's problem: you want to produce tickets for a concert, each numbered uniquely. How can you get *LocoScript* to print them out, numbering each one automatically?

Rob Ainsley

MSX

CUP FEVER

Now that the World Cup is finally over, I though that as way of a change I would give you my impressions of Krisalis Software's latest release for the MSX, *Manchester United*. OK, so it's football again, (although some people would disagree), but in this instance *Man Utd* is far from your ordinary football management game.

Firstly, this is a full priced game, £9.99-ish, and as such should be more polished than say, *Football Manager*. Thankfully, the game does live up to its high price tag, and has all the features you could ask for in any football management game. These features include the ability to choose the players in your team, buy and sell players, make bids for players from other teams and choose your playing formation. You can also change the name of the players or the manager, set the time you wish to play, and either play the arcade section yourself, or let the computer take charge – you then become just a match spectator. It really is amazing how much the writers of this game have squeezed into 64K of memory. Playing the game is really quite straightforward too; after loading you select one of the on-screen icons.

When you have selected you team, and have made all the transactions you want, you then have to load part two of the game, the arcade section. Once loaded, the pitch is presented as viewed from above, and you can now decide whether you wish to take control of the play, or act as a true manager and sit back and watch the action. This is the fun part of the game, and I got quite excited just watching the action.

Well done Krisalis, I hope we can see more games like this on the MSX in the near future.

HINTS AND POKES

Time now for a few hints and tips for you avid MSXers, so without more ado here are some useful pokes.

Here is a poke that disables the list command, thus preventing your program being broken into:

```
10 REM PROGRAM PROTECTION
20 POKE 64443,1
30 POKE &HFF89,199
40 END
```

To disable the function key commands such as LIST, RUN, GOTO etc, use this poke:

```
POKE -239,198
```

If anyone owns *PacLand* and is unable to load it, try the following:

```
DEF USR0=32512
DEF USR1=35768
BLOAD "CAS:",R
```

Thanks to all those who send in the tips and write to this column, your letters are always most welcome, so more please.

FOR SALE

If there are any MSX users out there looking for an MSX 2, David Webb of MSX Link has been asked to find a buyer for one of these machines along with a Toshiba printer, an MSX 1 computer and lots of software books. If you are interested, phone MSX Link on (0775) 711108 and ask for David. I believe that any reasonable offer will be considered.

Keith Neal

CPC

COUNTING THE CASH

I reckon one of life's worst moments occurs about once every seven days – to be precise, on a Saturday morning – in the High Street. It's when you quiz the bank's cash till about the amount of moolah remaining in your account. You stare at that little white slip for about ten seconds, your lower jaw somewhere down by your kneecaps, turn it round and round to make sure you've got it the right way up then bang the machine for giving you someone else's balance, not yours. Then you stagger away up the High Street, wondering how you're going to eat for the next six weeks and wishing you hadn't bought that combined three-piece-suite-cum-barbecue-set that looked so good in the Argos Catalogue.

Not long after that, of course, you decide that it's about time you began keeping a proper record of your outgoings – but then all those receipts get lost and you never find time to jot everything down and you keep forgetting about those standing orders...

Which is where *Bank Balancer* from Osprey Software comes in. This unassuming little program sets out to make those household accounts as easy as pie. The very polished and professional display sets out clearly just how broke/flush you are, detailing your last dozen or so transactions with that account and, at the top of the screen, all sorts of information about your account, such as its title, current balance, date first started etc. To the top left of the screen is a list of the function keys and their associated, er, functions. You can also define up to 18 keys to produce commonly-used phrases like 'bankrupt' and 'bailiff'.

Standing orders can be dealt with by the program automatically, and any number of different files can be set up for all your different accounts. And specific entries can be located amidst a host of other transactions with a Search facility. Finally, you can even print out the results of your bank balancing on any Epson-compatible printer.

The manual that comes with the program lacks the professional look of the program itself, but inside its 34 pages is everything you need to know about the program. Also included is a menu tree on a separate sheet to help you find your way round the software quickly.

What *Bank Balancer* sets out to do is pretty unambitious stuff – most of us can just about keep track of our bank accounts – but for those with a passion for neatness (or who really do want to know where the money goes), it does its job cleanly and efficiently. What's more, for a price of £14.99 on disk (it only runs on the 664 and 6128, by the way) it's something of a bargain for a piece of serious software. The publisher is Osprey Software, 11 Medlock Road, Sheffield S13 9AY (0742 696863).

DIY ADVENTURING

The adventure scene on the CPC is thriving, it seems. Not so much with new releases from the major software houses, but in the world of fanzines, adventure clubs and game writing.

Traditionally, home-brew adventure games have been written either by hardy souls with nothing more than BASIC or Z80 assembler, or those using adventure writing packages like *GAC* (*Graphic Adventure Creator*) or *The Quill*.

Well, after much anticipation, Graduate Software has released a new adventure creator that could put all the rest to shame – *ADLAN* (ADventure LANguage). To run *ADLAN* you'll need a ROM board (the program is supplied on ROM) and a CPC with a disk drive. The way the program works is to let you 'write' your entire adventure in any word processor than can produce ASCII files. *ADLAN* has a set of adventure-type commands which you insert between brackets in your text file.

Once your adventure's written, the ROM compiles the whole lot into machine code to make it run faster, and compresses text and graphics to take up less space on disk. A typical uncompressed screen image will take up 17K. A compressed version will take up only 2K!

Of course, learning how to write your adventure in the first place takes a bit of doing. Here, alas, the manual isn't much help, consisting more of just a set of commands than a step-by-step guide to how to use them.

Persevere, though, and you'll find *ADLAN* an extremely powerful program. One of its major advantages, for example, is that of being able to compile code from the command line in *Protext*. It means you can run your embryonic adventure to check for bugs and then go straight back into *Protext* and your adventure file!

Just to give you an idea of the program's potential, *ADLAN* can offer up to 6,630 locations, 32,767 messages, 8 status letters, unlimited words and objects and up to 65,535 attributes! You're likely to run out of disk space before you run out of programming power.

At the risk of raising a storm of protest from *GAC* and *Quill* fans, *ADLAN* looks like the most powerful adventure creator to date, and it's going to be interesting to see what home-brew games writers can produce with it.

Price is £29.95, and Graduate Software can be found at 14 Forrester Avenue, Weston-on-Trent, Derbyshire DE7 2HX (0332 702993).

Rod Lawton

RICK THE CAPED CRUSADER?

Firebird's *Rick Dangerous* was one of those games you just couldn't stop playing. The style of the game itself was pretty old hat – explore your way through umpteens of screens shooting bad guys, collecting objects and generally just staying alive – but the brilliant graphics, excellent playability and humorous touches just took it into a whole different league.

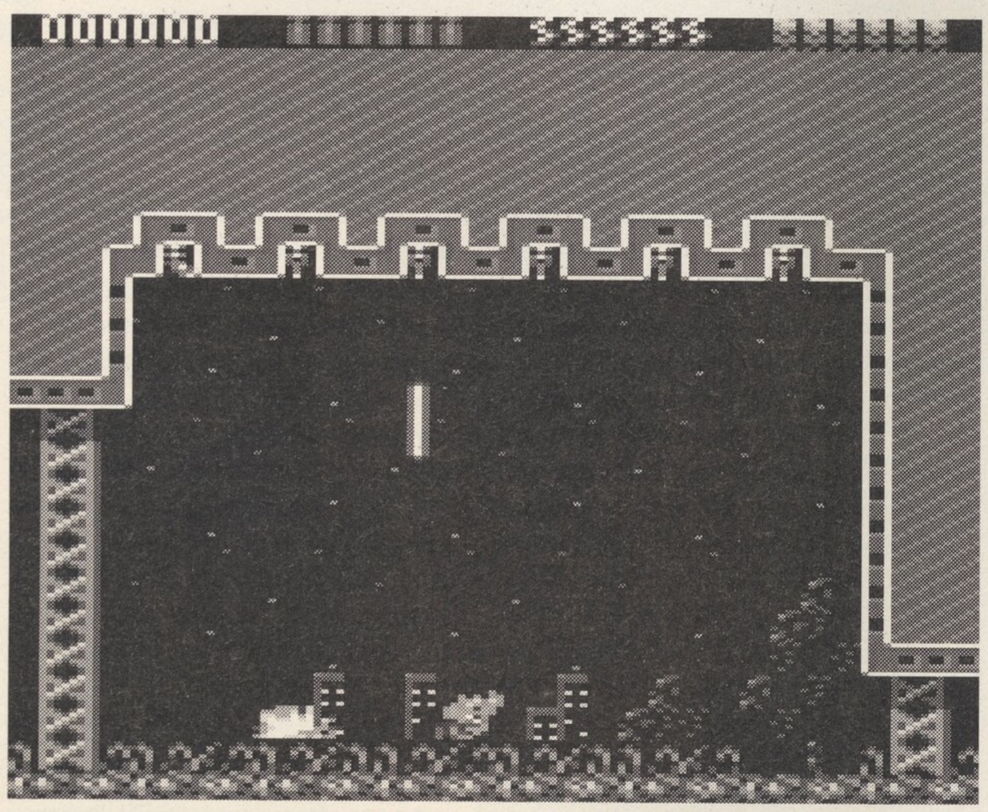
Rick faced up to a whole host of different hazards in the original game, including Amazonian temples, Egyptian pyramids and even Nazi camps – not that all of us got that far! Anyway, Rick was so popular that Firebird would have been mad not to consider a sequel. And, since Firebird isn't mad, make way for *Rick Dangerous II*...

This time Rick is facing up to a totally different set of opponents. Instead of ancient Amazonians, evil Egyptians and nasty Nazis, he's faced with a mysterious alien spaceship and its rampaging robotic occupants.

In line with the game's more futuristic feel, Rick has abandoned his explorer look and gone for a dashing body suit and cape. His revolver and sticks of dynamite are gone too, replaced with a blaster and space-bombs.

Following criticism that the original Rick was too hard, Firebird has made a few changes to the game's structure. There are five levels instead of four now, and four of these can be tackled in any order. The fifth? Well, you have to master the others first...

All I've managed to get my mucky paws on so far is a first-level demo. That's enough, though, to convince me that *Rick II* is just as tough, just as playable and even better-looking than the original. C'mon you lot, get it finished – I want to play it!

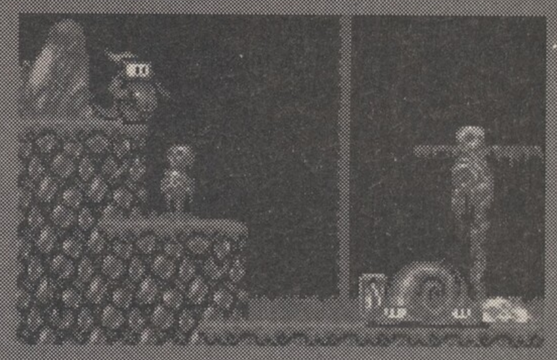


• Right at the start Rick faces a barrage of laser bolts from above.

YOUR FORMAT

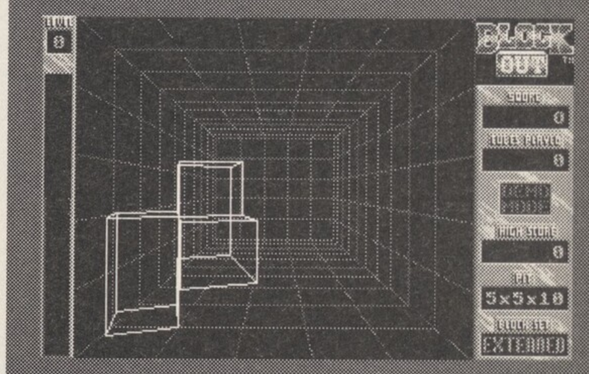
MACHINE SPECIFIC COLUMN

Amiga 8



• Flood: *a decent platform game?*

ST 10



• *More Tetris-like games with* Blocks

PC 11

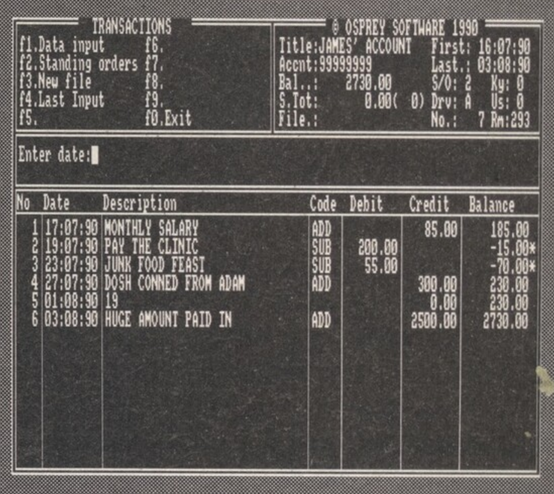
Spectrum 12

SAM Coupé 12

PCW 12

MSX 12

CPC 13



• Bank Balancer *for the CPC keeps your accounts in order.*

QL 14

BBC 14

Archimedes 14

C64 14

C64

FUN WITH NUMBERS

I have decided to carry on giving you some programming teasers during the summer months (as in the item on squares within squares in last week's column), so that the old grey matter gets the chance of some exercise instead of just fading away in the sun.

You may be familiar with sentences of the type "Evil rats on no star live". These are known as palindromic sentences, which means that they read the same both backwards and forwards. Numbers can also be palindromic: 71217 for example. In fact, if you take almost any number (124 for example), reverse it (421), and add the two together (545), you get a palindromic number. Eventually, I might add, it doesn't always take just one reversal. 129 plus 921 gives us 1050, then 1050 plus 0501 gives us 1551, so two reversals were required. Why not write a program on your C64 which will accept any number, and tell you how many reversals were required before you ended up with a palindromic number? Write it so that the reversals and the number of them are displayed on screen, then let the computer loose on a starting number of 196.

POKEY POKEY

On *Slayer* from Rack-it you just have to enter the one POKE, and that is POKE 6924, 189. Not so simple is *Savage* from Firebird. Four POKEs in all, and they are POKE 24302, 173:POKE 24352, 173:POKE 24439, 173:POKE 32369, 172. More next week!

SECRET MESSAGES

Anyone with a 1581 disk drive might like to try the following short program, which reveals a little message that the designers left behind them...

```
10 OPEN 1, 8, 15
20 PRINT #1, "M-W" CHR$
(0) CHR$ (5) CHR$ (169)
CHR$ (122) CHR$ (76) CHR$
(63) CHR$ (255)
30 PRINT #1, "M-E" CHR$
(0) CHR$ (3)
40 INPUT #1, E, E$, T, S
50 PRINT E; E4; T; S
```

And if you change the 122 in line 20 to 121, you'll find that there's more! Oh yes, don't forget to close the file when you've finished.

MORE INPUT

Computers and robots have much in common, unless the robot happens to be Johnny Five, the brilliant star of the *Short Circuit* films, who leads a very different sort of life from most other robots. He is certainly very different from the Robotarm being sold by Datel Electronics. The arm costs £50, and can be controlled using two joysticks, but the fun really begins when you lash out another £25 for an interface that will allow you to control the arm using your computer. For details write to Datel at Fenton Industrial Estate, Govan Road, Fenton, Stoke-on-Trent.

Pete Gerrard

QL

BRIGHTON RADIO RALLY

TF Services had a stand at the recent Brighton Radio Rally and Computer Show. QUANTA co-founder Leon Heller was on the stand, with Tony Firshman of TF, and had his pocket radio system hooked up to a QL, so that Tony could demonstrate the packet version of his *Qualsoft* comms program. Several users had requested a split-screen facility, and this has now been incorporated in the current version.

These rallies are worth attending, as items of interest to QL users (and owners of other machines) are often available at knock-down prices, since the stall holders sometimes don't know what they are selling!

Tony came across a large box full of brand-new QL power supplies, which are becoming rather scarce, and got QL-related items, and there were lots of Spectrum bits and pieces going extremely cheaply.

Siskin Electronics had a copy of its PD packet program for the QL, and Leon got a copy. I'll let you know what he thinks of it in the next issue.

SECOND PROCESSOR

You might not be aware of the fact that the QL contains two microprocessors — the Motorola 68008 which does most of the work, and an Intel 8049 single chip device (the intelligent Peripheral Controller or IPC) looking after the keyboard and sound generation. The 8049 is termed a single chip device, because it contains a central processing unit, RAM, ROM, and I/O, all combined together on the same chip.

Single-chip devices like the 8049 are often used in mass-market products like washing machines, because of their very low cost (perhaps a few pence each), in large quantities.

You will probably only wish to communicate with the IPC if you are writing assembly language programs, and need to get direct input from the keyboard for fast response in a game, for instance, or to generate sound.

The technique is reasonably straightforward, and is explained quite well in Adrian Dickens' *QL Advanced User Guide*, if you have access to a copy.

Jon Torofex

SWITCHING ON

Users are often unsure about the correct sequence to adopt when powering up their system.

This is especially confusing when you have a printer and disk drives, in addition to the QL itself and a monitor or TV.

I have found that the best solution is to power everything from a four-way mains adapter, plugged into a standard 13-amp socket, and switch everything on at once – much less strain on the brain cells, and it doesn't seem to cause any problems.

BBC

GREEN WITH ENVY

It is no secret that Apple Computer Inc has long envied Acorn's fiefdom of the British educational computing market. While Acorn can no longer claim the market as its exclusive preserve, it is still the major force, particularly in the primary and secondary sectors. In the US Apple dominates. However, like Acorn, its dominance is based on an 8-bit computer, the Apple II. The Macintosh, though, is the computer Apple seeks to place in British schools.

Discounted down to around £450 for the Mac Plus, this may superficially appear an attractive proposition. But a single piece of software could cost as much again, peripherals are expensive, and there is no software which is specifically tailored to the National Curriculum. Acorn too discounts its machines, and although no figure was available, I suspect a Master 128 can be had for around £250, and an Arc for around £450. That more than evens matters up in my book.

I am not saying there is no place in education for Apple, but it is going to have to work harder if they want to penetrate the mainstream education market. One thing that does worry me, is the increasing prominence of a boorish 'Schools jolly well ought to be using business software' lobby (by which they mean some software they can sell at a large profit). If you think I'm over-reacting, what I've just written is mild compared with the columns in what ought to be respectable Macintosh magazines.

Andrew Brown

ARCHIMEDES

OVATION PROTECTION

When you come to install Beebug's new DTP program, *Ovation*, you'll find an install utility on the disk. The only way to install the program is to use this utility; copying the disks doesn't work.

Once installed, the instructions make it very clear that you shouldn't copy, move or delete the files from your floppy or hard disk directory, or you will lose your copy of *Ovation*. Instead, you must use the de-install option to remove the program from your work disk. You are allowed two separate installations from the same master disk set.

This kind of set up indicates a specially written sector on the disk and I wondered what would happen if you inadvertently move the files, say by compacting the drive to tidy it up, or if your hard disk goes down and you need to reformat it.

Ashton Tate used a similar kind of protection technique in early versions of *dBase* and were forced by user pressure to remove it.

John Wallace, Beebug's software manager, assures me that no bad track has been put on the disk. A software key is introduced into the code and its the key itself that can be damaged by copying the files. John says *Ovation* on a format E disk should be completely unaffected by a compaction. He hasn't tried compacting it on a D format disk, but expects that to be fine, too.

Beebug expects the final version of the program to be available by the end of August – the spelling checker is finished bar a couple of minor bugs and the hyphenation system is also nearly ready. Those who have taken advantage of the demo version (£5 from Beebug on 0727 40303) or have the current release have made several suggestions for improved facilities or amendments and some of these may be incorporated by September.

LACK OF INERTIA

Inertia is one of those 'move the top round the maze of slippery surfaces' games which were popular a year or so back. You pilot a small craft, shaped like a top or bouncy ball, changing pink squares set in the floor to green ones by running over them.

You can bounce off the walls, run up slopes to different levels, even fling yourself from one piece of ground to the next, taking off from Harrier-style jump-ramps. You need to watch out for icy squares where you lose control and others where your brakes don't work.

The whole game is shown in isometric 3D, is accompanied by less-than-irritating music and has a useful control panel at the base of the screen with details of the task in hand, a map of the playing area and a pause button. The game can be controlled with keyboard or mouse, though mouse is favourite.

The problem is the scrolling. Every time a new section of playing area has to be scrolled into view, everything stops and the screen lurches in one direction or another.

It interrupts the flow, overrides the nicer aspects of the gameplay and will, I suspect, cause eyestrain, long term. A shame. *Inertia* is £19.95 from 4th Dimension (0742 700661).

Bertrum Carrot

PROG

Among a selection of PD programs and demos newly added to the Carrot Collection is one 'PROG'. This is a programmable application designed to do whatever you tell it.

By running the application and sitting it on the left of the icon bar, yes, along with the drive and RAM icons, you can add any other OS command you like to the desktop.

