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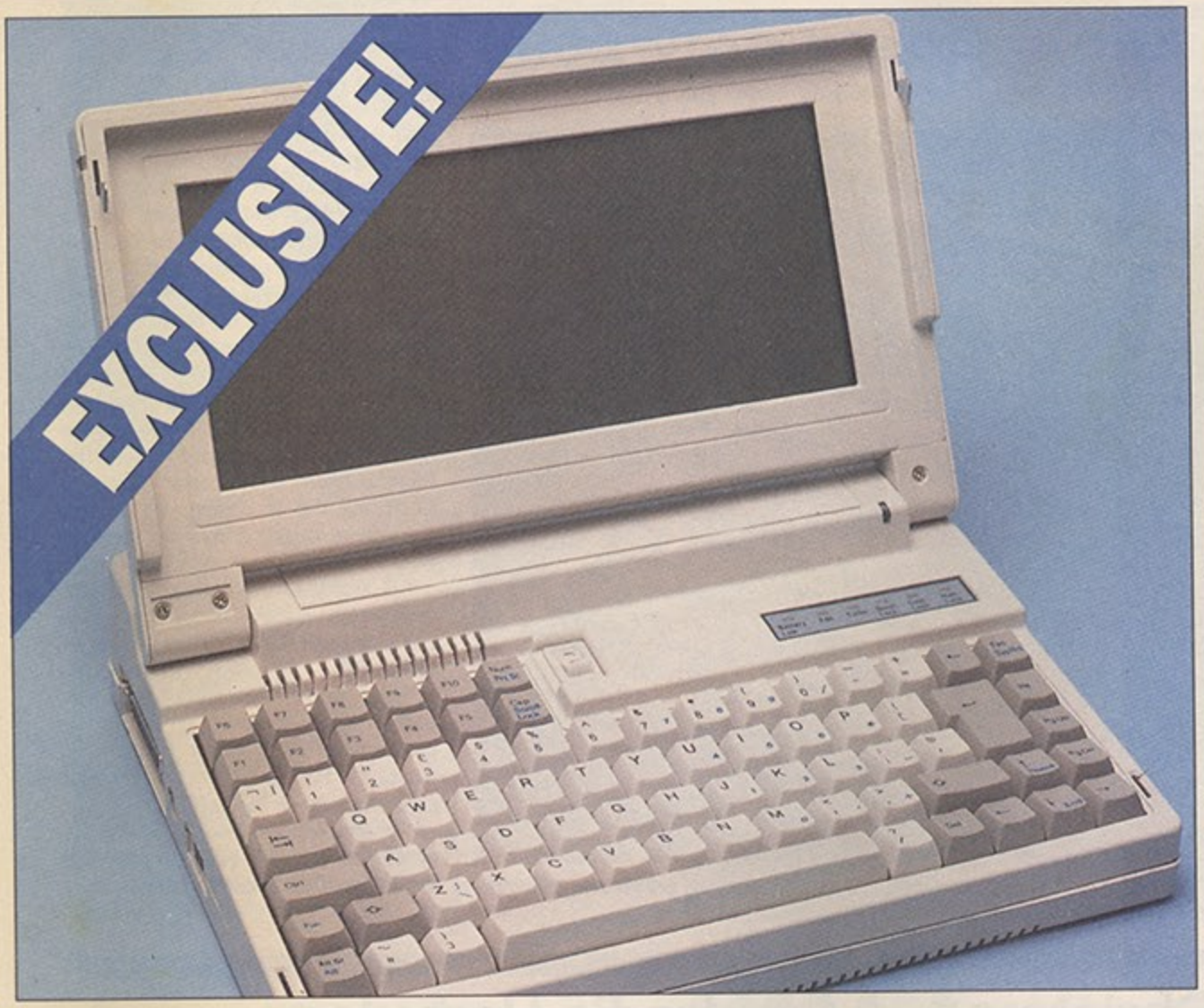

THE ULTIMATE PC LAPTOP

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• The £40 PC package that does everything - page 8

VIDEO REVOLUTION

Mind-blowing system is coming to your micro *page 15*

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- Terrific tech tips
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SECTIONS FOR PC • Amiga • Atari ST • Spectrum • CPC • C64 • PCW • QL • BBC • MSX • Atari 8-bit

WORLD'S FIRST TRUE PC LAPTOP

●The size of a Z88 ● Costs only £695

An astonishing new portable PC is set to break through which offers full PC compatibility but is only as big as a Z88.

The Protocol portable is the size of an A4 sheet of paper – as big as the page you are reading – and only three inches thick. It will run any piece of PC software on 3.5 inch disk. And it costs only £695.

The machine has been sourced from the Far East and is being sold here by API Electronics. That firm is trumpeting its new computer as the biggest event in portable computing since the launch of Amstrad's PPC. API says it is not worried by Amstrad's dominance of the low end portable scene.

"We compete on specification with the Toshiba 1000 and with Amstrad on price," sales director Paul Schenck told *Express*. He added: "We don't consider the Z88 to be a competitor due to its lack of PC compatibility."

The Protocol's technical specification is impressive but not revolutionary. At its heart is an 8086 low power consumption processor which runs at a respectable 10Mhz. It sports a memory of 640K which, whilst standard for a low cost desktop PC, is massive for a low cost portable. The Z88 can only boast 20K of usable memory, and whilst Atari's Portfolio pocket PC is smaller, it is limited in the software it can run and has a smaller keyboard and screen.

Laptop of the Gods? The new Protocol breaks new ground in laptops – and yet uses nothing but existing technology

The Protocol's screen is a full size 80 x 25 CGA LCD display which takes up half the machine's area. It's twice as big as the screen on the Amstrad PPC and is also backlit.

A three and a half inch disk drive has been fitted at the side of the deck. The 20Mb hard disk version costs £999 and has the newly developed Prairietek 2.5 inch disk inside.

The clam box sports a full size QWERTY keyboard and a full line up of expansion ports including RS232. A rechargeable battery pack comes with the machine which provides about three hours of constant use (about average for such a portable).

It weighs 7.2 pounds and the dimensions are 12in. x 8.7in. x 2.4in. The PC runs DOS 3.3 and will come with a choice of bundled software the names of which have yet to be announced.

API is the new kid in the low cost PC area but claims to be more than prepared to take the big boys on. The company was founded in 1985 as a memory broker – buying and selling chips around the world. The firm says it now has the financial muscle to enter the PC fray. The Protocol was seized upon during a factfinding trip to Taiwan. API is also planning to launch a series of desktop PCs.

It is hoping to push the portable into mainstream computing and talks are going on with 'all the biggest distributors'.

"We've got no problems with manufacturing large volumes," offered a spokesman. "This machine deserves to outsell the PPC because it's better. And it's vastly superior to the Z88."

High end 286 versions are likely to be announced later this year. API promises that these will also be affordable.

Chase is on for Christmas

Arcade regulars will recognise this screenshot from the brilliant coin-op game Chase HQ.

It's had young and old clambering into the driving seat from Southend to Aviemore. Canny watchers of the gaming world are tipping the computer versions as this year's Christmas number one.

And whose responsible for conversions? None other than Ocean – the publisher which scooped last year's Christmas biggie with Operation Wolf and has stayed at the top since with Robocop. It promises a version for all users of major machines and should be ready for the beginning of December.

Chase that game: The game of '89?

Amstrad's Herculean task near completion

Amstrad was last week claiming to have virtually completed the Herculean task of swapping models of its 286 and 386 machines for fault free PCs.

No figures are being given but it understood that some 7,000 computers are involved. Less than three weeks ago Amstrad stated that it was going to exchange all hard disk models of its 2286 and 2386 machines after complaints about reliability.

"We've managed to exchange almost all the stock out there already," commented a spokeswoman. "The feedback we're getting is extremely positive. Users are pleased with the speed of then operation and so is the trade."

PC2286: Amstrad is mopping up

In an effort to mop up those users who haven't contacted Dictaphone (the company undertaking the exchanging program on behalf of Amstrad) the firm is sending out a letter to every person on its books who has bought the relevant machines.

"It's just to make sure everyone knows what's going on and can act on that," explained the spokeswoman.

THE MOST VICIOUS VIRUS ON EARTH

• Unlucky 13th – and 12th: Offices could be hit by a deadly new virus

Details of how the world's worst virus could cause havoc to PC owners across the country are beginning to emerge.

As first reported in *Express* (Issue 34) Datacrime is due to strike on October 12 this year. However, it emerged last week that instead of simply being active for a day, the insidious virus will work for two and a half months.

PC owners should be aware of how Datacrime works. If it arrives on your machine before October 12 it will wait until that day before it strikes. Then it will wipe out the first track of every head on your hard disk. This will effectively dump potentially irreplaceable data files.

If your machine becomes infected after October 12 the virus will check the date. On any day between October 13 and December 31 it will do its dirty deeds.

After the last day of the year it will "go dormant" until October 13th the next year.

This year's October 13 falls on a Friday. However, Datacrime will go off on October 13 in any year.

The only parallel to be drawn is that with the Friday 13 virus (called Jerusalem) earlier this year. However, that only wiped programs which were used on the one day – programs which are almost always backed up on floppies. Datacrime attacks personal data files which are rarely backed up.

Virus expert Joe Hirst told *Express*: "This is almost certainly the worst virus I have come across and it will be very difficult to get rid of. The trouble is it could be around for years. Anyone who detects it will need the services of someone who knows what they're doing."

Hirst went on to claim that there are currently twice as many viruses in circulation as there were at the beginning of this year. He also said that they are likely to become more and more vicious.

Whilst Datacrime is clearly extemely powerful it is not known how widespread it is. Its effects on companies and hospitals could clearly be disastrous.■

dBase virus at large...

Another vicious PC-attacking virus also came to light last week – the dBase virus.