Click on the 'PROG Ready' icon on the icon bar and you're asked to specify the function you would like the program to perform. Once you've entered this, you can drag other icons over the PROG icon and the defined task will be performed on the associated files. For instance, if you type `TYPE *` into the PROG box, any text file you drag over the icon will be typed to the screen. `HELP SCREENCOMMANDS` gives you on-line help from the desktop.

All this is very handy and was written by Chris Murray in June of this year. Thanks to Chris, and a thorough recommendation to everybody to look out a copy from your local PD libraries.

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You are typing at your computer, just reaching the end of that memo to the boss about a pay rise. Suddenly the screen goes to a point of light and the static crackles. "Oh, was that your machine? Sorry mate," says the cleaner plugging his vacuum cleaner into the next socket along.

Ever lost your work when the electricity died? Now you can protect your PC from power cuts with a neat and tidy internal power supply from Emerson. Keith Pomfret threw the switch...

POWER SAVIOUR

We've all been there – hours of work lost when the power goes. And despite all our good intentions of saving every few minutes, the problem always happens just when you were reaching for Alt-F S. There is a neat solution to the power problem – the uninterruptible power supply. Many offices have these big, cumbersome, humming boxes lying around waiting to trap the least glitch in the electricity system, but they have been impractical for the home or small office – until now. Emerson has designed an uninterruptible power supply (UPS) for the PC which fits *inside* the machine and, in combination with software, guarantees the security of your valuable data.

In times of blackout, brownout or a trip over the plug, an uninterruptible power supply senses the lack of volts and, using heavy batteries and inverters, squirts the life-giving 240 volts into your machine to keep it alive for long enough for you to save any current work and close any open files.

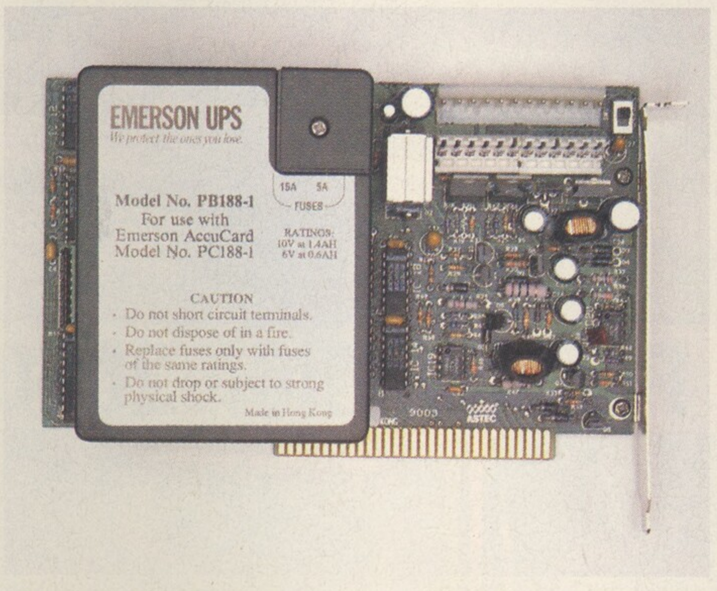
When Emerson approached the problem, it managed to do away with all of the heavy boxes and batteries. Inverters didn't get a look in and the bulky floor-mounted case was thrown away in favour of a small unit mounted on a standard PC half-card that could work the safety magic from within. The unit is small because it only aims to keep the PC alive long enough to save the contents of memory to the hard disk, which it does automatically with a small memory-resident program.

SETTING UP

Although the Emerson AccuCard uninterruptible power supply is only a half card in length, it is a fat little beastie due to the battery pack mounted on it, and takes up two slots' worth of space. As well as the card, there is software that must be run to install and set up the system.

Installation is simple with the AccuCard slotting into the nearest available expansion slot to the mains power supply of the PC. The power going from the power supply to the main board of the PC is re-routed to the AccuCard by simply removing the snap-on connector and connecting it to the AccuCard. A cable then connects the AccuCard to the main board.

The AccuCard software reserves space on your hard disk equivalent to the memory of your machine plus 64K for its own use. On a 640K machine this amounts to 704K and this space on the hard disk becomes 'out of bounds' to any other programs or data.



• Emerson's AccuCard fits inside the PC and stops data being lost if the power goes off.

TESTING TIME

After putting the PC back together and installing the software, we put the AccuCard to the test. On a 386 PC with 4Mb of RAM and a 65Mb hard drive we deliberately picked some pieces of software to see what AccuCard made of them. First of all, we ran a selection of word processors, databases and spreadsheets, deliberately not saving work and leaving files open. The test was to switch the PC off at the plug and stand back. No problem at all.

The AccuCard saved everything as it stood and returned it to the same state on power up. Even multi-tasking software didn't get the better of it, and other than losing the integrity of the data at the ports, a MIDI package came back smiling.

AccuCard doesn't make a great song and dance when the power goes. As the switch was thrown, AccuCard announced "Brownout" in a small box at the top right-hand corner of the screen. Under normal circumstances the monitor would have lost power at the same time and the screen would have been dead, but for the purpose of the test (and checking that the messages were there) it was left on.

The messages only work in 80-column mode, so if your monitor is in a different mode the only indication is a modulated squeak that says all is well with the AccuCard. After a couple of seconds of no power, the AccuCard changes its message to "Saving to Disk" and proceeds to copy the memory into its prepared space on the hard disk.

If power returns during the save, the AccuCard completes the save before returning control to you. If power isn't restored during the save, the computer is switched off to await the return of the electricity.

When the switch on the wall was flipped back on, the AccuCard unceremoniously put things back the way that it found them.

There's an option to security protect AccuCard, making sure that only you can use and abuse it, and 'hot key' combinations allow you to disable it (which you need to do before turning it off deliberately) or even just check if it's there.

WHAT'S IT FOR?

AccuCard wasn't designed to totally replace the conventional uninterruptible power supply. Some of the meatier ones allow you to carry on working for hours longer after the power goes down and some guarantee spike-free current. Indeed, many companies use UPSs to protect their PCs from dirty, spikey electricity.

The main function of the AccuCard is to protect the user from data loss during times of power supply failiure. Because of its small size and the fact that it fits inside the PC, it's a convenient source of power but can only provide enough time for its software to go into auto-save mode and save the contents of the memory to disk. Once power is lost, all of the PC's normal functions are shut down and no control is possible until power is returned.

Its main advantage, other than its portability and ease of use, has to be the price. The AccuCard costs £230, which is a good price for something which offers data integrity and peace of mind.

For anyone who needs protection from power cuts but doesn't want to be burdened with battery boxes and power supplies that take up valuable floor space, the AccuCard is the only option. ■

For more information about AccuCard ring Emerson on 0793 524121.

IN THE JARGON

SPIKES
Spikes are fluctuations of current caused by a large load being suddenly imposed on a circuit or by there being something like an electric motor on the line. They are called spikes because on an oscilloscope they have the appearance of jagged spikes. Spikes are dangerous to computers because the fluctuations of current can cause loss of data or even a full system crash.

INVERTER
An inverter is a device that turns direct current (DC) into alternating current (AC). For the low DC voltages provided by a battery pack to be turned into the mains power needed by the computer, it must be 'inverted to AC and put through a transformer to raise the voltage to mains power (240V in the UK).

The AccuCard supplies DC directly to the computer's maotherboard, by-passing the power inlet so inverters are not needed.

BROWN OUT
In traditional electrical terms , brownout meant a time when the voltage dropped more than ten per cent below the norm. On occasions of brownout, lightbulbs could be seen as visibly dimmer and some electronic apparatus would malfunction or cease to function.

To the Emerson AccuCard UPS, however, the meaning is slightly different.

When the mains power drops or ceases, the AccuCard goes into brownout mode and supports the main board of the PC. If the 'brownout' lasts more than a second, the AccuCard switches into save mode and saves the memory to disk.

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So if you are thinking about building your own machine to find out what really makes a PC tick or to save some money and would like a kit that really is a kit - or if you are interested in our Barebone Systems or high quality add-ons.

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THE SHOPPING EXPRESS BUYER'S GUIDE TO

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The ST is a remarkable machine – blessed with an excellent range and variety of both serious and leisure software. And all at a price that's a giveaway for such a powerful, 16-bit beast. Its different resolutions allow it to support everything from precision DTP to multi-colour artistic extravaganzas.

The Express Guide to ST essentials takes you through the best products available in the wide world of ST software: the word processors that can handle everything from business letters to a complex cross-referenced thesis; the databases to keep those club or customer records; spreadsheets that solve those financial crises; music packages that make the ST the choice of the professional muso; games that take over your life; graphics packages that make you machine a desktop publishing tool. Now read on...

WORD PROCESSORS

● 1ST WORD PLUS
Electric Distribution
0480 496789
£79.95

Enhanced version of *1st Word*, the word processor bundle with the ST, this version is much meatier, can handle *Degas* graphics and comes complete with spell checker, mail merge and multi-column printing

▲ Fast and efficient
▲ Good display

▼ No short cuts to tedious keyboard sequences

● WORD WRITER
Electric Distribution
0480 496789
£79.95

Excellent text handling on a fast WYSIWYG word processor with built-in spell checker, thesaurus, outliner and mail merger. Only problem is with layouts - more than one in a document and things get a little hairy!

▲ Lots of great features
▲ Useful outliner included

▼ Layouts restricted

● PROTEXT
Arnor
0733 68909
£99.95

Easily the fast ST word processor – not surprising since it dispenses entirely with GEM – and stands out as fast keyboard driven text processor. Full of features it zips along at an unsurpassed rate

▲ Powerful macros, spell checker and mail merge
▲ Calculator, word count, memory editor

▼ Command driven
▼ No menus
▼ Restricted WYSIWYG

● THAT'S WRITE!
Cavendish
071-323 4761
£129

Another powerful non-GEM word processor featuring excellent layout control along with a font designer and screen grabber. Also includes useful functions such as auto indexing, contents generation and hyphen control

▲ Brilliant print-out results
▲ Powerful macro system

▼ No spell check or mail merge

● WORDUP
HB Marketing
0895 444433
£ 59.95

Almost qualifies as a DTP package as it includes graphic import, auto text flow around graphics and loads of different type sizes and styles. Excellent for producing stylish documents

▲ Good control over layout
▲ Quasi-DTP capabilities

▼ No spell checker
▼ Can only print its own fonts

SPREADSHEETS

● K-SPREAD 3
Kuma
07357 4335
£24.95

Good entry level spreadsheet which is fully compatible with other programs in the 'K' suite. A powerful Lotus-look-alike using GEM to provide a workspace of 256 columns by 8,192 rows. Many features such as text handling, arithmetic functions make it an excellent all-round business program

▲ Comprehensive low-cost package
▲ Lotus style capability
▲ Good manual

● DIGICALC
Digita International
0395 45059
£39.95

An easy to use spreadsheet which dispenses with GEM to provide a keystroke driven workspace full of popular facilities. 512 columns by 52 rows are supported plus the usual range of numeric functions

▲ Fast recalculation
▲ Holds full sheet entirely in memory
▲ User defined macros available

▼ No graphics
▼ No GEM
▼ No comparison functions

● VIP PROFESSIONAL
VIP Technologies
£149.95

A GEM version of VIP on the PC, supporting 8,192 x 256 cells and following the Lotus *1-2-3* industry standard. Fast editing and simple database functions complement a full range of features including keyboard macros

▲ Lotus controls
▲ Acts a simple database
▲ Graphic output

▼ Slow on large spreads

ACCOUNTING

● FINANCIAL CONTROLLER
Sagesoft
091-284 7077
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Comprehensive accounting package that includes all the features you're ever likely to want. Integrated sales, purchase and nominal ledgers, stock control and printed reports are supported as is auto invoicing.

▲ Fully comprehensive, powerful package
▲ Good manual

▼ Needs a hard disk

➤

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● ACCOUNTANT
Sagesoft
091-284 7077
£171.35

Fast,powerful accounts package that includes integrated sales, purchase and nominal ledgers. No stock control but auto invoicing is supported along with form printing and sales analysis

▲ Good features for the price
▲ Flexible with many features

DATABASES

● SUPERBASE PROFESSIONAL
Precision
081-330 7166
£249.99

The ultimate ST relational database management package. Features videotape recorder style push-button controls to navigate a complex yet easy to use extravaganza which includes text processor, form editor and a built-in programming language boasting over 200 command words

▲ Easy to use and extremely powerful
▲ Infinite field size and number of records

● DATA MANAGER PROFESSIONAL
Timeworks
0954 80318
£ 69.95

A full-featured professional-grade data management tool which can be used with GEM's pull-down menus or directly from the keyboard. Relational operators allow powerful data searches among its maximum file length of 32,000 records and as this is RAM-based, *DMP* can sort at 100 records a second.

▲ Exceptionally easy to use
▲ Impressive report facilities

▼ Manual needs a better index

DESKTOP PUBLISHING

● TIMEWORKS DTP
GST/Timeworks
0954 81991
£129

One of the first medium priced DTP packages, GEM based and compatible with the wide range of Bitstream Fontware. A frame based system incorporating master templates, paragraph styles, page guides and automatic text wrap-around graphics. *Timeworks* also includes a a good range of drawing facilities and is able to handle documents up to 999 pages.

▲ Excellent DTP at budget price
▲ Imports wide range of text and pictures

● FLEET STREET EDITOR
Mirrorsoft
071-928 1454
£184

A GEM style package, Bitstream font compatible, but generally slower to use than real GEM DTPs. Both text and Graphics can be manipulated on the same screen and overlap each other. A wide selection of clip art is supplied but the working document has to be reloaded before insertion.

▲ Good clip art selection
▲ Wide file format supported

▼ No automatic reflowing of text
▼ Relatively slow and unfriendly

● PUBLISHING PARTNER
Clik ST
0753 682 988
£ 159.99

Excellent GEM -based page make-up system, with multiple-on screen pages, impressive range of fonts and text sizes and facility to import different ST graphics formats. Also includes a range of drawing tools and variable magnification. Fast screen updates and high quality printer output

▲ Comprehensive and fast
▲ Excellent value

● SIGNUM 2
Signa
0252 874406
£184

Billed as a document processor, Signum allows text to be placed and adjusted to accuracies of up to 1/90th of an inch as well as imported graphics and technical fonts and symbols. Dot-matrix and laser printers are supported.

▲ Fast screen updates and response
▲ Compatible with Signa's scanners, digitisers and Mac emulators

▼ Price

GRAPHICS

● CYBER PAINT
Electric Distribution
0480 496666
£69.95

Breathtaking bitmapped animation and graphics package from American Antic. This program features some incredible effects including tweening (changing one object to another a line at a time) and very powerful animation functions. Rivals the Amiga and is highly recommended.

▲ Very powerful animation
▲ Stunning effects
▲ Cheap

● DEGAS ELITE
Electronic Arts
0753 46546
£24.95

Like *Digipaint* for the Amiga, *Degas Elite* was one of the first painting programs for the Atari and it's still one of the best. You can have eight word screens at once, cut and paste between any of them and there are plenty of powerful functions such as zoom, block handling.

▲ 8 screens available
▲ Powerful block handling

▼ Lacking in features

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● SPECTRUM 512

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0480 496666
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Painting package featuring (as its name suggests) 512 colours. The program is simple to use and effective. There's some very powerful functions too in the form of anti aliasing and gradient fill.

▲ Lots of colours
▲ Easy to use

▼ A little expensive

● ADVANCED ART STUDIO

Rainbird
0606 504326
£22.95

Aimed at those with a serious interest in producing quality art/graphics displays. the Advanced Art Studio. An enormous range of fills as well as comprehensive zoom and text handling complete this package.

▲ Lots of fills
▲ Powerful manipulation tools

MUSIC

● CREATOR

C-Lab (Sound Technology)
0462 480000
£285

Rapidly becoming the most widely used of sequencers it has excellent editing and arranging features. Although not cheap, if you are serious about music then this is the one to go for. It can be expanded with hardware to control up to 64 instruments independently

▲ Excellent facilities
▲ MIDI file compatibility
▲ Will also adapt to video sync
▲ Good editing

▼ Handbook can be hard to get to grips with
▼ Expensive if you are not serious

● TRACK 24

Comus/Soundbits
021-733 2063
£75

Well priced budget sequencer with more features than you would expect, rivaling software twice its price. Compatible with their more up-market sequencers and scoring packages.

▲ Cheap
▲ Good sequencing facilities including mixdown
▲ MIDI File

▼ Editing is peculiar

● STEINBERG PRO 24

Evenlode
099389 8484
£285

The has been the industry standard for many upon many years. The soon-to-be-available Amiga version should prove as interesting as the versions previously released on other machine specs. They are pushing their new program 'Cubase' at present, but one should not neglect this easy to use and very popular program. Make sure you get at least version 3 though.

▲ Easy to use
▲ Established program
▲ Easy editing

▼ Price

● VIRTUOSO

The Digital Muse/Audio Software
071-586 3445
£225

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
▲ Can perform disk operations while still running
▲ Many excellent features

▼ New and therefore untested in the general market
▼ Price

● SUPER CONDUCTOR

Microdeal
0726 68020
£49.95

Very popular little sequencer that will also control the ST sound chip. Well thought out, especially in the song arrange section. Can also cope with the fine details of MIDI including systems exclusive editing.

▲ Suitable for beginner
▲ Easy arrange section
▲ Well documented
▲ Controls internal sound chip
▲ Good if you want to control MIDI via data

▼ Editing not too easy
▼ Quantize limited

● EZ TRACK PLUS

Syndromic Music
081-444 9126
£49.95

Reasonable sequencer that is fairly easy to use. Compatible with other Hybrid Arts programs that also boast a multi program environment. Limited on quantizing but not bad for the money. Editing in data only but good for organising songs.

▲ Good price
▲ Easy to use

▲ Compatible with Hybrid Arts EZ Score
▼ Limited on editing and quantizing

● REPLAY 4

Microdeal
0726 68020
£59.95

One of the first sampling packages now in its fourth version. Earlier versions available on public domain as sample players only. MIDI well looked after.

▲ Editing very easy
▲ Samples sound very clean
▲ Tried and tested program

▼ The ST is not the best sample player.

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GAMES

● MUSIC STUDIO V3
Activision
0734 311666
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▲ Comprehensive program
▲ Price

▼ Uses traditional notation to sequence

● CARRIER COMMAND
Rainbird
0666 504326
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Compelling strategic shoot-'em-up with you in charge of a 200mph aircraft carrier of the future attempting to taker control of a vast volcanic archipelago. Fly jets and drive amphibious vehicles simultaneously while colonising the territory and supplies of the enemy.

● STARGLIDER 2
Rainbird
0666 504326
£24.99

Solid 3D extravaganza which can be played either as shoot-'em-up or strategy with you looking for the parts to build a neutron bomb as you fly around an alien system encountering all manner of alien life. Features some of the best filled vector animation on any home micro.

● KICK OFF
Anco
0322 92513
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Excellent soccer-sim with furious, well-rad ball control putting it in a class of its own. Play against a friend or the computer in five levels of competence presented with opportunities to compete in The World Cup and practice the skills needed to beat all comers.

● DUNGEON MASTER
Mirrorsoft
071-928 1454
£24.99

Arguably the best graphic adventure to have appeared on any machine, *Dungeon Master* takes you into a catacombed world of adventure and peril. Fourteen levels of surprise and puzzles with only four companions to help you survive.

● XENON 2
Imageworks
071-928 1454
£24.99

Much hyped but nevertheless superb shoot-em-up with the accent firmly on attack. Six levels of mutant aliens just dying to get taken out with you at the controls of a modular spacecraft with almost enough weaponry to drown out the sound of the Bomb The Bass soundtrack

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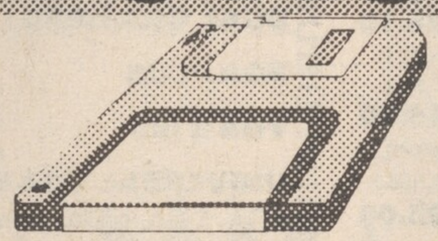
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HURRY! VERY LIMITED SPECIAL OFFER : 520STFM with 1Mb RAM installed PLUS all software extras as supplied with 'Power Pack' and ALSO all software as supplied with 1040STE Pro. Pack - ALL FOR ONLY £399.00

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520STFM 1Mb Drive Upgrade Kit with full fitting instructions	£64.95
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Amstrad PC1512/1640/2086

All Amstrad Products include 12 Months On-Site Maintenance

- **All PC models include 'Top 10 Solid Gold' Games Package!**
- **Amstrad PC1512 models include 'Migent Ability' and 4 US Gold Games**

CREATE YOUR OWN HARD DISK CONFIGURATION FOR ANY 1512/1640/2086 MODEL !

Using a Western Digital Filecard, which includes XTree and SpeedRead software, we can upgrade the PC for you before despatch. Using the 'SD' column of the price table, simply add £225.00 inc.VAT for a 21Mb configuration, £239.00 for a 32Mb configuration, or £279.00 for a 41Mb configuration.

	SD	DD	AMS H.D.
MONO 1512	346.96 399.00	433.91 499.00	N/A N/A
COLOUR 1512	433.91 499.00	555.65 599.00	N/A N/A
MONO 1640	477.39 549.00	554.35 649.00	738.26 849.00
CGA (COLOUR) 1640	564.35 649.00	651.30 749.00	825.22 949.00
EGA (ECD) 1640	651.30 749.00	738.26 849.00	912.17 1049.00
2086 MONO	433.91 499.00	520.87 599.00	694.78 799.00
2086 CD	564.35 649.00	651.30 749.00	825.22 949.00
2086 12" HRCD	564.35 649.00	651.30 749.00	825.22 949.00
2086 14" HRCD	607.83 699.00	694.78 799.00	868.70 999.00

upgrades / accessories

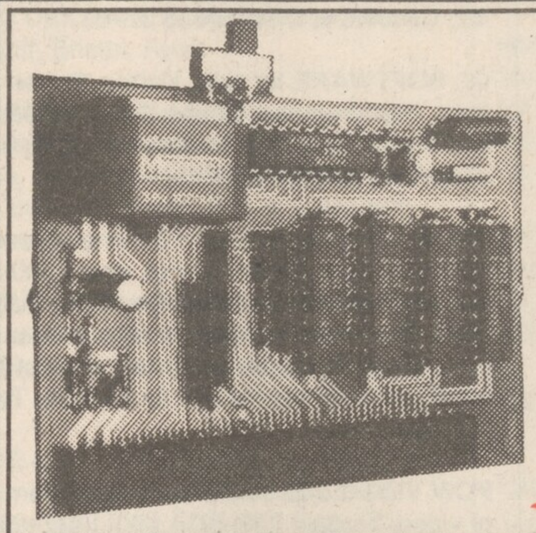
PC1512 memory upgrade to 640K	£29.95	Enhancer 101 replacement keyboard	£74.95
Maths Co-processor 8087-2	£119.00	Internal 3.5" drive (720K) for SD PC's	£79.95
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PPC640S	(£477.39) £549.00	ALT386sx	(£1738.26) £1999.00



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512K RAM/CLOCK EXPANSION FEATURES :

- ☆ Direct replacement for the A501 expansion
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RAM expansion without clock, only ... £34.95

Amiga & ST 3.5" Drives

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Fully guaranteed double sided media

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CBM A590 HARD DRIVE

Good quality 20Mb Hard Disk from Commodore, including its own PSU. Features sockets for up to 2Mb of FAST RAM expansion (see below). 80ms Access time, with up to 2.4Mb/sec transfer rate. Will autoboot when used with Kickstart 1.3. Has built-in cooling fan.

Only £379.00

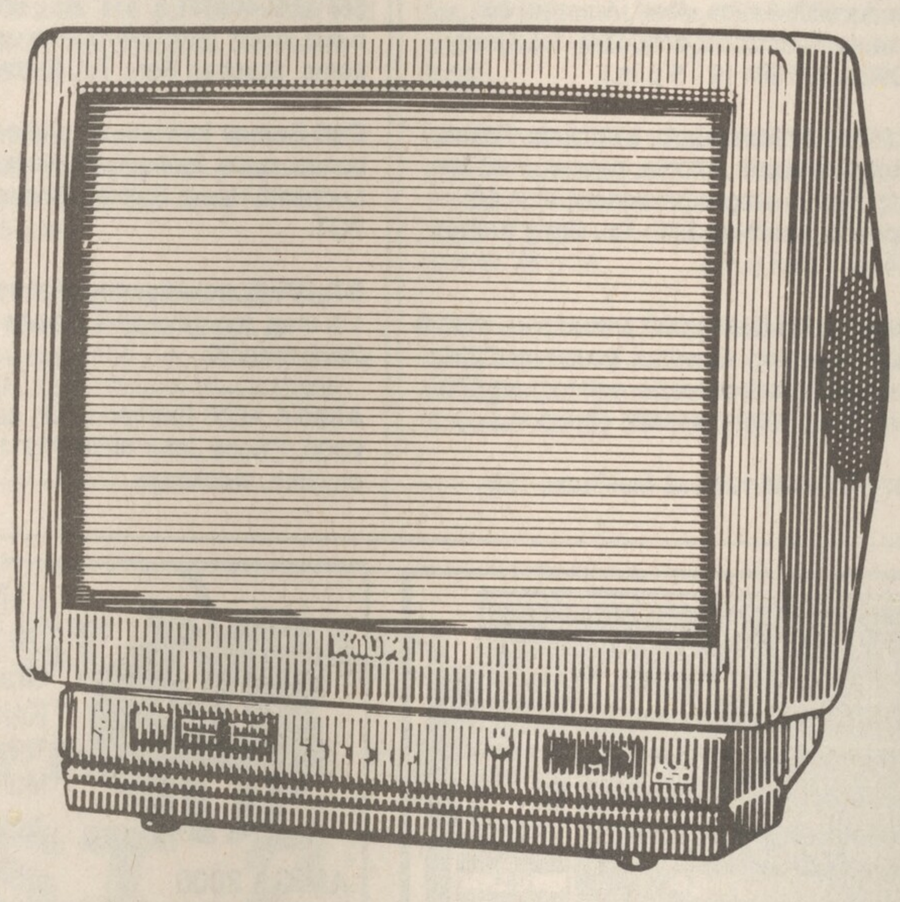
A590 512K RAM Upgrade kit	£36.00
A590 1Mb RAM Upgrade kit	£70.00
A590 2Mb RAM Upgrade kit	£135.00

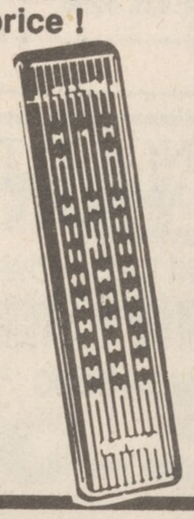
RAM upgrades fitted free when bought with A590.

PHILIPS 15" FST TV/Monitor (MODEL 2530)

With its dedicated monitor input, this model combines the advantages of a high quality medium resolution monitor with the convenience of remote control Teletext TV - at an excellent low price !

- ✔ Suits ST or Amiga (cable supplied)
- ✔ Teletext facilities; on screen graphics
- ✔ Full infra-red remote control
- ✔ SCART Input/Output Connector
- ✔ Audio/Composite Video inputs
- ✔ 60 TV tuner presets
- ✔ Headphone private listening jack
- ✔ External aerial input (loop supplied)





£269.00
Includes VAT, delivery and computer connection lead

ATARI ABC-286

FREE with all ABC-286 machines : Logotron '8-in-1 Professional' inc. W/Processor, Database, Spreadsheet, Graphics, etc.

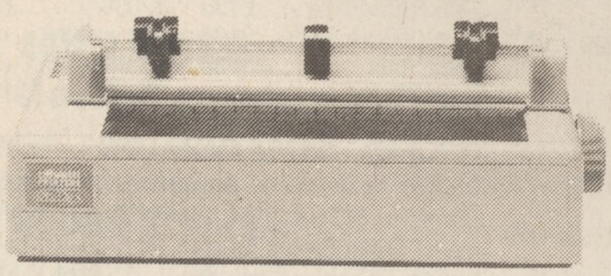
- ☆ 80286 Processor with 8 Mhz clock speed
- ☆ 640K RAM standard, expandable to 1 Mb
- ☆ 3 AT / XT compatible Expansion slots
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- ☆ Disk controller supports 2 floppy & 2 hard drives
- ☆ One 3.5" (1.44Mb) floppy drive and a 30Mb hard disk drive fitted as standard
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- ☆ Supplied with MS-DOS 3.3 and GW-BASIC

ABC-286 S.D./30Mb without monitor ..... £ 803.85
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- ○ Standard Centronics Parallel interface
- ○ Friction and Tractor feed
- ○ Optional auto cut sheet feeder available

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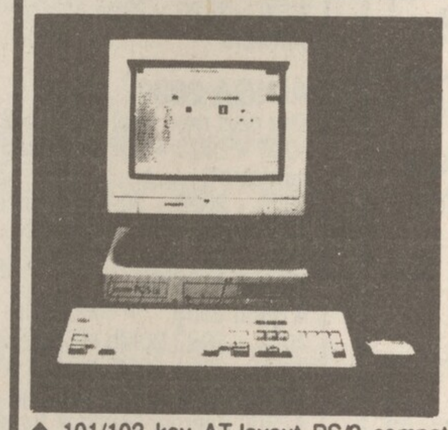
Cut sheet feeder available for only £79.95

Prices include VAT, delivery and 12 months on-site maintenance!

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FREE WITH ALL MODELS :

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- ✔ Logotron 'Eight-In-One' Integrated Package
- ✔ 'Top 10 Solid Gold' Games package



- ◆ 101/102 key AT-layout PS/2 compatible keyboard (Mini-DIN)
- ◆ 1 x RS232 Serial interface and 1 x Centronics Parallel interface
- ◆ VGA compatible (OVC) display controller fitted standard
- ◆ VGA monitors: 14" Colour / 12" Mono. (dot pitch 0.39mm)
- ◆ Socket for Optional Maths Co-Processor
- ◆ Hard Drive versions: 20Mb (27ms access time) / 40Mb (29ms)

***FREE* WITH EVERY PCS286 : OLIVETTI DM100S 9-PIN PRINTER !**

or if you prefer, £129.95 inc.VAT allowance on another printer of your choice.

	SD	DD	SD 20MB	SD 40MB
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PCS86 COLOUR	699.00 803.85	799.00 918.85	999.00 1148.85	N/A N/A
PCS286 MONO	N/A N/A	949.00 1091.35	1049.00 1206.35	1149.00 1321.35
PCS286 COLOUR	N/A N/A	1099.00 1263.85	1199.00 1378.85	1299.00 1493.85

Logotron 'Eight-in-One' package includes Wordprocessor, Database, Spreadsheet, Graphics etc.
'Top 10 Solid Gold' games pack includes Arcade, Adventure, Creativity, Simulation & Strategy titles.

PCS 86
- ◆ NEC-V30 microprocessor 10Mhz clock speed, 0 wait states
- ◆ 640K RAM standard, upgradeable to 2.5Mb on motherboard
- ◆ Single or Twin 3.5" floppy drives with 720K formatted capacity
- ◆ 3 Full size XT-compatible 8-bit expansion slots

PCS 286
- ◆ Intel 80286 microprocessor 12MHz clock speed, 1 wait states
- ◆ 1Mb RAM standard, upgradeable to 4Mb on motherboard
- ◆ Single or Twin 3.5" floppy drives with 1.44Mb formatted capacity
- ◆ 3 Full size expansion slots; 1 x 8 bit and 2 x 16 bit (XT/AT style)

ACCESSORIES

5.25" 1.2Mb/360K drive with controller	£ 129.95
PCS 286 2Mb RAM Upgrade Kit	£ 145.00
PCS 286 4Mb RAM Upgrade Kit	£ 290.00

APRICOT F1E, MS-DOS 256K memory 40 blank 3 1/2" discs, 10 with software, WS, DBASE, GTC £200. Ring 0993 772741 after 6.30 p.m. 0993 868844 daytime. Ask for Craig.

COMMODORE PC model 8030 - 32B. Single DD model 1001. Double DD model 8050. Offers. Wanted, games machine and colour monitor. Darlington 284779. Don.

SAM Coupe. Computer, boxed, as new, stull under guarantee, with Flash Art package and SAM Demo. Loads. Al Spectrum games with Spectrum ROM Emulator. £115 o.n.o.

AMSTRAD 1640ECD 20MB and Panasonic KX-P1080 printer, mint condition, manuals, boxed, warranty, £179.00 o.n.o. Tel. 081 571 1852 after 6 p.m., West London. Can deliver.

AMSTRAD CPC games 'Saint & Greavsie (disc) plus OP Wolf (tape) £7 and £4 each. Send postal order to Chris Williams, 6 Frank Street, Great Horton, Bradford BD7 3BT.

C64 originals for sale. Lots worth £230+, swap for disk drive or sell seperately (0302) 885815, 25 Sutton Road, Kirksandall, Doncaster DN3 1NY. (S.a.e.)

FOR SALE, Amstrad CPC with mono monitor modulator printer. 2 disc drives 6128 ROM 64 expansion multiface loads of software 600 o.n.o. 061 784 2294 eves.

AMSTRAD CPC 464 with green screen monitor and joystick. Slight damage on clear part of cassette cover (replacable). Very good condition otherwise, £151. Tel. (Stuart) 041 639 3586.

64 GAMES and hardware for sale, send a s.s.a.e. to The Software Wizards, 31 Sorby Way, Wickersley, Rotherham, South Yorkshire, S66 0DR, also C16 Games.

CHEAT disk 4 for Amiga only £2.50 100's Cheats, Solutions etc. for Black Tiger, Dogs of War, F29 etc. J. S. Smith, 45 Maplecroft Crescent, Sheffield S9 1DN.

SEGA Master System, Light Gun, Accelerator Pedal, 2 joysticks with Autofire and 22 software titles. V.g.c. £250. Phone (0229) 813032.

TOSHIBA MSX computer with data recorder. £60 o.n.o. Tel. 0389 79891 after 6 p.m.

AMSTRAD CPC 6128, plus software includes Protext, Deupac 80, Mini- Office II, Qualitas etc., many games, excellent condition. Cost over £700, sell £200. Tel. Craig (0924) 441661 (9-5 p.m.)

AMSTRAD CPC, KDS high capacity DS/DD 5 1/4" disc drive, formats up to 800K. Includes Ramdos, excellent condition . Cost £180, sell £70. Tel. Craig (0924) 441661 (9-5 p.m.)

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CPC 6128 Romboard, 8 sockets, Roms include Maxam, Utopia, pascal, mail-list etc. Eprom programmer also, plus 10 eproms, yours for £40. Tel. Craig (0924) 441661 (9-5 p.m.)

AMSTRAD DMP 2000 printer plus KDS 8 bit printer port, Qualitas, cost over £200, includes manual, leads, sell for just £79. Tel. Craig (0924) 441661 (9-5 p.m.)

SPECTRUM 1284+2 Multiface, 128 C4IVE drive + disks. 2 joysticks and Interface 150+ games on tape. All for £300. Tel. Darren on (0449) 676238.

MEGADRIVE. PAL. Complete with three games (inc. Ghouls & Ghosts). £140 o.n.o. Phone Dutch at 0786 74752.

ATARI HE-RES mono monitor. Excellent condition with dust cover. Buyer to collect. Only £50 for quick sale. Tel. 081 845 3198 after 7 p.m.

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BBC MODEL B 32K computer disc interface. Slight disk drive fault (not serious). Other BBC equipment available. Giveaway price £100 o.n.o. (Exc. Carr.). Stephen Barr. Tel. (0786) 73491.

MORE BBC micro add ons. Two TEAC 55F D/S 40/80T 5 1/4" disc drives £40 o.n.o. each. (exc. carr.). Ask about other items. Stephen Barr. Tel. (0786) 73491.

C16 Games for sale. All originals and boxes, s.a.e. for list to G. Vassie, 241 Lochfield Road, Paisley, Scotland PS2 7QT.

ST. ORIG. boxed games from £7. Also 1/2 meg. int. drive £15. Phone Matthew 0532 843390.

AMIGA A500 Batman pack, as new, £300. Phone John 0276 63311 ext. 3258, daytime, weekdays.

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SPECTRUM software for sale. Prices from 75p. If you would like a free list please send s.a.e. to 11, Brentwood close, Holywell, Seaton, Deleval, Whitley Bay, Tyne & Wear, NE25 8LZ. Not +3.

BBC Master 40/80 drive + bits. Bit scruffy, £230. BBC DFS, £35. Torch and processor, £40. (0784) 430005.

MODEMS for CBM 64, £25 each, buyer collects or pays post. One for Compunet and other services, other not Compunet. Ring 0392 432274 after 5 p.m.

SPECTRUM 128K+ interface one, micro drive, joystick interface, cassette recorder, 8056 printer, all leads and manuals. £120. 021 565 2498.

ST GAMES: Future Wars, Personal Nightmare, Rocket Ranger, Outrun, Hollywood Poker, The Grail, Dungeons Amethysts Alchemists 'W Everythin'. £40. The lot. No splits. Tel. 081 947 0454.

AMIGA B2000, 20 meg hard drive, 2 meg RAM expansion, twin 3 1/2" drives, new 1 meg Agnus, books + software, £950 o.n.o. Tel. Dave Wrexham 0978 357601 (evenings).

COMMODORE A590 20 MB hard disk. 9 months old, little used. Immaculate. Bargain at £265. Phone chris. on 0652 648397.

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5 1/4" DS/HD 1.6MB	£8.59	£16.99	£24.59	£39.99

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All discs are certified. 3 1/2" with labels. 5 1/4" with envelopes, labels and write protect labels.

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AMIGA 3000
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At special introductory prices...
AMIGA 3000 25Mhz with 40Mb HDD.....£2350 + VAT
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(16Mhz machines are slower and therefore haven't arrived yet...)

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The next best thing to a 3000
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The next next best thing to a 3000
2000 + 2620 + 2092 20Mb HDD + software*.....£1850 + VAT
2000 + 2620 + 2094 40Mb HDD + software*.....£1950 + VAT

AMIGA 2000
A good thing
2000 + 2092 20Mb HDD + s/w*.....£979 + VAT
2000 + 2094 40Mb HDD + s/w*.....£1150 + VAT
(either of these two bundles available with A2300 internal Genlock for an extra £150 + VAT)
2000 + XT Board + 2092 20Mb HDD + software*.....£1199 + VAT
2000 + AT Board + 2094 40Mb HDD **plus** software*.....£1595 + VAT
2000 + AT Board + 80Mb Quantum **plus** software*.....£2050 + VAT
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***Free software bundle with 2030/2020/2000 bundles:**
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AMIGA EXTERNAL DRIVE 3.5"
Compact 880K drive with throughport and switch, **now only £59.95 inc VAT (P&P £2.50)**

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This is the latest **official** version of X-Copy II (Includes Cyclone II v 6.41) Back-up your expensive originals with X-Copy II
X-Copy II with Hardware.....£29.95 inc VAT P/P
X-Copy II with External Drive..£79.95 inc VAT P/P

USED EQUIPMENT

Amiga 1000	£295	Sidecar	£199
2Mb RAM 2000	£195	B2000	£695
Commodore SX64	£199	C64 + C2N	£79
CBM 1541 II	£89	MPS803	£79
CSA 68020	£350	Z88 Kit	£150

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Superb monitor for all Amigas, High Resolution (Same as 8833 & 1084) Stereo Sound, VCR input, Green Switch, Built in Tilt & Swivel base. Built to German standards .....**£209 inc VAT**

PROFEX HD3300 for A500
This 33Mb Autoboot Hard Drive from West Germany is now available from stock. It is in a beautiful slimline case with a separate PSU (a la A590) but only **£349 inc VAT**

GVP products for Amiga 2000
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CARRIAGE
Carriage extra unless otherwise stated, please ring for quote.

ARI 520 STFM one MEF drive over £550 oftware including Fighter Bomber Dun- n Master Stos and Public Domain £250 o. Phone Steve Littlehampton (0903) 243.

RD PERFECT 5.0 manual and work- k £25 inc. P. & P. (PC) Protec 1200 dem c/w C64 interface and software 0 inc. P. & P. Glos. (0452) 304093.