It is understood that this only attaches itself to computers running Ashton Tate's popular *dBase* series of databases. It finds itself an empty file and then stores all new files. Users will not realise anything is wrong because all the files will stay in the program.

However, if the virus is discovered and dumped it will take all the files it has hoarded with it. And the user loses both ways, because if the virus is left it will format the hard disk within 90 days.

This has only been located in the US but experts say its arrival in the UK is only a matter of time.■

Computer pioneer Lord Bowden dies

Lord Bowden, one of Britain's leading campaigners for popular computerisation, has died at the age of 79.

He was involved in the development of the first digital computer by Ferranti in 1950. That type of computer is now almost completely dominant. In 1953 he became principal of the groundbreaking University of Manchester Institute of Science and Technology, the establishment responsible for the first stored program computer.

He was vociferous in his campaigns for more money to be spent on the development of computers as a commercial product rather than as exclusive monoliths. He also wrote one of the first books on computers – *Faster than Thought* in 1953.

• The late Lord Bowden, campaigner for a computer revolution

He was created a life peer in 1963 after which time he servd as a Minister in the Department of Science and Education.

£250,000 software forgery case comes to court

A massive court case is due to begin this month in Reading over £250,000 worth of forged software.

A company called Cybersoft was busted 18 months ago with software worth a quarter of a million pounds in stock. All the software had been imported from the Middle East.

Cybersoft's boss Y K Lim faces the possibility of a prison sentence if found guilty. Sources suggest Lim will make a plea of guilty on 20 counts although this has not been confirmed.

Counterfeit software differs slightly from pirated software since it is usually passed off as the real thing. Cybersoft was selling programs such as *AutoCAD* and *Lotus 1-2-3* in fake boxes and with fake manuals.■

Word for word

A new program for word puzzle enthusiasts is being launched this week.

Coda Software's *WordWizard* is available for the PC and costs £24.95. It can help anyone trying to plough through the most infuriating crosswords, Scrabble battles and anagrams. More on 061 330 0184.

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COMMENT

THE VIRUS EXPLOSION

Experts reckon that there are twice as many viruses around now as there were at the start of the year.

This is bad news for anyone with an ST, Amiga or PC – the machines mainly affected by viruses. Further bad news is that one of the organisations set up to help the business or individual at risk – CoTRA – appears to have foundered on a reef of personality clashes and animosity.

At the moment users are having to rely heavily on the various proprietary virus killing programs on the market. This is a very unfortunate state of affairs: while there is no suggestion that any of the companies mentioned in the virus feature this week might do so, there is the opportunity for the unscrupulous shark to surreptitiously encourage new viruses on the one hand while generously bringing out the updated killers on the other. There is also the danger that the virus killing programs themselves might get hacked and have viruses introduced by a third party.

There seems little that can be done at the moment apart from spreading awareness. Comparisons with diseases currently prevalent can be misleading, but as with viruses in food, it seems that the forces behind them are beyond our individual control, a product of 'the system'. The best way to stop them spreading is letting everyone know how and when they're at risk.

NO LAP RECORD

The Protocol machine exclusively reported in this issue of *Express* will surely appeal to a wider market than its distributors think. As a portable wordprocessing machine it offers amazing value and that invaluable full PC compatibility – many writers, hobbyists and journalists as well as business users will be tempted.

But the machine is not revolutionary in any way: it merely combines existing technology at a price kept down by careful large-scale buying. And, because it isn't waiting for new technology to be developed, it'll be on the streets in weeks. There's a moral in here somewhere.

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"WHY I SPIED FOR THE RUSSIANS"

● Computer snoop confesses

West German computer whizz Hans Hubner has told why he used his talents to spy for the Soviets.

Hubner, 21, was speaking in a public debate at the world's first International hacking convention in Amsterdam. He told delegates that it was "technical fascination" rather than any urge to further the cause of Communism at the West's expense.

Hubner was speaking in an angry debate with leading hacker Wau Holland of the famous West German Chaos Computer Club. Holland began: "I'm very angry and disappointed by what you have done. Hackers must trust each other. They must work together. All information should be free. You broke that because you gained information and sold it."

Hubner was arrested earlier this year along with eight fellow hackers for passing on information to the KGB. This included information gleaned from various Western defence computers. He, and his friends, are currently being investigated by the West German intelligence authorities.

Hubner revealed that far from being innocently duped by the Soviets he had contacted them initially. "I simply wasn't interested in economic profit," he said. "It was technical fascination. I don't see this as any breach of hacker ethics. We were fascinated and wanted to be the first and best technical geniuses amongst hackers."

Holland rounded the debate off by saying: "Hackers have a responsibility. I could kill with the wrong information. You could hack into a nuclear power plant and cause a catastrophe." ■

Atari's giving Amigas away

It's absolutely true. Atari – purveyors of the ST machine – has had to draft in the services of Commodore's Amiga.

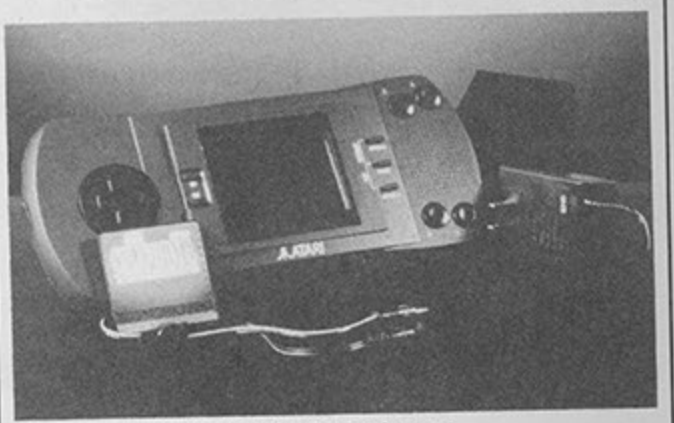
It seems the Amiga 2000 is needed to develop software for Atari's new handheld games console, the Lynx – because the Lynx was developed by the same team which put the Amiga together.

How much of that work is incorporated into Lynx isn't clear but Atari clearly feels that games would be all the better for being developed on a powerful Amiga.

This month software developers will be arriving at Atari's Sunnyvale offices in the States for a meeting. "There will be Amigas on hand," admitted an Atari spokesman. "But it's an American initiative," he said.

It is understood that Atari will also be giving some Amigas away to software developers.

One UK company believed to be writing for the Lynx is System 3. That firm point blank refused to comment on the deal. ■



• Lynx eyes the Amiga for help with development

Acorn prize guys

Acorn has given away £10,000 worth of equipment to eight schools which it felt would make the most out of the kit.

All the schools will be receiving one of the new A3000 machines and the two winning establishments will also get an Archimedes 420/1.

The judges were so impressed with the quality of work and the freshness of the ideas that they chose two winners. All were presented the awards by TV person Magnus Magnusson

The Norton Secondary School in Clevedon are running a Green project teaching youngsters how to look after the environment. Blaengwawr Comprehensive sent in details of a history project entitled "The Way We Were". Both plan to continue the projects using their new computers.

• School of thought: Magnusson and the Acorn finalists

Out in the sticks...

• PCers to pick up sticks with Quickshot?

Hitherto straight faced PC owners are waking up to the joys of gaming – and they're looking for the right joystick.

The latest, Quickshot 113, comes from Spectravideo and does all things wagglish including auto-centring. It costs £12.95. Spectravideo claims that its stick can be used for business as well as pleasure.

"PC owners do not only use joysticks for playing games – many use them as a preferred option to a mouse," claimed boss Ashwin Patel. "Quickshot has all the necessary features to make it a perfect substitute for a mouse." ■

SNIPPETS ● SNIPPETS ● SNIPPETS

● **Data on poll tax computers around the country is being wiped following infringements on the Data Protection Act. Local authorities had been asking questions about relationships between residents which were not relevant...**

● Telecom Gold has introduced a cheaper way of logging on with its new 2400 baud service over the Public Switched Telephone Network. The system also has a number of other shortcuts to help you cut costs.

● **A new video explaining the complexities of word processing to beginners has been launched. Word Processing 2 is partly sponsored by The Sunday Times and shows how to use spellcheckers, thesauruses and mailmergers on mainstream PC programs such as *WordPerfect* 5...**

● *X-Clip 2* is the latest library of "attention grabbing" clip art graphics for the PC. It contains 160 bits and bobs which can be dragged onto most DTP packages...

• Piracy watchdog gives warning

FAST FIGHTS BACK

FAST has fired a warning shot across the bows of Power Computing which has snubbed the Copyright law and is continuing to sell its powerful copying device Blitz.

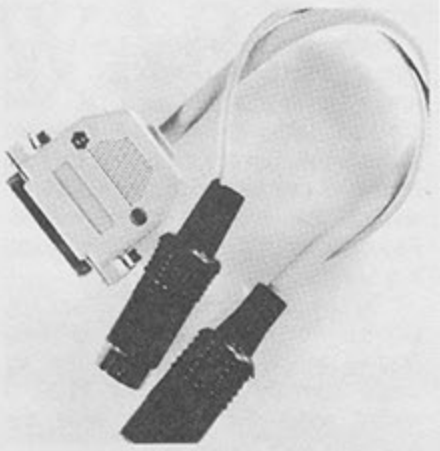
Although FAST (the Federation Against Software Theft) has already acknowledged that there are loopholes in the law – which came into effect on August 1st – it has denied that this means a free ride for copying gadgeteers.

FAST has pointed out that it is possible to trap Power if it continues to market a device capable of piracy.

Power plans to continue selling Blitz by stressing its ability to undertake perfectly legal applications. Even though Blitz is capable of mass piracy its still legal.

However, if Power gets involved in any one upmanship with games protection then it would be in trouble. Software developers are quick to change the copy protection on their disks and it will not be long before the Blitz is out of date. If Power changes the Blitz to overcome the new protection systems, says FAST, then it would be in breach of the law.