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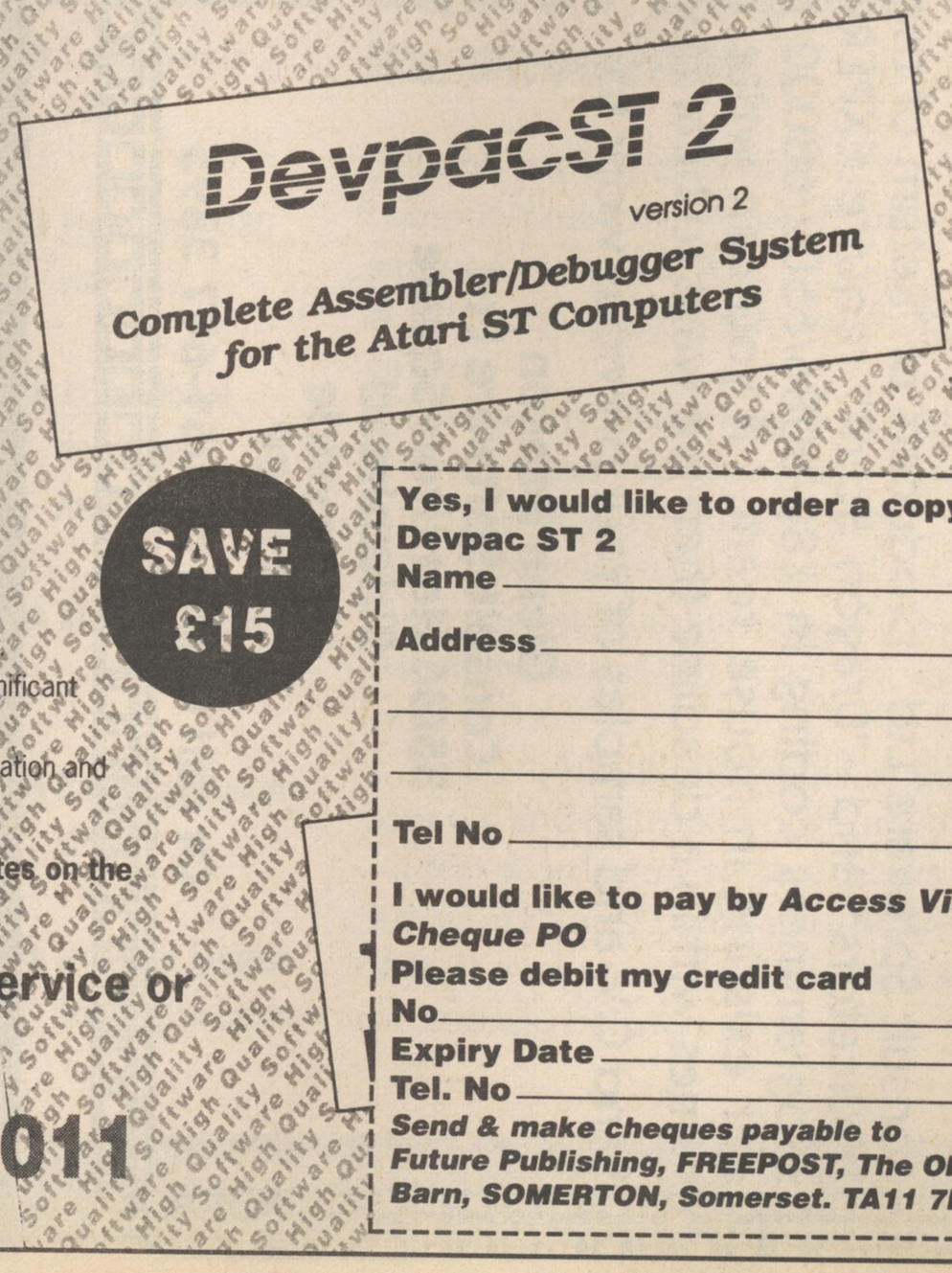
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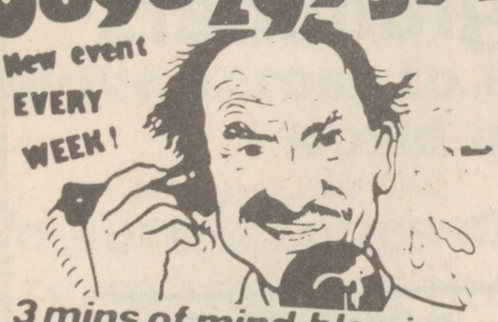
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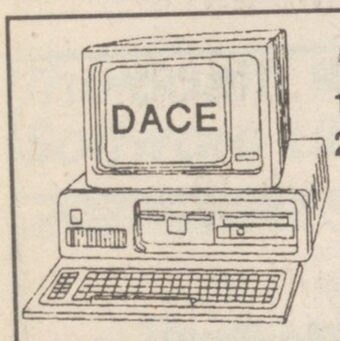
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THE PD COLUMN

There is a lot of software out there available for the price of a disk. This week Adam Waring looks at the latest for the PC, ST, Amiga and Macintosh.

Keen on crosswords, but sometimes you feel the need to, well, not cheat exactly, but a the odd wee dollop of help wouldn't go amiss? *Wordfinder* from Bradway Software could just be that helping hand you need.

The program has a huge database of words and names. It has information on those with between three and 12 characters. A menu at the top of the screen gives you four options: Wordsearch, Anagrams, Repeat and Quit.

Wordsearch asks you to input the letters of the word you know, with blanks in the appropriate places. It will then search through its vast vocabulary for any matches. It then displays all that it found.

Anagrams is again a useful crossword solving utility. It works in the same way as the previous option, but firstly you specify the number of letters in your word. Then you inform the program of those letters that you know. The computer will look for words, trying out the letters in all the different combinations.

Repeat performs the task you selected last, minus the last character. For instance if you were after a five letter anagram with the letters ABCDE, repeat would look for those containing the four letters ABCD.

And Quit? well, I don't want to give the game away, so I'll leave this one a mystery for now. Don't forget, the clue's in the question.

Wordfinder is an excellent program for crossword fanatics. It'll save hours of brain-scratching for those not too proud to admit defeat, and gratefully accept all the help they can get. Admittedly the utility doesn't contain every single word in the English language, but it does know a heck of a lot – thousands at any rate. The facility to find names as well as 'proper' words beats thumbing through the dictionary any day!

ST

Keen on crosswords, but sometimes you feel the need to, well, not cheat exactly, but... just a minute, haven't I mentioned this before?

Yes. *Wordfinder* from Bradway Software is also available to ST owners. It achieves exactly the same ends as the PC version, and has the same extensive database. In essence, it is the same program, the only difference being the user interface.

If anything, the ST version is nicer to use than its IBM-compatible cousin. It uses the GEM windows for all the input and display and what-not. The drop down windows certainly make things much clearer.

So, whether it's an ST or PC you've got sitting on your desk, you'll still be able to complete the crossword in time for tea.

MURDER

West Calder, a rural Scottish village involved in the oil and shale industry. It's a sleepy place. Nothing much happens here. Until, one night in July of 1884, a murder took place.

History File from Paradise Computers is an educational program. It comes on three single-sided disks, each containing a different section of the overall package.

The first disk is called The Investigation. The program aims to give pupils some idea of the sources of information open to modern day historians. The idea is to find out exactly what happened on that fateful night one hundred years ago.

The second program in the trio is called The Case. Here you're given the chance to go back in time. Find out what the people were really like and see

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just what was actually going on at the time.

Finally there's The Database, a huge store of information about the village of West Calder.

An information pack, including maps and notes is available from the program's author, teacher Jim Fanning. Details of how to get hold of them are contained on the disks.

AMIGA

Hoist the mainbrace! Shiver me timbers! We leave at first light, to sail the seven seas in the search for bounty. No, Not the chocolate bar, more your buried treasure kind of bounty. So it's a yo ho ho and off we go!

Treasure Search from Page One PD puts you on a desert island to retrieve the lost loot. Problem is, the treasure map has disappeared, and you just can't remember the spot that 'X' marked. You've got a limited amount of time to find the lolly, and if you fail the crew are going to make you shark food.

One or two apprentice pirates can play. You can select an easy game – where there's no limit to the number of turns you take, or a hard one – where there is.

The island is dissected by grid lines, numbered zero to nine along each axis. That gives a hundred possible places to find the buried bullion – not easy when you have just four lives before you're feeding the fish.

Luckily, each wrong spot picked gives you an indication of how far away the hidden hoard is. It's a colour coded clue, but there is an option to give you the distance more specifically.

It's more of a youngster's game than anything that'll keep you rivetted to the screen in the early hours. The colourful cartoon style-graphics depicting the misfortunes that befall the ill-fated buccaneer will, no doubt, keep them quiet for hours. I expect it teaches them something about maps and things too.

On the subject of having fun on the Amiga, I happened to get hold of a copy of *Master Quiz* – a one player general knowledge quiz. And who was it from? Was it A) Amiganuts, B) Honest Ron's PD Emporium, or C) *Amiga Format*'s dustbin? You have ten seconds...

It's one of those multiple choice doobries. The question comes up and three possible answers appear on the screen. As you read the timer ticks down, so you'll have to be quick. One advantage with these kind of quizzes is that if you don't know the answer, at least you can make a wild guess.

It has to be said that the quiz is a fairly basic affair. It has a limited number of questions, has no sound, is too easy...

But despite all that it's fun! It has a certain addictive quality that just keeps you coming back for more.

MAC

If you've got a Mac then one thing's for sure – you ain't poverty stricken.

Good thing too, for there's one vital piece of PD to cover every possible need from, well, everything to everything else. An astounding collection of programs are available on a single disk.

There's just one thing wrong. It costs around 140 quid.

Not exactly normal PD prices, but there are a couple of reasons worth noting. You get 660 megabytes of the stuff, and it comes on a Compact Disc.

Adding even further to the cost is the necessity of having something to load the thing on. There's the small matter of a CD-ROM player for one thing, not the sort of thing found in every home (then again, if you can afford a Mac...)

What exactly do you get for your considerable amount of cash? 660 megabytes is a lot of disk space, and you get an awful lot of programs. Thousands of the things. Everything imaginable – and more besides – is there.

The whole lot is split into ten roughly defined categories – a folder for each. Inside the folders are more folders, and more folders...

If you have more money than you know what to do with, then send it to me at the usual address. Alternatively, I suppose you could get in contact with Translatum International and get a copy of the PD CD into the bargain.

Selections of software from the extensive collection are also available. It's still pretty expensive stuff at £7 a disk, but then again, Mac PD is pretty hard to come by. ■

WHERE TO GO

Paradise Computers, 9 Westfield Cresent, Brighton, Sussex BN1 8JB.

Amiganuts United, 169 Dale Valley Road, Hollybrook, Southampton SO1 6QX.

Page One PD, 46 Hillport Avenue, Porthill, Newcastle under Lyme, Staffs ST5 8JZ.

Bradway Software, Hillset, Upper Padley, Grindleford, Sheffield, S30 1JA.

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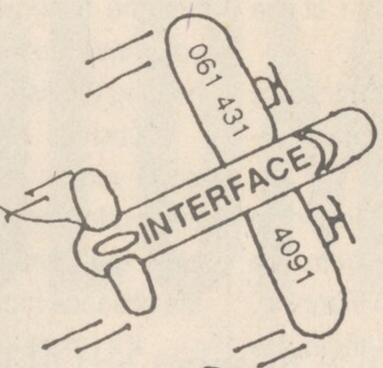
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COMING SOON!

In addition to the excellent software built-in to the Portfolio Free of Charge (see right), other software and peripheral products, such as the sophisticated Pocket Finance package and serial/centronics interfaces are available. And it doesn't stop there. Many manufacturers have recognised the potential of the Portfolio and have already started to design new peripherals and software. Products currently under development include: Serial interface with built in mini modem, Apple Macintosh interface, business, utility and programming software plus a range of adventure and battle strategy games. For further free details on the Portfolio range, fill in the coupon below and return it to Silica Systems now.

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TEXT PROCESSOR

The Portfolio's built-in text processor program includes word wrap, line and column count, string search, in fact most of the functions you would find in a word processor. It handles printer and word processor control codes and allows easy transfer of files between Portfolio and your desktop PC.

SPREADSHEET

For real calculating power, Portfolio has a Lotus 1-2-3 compatible spreadsheet built-in. It has 127 columns x 225 rows and reads/writes Lotus V1.0 and V2.01 files, so you can transfer data to and from Lotus 1-2-3 on your desktop PC. The Portfolio's 256K ROM includes MS-DOS and PC BIOS compatible systems software.



MEMORY CARDS

Portfolio can store and retrieve data and programs from its own RAM, or from small credit card size memory cards, that slot into its built-in card drive. The cards are available in three sizes, 32K, 64K and 128K, so you can carry a library of data in your pocket. The card drive also accepts ROM cards, which can contain commercial or custom software.



POWER SUPPLY

Portfolio is powered by three AA batteries which will run for up to six weeks with normal use, or from the mains using an adaptor. All the peripherals take their power from the Portfolio, so no extra batteries or adaptors are required. A 'battery-low' warning and memory back-up ensure that information is not lost when the batteries are changed.



INTERFACES & PERIPHERALS

Portfolio can communicate with other computers and supports a growing range of peripherals via a built-in 60 pin bus connector. Peripherals available include serial and parallel interfaces and memory expanders (to 640K). You can also add a card drive to your desktop PC, to enable it to read/write to Portfolio's cards.

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.....

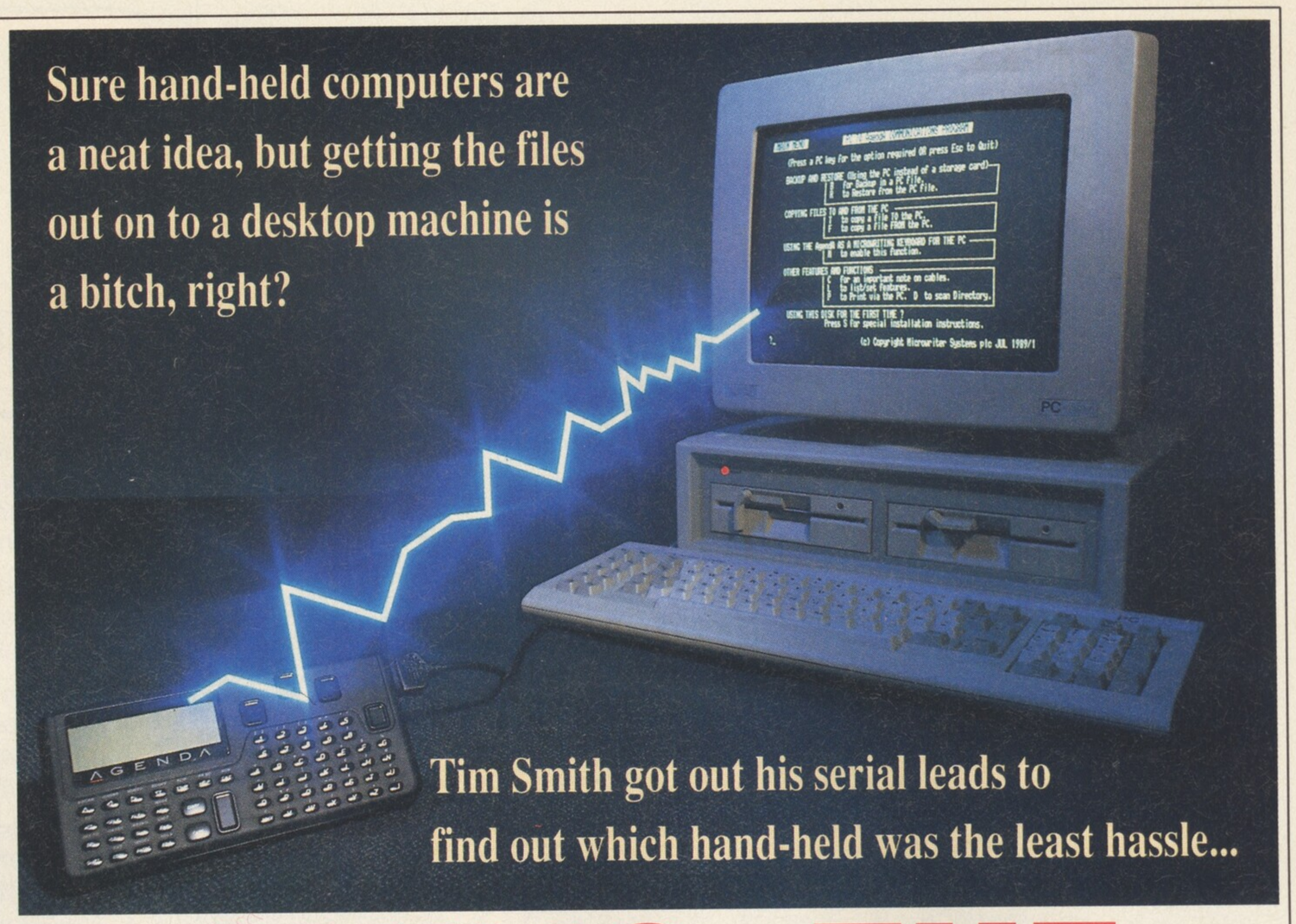
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Which computer(s), if any, do you own? .....

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MAKING THE CONNECTION

There are two options open to you if you want to work on the move; you can go out and spend £700 to £1,000 on a laptop computer, or you can spend £200 to £400 on a hand-held.

Both of these options have their pros and cons. Laptops provide much of the processing power and PC compatibility which a desktop computer offers but they are cumbersome to haul around. Hand-helds have less processing power but are wonderful for straight text entry and portability.

Many people are put off the hand-held option by the horror stories doing the rounds about the hideous complexity of getting data from the pocket machine to a grown-up computer. Tales of stop bits and unfriendly comms software abound. So *Express* decided to have a look at three of the leading hand-helds and see just how easy it was to shuffle data around. These are our results.

ATARI PORTFOLIO

The Portfolio should be simple to connect up to an MS-DOS-based machine as it is a miniaturised PC itself.

You have to initialise the Portfolio for file transfers each time you want to use it. Failing to do this will result in a string of garbage being transmitted or received. To do this you move to the File Transfer option and select 'initialise the machine'.

Copying a file from the Portfolio to a PC is simple if you are happy with MS-DOS. No comms software is required, all you do is type the following at the prompt:

```
COPY filename.TXT AUX:
```

Of course you will need to set up the PC to receive first. There are two ways of doing this; either use your own comms software, which you have to buy separately, to receive a file or use COPY (see box).

There is one more thing to bear in mind; the PC needs to be told there is no more file to be sent. To signify this you will need to send an end-of-file code – Control-Z will do the job. The Portfolio also needs to be told the same when sending data from a PC, but your comms software will take care of this for you.

***Express* simplicity rating: ★★**

MICROWRITER AGENDA

The Agenda is rather more of an organiser than a hand-held computer, although it does have one BASIC language available for it. Agenda file formats are transferable as simple ASCII and so, at a pinch can be transferred using the 6 (PRINT) option from its Start menu to be picked up by the PC's COPY command. However, it does come with software, called the *PC Pack*, with which to carry out file transfers.

The pack includes software and a cable which connects the Agenda's own serial port to that of the PC. There are no baud rates or emulations to concern yourself with as these are built into the Agenda's 'system' file and are handled by the software at the PC end.

The *PC Pack* allows the PC to emulate the Agenda, and provides options for single file or group file transfer. The Agenda works on a 'drawer' system – 26 drawers, one for each letter of the alphabet – which are in effect groups of related files. So all you need do to move all of your phone numbers from the Agenda to the PC is select 'group transfer' from the *PC Pack* program. To achieve the reverse, PC to Agenda, simply choose that option from the menu. You can also use the software to back-up the entire contents of the Agenda, in drawer form, on to the PC. Attempting to do this with a straightforward PRINT and COPY routine would lead to untold hassles and time wasted.

***Express* simplicity rating: ★★★★**

POQET PC

The Poqet PC is a true pocket-sized PC that runs MS-DOS 3.3 and emulates an IBM XT in every way other than size. Its data storage is via RAM cards about the size of a credit card but three times as thick.

Because of this unusual method of data storage it comes with a lead to connect it to a conventional PC and software to look after both ends. The communication program to allow the PC and Poqet to talk is called *PQ Link* and is designed to allow the transfer of files with the minimum of fuss.

Unlike conventional communications software, *PQ Link* is purely for getting data from the Poqet to a PC. There aren't any modem speeds, parity or protocols to worry about.

All you do is choose which machine is the server (source) and which is the client (destination) and choose which files are to be transferred. In practical terms, the desktop PC is the simpler to work from because of the larger size of the display.

Files for transfer are tagged and sent down the metre or so of cable to or from the Poqet. The only quirk that makes Poqet transfers a little strange to the uninitiated is the way that it recognises disk drives on the PC and card drives on the Poqet.

Instead of referring to them by their true name, it assigns drives on the host to their logical drive letter but assigns a 'virtual' drive letter to the drives on the client.

At first, telling it to copy to drive Y: when it was in fact drive A: on the Poqet was confusing. Otherwise, it was a simple to use and friendly program.

***Express* simplicity rating: ★★★**

NOT SO BAD

The hand-held manufacturers appear to have realised that getting data out of the portable is vital to many of their customers, and have made great efforts to improve matters and make it easy. Despite its poor rating, the Portfolio will improve considerably when the long-promised device which will let you plug it in to the PC and use its memory transparently as drive D: arrives. But until then the Agenda is the winner in the ease-of use-stakes. ■

USING COPY AS COMMS SOFTWARE

The MS-DOS COPY command can be used for much more then just shifting files between floppy drives. It can also be used as a primitive comms program – although admittedly without any error checking.