FAST is keen to stress that it cannot take legal action on its own. "We have to wait until a software publisher takes action," said FAST's Bob Hay. "People seem to be under the impression that the new law isn't worth the paper it's written on. That's not the case," he said.■



• The Blitz lead: FAST are watching closely

Dixon battles it out with Dixons

Brian Dixon, a small PC dealer in Newcastle, is preparing for a David and Goliath battle with massive chain store Dixons.

As reported in *Express* previously, Dixons is angry with Brian for using his own name as the name of his computer shop – Dixons Computer Centre. The chain has finally served a writ on Brian saying that he should not trade under the name Dixons or Dixon now or at any time in the future.

Brian Dixon says this is ludicrous since he has already changed the name of his shop from Dixons Computer Centre to MicroTyne. He says this is nothing to do with pressure from Dixons.

But Dixons reckons Brian's logo was too similar to its own and, it should have an apostrophe in the name (Dixon's Computer Centre).

• What the Dixons is going on?

Brian Dixon commented: "I'm going to court to fight this. It's ridiculous that I can't use my own name for my own business. There's a good chance that I'll never trade under the Dixon name again but I think I have a right to do so. I'll see Dixons in court."■

SHOOT FROM THE LIP

"And David Whittaker's used the Amiga's sound chip to produce quite [an] outstanding soundtrack – some would say considerably better than the ST's, but relatively speaking, the two are identical."
Decisive journalism courtesy of *The One*.

"I woke up this morning and suddenly realised I had absolutely no interest in computer games."
Anonymous, who helps write the blather about how brill every game is on the package

"BTAGs recognises C functions (K&R or ANSI style), typdefs, defines, Assembler PROCs, cproc macros, BTAGS."
You want jargon. Solution Systems has it. That was a mere snippet of the latest excruciating missive.

"I'm not so sure that they [Power] can add a couple of shallow utilities to their copying device and get away with it. But it will have to be tested in court."
FAST's Bob Hay keeping his faith in the Copyright Law.

It's all Greek to me

Budding software publisher Impressions is to launch a new label called Plato.

The firm says the games will need "A significant amount of cerebral activity" to play. They will include puzzlers, role playing adventures as well as abstract problem solving games.

Curiously, one of the first games up on this label is Superleague Soccer – management games aren't generally regarded as a cerebral genre. Plato games will be launched on the ST and Amiga.■

DTPerestroika

Social reforms in the US have led to a boom in publishing – and to capitalise on that, Xerox is set to launch a Russian version of its DTP package *Ventura*.

The package has all the Cyrillic fonts necessary to handle the complicated language and was put together with the help of the Soviet Progress printers. It is expected that *Ventura*'s launch in the USSR will be followed by other, cheaper, DTP packages.

The only problem budding Soviet publishers will have is getting hold of the necessary hardware. There are still restrictions on the export of high end PCs to the Eastern bloc.■

Amstrad PC saves animal sanctuary

An Amstrad PC has saved the day for a ten year old animal sanctuary in Northumbria.

Disabled Sid Longstaffe has been running the North Farm Animal Sanctuary since he broke his back in a work accident ten years ago. However, he's been finding it increasingly difficult to write down important records about the animals and was being bogged down by paperwork.

Local police heard about his problem and presented him with a PC2086 last week. "He never turns an animal away whatever it is," said a close friend. "The police have found him to be a great help over the years looking after animals and they wanted to repay him."

Sid will be using the PC to log in details about all animals in his care and where they end up.■

NEWS TIPOFFS

Know of any interesting computing developments? A new computer virus, a bad bug in a new piece of software, a worrying case of hacking or computer fraud?

Then tip off Colin Campbell at the *Express* Newsdesk on 0225 446034 – or call the 24-hour *Express* Hotline on 0225 444439.

TOP 20 *Full Price* GAMES

1	**Robocop** OCEAN *Spectrum, C64, CPC, ST, Amiga, Others*	1
2	**Dragon Ninja** OCEAN *Spectrum, C64, CPC, ST, Amiga, Others*	2
3	**Forgotten Worlds** US GOLD *Spec, C64, CPC, ST, Amiga, Others*	4
4	**Kenny Dalglish** COGNITO *Spectrum, C64, CPC, ST, Amiga*	7
5	**Crazy Cars II** TITUS *Spectrum, PC, ST, Amiga*	5
6	**Falcon Mission 1** MIRRORSOFT *ST, Amiga*	NE
7	**Red Heat** OCEAN *Spectrum, C64, CPC, ST, Amiga*	9
8	**Run The Gauntlet** OCEAN *Spectrum, C64, CPC, ST, Amiga*	6
9	**Silkworm** VIRGIN *Spectrum, C64, CPC, ST, Amiga*	3
10	**Kick Off** ANCO *C64, PC, ST, Amiga*	20
11	**Operation Wolf** OCEAN *Spectrum, C64, CPC, ST, Amiga*	8
12	**Licence To Kill** DOMARK *Spectrum, C64, CPC, ST, Amiga*	19
13	**In Crowd** OCEAN *Spectrum, C64, CPC*	14
14	**War In Middle Earth** M. HOUSE *Spectrum, C64, PC, ST, Amiga*	12
15	**Emlyn Hughes** AUDIOGENIC *Spectrum, C64, CPC*	10
16	**Running Man** GRAND SLAM *Spectrum, C64, CPC, ST, Amiga*	RE
17	**Populous** ELECTRONIC ARTS *ST, Amiga*	18
18	**Rampage** SEGA *Sega console*	RE
19	**Renegade 3** IMAGINE *Spectrum, C64, CPC*	13
20	**Double Dragon** MELBOURNE HOUSE *Spectrum, C64, PC, ST, Amiga*	RE

TOP TEN *Budget* GAMES

1	**Green Beret** HIT SQUAD *Spec, C64, CPC, Others*	1
2	**Yie Ar Kung Fu** HIT SQUAD *Spectrum, C64, CPC, Others*	2
3	**Enduro Racer** HIT SQUAD *Spec, C64, CPC, ST, Others*	4
4	**Daley Thompson** HIT SQUAD *Spec, C64, CPC, Others*	3
5	**Treasure Island Dizzy** C.M *Spectrum, C64, CPC*	10
6	**Mig 29** CODE MASTERS *Spectrum, C64, CPC*	13
7	**Monte Carlo Casino** C MASTERS *Spectrum, CPC*	15
8	**Postman Pat** ALTERNATIVE *Spectrum, C64, CPC*	5
9	**Pro Powerboat** CODE MASTERS *Spectrum, CPC*	NE
10	**Wolf Pack** BLUE RIBBON *Spectrum, C64,CPC*	7

RE re-entry • NE new entry • Last week's positions

Compiled by Gallup

The charts shown are based on the Open Market, that is, retailers who stock a broad range of products. All charts shown are copyright of Gallup.

EXPOSED! THE PROFITEERING PIRATES

● The infamous Barrowlands market in Glasgow is the home of the pirate. After years of trying, the police and FAST have failed to crack the crooked stallholders. Express sent a quaking James Shankly in to find out what the villains are up to now...

The scene is Glasgow, a city which is being dubbed the new cultural centre of Europe. It is a normal Saturday morning and the world and his wife are out doing their shopping.

If you're one of them you may take a stroll down the famous Argyle Street and arrive at a large indoor market. That's The Barrowlands. It's a haven of software pirates and as such it's a headache for the Strathclyde Police Force. Most of the stalls are boisterously selling kosher kit but we're more interested in those which are not.

I headed for a stall in full view of the street outside. The two gentlemen behind it had made absolutely no attempt to disguise their activities.

One of them was about 30 years old, overweight, scruffy and had not bothered to shave in the morning. The other was younger and looked more respectable but both wore T-shirts and jeans.

I waited for a few moments while they dealt with some lads and then started chatting. They both chatted freely about their trade.

On top of the stall was an ST and Amiga. As I arrived the ST was running Ocean's The New Zealand Story and the Amiga had Federation of Free Traders from Gremlin.

Anyone who goes along can browse through a list of more than 300 ST and Amiga games which have all been cracked (although not by the two stallholders). The newest games for both machines can be bought for £3-£4 (or less if you supply your own disk). Reductions in price are introduced if you buy several games.

I picked up Powerdrome, Populous, Licence To Kill, Federation of Free Traders and Wicked for £14. That lot would normally cost about £100. I waited about five minutes while the programs were copied.

Profit of doom

Now, before you start to calculate the money saved by buying from these people, think for a moment. They are buying disks in bulk at about 60 pence per 3.5 inch floppy. Multiple that by four (the number of games I bought) and you reach a grand total of £2. 40, plus a few pence for the electricity and the minimal costs of running up a stall – say the total cost to them for supplying you with pirate copies is £2.50. If you're paying £14 then you're being ripped off, alongside the software companies,

• The Barrowlands market doesn't look like pirate country – but you can buy ST and Amiga games copied for you on the spot. This is as close as you dare go; the professional pirates don't like cameras...

dealers, programmers and everyone else.

This is a whole different ball game from swapping pirated disks in the playground (though that's illegal too). Playground pirates have lots of justifications for their activities which they'll happily pour out to you – it's one of the favourite topics of Express's letters pages. Stall holders and profiteers like them however have no justification for stealing other than the pursuit of illegal profits.

Whatever the morals, there are a growing number of competitive cracking teams consisting of thrill-seeking teenagers, racing to crack the latest game and send greetings on disk to competitors.

The fruits of their labours are picked up by the "distributors" who make all the money. The crackers continue to supply the stallholders but the two groups don't necessarily get on.

Too complicated

If anyone can walk in and buy copies then why hasn't there been any attempts by the authorities to intervene? The answer – there has. Stallholders were caught red handed last year by FAST. Legal proceedings began but the Glasgow police were told to let them walk free and they were allowed to continue selling copies – because the case was too complicated for a jury to understand.

And just one other warning. Due to the warped sense of humour these pirates have there is a high risk of these disk carrying viruses. The crackers don't get paid; they do it for kicks. It makes you think about what sort of crazy people you're dealing with.

And the stallholders who sell you the pirate copies are not to be messed around with either. Earlier this year one cracker tried to stop them selling his cracked version of Elite, because it carried his name on the cracked opening screen. All he got was a headbutt and a good roughing up. It's probable that reporters – or customers – who ask too many questions would get the same treatment.

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PROTOCOL:

The exclusive first look at this unique machine

• (Left) The Protocol is no bigger than an A4 glossy magazine. It's light and very portable. There's a backlit LCD screen which provides a full 80 x 25 CGA text and graphics display and combined with the fully-featured, sculpted keyboard the machine is ideal for writers and journalists on the move, as well as salesman and executives

Many machines claim portability, but two hours of lugging one about and you might dispute that. Jerry Glenwright previews the first portable PC compatible that doesn't require Arnie Schwarzenegger to carry it...

PROTOCOL
- **£695 *(floppy)*, £995 *(20Mb hard drive)***
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Far Eastern consumer electronics companies built their reputation by reducing existing technology to minuscule proportions and selling it in a western market easily smitten with gadgetry. Witness the impact of the transistor radio during the 1960s – every ear had a tranny glued to it.

Now it seems that the Taiwanese would like every hand to have a tiny PC compatible firmly attached. API Electronics of Witney, Oxfordshire has just tied up a deal with a Taiwanese computer manufacturer to import and distribute the world's first truly portable PC compatible.

The Protocol – as the machine is known – is firmly based in existing technology. Not for API the rubber keys and diminutive screen displays of certain other portable machines on the market. The protocol is A4 sized, with a width just over two inches. The machine comes in either single 3.5 inch floppy or 20Mb hard drive versions. Screen display is located in the hinged lid which also acts as a cover for the keyboard. Opening the case reveals the keyboard, a little row of LEDs detailing caps lock, num lock, drive activity etc., and a backlit LCD screen which handles 80 x 25 CGA text and graphics with pin sharp clarity.

Backlighting is an essential addition to any machine using LCD technology as a display medium. The Amstrad PPC range of machines experience their most severe criticism in the area of screen clarity, and this is entirely due to the lack of lighting.

A full sized keyboard goes a long way towards making a computer acceptable to a professional market place. The Protocol has a fully featured, sculpted keyboard which feels like it should belong to a machine costing five times the price. Prolonged typing on this machine won't present any problems.

Power for the Protocol is provided by a nickel cadmium battery pack located in a a recessed slot with sliding cover behind the screen. The batteries power the machine for two to three hours depending upon the model (hard or floppy drive). There's also a transformer which allows you to use the mains when you arrive at your destination. The battery pack is automatically recharged when the Protocol is powered from the mains.

A variety of expansion ports are accessible at the rear of the machine to allow connection to printers, modems etc.

History lesson

API Electronics began life at the beginning of 1985 when the managing director Peter Lioncourt started importing DRAMs from Taiwan and selling them to memory hungry western computer manufacturers. This was the time of the first real RAM chip shortages and manufacturers were casting about desperately for anyone who could guarantee supplies. API filled the gap and in the process, generated a large amount of capital.

The company began to look at other areas in the electronics industry where it could make use of contacts in the semiconductor field and its in-house computer expertise. From DRAM chips, API went on to manufacturer electronic circuitry devised by UK-based companies too small or without the necessary contacts to build their own designs.

A logical progression led the company from memory chip dealing and electronics manufacture into computer importing and selling. But how does API choose machines to sell in the UK? Technical Director Andrew Happe explains. 'Our MD went out to Taiwan two or three weeks ago to tie down certain deals. He made use of his spare time by looking through the Yellow Pages and phoning round companies saying "I'm Mr. Lioncourt, these are the sort of products that we're looking for..." Within that round, he came across the machine [the Protocol]. If we see something spec-wise that looks the business, we think yeah! That's the right sort of machine'.

API Electronics is sure that products emanating from Taiwan are good quality, well made and are available at a price attractive to the western buyer. 'We've spent the last 12 months going through places like Taiwan thinking "is it worth doing business with them? Can they provide the machines?". There are a lot of good companies out there'.

Taking aim

The company is aiming the Protocol at the corporate user rather than the person in the street. 'Primarily, we're looking to... sales tracking systems, insurance broking/ quotation systems and corporate sales teams', said sales director Paul Schenk. 'The machine can have all the quotes on it and can print the necessary forms. The parent company can interrogate the salesman's machine. It cuts down on paperwork – more selling, less writing'.

API does not see the Protocol in direct competition with machines like the Z88 or PPC. But at £695 for the floppy-based Protocol, the Amstrad will have stiff competition. The machine will also be an ideal choice for anyone who wants to word process on the move with the security of disk-based data – something the Z88 and Tandy laptops don't offer.

A truly portable, MS-DOS compatible, disk-based machine for the remarkable price of £695 is amazing. The Protocol is set to storm the portable market.●

Tech spec

HARDWARE
- 80C86 low power consumption processor running at 10MHz
- 640K RAM
- 80 X 25 CGA LCD screen y
- Fully-featured QWERTY keyboard
- Full range of expansion ports (RS-232, Parallel printer etc)
- Ni-cad battery pack providing 2/3 hours use
- Mains transformer included
- Weight 7.2 pounds (950 grams)
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SOFTWARE
- DOS 3.3
- API will include quality software of the buyers choice with each machine

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OPPOSITE CASE

After reading Paul Quinn's letter (*Express* 38) I felt I had to write in in defence of all those intelligent people who own AMIGAs (note the higher case spelling of AMIGA, if this prat can be immature so can I!).

Now it seems to me that this bloke doesn't have a single clue as to what he's talking about. No, Mr Quinn, the Amiga is more than a fine machine, it is an incredibly powerful machine which your tiny mind couldn't even begin to comprehend, so don't criticise what you can't understand.

And what do you mean 'not to mention the Workbench', if you mean the Amiga Workbench 1.3 then you've proved what I've just said about you above, because the Amiga's workbench is the best I've seen on any computer (we won't even mention the ST's lo-res version, ha, ha). It's never failed me, in the all of the year I've had it.

So go back to your puny shop and don't ever write another letter into *Express* again! Thank you.
Keith Grant, Reading, Berkshire

● ***As the saying goes, Hell hath no fury like an Amiga owner.***

QUINN'S ID

I have been following my employee Paul Quinn's series of letters (and their replies and responses) with interest and some amusement. Paul's a bit of a wind up merchant you see, but having said that he does have a point about Amiga owners (not all of them I must stress, before I upset the wrong people) being somewhat self-righteous. I own two retail outlets and sell the hardware and software for all the popular computers. So there is a wide mixture of users who frequent the shops and I have listened to, and taken part in, many an interesting conversation about the relating merits of various hardware.

Now most people know where their computer stands compared with others and they are not at all bothered. They bought what they wanted within their budget and are quite happy with it. Except those Amiga owners. They have this compelling urge to boast. They simply must tell you how good it is, how much better it is, how nice looking it is.

I'll give you an example. Now this is true, I assure you. There is a certain Amiga owner who is often in one of my branches and he came in one day and made straight for the counter. On top of the counter sat an ST, and on demo on the monitor was *Menace*. 'What's that?' he asks. '*Menace*' I say. 'Pretty good isn't it'. 'Yeah - not too bad, but the Amiga version will blow that away'.

Well, we nearly wet ourselves that day and the look on the poor chap's face when we showed him that the monitor was actually connected to the Amiga in the display cabinet below set us off again!

Thankfully not all Amiga owners are like that though. Some you can actually talk to! And what of the Amiga as a computer? Well, like the others it's good for games, if you want an honest opinion.
Jim Brown, Bit by Bit Computer Services, Scotland

● ***As the saying goes...***

ARMITAGE SHANKS - BUT I DON'T

How dare anyone suggest that my Armitage Shanks is in any way similar to a mere PC clone (*Express* 37). After all, can you relieve yourself on a PC clone and then flush it clean with the simple depression of a lever?
Ahmad Alam, Manchester

● ***No, because it would invalidate the guarantee.***

BLOW THE GAFFES

How's this for a great idea? Reading in another magazine some stories about the appalling mix-ups budding computerists get themselves into, such as the people who ring up dealers "Where's the any key - it says on the screen press any key and I can't find it", it seems that a regular column of juicy gaffes might be great fun, for you to write as well as for us to read.

Apart from all the belly-laughs, as your magazine covers all stages of computer literacy (doesn't it?) from beginners to experts, it might save a surprisingly large number of us from committing exactly the same silly mistakes, although getting us to admit that we too have done such things may be a horse of a completely different colour.
John Smart, Hitchin, Herts

● ***Ah, like the Mirror, you mean? 'I switched on my Amiga and was surprised when my cat spontaneously combusted. Then I realised – I had plugged its tail into the power pack by mistake! Boy, was my face red.'***

If you'd like to tell us of your computer gaffes – preferably ones with extremely embarrassing and disastrous results – write to: Gaffes, New Computer Express, 4 Queen St Bath BA1 1EJ. Anonymity assured.