To send a file to the serial port you simply type:

```
COPY filename COM1:
```

and to receive a file is the opposite:

```
COPY COM1: filename
```

Setting up the baud rate and comms protocols for the serial ports is done with the MODE command, which takes the form:

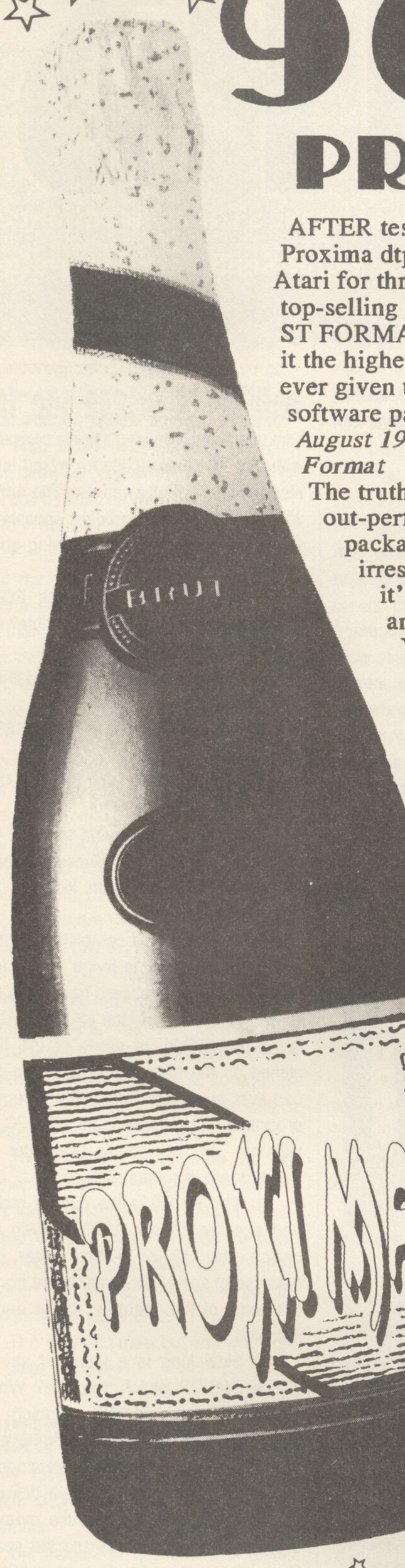
```
MODE COM1:96,e,8,1
```

'96' indicates the baud rate (9,600), it can also be 30 (300), 12 (1,200), 24 (2,400) or 19 (19,200). 'e' is the parity, which can be 'n' for none or 'o' for odd; 8 is the number of data bits and 1 is the number of stop bits.

Because of the lack of error checking COPY is only really useful for short files transmitted down a null modem cable.; don't even think of

"A sparkling brew....."

96% PROOF



AFTER testing Network's Proxima dtp package for the Atari for three months, the top-selling Atari magazine, ST FORMAT, finally gave it the highest marks---96%--ever given to ANY serious software package. *See August 1990 issue ST Format*

The truth is that Proxima out-performs every dtp package on the market, irrespective of whether it's for the Atari or any other system.

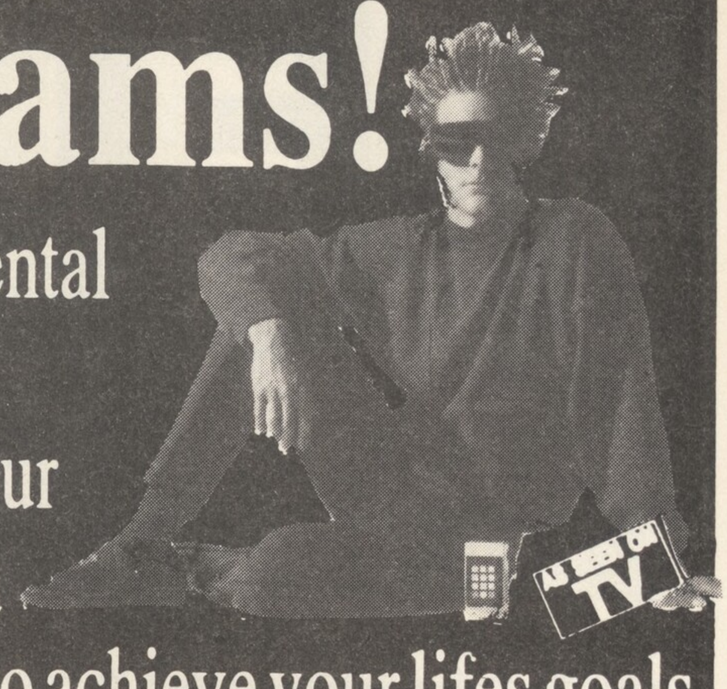
You don't have to take just our word for it: read ALL the independent reviews. And our support for the package is unrivalled: a FREE help-line operating from centres all over the country.

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PROXIMA is the ultimate PROFESSIONAL dtp program, out-performing everything else on the market. It will colour-separate, output to PostScript and Linotron, rotate text and graphics and contains all the drawing tools of a top-class graphics package. It has drivers for virtually every printer on the market and will even print in FULL colour on a dot matrix printer! You can magnify print-outs 10,000%! View any size on screen; format any page size up to 12 x 18 ins. And there's a free help line. running till 11 pm all week. This is the system the pro's use.

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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 Keith Pomfret's Tech Tips and we'll soon see you right. Send your sorry stories to Tech Tips, Beauford Place, 30 Monmouth Street, Bath BA1 2BW.

HELP! Colourisation

In your Express Mail section in *Express* 83 by Keith Pomfret, he states that a Mac Plus can be upgraded to colour by welding some bits on. As I have recently bought a Mac Plus I would like to know what is involved in upgrading it to colour. Could you tell me what external drives, hard drives and printers which are compatible with it as well? By this I mean the cheaper range as any hardware I have seen advertised in Mac magazines is too costly for me.
John Clark, Edinburgh.

The device you want is called the ScuzzyGraph, and you need to talk to the ever-friendly Mark Townsend at Mac Solutions.

As well as upgrading Lisas to Mac specifications, he can provide a way to weld, rivet or glue just about any peripheral to any Apple machine. He's up in the frozen wastes of the Worth Valley in Yorkshire. If you don't fancy the long trip south you could always give him a bell on 0535 690001.

HELP! Screen welding

Is it possible to use a PC1512 colour monitor with a PPC 512? If yes, could you advise with pin wiring diagram as PPC 512 has a 9-pin D-type and monitor has an 8-pin O-plug, or alternatively recommend someone who could make a lead up. I've followed your mag since it first came out, keep up the good work.
C Gregg, Northumberland.

After consulting the manual of a PPC and talking at length to Amstrad, I'm afraid I'll have to give you the red light on that one.

It seems that everyone thinks that it could be done but no-one is quite sure how, and the chaps at Amstrad weren't able to confirm that it's a safe connection to make. After having said that, we haven't those two pieces of kit available to try it on so if someone out there has already successfully attempted it, please drop us a line.

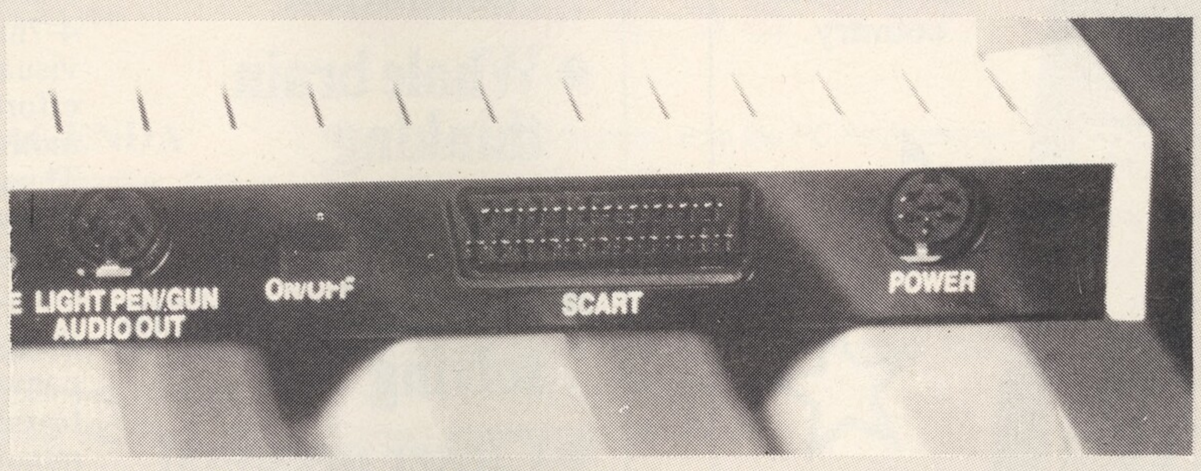
HELP! SCART advice for the Coupé

I would be very grateful if you could answer these three questions about hard and software with the SAM Coupé.

1. Will most colour monitors work with the SAM Coupe if they have a SCART socket? For a cheap but good colour monitor, which would you suggest?

2. Will an Olivetti DM100S printer work through the SAM's printer interface? Which word processing software is the best (if there is any)?

3. What other SAM Coupé games are available apart from *Defenders of the Earth*? Are they any good?
L Ferris, Culmington, Ludlow.



• The back of the SAM showing the SCART socket.

The Coupé supports SCART and will work with most SCART monitors. Just about every Amiga, ST and Archie in the *Express* office is connected to a Philips monitor. Both Commodore and Acorn badge it as their own, and Philips sells it with its own name on. The model number is 8833 and depending on where you you buy it, it can vary in price from about £225 upwards. About £240 or so is a reasonable price to pay for it.

To persuade the SAM to talk to any printer you must first add the MGT parallel interface and use a suitable printer driver.

The printer that you mentioned is Epson FX-compatible and a standard Epson generic printer driver (the most common driver available) will do the biz.

We have yet to see software with any sort of printing mode at all for the Coupé, but we hear that *Tasword,* a popular word processing program, has been converted to the Coupé .

Since the untimely demise of MGT everyone has been writing, phoning and visiting Express Towers with promises of support.

More games are planned and *Defender*'s publisher Enigma Variations promises to develop more games if the support is there. As soon as any new games arrive at *Express*, we'll let you know how good they are.

If you want to get to grips with Messrs Miles and Gordon, who may be able to answer your printer query, trek along to the Summer All Formats Computer Fair at the Horticultural Halls, Greycoat St, Victoria on August 4 and 5.

The new reincarnated Coupé support team promises to be there with information, solutions and support for Coupé owners.

To add to this, the kindly Bruce Everiss has offered to set up one of those nice 0898 telephone services as the SAM Coupé support line.

A splendid idea, but at 38 or 25 pence a minute if it ain't your phone you're using, ask!

HELP! A bridge too far

I am interested in buying a home computer with IBM PC compatibility for mixed technical, design and pleasure use. The Amiga 2000 with PC-AT Bridgeboard appears to fit the bill, subject to the following questions being answered.

1. Is the Amiga 2000 with PC-AT Bridgeboard truly IBM PC compatible? (As is the Amstrad PC range.)

2. What is the difference between the A2000 and B2000?

3. How much RAM is left when BASIC is installed?

4. How do programs written in BASIC interact with PC software?

5. Can the graphics and sound of the Amiga be used by the PC games/software?
R Young, Market Weighton, York.

The Bridgeboard is a complete PC on a board and rather than trying to *emulate* an AT, the AT Bridgeboard has all the relevant hardware to do the job of an AT. It is as compatible as many of the IBM clones on the market and while no-one can ever guarantee that 100 per cent of programs that will run on the IBM PC AT will run on any clone, emulator or Bridgeboard, it comes pretty close.

1. The B2000 is the current model and superseded the A2000. Given the choice, the B2000 is the better buy because of some little tweaks that ironed out some of the 'features' in the earlier machine.

2. How long is a piece of string? Which BASIC? Which machine? Which emulation? A B2000 running a Bridgeboard is capable of running over 20 compiled and interpreted versions of the BASIC language. All have different specifications and manage/use memory in different ways. We haven't the space for a full tabulated list, but around 30 to 90K is a ball park figure.

3. They don't

4. No

TIP Wrong group

Whoops! In *Express* 88's Tech Tips you attributed the Olivetti PC 1 hard drive to the wrong user group. Actually, all the details are available in our group magazine

Oligram **and if anyone wishes to send an SAE, we will send details of the group.**

We can also help with VGA graphics, memory up to 2Mb, battery-backed clocks, monitors and many other items.

Many thanks for your help and good luck with your excellent magazine.
Mark Blackall, Olivetti PC1 User Group, 68 Queen Elizabeth Drive, Normanton, West Yorkshire WF6 1JF.

I stand corrected. However I was right when I suggested that you were waiting in the bushes ready to pounce, wasn't I?

HELP! System check

I am shortly starting a college course – engineering using *AutoCAD* and so on – and would be grateful if you could let me know what my system requirements are.

Also, I have seen ads for a TV modulator cable for connecting a PC to a TV. Can one be used on an Amstrad 1512?
Gordon Mackie, Fife.

Your minimum system requirements for serious CAD (and I take it from your letter that you don't want to waste your time with less) is a VGA PC with at least a 65Mb hard drive and an 80386 central processor. A maths co-processor would be a desirable addition, but you could probably struggle on without it. To output your completed documents, some sort of laser printer would fill the bill. On top of this, a graphics tablet, mouse and software would leave you with a bill for about £4,500, plus VAT.

If a system that gives you a gentle introduction to CAD without breaking the bank will do, you could probably struggle by with a 1Mb Amiga or ST with appropriate software, but this configuration probably wouldn't be compatible with the systems you learn about at college. At under £700 it would probably be less of a strain on the hip pocket though.

The Amstrad 1512 (and its big brother the 1640) has unusual connections for the monitor and cannot be connected directly using a standard lead. When you order one, make sure that the supplier is aware that it must be configured for your 1512.

The leads do exist but you won't get one unless you ask!

HELP! Comms query

I was recently swayed into buying a modem after reading your recent articles of comms.

The modem in question is a Hi-Tec EC2400 MNP4 and 5 and the software I have used is *JR Comm, N Comm* and *Access!*, and all to no avail.

The problem is that every time I attempt to phone somewhere, and believe me I've tried everywhere, I keep getting the same two replies: either 'No dial tone' or 'No carrier'.

I have grasped from various documents that 'No carrier' implies that the modem did not respond, but:

1. What the hell does 'No dial tone' imply?

2. What is a dial tone?

3. How can I rectify these problems?

The computer is an A500.
Jez D, Ainsdale, Southport.

'No dial tone' implies that your system isn't connecting to the phone line. The dial tone is the noise that a phone makes when you pick it up. No carrier means that there was no other signal on the line that the modem could grab and link up with.

The simplest way to rectify the problem is to make sure first that your equipment is set up properly and that your software and the modem are set up as well. The first thing to do is test the lead between your Amiga and modem. To do this, try it on another comms set up that is known to work. Also, borrow and try a lead that is known to be working on your own set up.

Assuming that you have a working lead and still no comms, make sure that your software is configured to work at a speed the modem can handle. This information is in the manual. If the modem and the software still aren't talking, try the modem on someone else's comms set up and see if it responds. If at this point you are still getting no response, go through the modem manual with a fine-toothed comb and try any of the troubleshooting hints given. As a last ditch attempt before you go screaming back to the shop where you bought the modem, check to make sure that you really have a dialing tone. If you haven't, pay the phone bill or ring Telecom's engineers and all will be OK.

HELP! Out of guarantee

I own an Amiga which, now it is out of guarantee, has decided to pack up. The drive attempts to boot up, but after a few seconds it halts. I think the problem is that the drive reads are out of alignment.

I have enquired to a number of repair centres and the cheapest price for repair was £45. (The Commodore repair centre quoted me £76!) Would fixing my Amiga myself be a relatively simple task, perhaps with the aid of a book, as I am a student and can't really afford the repair bill and carriage?
M Partner, Alton, Hants.

From the way that you describe the problem, it could be one of a number of things from something fairly simple, as you suggest, to something really nasty and difficult. The fact that you wrote the letter at all suggests that you have doubts and if that is the case, you should leave well alone. The money may sound like a lot but it is a lot less than the cost of replacing the whole machine if you 'fix' it yourself and it goes wrong.

HELP! Apple a day

I have only recently become interested in computers and have now bought an Apple II Europlus with single floppy disk drive, Epson MX-80 printer and hard disk drive. As this equipment is second-hand, the only books that came with it were *The Applesoft Tutorial* and *The BASIC Programming Reference Manual.*

The hard disk does not appear to be an Apple unit as the only nameplate is located on the front and gives the name 'Symbfile' and 'Symbotic Computer Systems Limited'.

Could you please advise as to what commands are required to Save and Load with this drive, and any other help you can offer me. Perhaps there is a user manual I could buy? The drive whirrs around and appears to be booting up OK when I fit the card into any slot and plug it into a power point.

I would be most grateful for any help you could give me in this matter as the disk is of no use to me without this knowledge. I would also appreciate any help you could give me regarding the dealers who specialise in Apple II Europlus software and anything to do with this system.

I'm beginning to think I may have bought an out-of-date outfit as I never see a mention of it in any of the current computer magazines.
Plunkett Devine, Derry.

This is one that we'll have to throw open to our readers in the hope that someone out there can help. Any help, advice, manuals or anecdotes pertinent to the problem should be sent to Tech Tips at the usual address.

HELP! Chip questions

I was going to buy a Commodore Amiga 2000 at the start of 1989. While reading an article in an Amiga magazine I read about an ECS (Enhanced Chip Set), Workbench 1.4 and AmigaDOS 1.4. The article reported that these would be incorporated into the Amiga range at little or no extra cost. So I made the wise decision to wait. The article reported that these enhanced Amigas had been shipped to developers already and to expect them in the shops at the end of 1989 or the start of 1990.

It is now mid 1990 and I have not heard about any of these enhanced machines. Firstly, do these machines exist? Secondly, when will they be available in the shops? And finally, what are the capabilities of these machines?

I have heard rumours that they have eight channels, eight voices, nine octave range, AM/FM stereo sound, 256-colours on screen on par with VGA graphics and a speeded up 68000 running at about 16MHz.

Could you please investigate as you may be able to extract more information from Commodore?
Adrian Hill, Hasbury, West Midlands.

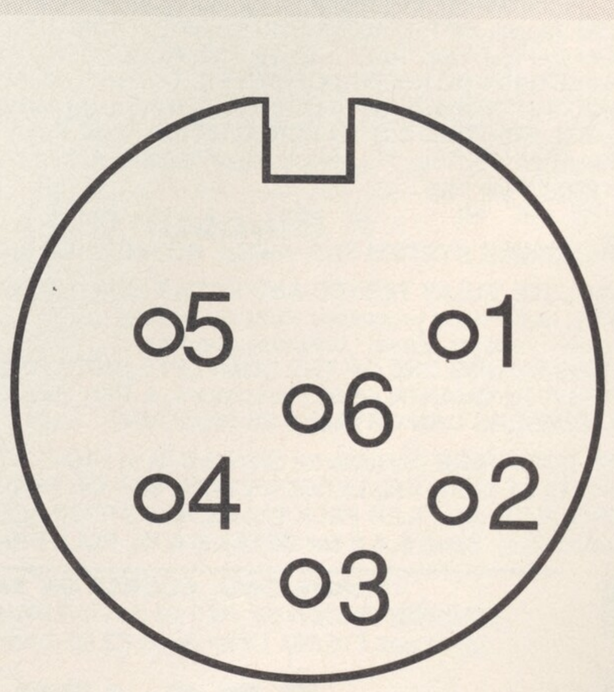
The Workbench 1.4 that you refer to is still in the 'might happen but no-one (except possibly Commodore) is sure category'. The Commodore 3000 will be shipped with Workbench 2.0 but rumours still abound of a 1.4 upgrade for lesser models (and lesser mortals!). Commodore wore traditionally tight-lipped about any upgrades saying: "Wait and see." ■

HELP! Making the monitor onnections

In your January 6 issue you describe a method of connecting an Amstrad CPC colour monitor to the Atari ST. I have an Amstrad CPC mono monitor and wonder if it can be modified to connect to an Amiga A500. If so, would you describe how?
Paul Dean, Seaham, Co Durham.

What a waste of 4,096 colours but I suppose that in these days of everything being green, there must be some value in it. The monitor doesn't need modifying at all but you will need to make up a special lead to connect the two. The Amiga has a mono output which is a standard phono connector and is wired as with the shield as the ground and the core as the luminance. The Amstrad monitor has a six-pin DIN arrangement, with pin 5 connected to the ground and pin 6 to the luminance.

The A500 mono output is useful for a cheap 'second' monitor to be connected to during work such as digitising in order to allow parallel monitoring of the direct signal and the modified signal.



• CPC monitor lead connections, seen from the front.