HACKING IS OK

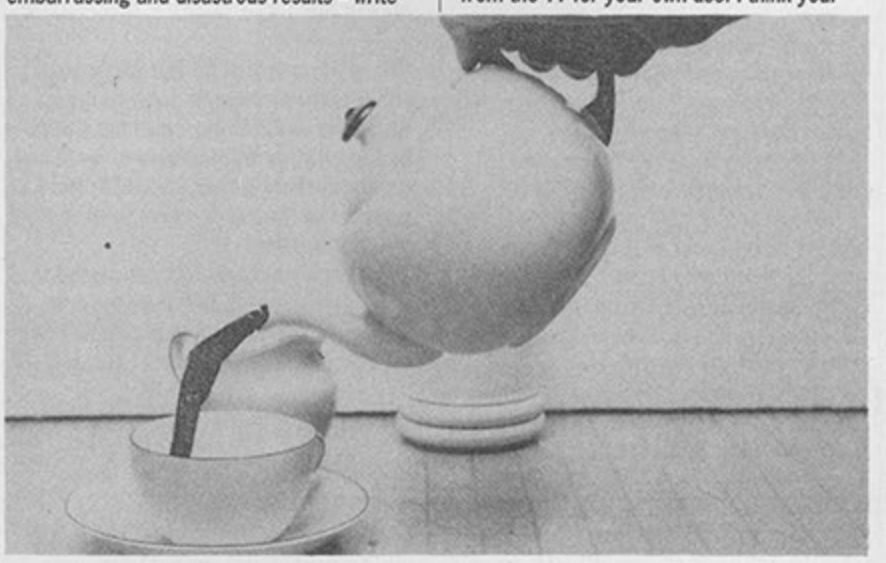
I myself like many others do hack in to games to change the gameplay for my own benefit. I have written a few simple utilities for the C64 and the Amiga, and I have placed these in to the ICPLUG library for everyone to use but not to sell, so I have an idea how a professional games or utility writer feels when their programs are copied to sell for a profit to the public.

I am not claiming to be totally innocent. I copy films on the TV for my own video to watch, I have in the past copied songs of the radio on to tape the same as virtually everybody else has, *but I would not and will not sell copied items of software.*

There is nothing wrong with copying software for backups or to hack and change for your own amusement, after all if you brought the item it is up to you to do what you want with it providing you don't break the copyrights on it!

I enjoy your magazine for what it is - a totally unbiased paper on various computer, opinions, software and hardware.
Norman, Chelmsford, Essex

● ***One consequence of the Copyright Act (Express 39) which may make the sale of copying devices like the Multiface illegal is that you can now legally video programmes from the TV for your own use. I think your***



How to get a definitive list of SAM add-ons – see page 13!

ATTACK OF MUMPS

MYSTERY PRIZE WINNER

At the bottom of the 'obscure languages' listing (*Express* 39) was MUMPS (keep reading - I'm not going to ask for a column!). I'm a professional MUMPS programmer and the language is in widespread use, though the majority of its users don't realise they're using it.

For instance, if you're registered with an NHS doctor (in England and Wales) your details are held in one of 92 MUMPS databases maintained by your local Family Practitioner Committee. Taken in total, this database is the most complete computerised record of the British population. MUMPS is also behind the Cervical Cytology Screening system in use in England and Wales, and the recently introduced Breast Cancer Screening system.

Though mainly used on large computers, there are several MUMPS implementations for the IBM PC, and at least one for the Mac. It is practically unique in that it is possible to write code on a PC which will work unaltered on a giant IBM mainframe or a multi processor UNIX box. The syntax is quite close to that of 'standard' BASIC. Despite this, the language has built-in multi tasking and multi-user abilities on any hardware (including the humble PC XT). It is heavily optimised for database applications and has simple (almost invisible) multi file capabilities and the same code will happily cope with databases ranging from tiny IBM PC installations, right up to VAX clusters with gigabytes of data (even dBase IV can't do that!).

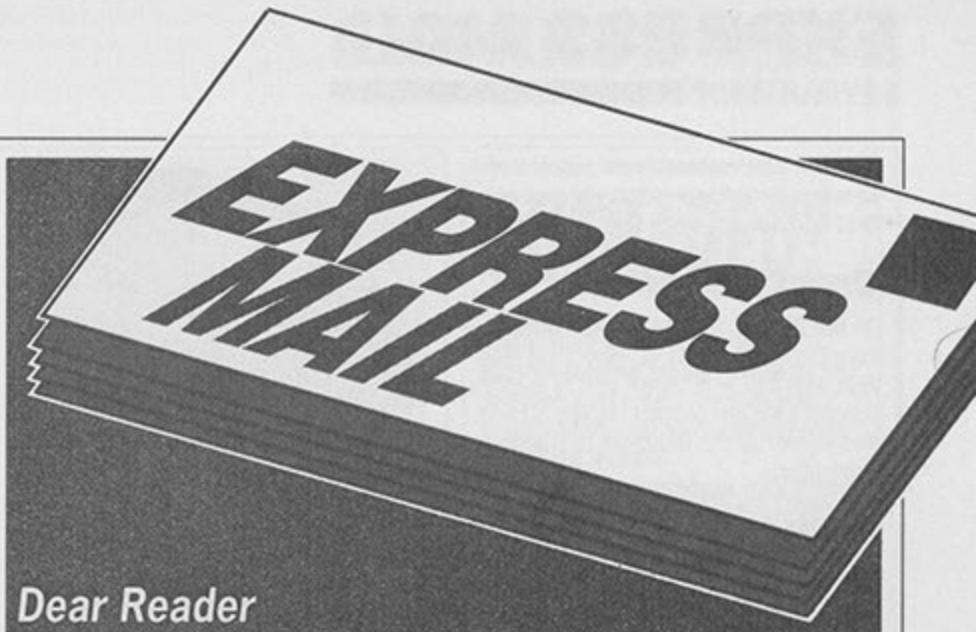
What really makes MUMPS different is that it has a built in ability to treat data as if it was program code and vice versa. In recent years this has given MUMPS a second lease of life as the basis for extremely flexible report generators, program generators and even full blooded 4GLs.

Though you tried hard, MUMPS actually stands for 'Massachussetts general hospital Utility Multi Programming System'. Unsurprisingly there are moves afoot to change the name - the current favourite is simply 'M' in homage to the sexier, but almost unusable upstart 'C'.
Roger Cope, Exeter, Devon

● *Thanks for the info – I stand corrected on the points you mentioned. My sketchy memories of MUMPS came second hand from a programmer I once fancied.*

I ended up with as much intimate knowledge of her as I did of the language.

Anyway, let us know what micro you've got and we'll send you a piece of software from our shelves as the sender of this week's prize letter.



Dear Reader

Another collection of controversy, compliments, comment... and Rob Ainsley's replies. Have you got something to say? Make your voice heard in computing's liveliest letters page! Send your contributions to:

Express Mail, 4 Queen Street, Bath, Avon BA1 1EJ

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

views are quite reasonable and I doubt that anyone in the software industry or even in FAST would disagree with you.

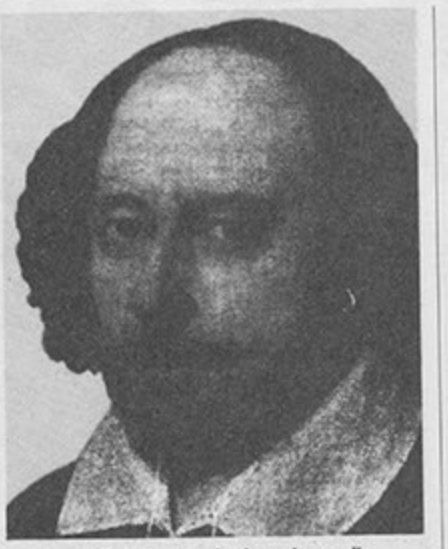
OFFICE PROBLEMS

On the 29th of July I received a letter from Christopher Payne, Marketing Manager with that well known firm of country solicitors Meakin Meakin Meakin & Hirst, also known as the Directors of Database Publications.

It says they are most concerned about the problems I have encountered with Mini Office Professional Plus. They assure me they will be looked into and a new version will be supplied within the next two weeks. Be this Database time or normal time I know not.

Just in case they do mean fourteen days could you publish my address in full. Then I might stand a chance of getting this version without the problems of the last, that took four phone calls and the intervention of one of the Meakin group before it arrived.

Brian Smith, 217 Stuart Road, Stoke, Plymouth, Devon, PL1 5LQ



If this small-time actor had used a spell checker, he could've made a career as a playwright

● *As Mini Office's American Thesaurus would say, if you ain't gotten your program thru yet, you gotta realize that mailing Database ain't gonna make no difference, no way.*

MAIL SUPREMACY?

I 'd like to tell you about the difficulty I had in obtaining a 1 meg RAM Upgrade Kit for my Summer Pack Atari STFM. As I live conveniently near Tottenham Court Road I decided that would be the best place for a good deal.

On Tottenham Court Road there are four computer shops grouped together - Silica Shop on one side and Gultronics, Shekhana and Micro Anvika on the other. First I tried Silica Systems. What? I was informed by some know-it-all guy that "the board costs £150 – you have to have bought your computer form Silica to obtain one and they have to send it off for a month to get it fitted!" You must be joking mate.

So I tried Gultronics. My only reply was "RAM chips? What are RAM chips?" Shekhana .... "Sorry mate, try Silica over the road". Micro Anvika - "Don't touch the ST here mate."

I walked further down the street, becoming increasingly annoyed and discovered a shop called ST Specialists. The guy inside was taking a nap. After a lot of doorbell ringing, his only reply was "No!"

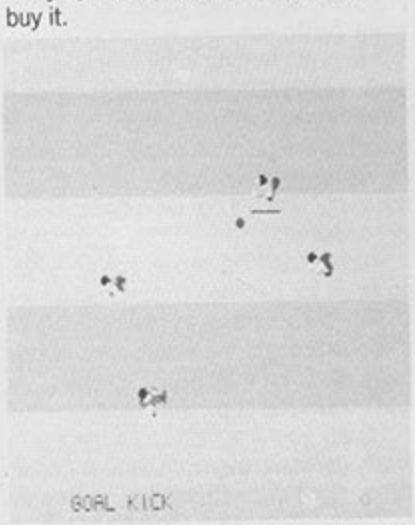
More Top Tens!