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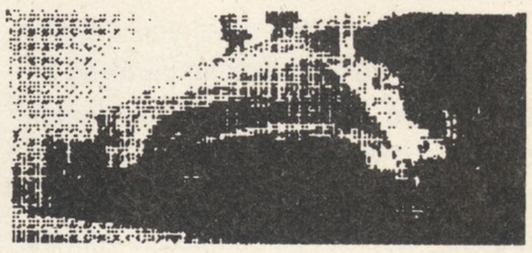
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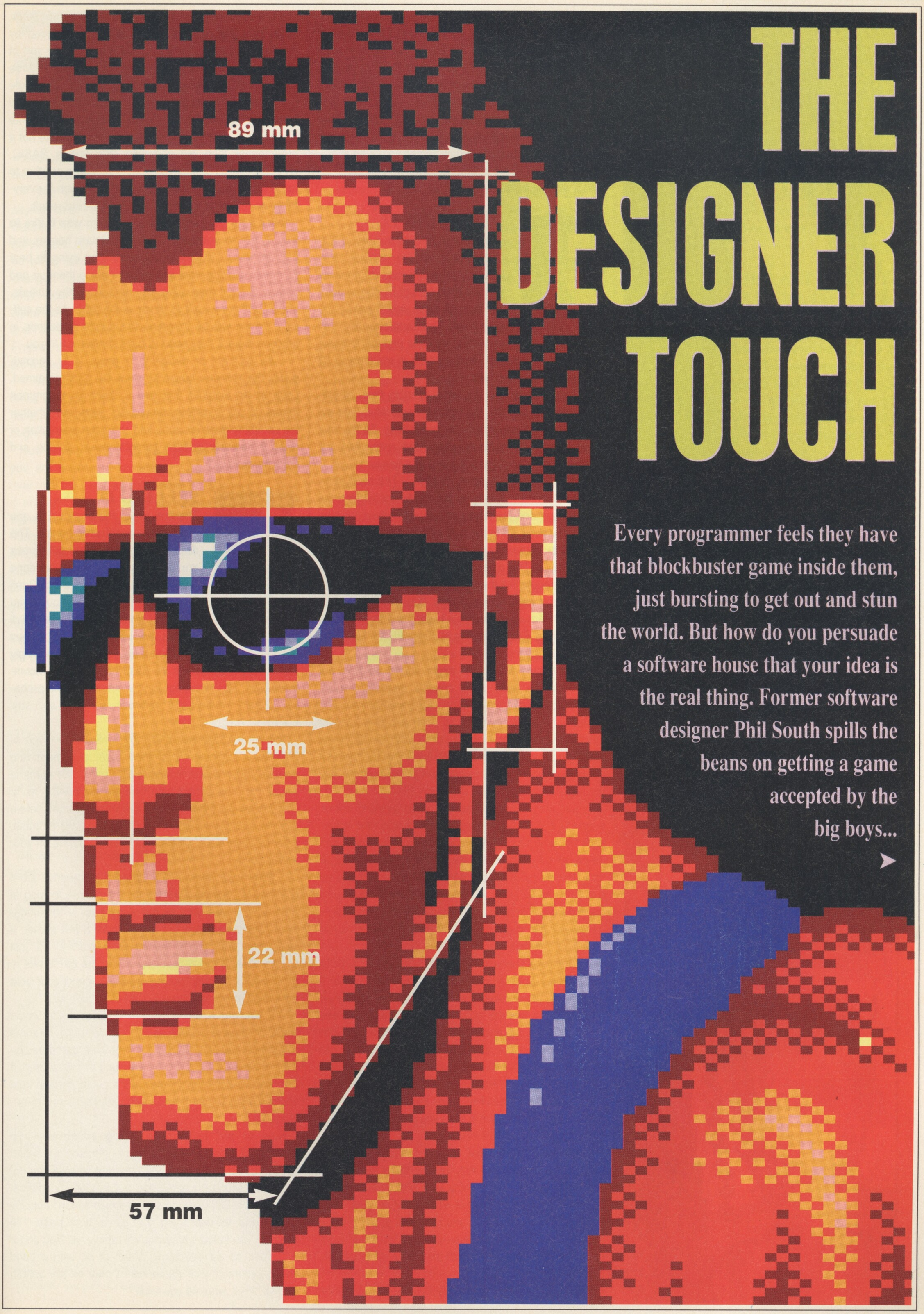
These are realistic simulations, not arcade games. The screen shows track plans and other useful information; text mode is used, not graphics.

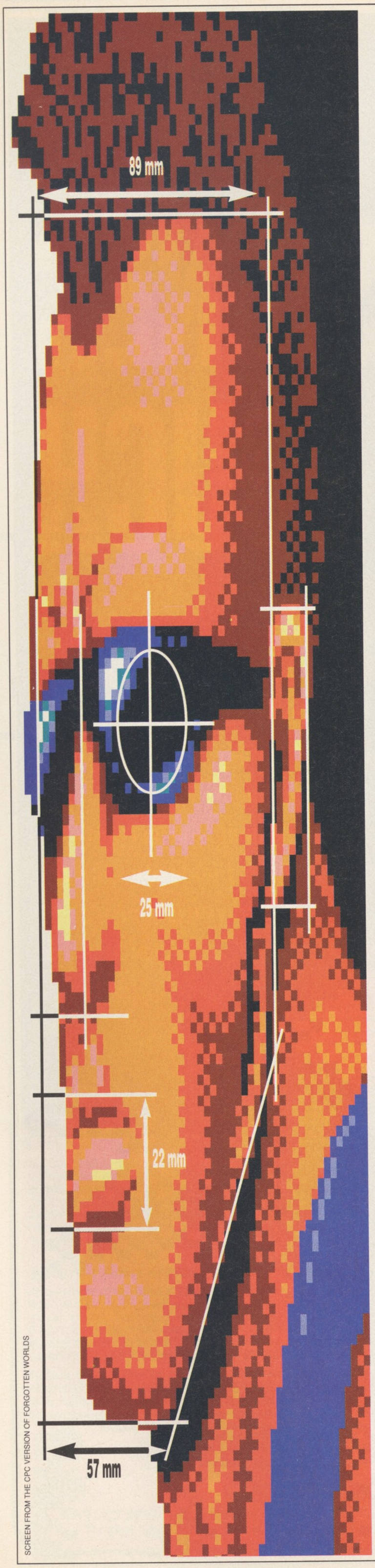
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THE DESIGNER TOUCH

Every programmer feels they have that blockbuster game inside them, just bursting to get out and stun the world. But how do you persuade a software house that your idea is the real thing. Former software designer Phil South spills the beans on getting a game accepted by the big boys...





SCREEN FROM THE CPC VERSION OF FORGOTTEN WORLDS

Game design is a very funny business indeed. You'd think that it was all beer and skittles with the odd Ferrari thrown in, but in the main games design is a lengthy and difficult process. The basic ideas that you have may be sound, but unless you can communicate those ideas clearly and simply to a software house, and in turn it can market them effectively, your game will never see the light of day. But games get published every day, and so someone somewhere must be doing it right. So, how *do* you come up with a winning game design?



DESIGNING IT

The hardest thing to achieve is that masterstroke of the original idea. Like any other exercise in creativity you will find yourself having to trash the first 10 ideas which come into your head. Then and only then will your mind be clear enough to make room for the stroke of genius which is required to lift your game out of the herd.

Once you've had the initial blinding flash of brilliance, your basic idea, the time will come when you will actually have to implement the damn thing. So it's time to sit down with a strong drink and really find out whether what you've got is a game or a turkey.

• **Common pitfalls in game design** – The most common problems are: taking on too much, not thinking the idea through and not taking any outside advice on how the game stacks up in the cold light of day. Try pushing the idea by some friends in order to see whether they would play it. The other major failing is that you have the idea, people like the sound of it but you simply cannot put your idea across clearly. You might think that your shoot-'em-up is the bee's knees, or that your footy sim will make *Emlyn Hughes* or *Kick Off* look like 1978 PD, but will anyone else?

One handy tip, which might sound obvious but which – in the heat of the creative moment – might smack of plagiarism is to take your cues from existing games, and by doing so try to push a known concept forward as far as it can go. But don't push too far, many great ideas have been lost purely by dint of the fact that the people who came up with them pushed too far and too fast.

You should always have a good working knowledge of the machine at which the game is aimed. If possible try keep it within the boundaries of what you can do on the target machine! You can fit a heck of a lot on to a disk these days, but don't go mad and above all don't get carried away with the idea that quantity equals quality. Concentrate on what you know you can do well. Aim to fill the computer all the time but not to overstretch its capabilities.

• **The demo** – Demos can be anything you like really, as long they actually shows things you'd like to see in the finished game, rather than just being a sort of teaser ad for it. Try a few bits of gameplay, like moving sprites over a background, and music too. Give the person who opens your package as much information as you can on-screen, and give them a real feeling what the game is about. Trust your judgement – if there were parts of the game which you feel were particularly well programmed or worked better than you thought they would in the planning stages, include them.

Make sure your idea is sound before you even send the demos off by fully testing them. In fact get other people to give it a going over first (alpha test the demo, in the jargon). And at all times state your ideas briefly and clearly. Reams and reams of paper in large unsightly wads don't impress nearly as much as short, neatly laid out scenarios with corkingly good demos. Don't use continuous paper!

• **What to write it in** – Obviously if you're a programmer you'll need to know what form the program should be in. What language you write in is obviously decided by what you program in anyway, but also by what sort of program you are creating. If it's an adventure game then C or BASIC will easily do the job, but if it's arcade quality animation you're after then machine code is the only thing that will do. For demos though, you can write it in anything which gets the ideas across. If you're not a programmer then get someone who knows BASIC, STOS or AMOS or some high-level language or other to move some of your ideas around. Presentation is everything, so use what you have to to get the best result.

• **Tailor your presentations to the firm who'd like to buy it, not to yourself** – Talk to software houses and find out what it is they want, rather than trying to beat them into wanting what you've got. Calling them up and getting cross if they reject you isn't a healthy attitude. You're selling yourself as much as the work. As the software house will be investing thousands of pounds in any one project, they need to have confidence in you.

An element of designing a game is to second-guess the software house at which the game is aimed. Look at its material and see if there is a common thread. If you're writing adventures, work out whether the company goes for puns and character interaction or does it normally publish straightforward dragon and demons routines?



SELLING IT

The fine art of the proposal is one which is well worthwhile honing. The details that you've got to put across are: who you are, what you've done and what you're going to do. Don't forget that no matter how good you think you game is you have to tell them what's in it for them, and why they ought to buy this game from you, rather than anyone else. Simply saying "My mum think's it's dead good" isn't a recommendation. No disrespect to your mum, but she probably doesn't understand software as well as, say, Electronic Arts or Ocean.

• **How to put together a winning proposal** – Type or DTP your proposal as a short, neat document and enclose a demo disk stating which format the game is written for. You should also include instructions as to how to view the demo. If you have written games before then it's obviously a good idea to give details of these, and any other works which may have a bearing on your application.

Make your demo just a shove-it-in-the-drive job if possible, as making life hard for the person looking at your work is one way to the early bath – remember most software houses get to see quite a few games a week and until yours proves itself worthy, it's just another disk. If the person examining the game has to go through a lengthy loading process then all your hard work might never even get looked at.

If you are a beginner then submitting the whole game finished is a very good start, although in some cases you can get by with just the best game design ever, as long as it's carefully described and illustrated. If you have written other demos in the public domain then enclose them too as background material, a sort of on-disk CV.

• **How to put together a losing proposal** – Be chummy or stupid in your proposal. Phrases like "I had nothing better to do today, so I thought I'd help you out and write you a hit game" do *not* inspire confidence. Submitting a 250-page document which doesn't actually get around to describing the game until page 178 because you found it amusing will rapidly get filed under B for bin, as will sending a sheet of A4 with a hand drawn picture of your game with a note on the bottom saying, "Well, what do you think?".



CONTRACTS

When you've finally sold your efforts to Very Big Games Inc. and the game is written, you'll be handed a piece of paper to sign. This is the contract, and far from being anything sinister, it's just an agreement between you and the software house setting out very clearly and simply what the terms of you doing the game for them actually are.

The contract is set out with an initial paragraph saying what the contract is, followed by numbered clauses. The clauses are the separate points of the agreement, numbered for easy reference. Usually you'll be given some time to read it over and ask for any changes that you would like. Do so. Most contracts are written in a sort of legal-speak, but most software house types will be only too happy to explain it ali to you. More and more these days contracts are written in quite plain English, especially as game contracts involve very simple aspects of the law.

What does it all mean? Well read it over a few times and you'll find out! Really, do read your contract carefully, checking off the following points which you ought to know about:

• **How much money do you get up front?** – Usually you are entitled to an advance payment, to tide you over until the royalties start rolling in. How much is it? Is it enough? Bear in mind the software house you're signed to. Are they a huge multi-national company or a budget house? Most software houses will pay you a fair amount for the job you've done, so don't worry too much about the initial payment. But do you have to pay this back at some stage, or do you have to wait until the game breaks even before you get any more money? Agree this point at a very early stage.

• **What percentage of the final profits will you get?** – the software house will tell you how much of the profit you will get as royalties. This constitutes your fee for doing the game, so ask them how many copies they think the game will sell, and add this up to a final figure and see what your final fee will be in total.

• **Re-writes** – This means that the software house can ask you to re-write the game if they like. Not that they often say start again, but they might. This doesn't figure in your final fee, so try to get the job done ASAP as the longer you work on it, the less you'll be being paid for your time.

• **Advertising** – All the advertising will be done by the software house. You may be consulted on artwork etc, but really this is only a courtesy. They don't have to tell you anything about the marketing for the game, and it will say something like 'Very Big Games Inc. will handle all the marketing', and you must help them to the best of your ability, once again on no pay.

• **Non-disclosure agreements** – As you will be inside the software house a lot, you will doubtless see a lot of projects that the firm are working on at the same time as yours. In order to stop you blabbing about this to any journalist you know, inside the contract is a little non-disclosure clause. This means that if you blab about their software they can sue you and win. In effect they can enforce you to use the discretion you should use anyway as a professional game writer.

• **Don't worry about that wacky interplanetary clause** – In some contracts you get a clause which says that copyright applies even "on other planets in the Universe that man may visit from time to time." This is just the software house covering themselves in case anyone wants to start up a software house on Mars (of course the moon doesn't count here as its strictly a satellite). And yes, and don't worry about the sanity clause, either, it was your parents putting those presents in your Christmas stocking all along.

• **Finally, and most importantly, what does it say about your future work?** – Are you contracted to do another few games for the same firm? Most of them will try to get you to agree to do your next game for them, and this is OK as it's nice to have a market for your work, but don't stitch yourself up to do too many titles for the same firm. Two or three is fair, but tying yourself up for the next 10 years could stifle your creative muse somewhat.

Everything in a contract is negotiable, so stick on as many points as you can, and work together with the software house to redraw the contract into a document you are both happy with. There isn't any real need for legal advice, although if you feel a bit out of your depth and want to get a lawyer to look the document over then go ahead.



THE LAST RESORT?

If all else fails, then don't give up. Just give it away – give a copy of your demo or program to a public domain library and watch your fame grow. Of course there's no money in it, but at least you'll get the adoration of the enthusiasts out there. And having said that, a lot of demo writers and PD program authors end up working for commercial firms after honing their art in the public domain.

And in actual fact the PD and demos route can be a very effective way into the game world, as Pete Stone points out (see below), as it is one method of getting the necessary experience and notoriety you'll need for your job applications. Time spent learning to code properly is not wasted time.

So that's it, the whole story of getting a game published. All you have to do is follow these instructions and you'll be rich and famous in no time – well, if you can come up with that original idea anyway.

The best of British luck to you. You're going to need it. ■

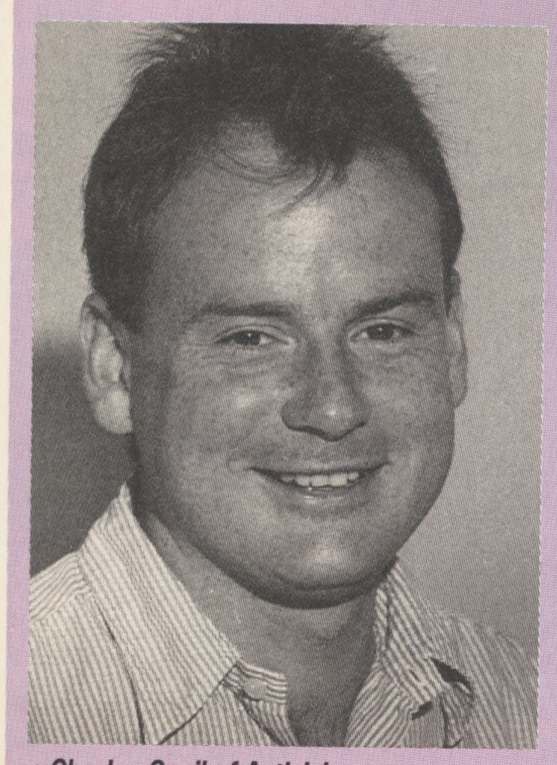
STRAIGHT FROM THE HORSE'S MOUTH

The people best qualified to talk about this subject are the men and women who actually decide which games get produced at the country's major software houses.

They look through all the proposals and choose the games that will be next year's big hits, so we asked them their opinions on what makes a good or bad game.

ACTIVISION

Activision's Charles Cecil said that individuals who come up with game designs *must* think it all through very carefully. "People will send me scenarios, 20-page short stories sometimes, but if you can't visualise it on the screen, then it's not a good proposal. If you must send a big pile of papers, it has to be laid out *very* clearly. You should always provide on screen graphics if you can, with animation if possible, as this gives the clearest idea what the game will look like. Presentation is everything. If the designer hasn't got a track record, then the game idea has got to be really special to compensate for the sheer risk involved. The further down the production process we join the project, the less the risk to us that it'll be an unsuccessful product, really.

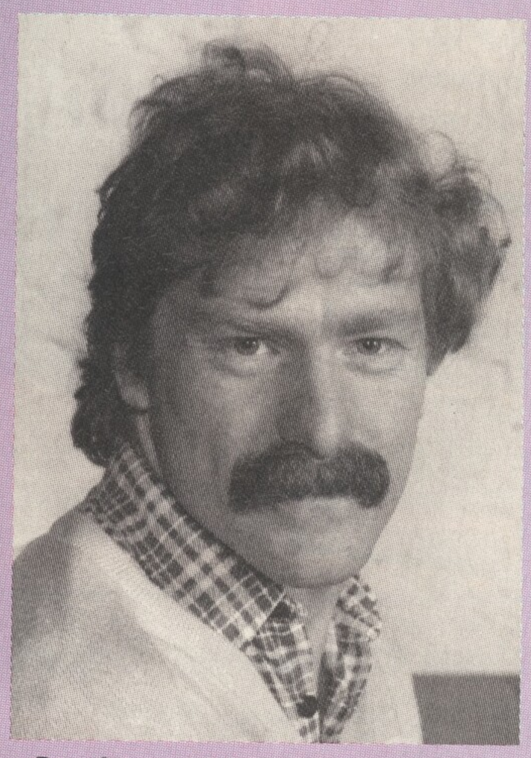


• Charles Cecil of Activision

"Think about it like this: if someone said I've got this great shoot-'em-up called *Xenon*, you'd not be interested, but if you saw the graphics and heard the sounds, you'd be sold on the idea. So it helps if the designer is either the artist or programmer for the project."

PALACE

Pete Stone of Palace was very keen to put the matter in perspective. "The games business has changed a lot recently. Very few games firms are employing in-house programmers and designers, preferring to use outside teams or development houses who they can guarantee will finish the job and deliver the game on all formats. There are a very few exceptions to this rule, and *Dragon's Breath* is an ideal example. The programmer had a track record, but none of the rest of the team had much to speak of. But the product was good, and over a period of months we hammered out the design with them until it was a viable product. So some sort of track record and well thought-out ideas are necessary before a company will invest a lot of time in it.

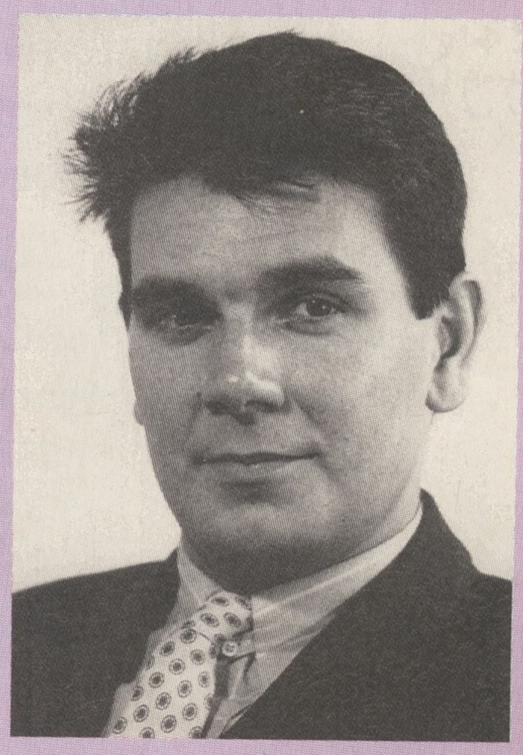


• Pete Stone of Palace.

"Writing in the public domain is an excellent way to gain the necessary experience."

SYSTEM 3

System 3's energetic boss Mark Cale was very clear about what he wants to see. "Finished games, basically. Original concepts are nice, but not so important as a very high standard of design and playability. Common pitfalls are that people expect too much of their computers, trying to make them perform like arcade machines rather than pushing what the computer can actually do to the limit. We don't work from demos because the game isn't there. If it's a finished game then we'll start talking about it."



• Mark Cale of System 3.

WIN a complete ST C language!

Just the Word

There are seven prizes to be given away this week. Two copies of HiSoft's much vaunted Lattice C programming language, valued at £150 each, are there for the picking and there is also a chance to win one of five copies of HiSoft's C interpreter, worth £49.99 each. All of these prize programming languages run on the Atari ST.

The C language is versatile enough to handle games, business and experimental applications. Lattice C comes with complete libraries such as AES, VDI, BIOS, XBIOS, GEMDOS, Line-A, ANSI, Lattice and Unix. For the non-programmers among you – but for those who want to learn – this means that you have an awful lot of power ready and waiting to turn your ST into your own workshop. You also get an editor, linker, assembler and librarian modules.

If your not too happy learning your C this way then have a crack at winning the C interpreter. This comes with a GEM toolbox and editor which lets you edit up to eight files at once. Full GEM source code is also included.There are 40 plus library functions which allow you to work with, among other things, standard Unix and draft ANSI. All of this is topped off with a 340-page ring-bound manual. So, even if you've never seen C before, this may well be your route into programming prowess.

All you need do to win yourself one of these prizes to examine each and every word printed in this week's *Express*. Somewhere in this issue – either in the editorial or in an advertisement – is the word MURINE. Find the word, then put in the number of the page it appears on on the answer form.

Fill in you name and address and send your entry to HiSoft Competition, *New Computer Express*, 30 Monmouth Street, Bath BA1 2BW, to arrive not later than Monday August 13.

The first seven correct entries out of the hat will win the prizes.

WINNERS!

Two lucky readers will be plugging in and turning on their braindthis week when they receive their mind-altering computers, courtesy of *New Computer Express* and Tensor Marketing.

The two winners of our MC² mind machine competiton were:

Neil Barton, Northwich, Cheshire
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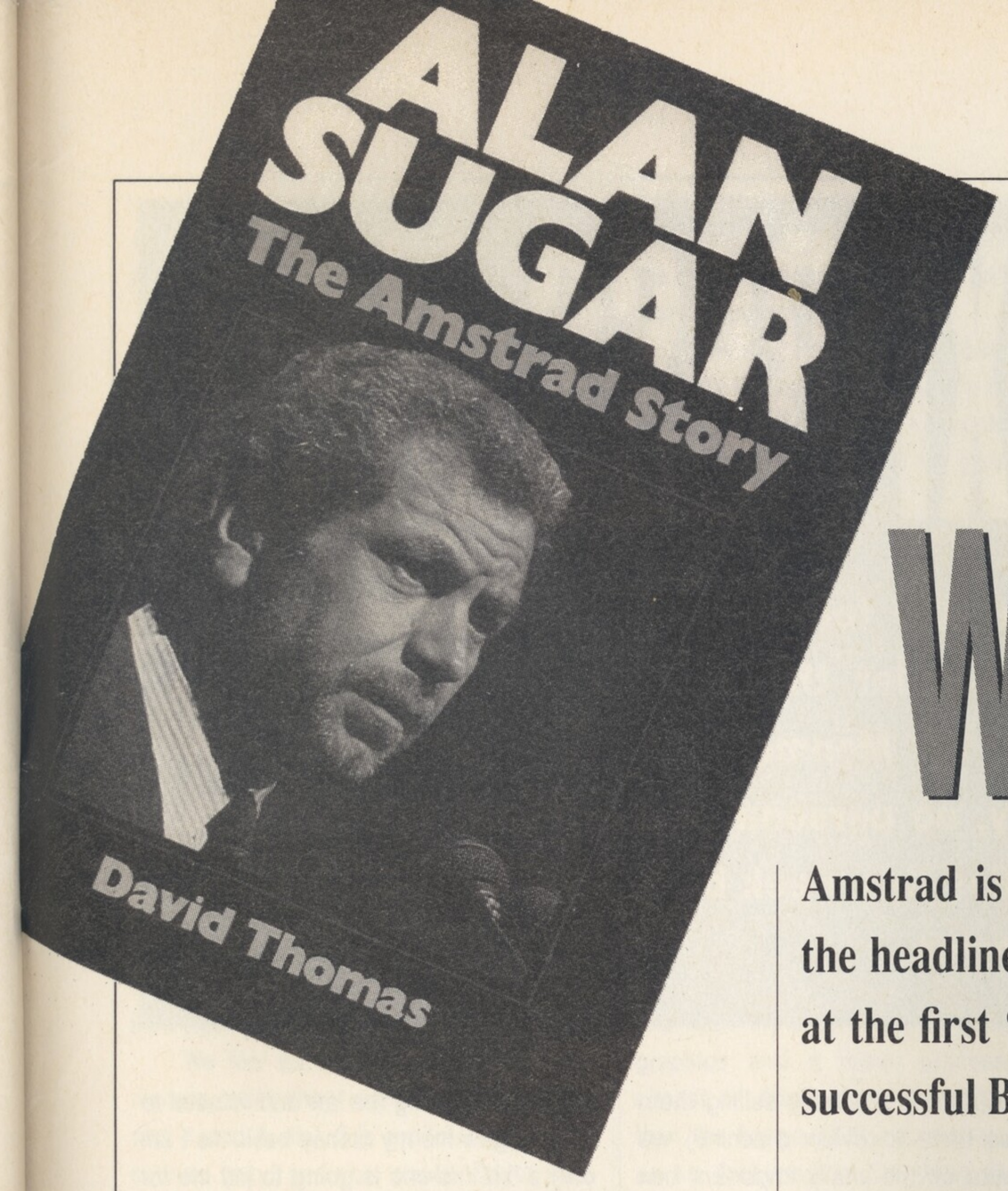
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THAT'S THE WAY TO DO IT

Amstrad is a household name but the company's founder doesn't hog the headlines like Branson or Maxwell. Graeme Kidd takes a close look at the first 'official' biography of Alan Sugar, the man behind the most successful British home computer company in the last ten years.

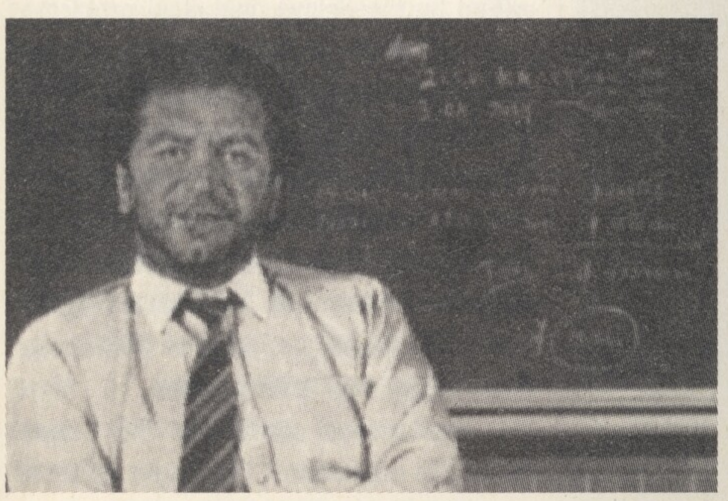
Alan Sugar's achievements are, quite clearly, remarkable. In less than 25 years he has built a fledgling one-man-and-his-van company trading in electrical goods into a enterprise that turns over more than £600 million pounds a year.

Nearly all the credit for the success of Amstrad the company has to be laid firmly on the shoulders of the man who loaned it his initials – Alan Michael Sugar. Sugar's attitude to making products which make money, like his personal approach to business, doesn't merely underpin Amstrad – it *is* Amstrad.

In setting out to write a biography of Alan Sugar, David Thomas took on a potentially difficult task. His subject has no affinity for the press or for public life – in direct contrast to corporate men such as Maxwell or Branson who either court publicity or use it to promote their business, Sugar has always shown a hostility towards journalists and the media. But Thomas secured Sugar's co-operation – to the extent of gaining extended interviews and introductions to his subject's family, friends and business associates.

MOTIVATION

Even so, this book offers few real insights into Sugar's personality. His motivation is made clear – to make products that can be sold at a profit and to avoid unnecessary expense in doing so. And his approach to business – the Amstrad corporate philosophy insofar as it has one separately from Sugar's philosophy – is also illustrated fairly thoroughly. But what little information Thomas has managed to extract from Sugar and his associates about the man himself is presented in the style of a feature journalist seeking to add 'colour' to an otherwise dry piece.



• Byron Organ's portrait of Alan Sugar, complete with calculations in yen on the blackboard.

We learn of the young Sugar's early entrepreneurial moves – such as making pocket money by taking other people's pop bottles back to the shop to claim the deposit. We gain some insight into Sugar's formative years, spent as the youngest son of a jewish family in Hackney at a time when the family's economy was hit by the unpredictable nature of the rag trade, in which Sugar's father worked.

But such 'colour' sits awkwardly in a book that charts the commercial success of one man and his company, erring on the side of tabloidese. Thomas is at his worst when he offers a 'potted biog' of Marion Vannier who was chosen by Sugar to set up a French subsidiary: "She had enjoyed a comfortable upbringing in Charentes... her father was a director of a brandy company; her mother, it goes almost without saying, did not work and Marion was educated in a convent to expect a similar existence. True, there were signs of spirit in the young girl as she grew up: she had a habit of choosing the most headstrong horses to ride through the lush Charentes countryside..."

"Alan makes products in order to make money, whereas I make money in order to make products."
– Clive Sinclair

ABSORBING

Thomas does a much better job of documenting the history of Amstrad and its products, providing detail and perspective that even the most avid Amstrad-watcher will find absorbing. The Amstrad approach to designing products is supported with detailed information on how Sugar approaches the problems of bringing them to market. Anecdotal background abounds: for instance, the original concept for the PCW was drafted by Sugar on the back of a report during a flight to the Far East, and featured a portrait screen and a printer that was an integral part of the machine.

Thomas explains clearly both how and why Sugar and Amstrad bring products to market, and provides a clear picture of the philosophy that has lead to success. In Vannier's words: "We transform elitist products into mass products. We seed new markets." Thomas shows how Sugar's natural feel for the mass market allowed Amstrad to target 'the truck driver and his wife', providing 'a mug's eyeful' – dressing up a product that costs little to produce so it gives the impression of excellent value. And Thomas documents the clash of ideologies between Sugar, the margin-conscious doer-of-deals, and the supposed financial sophisticates of the City, along with the problems faced during 1989 with the launch of Amstrad's up-market PC range.

But a strange chronology is used to tell the inextricably intertwined story of Sugar and his company, a chronology that often leaves the reader confused. And there are the inevitable omissions – scant mention is made of the PPC portable computer, or the PC produced under the Sinclair name. Similarly, the legal foray with Epson over the right to use 'LQ' in the name of printers, like 'extra-curricular' trading activities such as the supply of teapots to department stores, finds no place in this book.

Alan Sugar, The Amstrad Story is itself a bit of a mug's eyeful. Good value, useful, undoubtedly an interesting read – but neither the definitive history of Amstrad nor the most searching biography of Alan Sugar. But it will still dominate the market: those books have yet to be written. ■

David Thomas' book Alan Sugar, The Amstrad Story *is published by Random Century as a hardback. It costs £14.99. ISBN Number 0-7126-3518-1*



• Alan Sugar with Clive Sinclair, announcing that he had bought Sir Clive's company.



EXPRESS MAiL

Write and tell us what you think about anything under the Sun! Reach us at: *Express Mail, 30 Monmouth Street, Bath BA1 2BW.* Sorry, no personal replies, even with an SAE. Replies this week by Keith Pomfret and Stuart Anderton.

Ta mutchly

Thank you very much for *The Secretary Bird* which you sent to me in respect of the competition in *Express*, I am very pleased with it as it fills a number of gaps in my word processing diskettes.
E Sharp, East Dereham, Norfolk.

And thank you for saying thank you. Why not turn to page 54 and see if you can get lucky again?

Lynx links

I am thinking of purchasing an Atari Lynx, but before I do could you answer a few questions for me?

Although there is not a lot of software for the Lynx (some newish titles come out later this year eg: *Paperboy, Chequered Flag, Xenophobe, Klax*), are we going to see titles such as *Chase HQ, Xenon 2, Rainbow Islands, Speedball, Double Dragon 2, Ghouls 'n' Ghosts, Hard Drivin', Robocop* and other memorable games, and if not, why?

Is the Lynx going to fade away off into the sunset after you've bought it because it is being out-sold and out-done by consoles such as the Megadrive and the Neo-Geo?

Will the price of the software fall, because there is no way you can copy card games like the Lynx uses? If not, why not?

What sort of box do Lynx games come in? Are they like the ST, Amiga boxes or like Sega cartridge boxes?
Horness Spencer, Reddich, Worcestershire.

Atari claims that the Lynx is selling like hot cakes in the US and that it is selling them as fast as it is making them. Given that Atari doesn't subscribe to the proprietorial nonsense that Nintendo is famous for, and the popularity of the machine, software titles of the calibre that you mention should stand a chance of release on the Lynx.

Given the Lynx's impressive record so far, the chance of its imminent disappearance is small.

It is too early in the game to comment on prices dropping, but if the prices remain the same and inflation goes up they will be effectively cheaper. As we have no Lynx or software at *Express* (Atari is too busy selling them to let us have a review machine) we aren't sure on the vitally important box situation, but as soon as some Lynx software arrives we'll get the *Express* handyperson to measure the boxes and report on their dimensions.

Stop thief

I had an ST bought for my birthday but only being 14 I can't afford much software, so I bought a Multiface ST to enable me to copy all of my friends' games. It copied most of the games but some of the new ones won't copy using it. I contacted the place that I got the Multiface but they said I am breaking the law and refused to fix it or give me my money back. As I am only a 'kid' no-one is going to jail me for copying games, so how do I get the Multiface to copy the ones that it won't? I can use a soldering iron and have access at school to hardware to program EPROMs up to 128K.
Sean, Derbyshire.

If you'd had the guts to put your full name and address at the top of your letter you can be sure that it would have been passed on to the appropriate authority in order to make you think again about your attitude to piracy.

I sincerely hope that you kill your Multiface with your soldering iron and that all your disks get viruses. It is bad enough to pirate peoples games and deprive the authors of their royalties, but to publicly boast that there will be no reprisals is tantamount to incitement to other like minded brats.

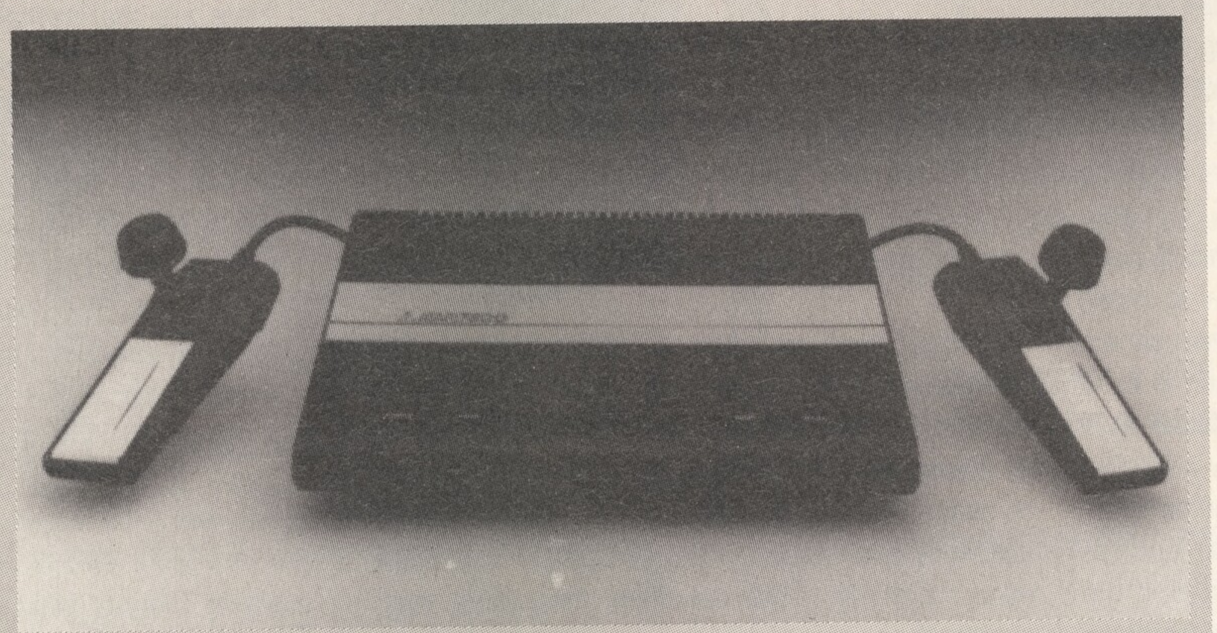
Please ring in with your address and phone number and we'll organise a nice trip to the magistrate for you.

Consoles: are they real computers or just kids' toys?

I think *New Computer Express* is the best weekly computer magazine available on the market. Your magazine is generally excellent except for the fact it hasn't got any consoles in it. Your magazine should have special pages for the Sega Master System, Nintendo, PC Engine and the Sega Megadrive.

The pages should have the following contents: new software releases, new joysticks, and so on. The game reviews should have a rating system out of a hundred.

I hope in the near future you will have some of the consoles in your magazine.
Snardy Cadette, London.



• Atari's popular games console: could it count as a real computer?

Well, looks like this weeks topic is consoles. Now don't get me wrong, I like consoles, I have a hand-portable, yep, a Gameboy.

I use it for fun. I don't count it as a computer though, as my definition of a computer includes something you can type and program on and swear at when your programs don't work. Consoles don't have keyboards, although you can still swear at them.

Ancient readers may remember the Colors Adam and the Intellevision which, if I can remember correctly had input devices.
Lawrence Sheed, Hampstead.

There's a chap in Grimsby threatening the wrath of a thousand herrings if we don't have a machine-specific column for his Seiko wrist terminal, and someone else wants the Apricot F1 covered and so it goes on. If there's anything newsworthy in the console line or any whizzy new games, you can be sure that we'll be in there covering it.

Are consoles computers? That depends on your definition of computer. The Amiga and the Nintendo both play *Adolescent Deformed Kendo Tortoises* to about the same standard, so why not treat them as the same?

Super Speccy

In 1988 a magazine previewed an impressive 'Super Spectrum' with expansion possibilities and a low price. It was the SAM Coupé and was the ideal upgrade for owners of the Spectrum. Six friends and myself waited and waited for over 18 months. At the end of 1989 we were miffed by the delays, technical problems and confusion and upgraded to other computers. Two of us bought Amigas, three bought STs and the others took up underwater beekeeping. The waits and technical problems are the reasons for the Coupé's demise. In my opinion, MGT deserves credit *(The bank didn't agree with you – Keith.)* and support from those who did buy their SAM machine,.

Has anyone considered the Coupé for use in education? The bright colours, sound and affordable price would appeal to teachers and pupils alike.

Keep up the good work at *New Computer Express.*
Michael Lynn, Ayrshire.

I have chopped this letter from a silly 632 words down to around 160 and even that's too long. Keep it short, concise and to the point or it will go in the bin. We're getting dozens of letters breaking the 1,000-word mark. Let's see sharp, witty letters and honed salient points.

PD plug

I am writing to tell your readers about the new Fastline PD library. It is for SAM Coupé disk drive owners. We have gone through a bit of a revolution recently, and we are now completely free.

You pay £2.00 *(I thought you said it was free?)* for eight demos varying from slideshows to disk tools on a branded 3.5-inch disk including postage.

We feel we are now giving the SAM owners what they really want. We have disk 1 and 2, disk 3 is available soon. If it sounds good and you would like to join, then send a SAE to Fastline, 1 Ryelands Place, Kilgetty, Dyfed, Wales SA68 0UX.

A note to existing Fastline members: because we have completely changed you have to apply to join again. Just send an SAE and application to rejoin. Remember, we are free and therefore need your PD programs. We desperately need the following programs from you, the SAM owners: a simple or not so simple word processor, database, spreadsheet and ST screen reader.

Remember the programs you give us go to make the SAM a more popular machine and others can enjoy the program too.
Simon Scott, Kilgetty, Dyfed.

And that's the last time you get a free advert in the letters pages. In future if you want a free plug, buy a Hotpoint washing machine. Oh all right, one more...

More plugs

I have noticed in your magazine readers writing in asking for details of where they can obtain various accessories, spare parts and so on. I though that this would be a good opportunity to describe myself and mention my services to the readers of *NCE.*

I am 18 years old and have spent the past two years studying electronic engineering. In my spare time I repaired friends' computers and felt that I could turn it into a business. I visited the local Enterprise Agency and they helped me set up a company. During this time I was also taking part in the Livewire – Young Ideas At Work competition, sponsored by Shell.