More of *Express* readers' most hated things about computing. Think they've got it wrong? Tell us! Send your personal top ten to: Top Ten, New Computer Express, 4 Queen St, Bath BA1 1EJ.

SHOP TALK

Re your appeal for a computer shop owner's top ten hates. We decided to compile our own personal top ten hates about customers themselves. All these things happen!

1. People who ask for a game continuously up to the release and then don't buy it.



Kick Off. Where's the ref? Has he got a cold?

2 People who return a perfectly working game with the excuse 'but all my other games work'
3 People who steal instructions from boxes
4 People who steal the boxes!
5 Remedials who spend hours upon end in the shop talking (pestering) staff and not buying a single thing.
6 Customers who say 'it has been reviewed so why haven't you got it?'
7 People who come in asking for videos or big band music cassettes
8 Customers who expect you to know what every game in the shop is like.
9 Company directors who drive customers away by singing
10 Company directors who don't pay Saturday staff a respectable wage!
Rob and Mike, Software Superstore, Stockport

STICK IT UP YOUR...

Here's another top ten.

1 Positioning of joystick ports on the ST. What I wouldn't give to have an opportunity to stuff my mouse and joysticks up the designer's nostrils instead.
2 ST ports – games transferred lock stock and barrel from ST to the Amiga, with no improvements.
3 IBM, for stifling innovation and progress in the computing world.
4 Unix, for its command syntax. I bet the people who designed it thought, "Well it may become a world standard one day, so why don't we name all the commands after our favourite nieces and nephews initials?"
5 People who are going out and learning C and Unix, imagining it to be the only way forward, and also considering it to be hip and trendy. "What do you mean? You don't know C? Well you don't know anything do you?" – typical sentiment from C programmer to 68000 programmer.
6 People who go on and on at BASIC and probably write in it every now and again for the sake of convenience.
7 Large organisations which say "It was a computer fault" when it's quite clearly a manual foul up.
8 Ken Mosley, but has this guy got anything to do with computing? or does he know anything about it for that matter?
9 The ST's sound chip. Makes you want to cry, such wonderful hardware, with only a 8912 for it to be heard through. If any ST owners out there think it's adequate, go listen to an Amiga.
10 This Top Ten, what a silly idea. How about a Top Ten of favourite things?
Ahmad Alam, Old Trafford, Manchester

● *I'd love to stuff my joystick up some orifice of the person who designed the joystick ports on the ST too – but I bet it would be impossible to find, awkward to reach and impossibly fiddly getting anything in there. I suspect that C survives mainly because of its capacity for puns.*

Ken Mosley has apparently converted to Islam and emigrated. Unless he has a fax with him in Tehran we don't anticipate hearing from him again.

PEOPLE

Here are my 10 worst things about computing:
1 Programmers who moan about only getting £30,000 a year
2 People who say teachers aren't really working (Plonker S Williams, to name names)
3 People who say the ZX81 is as good as the Amiga (It's the software etc) - perhaps, but only if the Amiga's lost all its disks.
4 People who spell disks with a c.
5 People who knock the PCW. After all, it's cheap, comes with a good printer and excellent free software
6 The GSX utility on the PCW.
7 People who knock Beeb BASIC. The programmers did the best they could. After all, there's not many people could do that with a 6502 chip is there!
8 People who make stupid ads headed 'PUBLIC APOLOGY' (*Express* 38) because they think it's funny.
9 Companies that pretend they're going to stop selling their product because of the new copyright clause just so they can sell more.
10 Any bloody stupid person who thinks hacking is dangerous. Any company that leaves its computer on line and ready to receive at the time most hackers are awake is asking to have its secrets broadcasted across the world. It's like 15 year old females walking naked down the street when all the drunks are around and then complaining when they get raped.
Geoff Winkless, Leicester, Leics

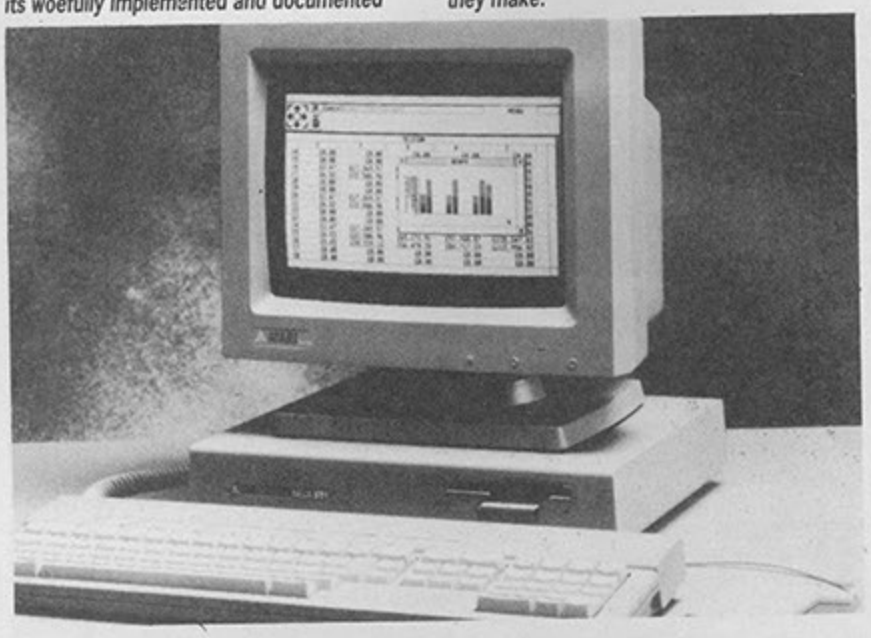
● *Having spent half my journalistic life spelling disk as disc (house style on 8000 Plus) and the other half spelling disc as disk (house style on Express) my only dislike is people who think the difference really matters.*

Agree with you on the PCW especially on its woefully implemented and documented GSX, but don't you think you're being just a wee bit simplistic in point 10?

SOCCER IT TO ME

1 The guy on 'Kick Off' who has a cold and shouts 'penalty' (try holding your nose and shouting 'penalty')
2 The goalie on 'Kick Off' who always seems to throw the ball out to you when you are surrounded by about 4 of the opposition.
3 Microprose Soccer – the worst game I have ever played
4 Mail order firms who advertise games not yet released at dirt cheap prices, and are only too ready to accept and cash your cheque
5 Archie/ Beeb owners who enter the 'my computer is better than yours' argument by spurting out the entire hardware/peripheral specifications of their machine, then clam up and go a sickly white when you mention the word 'software'.
6 CBM 64 power packs, encased in solid gunge, so you can't repair them yourselves.
7 Free PD software that costs three pounds.
8 Repair firms who charge you twenty five pounds to change a fuse.
9 Play by mail columns in computer magazines.
10 Computer and video games.
Julian Smith, Sheffield

● *What I want to know about Kick Off is, where the hell is the ref and the linesmen? If they're still in the dressing room nursing their colds it might explain the ridiculous corner, goal kick and free kick decisions they make.*



Spot the joystick ports. What d'you mean, you can't see them? That's the point...

So I went home and ordered through Datel Electronics. Much quicker!
Monty, London

● *Just shows that mail order places are jolly good places to buy from, and provide a cheap, convenient and efficient way of ordering goods (OK for a few adverts next issue now, all you mail order lot?)*

SAM QUESTIONS

1. When is the SAM coming out. I know 'autumn', but that isn't a great help. And how about a definitive price list of the add-ons!

2. Please put the issue number back where it used to be. It made them much easier to find when they were in a pile (where are those binders?), you just had to pick up the corner.

3. I own a Multiface (please don't tell anyone, programmers are vindictive people) and I use it mostly for stopping the computer when I put it into a recurring loop when I'm programming. OK, I've got a microdrive but I mostly only back-up the games I own the originals of.

4. Dear Chris Longley (Snippets, *Express* 38) – perhaps it was the people who bought Amigas when the software base was almost non-existent. They now have a far superior machine to ST owners with almost as much software.

5. Scrap the A-Z. It's boring, and uses up too much space. It either contains stuff that we know already or it's so boring we don't want to know it.
Geoff Winkless, Leicester, Leics

● *1. At the PC show on September 30th. Definitive list of add-ons? Sure, along with the brand of tealeaves we read to get them. 2. Hmm; OK, we'll think about it. 3. Jolly good. Well done. 4. I really can't be bothered to say anything about STs vs. Amigas one more time. 5. Fair enough, we'll stop the the A-Z after this week. Promise. Quick action, eh!*

BARD BRAIN

Your 'quote' from Hamlet has caused my Shakespearian tendencies to rear their ugly head. Please accept my offering from Merchant Of Venice, and maybe we can educate your many readers in some of the finer examples of literary art.

The Software Company...

[Enter Fat Cat Shylock in business suit

Shylock: They hath disgraced us and hindered us of many millions, laughed at our software protection and mocked our attempts at improving it, scorned our company, thwarted our potentially lucrative bargains, cooled the few friends we had, and heated our many enemies! And what is their reason? We are a software company with a wish to make high profits! Hath not a software writer commitments, hath not a software writer a mortgage, house insurance, a bank loan, access bills, visa bills, optician's bills? Fed with the same fast food, hurt with the same RSI pains in the wrists, subject to the same X-ray doses, healed by the same homeopathic treatments, warmed and cooled by the same baking transformers and monitor fans as a software user is? If you prick us and mix our blood do we not catch AIDS? If you tickle us do we not laugh? If you poison us do we not die? And if you take copies of our software without paying, shall we not get very irate? If we are like you in the rest, we will resemble you in that - if a software company wrongs a user what is his humility? Revenge. If a user wrongs a software company then what should his sufference be by the user example? Why, revenge. The villainy you teach us we will execute; and it shall go hard but we will better the instruction, and get plenty of money from you in the future, just you see...
Hazel, Leicester, Leics

● *Other Shakespeare plays according to our copy of the* **Complete Works** *are Much adoo about Nothing, Loues Labour lost, Twelfe-Night and Midsommer Nights Dreame – proving that he never used a spell checker.*

OUTRAGED?