I offer a repair service on a whole range of home computers, including Acorn, Amstrad, Atari, Commodore and Sinclair.

A service that I offer, and perhaps your readers would be interested in, is a mail-order spares and accessories service, supplying any electronic component for the computers listed above, including custom components.

As a new company with absolutely no financial backing whatsoever, it is difficult to obtain publicity about my services, so I hope that you can help by giving me a mention.
Matthew Rahman, 145 Neva Road, Midanbury, Southampton SO2 4FL.

And good luck to you too. If you make a success and offer good services, you'll get the accolades. Remember, your first few months is the time to establish a reputation and if you can't live up to your promises, it won't do you or your business any good in the long term.

Take it seriously

The Atari TT, what a nice machine; better graphics and a faster processor than almost all Apple Macs, better all around than the Amiga 3000 and almost as good as an Archimedes. The thing that most over excited people forget, is who is going to buy the damn thing, who needs it, what is it good at?

The scene will be much different in other parts of the world, Germany in particular where a 1040 is looked down on as a games machine, a Mega ST1 as downright useless and a colour monitor an expensive way to play *Dungeon Master.* In Germany the ST is the equivalent of a Macintosh.

Instead of Apple Business Centres there are Atari Desktop Publishing Centres and the like. For instance, the DTP program *Calamus* with outline fonts on screen and a much more 'sexy' WIMP system than household names like *PageMaker* and *Ventura.* Yet here at the *Which Computer?* Show at the NEC earlier this year the *only* ST-related product was on the Atari stand and was an XT emulator!

In Britain the ST is treated as a real dog and that's the way it is. Few people know that it's faster and has higher resolution and better screens than Macs twice the price, and few people care. The ST is treated as a games machine and is compared to the Commodore Amiga, a computer with wonderful solutions to problems which nobody has (hands up all you video titlers).

So, while German programmers are at this moment re-coding *Tempus,* GFA BASIC, *Calamus* and German establishments are rubbing their hands at the prospect of 32MHz STs, don't expect the machine to do absolutely anything in Britain. Atari is much too busy designing the next 520STFM Super Duper Summer Pack.
Jonathan Tranter, Wolverhampton.

Too true, I'm afraid. The PC and the Mac dominate completely in the business sector over here, and that can only because of misguided marketing, not only from Atari but also just about every other firm too.

Commodore, Atari and Acorn have all released high-end workstation machines but their reputations as Amiga, ST and BBC makers respectively all but do away with the possibility of anyone taking them seriously.

By pitching their 16-bit machines as games oriented, Commodore and Atari have cut their own throats when it comes to getting into the much more lucrative business arena.

Since it's not a market that is easy to launch into with a new machine – how many NeXTs or Sun machines do you see in the office? – it looks like we are stuck with PCs and Macs for the forseeable future.

A rather monotonous prospect; wouldn't it be nice to see more variety in the machines available to do the day-to-day tasks of business life? ■

Wake up everybody, 8-bits suck

Although I agree with Mr Roberts (*Express* 88) about the excellency of the old Atari 8-bit machines, isn't it about time he realised, and many other 8-bit users too, that they're machines have had their day?

They were good in their time, but no longer can they hold their own against the 16-bit machines. Mr Roberts, you obviously aren't making any sense by saying that the Atari 130 XE excels over the ST because I have upgraded from all of the Atari 8-bit machines to an ST and there is no comparison. Thousands of ST and Amiga users will tell you the 8-bits suck.

Mr Roberts, you have failed miserably trying to promote your 130 XE, and if you likened an Atari 130 XE to a clapped out MkII Escort, and the ST to a cheap and plentiful XR3i Cabriolet, which would the serious user buy? I fail to understand why people ignore the advance of new technology and even consider 8-bit machines. We're in the 1990s now and so much is about to happen in the fields of computing. Even I realise that my ST is almost a piece of junk (and Amiga owners, you're included) when we all wait with baited breath for the 32-bit machines.



• The only good 8-bit is a dead 8-bit, so says Harvey Kennet.

Mr Roberts, the only reason why you cannot see why such a machine as yours is not supported more heavily is because you and many other 8-bit users are stuck in you own little worlds.

The way forward is new technology and I feel that the only people holding us back from newer advances are ourselves.

If you're not part of the solution you're part of the problem Mr Roberts, I can see it, why can't you?

Harvey Kennet, Chelmsford, Essex.

As we aren't published on a Sunday, there isn't normally space for a sermon but on this occasion we've let it through, Mr Kennet. Your turn now, 8-bitters...

COMMENT

As PC prices drop, and the older machines begin to look distinctly decrepit, the great advantage of the PC comes into its own – upgradability

While the old XT may comprise the majority of the millions of 'DOS in a Box' units out there, both manufacturers and software developers announced its death a long while ago.

The spec of the original Big Blue platform may never have been all that fabulous but the fact that it is the world standard means there are also plenty of suppliers just dying to help you bring your XT back to life. You bought the monitor, the keyboard, the mouse, the drives, the extra RAM – now buy a new processor. For only a couple of hundred you can transform it into the current AT standard which will offer you access to the latest power hungry applications.

Yet, judging by the pricing, one might think the 286 has had its day too. But there's still life in it yet – precisely because you can always one day throw it away! For it's only a matter of time before you can buy a 386 board for your AT for £200. Go faster boards may cost £600-700 now but by next spring you might be looking at half that. Meanwhile, the price of 286 power can only continue to fall and fall and fall as it's squeezed from both sides with more and more users deciding to upgrade their old XTs rather than fork out on a new AT and newcomers going straight for a 386.

The main drawback with PC emulators is that currently they only deliver colour in the form of CGA graphics, and in the PC world CGA's about as hip as a Skoda.

So PC owners are very fortunate in these respects. They can buy all the component system parts and be assured of continuing longevity. A new processor? Fine, just whip out the old one. Super VGA announced? Just fit a new card. IBM handwriting input tablet? No problem.

PC owners may have had to wait a while to catch up with multi-colour modern technology but now they can relax and cruise all the way to the high frontier in comfort. Windows 3, Autodesk *Animator,* plug-in Roland synthesiser cards – Jeez! – they're forcing the pace goddam it! Amiga and ST owners wake up, wipe away the cold sweat and take notice.

So it'll be interesting to see just how much take up there will be of the new 286 hardware emulator cards being brought out for the ST and Amiga. At £200 a go they would seem to offer the user the best of all worlds. Both industry standard DOS applications and a world of relatively low-cost creative and leisure products.

At £200 you would think you couldn't go wrong, but the main drawback with PC emulators is that currently they only deliver colour in the form of CGA graphics. And in the PC world, CGA's about as hip as a Skoda. If you're after unparalleled amounts of mono business software then by all means buy one – otherwise forget it. Until someone brings out a PC expansion slot hardware emulator for the the ST and Amiga 500, real PC compatibility is limited. Anyone want to make a bet on the release date? ■

NEXT WEEK

DO YOUR OWN THING
The Express guide to selling your own games

ARE VIRUSES ALIVE?
Could there be life in your disk drives?

PLUS

- Amstrad's latest portable
- Win £500 of software
- Shopping Express: bargain hunters' paradise
- Tech Tips: top advice
- Letters: First Amendment eat your heart out
- A column for your machine: ST, PC, Amiga, C64, Spectrum, Archimedes, BBC, MSX, QL, PCW, CPC and SAM Coupé
- Five pages of up-to-the-minute news

FROM The ARCHIVE

ONE YEAR AGO

It was alleged that a so-called piracy device was in fact a pirated copy of a rival copying program. Allegations were flying around that Mass Duplicator, a copying device sold by Evesham Micros, was a direct copy of Power Computing's Blitz Copier.

The irony of the case wasn't lost on those who opposed copying devices saying that they encouraged piracy.

Japanese games console giant Nintendo was causing concern among the UK software industry with its plans to secure exclusive licences on coin-op conversions.

Industry bosses feared that Nintendo would probably avoid releasing games on anything other than its own machines. It hasn't happened... yet!

Following the failure of her anti-hacking bill, MP Emma Nicholson said that she never intended it to become law; just to get people talking about it.

Franklin Computer in the US announced a computerised Bible that could locate any passage in the Bible by punching in keywords.

For example, keying in 'beginning', 'word' and 'God' brought back the response: "In the beginning was the Word, and the Word was with God and the Word was God (John I).

I wonder if it worked the other way round? (John XI,35).

Acorn called a summit of all the major entertainment publishers to discuss the potential of its A3000 as the ultimate games machine.

Although the A3000 was pitched as an education and business machine at its launch, Acorn wanted to "Take games seriously too."

When MGT took on a group sales director, the firm's boss Alan Miles commented: "We've taken on a heavyweight sales person because we intend to be a heavyweight company."

A year on and the administrative receiver is trying to sell the somewhat dieted MGT

Amstrad boss Alan Sugar was looking back at a lean year despite still being worth over £403 million.

The volatility of the stock market caused his fortune to plummet by the staggering £12.70 every second reducing his £582 million fortune by nearly one third.

Users of the Z88 could finally upgrade their machines to laptop status with a 3.5-inch disk drive from Ranger that allowed them to write to disks that could be read directly by a PC.

The Ranger disk was hindered by only one small problem. At £450 it cost more than twice as much as the Z88 laptop and as much as a cheap portable PC.

A spell of hot weather caused air conditioning firms to rub their hands with glee as the crashing computer systems brought firms rushing to them with open cheque books.

The normally robust computers turned up their toes and refused to do any more work until the environment was a little more clement.

TWO YEARS AGO

Melanie Worsley planned to keep a diary on her round Britain charity walk using a microcomputer, but resorted to pen and paper. The 'portables' were either too heavy for the slight eight stone sixteen year old to carry, or weren't reliable enough to store all of the data.

She said: "I thought that it would be easy but it looks as though I'll have to come back in a couple of years when these things are a bit lighter."

• A couple of years on she said: "Did I really say that? Umm I'd better go and look for a lightweight computer then, hadn't I?"

Amstrad's ugly duckling portable, the PPC512, was offered as part of an aggressive bundle including a printer in an effort to increase its sales.

It's big brother the PPC640 was selling nearly twice as many as the 512K model.

This was reckoned to be due to the included 2400 baud modem which two years ago would have cost nearly as much as the machine.

Sources: *New Computer Express, Computer Trade Weekly, Computer Talk.*

THE ATARI ABC

Now, there's a PC-AT compatible that not only solves problems like other AT compatibles, it also solves the one problem that its predecessors have created ... affordability.

Silica Systems are pleased to present the new Atari ABC. The ABC is a 286 AT compatible that runs at over 5 times the performance of the IBM XT. This is achieved by combining the power and speed of a 16-bit 286 processor, with Atari Corp's development experience and engineering capabilities, which use the very latest in design technology. However, the Atari ABC's are available at 'XT prices' and many XT owners will wonder why they paid more, but got less!

The ABC is a reliable, high performance computer, built to exceptionally rigorous standards. It is well designed, to a state of the art specification, maintaining maximum expansion capability for the future. This includes up to 4Mb of RAM and 3 AT expansion slots. Plus, unusually for a PC at this price, the ABC has the ability to install two or three extra drives, with the cabling already inside the CPU.

The ABC has a host of impressive features, all built-in as standard, encouraging simple installation and ease of use. In addition, the ABC's small footprint and quiet operating, mean that you will notice it less on your desk than other PC's. Except, of course, when you begin to take advantage of its AT power.

At its remarkably low price point, the ABC is ideally suited for home, office and educational use and will take full advantage of the vast range of PC compatible software. And, with 12 months FREE on-site maintenance (8 hour response), you can rest assured that your ABC will be fully supported.

The ABC is the latest addition to a comprehensive range of both 286 (8Mhz or 12Mhz) and 386 (16Mhz and 20Mhz) PC's, from the Business Systems Division of Atari Corp. Atari's PC range offers an unsurpassed combination of reliability, compatibility and expandability, with unique features like Atari's 44Mb removable hard disk on their PC4. Return the coupon NOW for further details of the complete range of PC products from Atari's Business Systems Division.

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AVAILABLE: JUNE 90

To put the ABC even further ahead of the competition, we have introduced a special 'Turbo' version, which includes a super fast RLL hard disk controller to increase the data transfer rate from 150KBytes/s to 800KBytes/s, with a performance index of 4.801. Plus! to provide exceptional graphics with an outstanding colour resolution of up to 1024×768, we have included a Super VGA graphics adaptor and a 14" VGA colour monitor (which also supports 1024×768 resolution), all for an additional price of only £300. Check the ABC Turbo against the competition, at only £1299 (+VAT) with 30Mb hard disk, Super VGA colour graphics capabilities, plus 12 months on-site maintenance, it offers unbeatable value.

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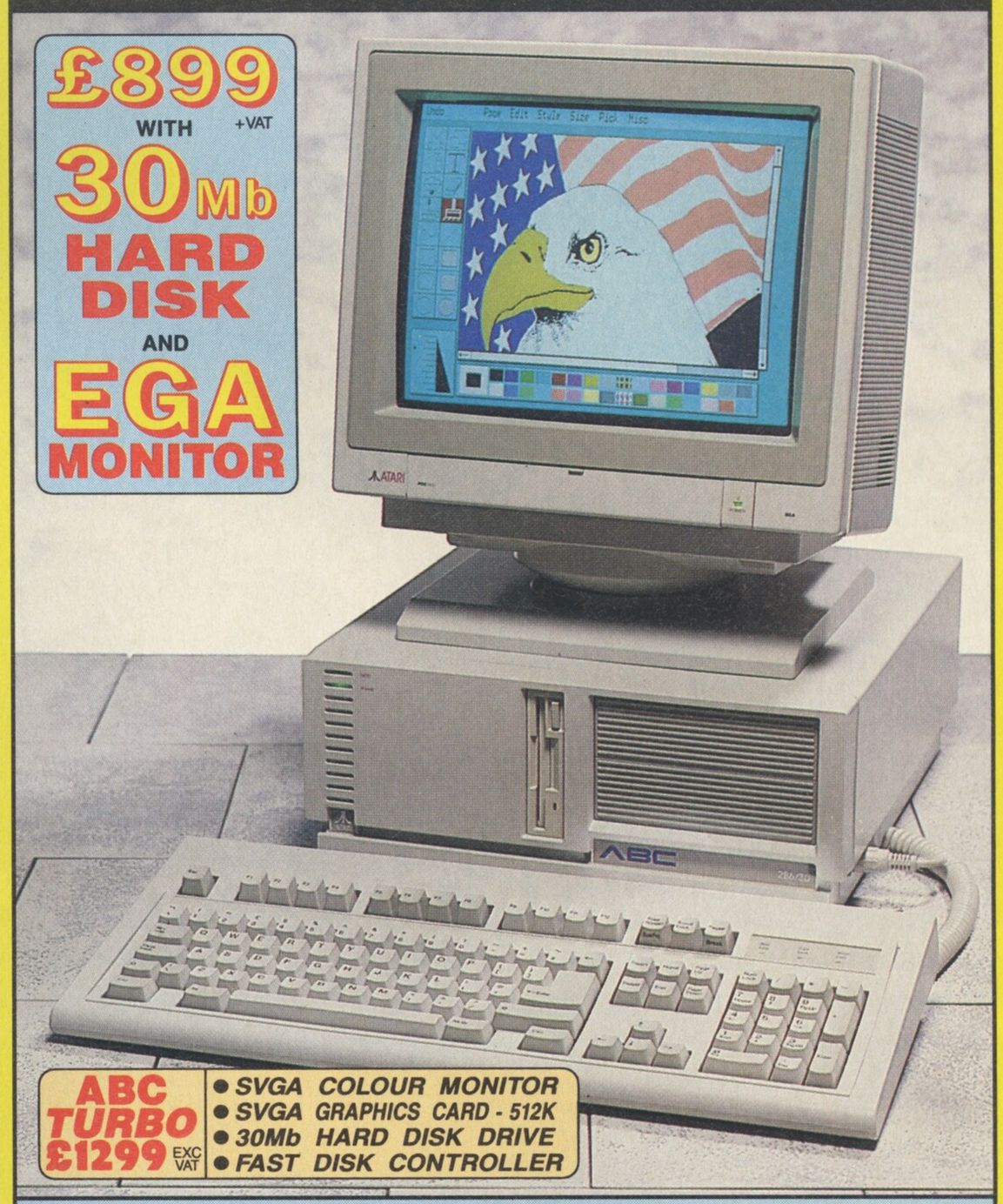
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Before you decide when to buy your new Atari ABC, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after buying your ABC, when you may require additional peripherals or software, or help and advice with your new purchase. And, will the company you buy from contact you with details of new ABC products? At Silica Systems, we ensure that you will have nothing to worry about. Silica Systems is a new division of Silica Shop, the UK's leading Atari specialists. This new division has been established to provide a service to the more serious home user, as well as to business and education purchasers. Silica have been established for over 12 years, and have an annual turnover of £13 million. With our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now, for our latest Free literature and begin to experience the "Silica Systems Service".

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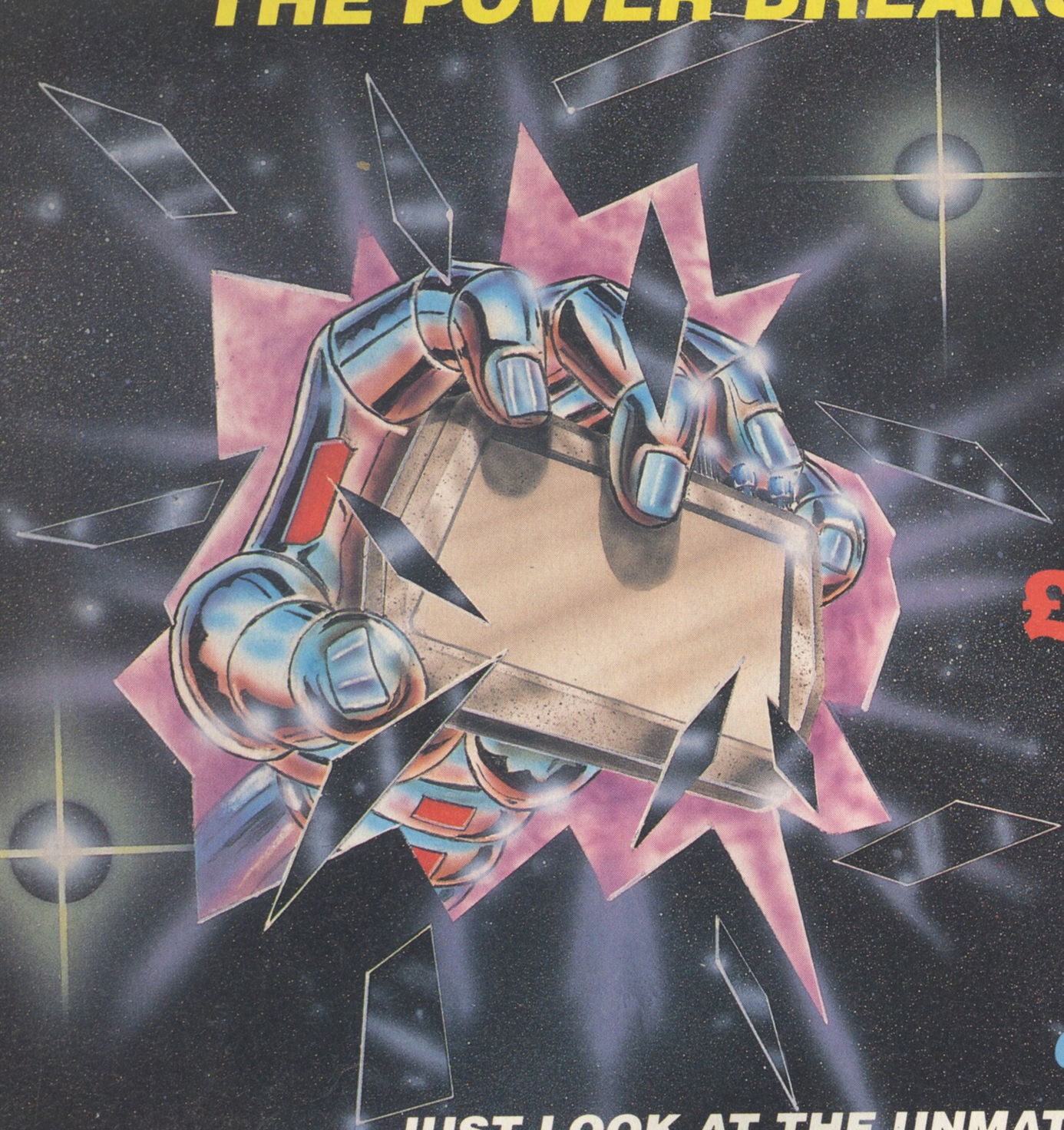
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