Think they don't know what they're talking about? Want to put someone straight? Or can you supply that vital information that someone needs?

Get YOUR comments into these pages – fast! Ring the *Express* hotline now on 0225 444439 and your views can make it into print the very next issue. You've only got a minute, so keep it short!

Snippets

PLAY THE GAME

Stop calling the PC the ultimate games machine. It's really c**p and more expensive than an Archie.
Geoff Winkless, Leicester, Leics

● *We've never actually called the PC the ultimate games machine, so we can't stop doing it.*

UNSOUND JOKE

Quote of the month. Disgusted 8-bit owner: "Even the Spectrum 128 sound on games is as good as the sound on an Atari ST!"

The Atari ST has virtually the same sound chip as Speccy 128!
Julian Smith, Sheffield

● *Anyone understand this?*

C HERE

Re Timothy Gowen's letter in Snippets (*Express* 38) complaining about all the terrible puns on 'C'.

One can only assume he is 'C Sick'.
Steve Rider, London

● *If the Vatican City ever implement the language on their computers, we could have the headline 'Holy C!'*

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- MAZING GAMES Treasure Hunt, Amaze, Polymaze, Castle, 3-Demon, Fire, Chase
- LOST VEGAS One Arm Bandit, Roulette, Backgammon, Biorhythm, Keno and Casino featuring 4 more games
- SKILL & STRATEGY Frigate (Ships) Big Rig (Trucking simulation), Stock Exchange Game, Air Traffic Control
- COME IN PEACE Striker, Paratrooper, Round 42, Sopwith, Dragonfly, Landmine
- STAR WARRIORS Emergency Mission, Quantoid, Kamakaze, Rescue, Rockets, Spacewar
- PC CHALLENGE Chess, Othello, Entrap, Hexplode, Kalah
- JUNIOR CHALLENGE 3D TicTacTo, Dotto, Draughts, Mastermind, Brainstorm, Gomoku and Four-In-A-Row
- MONOGAMES 18 games for Mono/Hercules PC's. 2 DISCS
- KEEP THEM AMUSED Burger Blaster, Grime, Racer, Ninja, Caverns, Galaxy
- WIT YOUR PITS Battleships, Five-In-A-Line, Stock Game, Sales Game, Rogue (Artificial Intelligence), Eliza
- FACE THE ACTION Batalia (2 player) Tank (1/2 Player), Moonbase, Blort II, Gemini (can play 2-computer game)
- BLOCK & TACKLE Nemon, Qix, Xonix, Blockade, Ski-ing, Mummies, Lazer, Beast, Tron
- BASIC AMUSEMENTS Over 60 games to amuse and teach
- BASIC programming techniques (2 DISCS)
- SPY CATCHER Master Spy, Raid Over Auschwitz, Hostages, Brimstone, Mad Scientist (Mad Scientist is for BASIC2)
- GOOD SPORTS PCTennis, Teed Off (Golf) Sailing (in the Bermuda Triangle), Armchair Quarterback (Football)
- SEEK & DESTROY Galactic Conquest, Daleks, Depthcharge, Lazy Monday, Intercept, Berzerk
- SPACED OUT Saucer, Crisis, Encounter, Xo and Space
- UP AND AT 'EM Flightmare, BitBat, Droids, Robotron, Spyder, Eggs, Stun
- PLAYTIME Lotto, Bingo, The Story of Eli, Motoman, Slug
- SPORTING LIFE PC-Golf, PC-Pool, PC-Bowl, Basketball
- ARCADIA Killer Bees, Mario Brothers, Snipe, Snakepit, Pearl, Wimps, RLogic
- WILLY AND HIS FRIENDS Willy the Worm, Willy II, Willy Designer, Doctor Sleep, Disk Crash, Labbits & Voldrons

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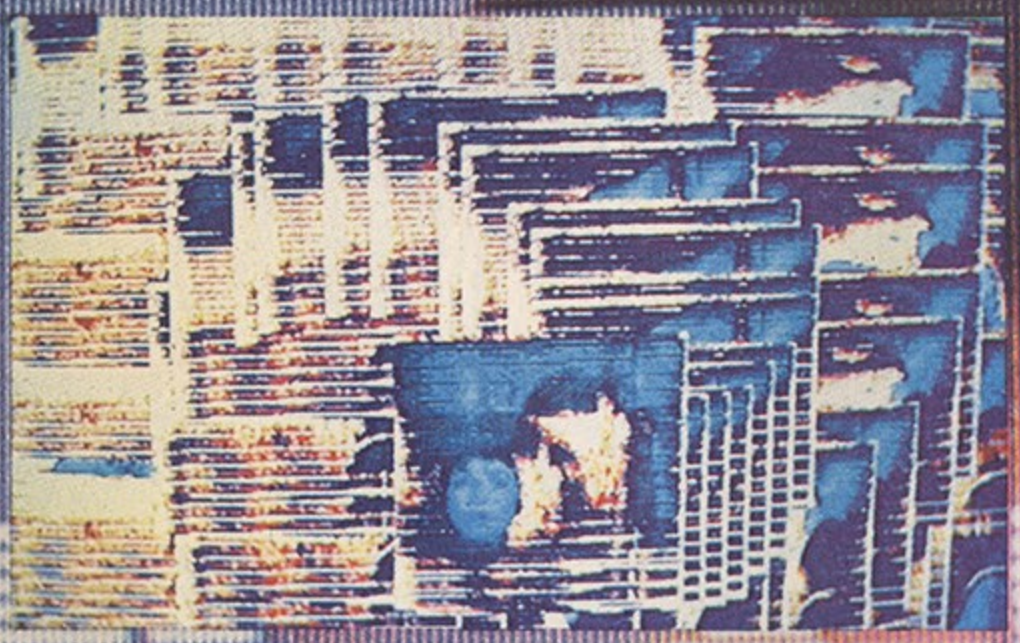
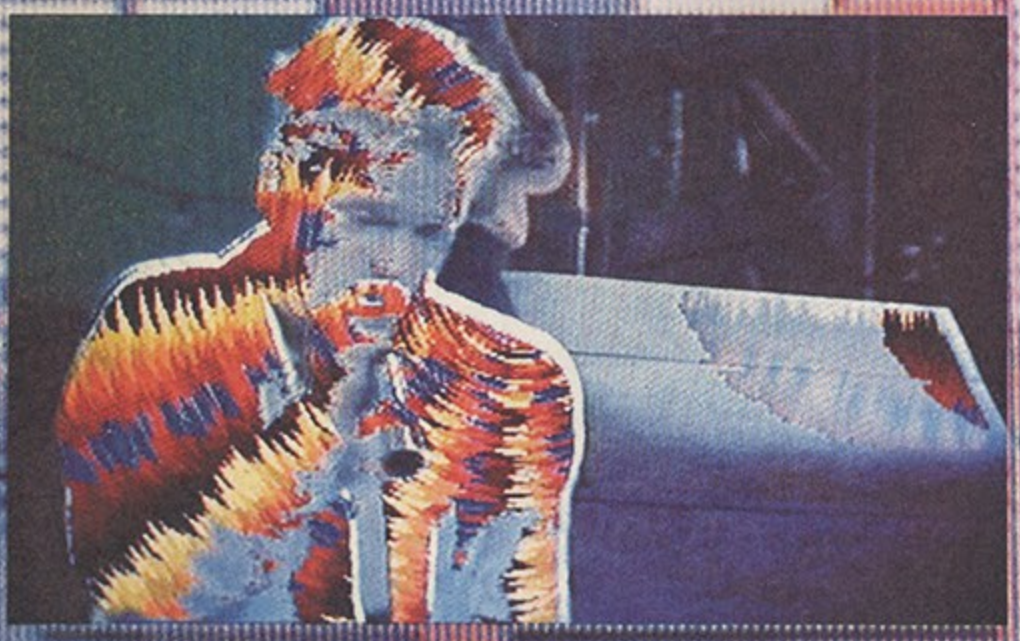
VISA

BIT-BOP-A-LOOPA

The video breakthrough ...





"In our research we found there's nothing really like it. I talked to people very high up in the video industry... they'd never seen anything like it either..."

What's Tecnation's Alex Blok talking about and why will it revolutionise your home micro? Andy Storer gets hip to The Bit Bopper.....

"We're in the business of future ideas..innovation through imagination. There's a huge gap out there and we're going to fill it...but that's just one area." Alex Blok's Bit Bopper is a Digital Entertainment Processor drawing on state of the art technology to deliver the current ultimate in audio-visual wizardry.

Alex is its principal designer. He's just turned 26 and he speaks at the speed of light. Ideas come so fast he has his own patent agent. He's best described as a visionary – pushing computing forward at a pace the legions of code cloners merely rewriting routines for the next big hit will never match.

His company, Tecnation, is dedicated to the imagination. It can claim to have brought you the

• Alex Blok at the controls of the Bit Bopper system. It's designed so that anyone can start using its multitude of effects in just half an hour

world's first DTP package, the first sampler and the first sound-to-light system for home micros. Now it's just about to deliver a revolution in digital entertainment with the first practical application of erasable optical disk technology and the world's first video sampler.

Alex is convinced Tecnation is on to a winner, "You can hit a button and instantly get real digital video... Quantel and Ampex have hard disk systems for storing and manipulating digital video but they cost £85,000. Even then they provide nothing whereby you can sample, bop and scratch video as if it's just audio".

Emission control

Along with Senior Programmer, Neil Lee, Video and Audio hardware designers, Mike Harrison and Andrew Fisher, Alex spent a solid year directing the ideas and design for the Bit Bopper project, the aim being to design and market a system intended to become the core of a digital audio visual entertainment experience aimed not only at discos, night clubs and live performance but at small video/ advertising production houses. In short, a system capable of producing computer graphic sound to light and video effects able to drive VCRs, laser and lighting controllers.

The Bit Bopper consists of a main processor unit, two monitors, a keyboard and mouse, centred around two Archimedes linked together using the high speed Econet Digital Network.

One of the Archies, the Emission Control, drives the other, the Emission Processor, to generate a complex variety of visual effects designed for display on video projection screens and video walls. In order to store effects requiring vast amounts of disk space, Tecnation incorporates a 600 meg erasable optical drive from Sony UK.

The operator or video jockey has a vast array of effects available at his fingertips, only constrained by his imagination. The entire system fits into a roll-top cabinet on wheels and will sell for around £22,000.

Nineties nightclubs

Once in place on the nation's dancefloors, The Bit Bopper is set to appear on a screen near you too – your micro's. Tecnation is negotiating with Database and other companies to release Bit Bopper software for the ST, Amiga, BBC, Spectrum and C64, the basic idea being to bring out a low-cost effects package for less than £50 which can be upgraded with optional audio and video sampling hardware ●

TECHNOLOGY/ IMAGINATION

Tecnation was founded in 1982. One of its first projects was a morse code wordprocessor for the disabled based on the BBC.

But the company really took off with the release of *AMX Pagemaker*, now known as *Stop Press*, for the Beeb which sold 19,000 copies and can certainly claim to be Europe's, if not the world's first DTP package. This was later transferred to the CPC,C64 and PCW to ecstatic reviews.

Bit Bopper first came to light on the BBC too – as a prototype sound to light system – but only after Tecnation had moved into Amiga terriitory did the project take on a recognisable form. The 'Amigamagic' demo incorporating a sample sound studio, 3D animation and interactive rolling demo set the score, as did 'Sample Studio' – currently distrubuted by Datel.

But the Archimedes was chosen as the repository of the Bit Bopper system since its RISC technology enables it to handle the ultra-fast 2D and 3D algorithms needed for a 'Digital Audio Visual Entertainment Solution' better than any other personal computer on the market. Alex loves the Amiga but adds "we never even looked at it..our 3D graphics routines are seven times faster than the Amiga's blitter can handle, you can't get as many colours on its screen at once, and the Archie has more expansion slots for upgrades".

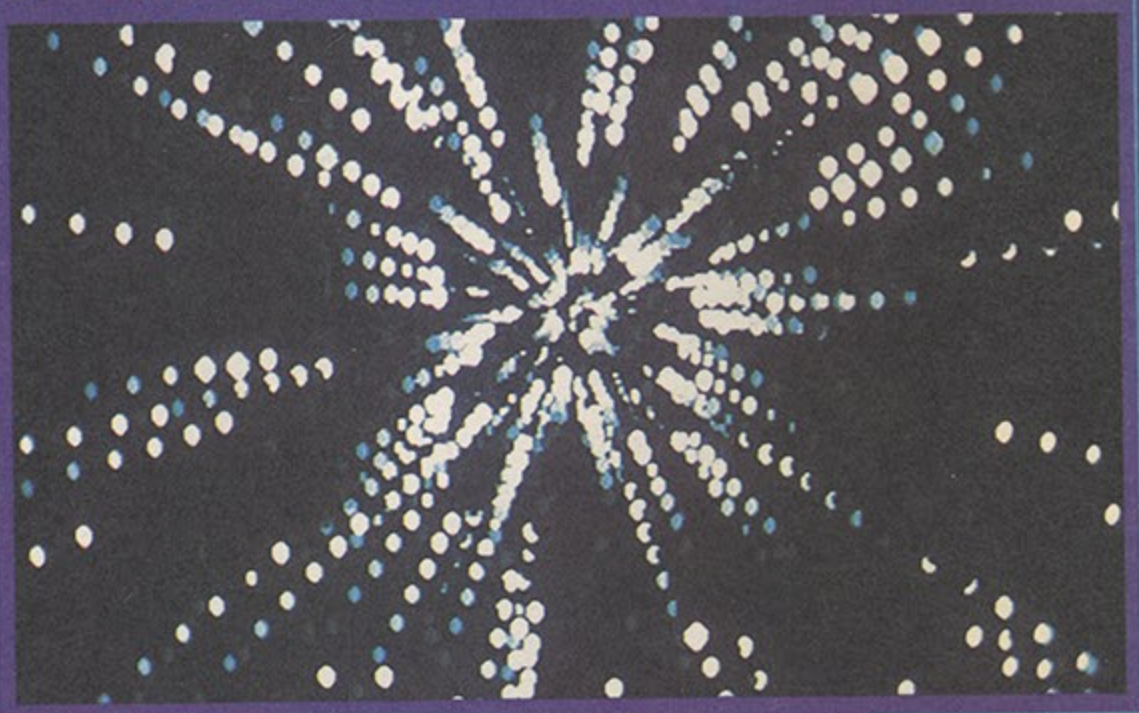
SOFTPANELS

Emission control is driven by pointing and clicking on different buttons and sliders. Real time help messages accompany every single operation in a choice of European languages. Built in to the sliding front-end is a programmer allowing effects to be pre-programmed for playback at any time or on cue. A look at the tech spec will further reveal the system's technical complexity but the mouse driven user interface is friendly enough for Tecnation to rightly claim anyone can navigate the majority of its features in under 30 minutes. And yet the list is almost endless...

TWINKLE ZONES

The Twinkle Zone is the Bit Bopper's library of 320 preset patterns and pictures designed to cycle and pulse to music. All the effects can be mixed from a palette of 4000 colours and overlaid, mixed or masked with full colour live video at will.

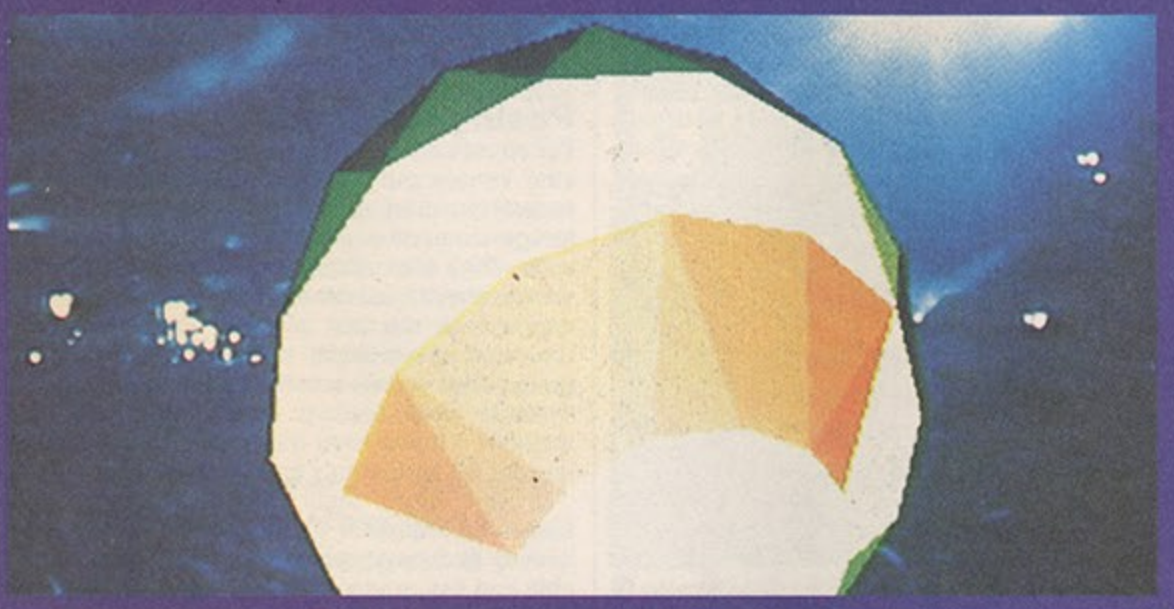
Used in conjunction with miscellaneous effects such as video fireworks and programmable oil wheels, The Twinkle Zone can draw on Bit Bopper's artwork library which includes a 4000 colour paint program.

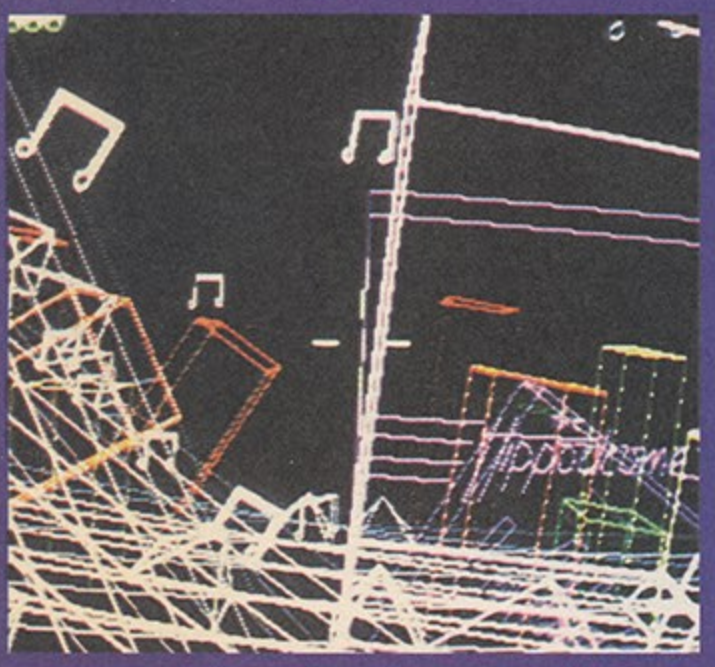


DIGI-VID

The Bit Bopper has two video inputs which may be mixed, overlaid or digitised in any combination enabling VCRs, camera and laserdisc inputs to be used in conjunction. It's here that the system really comes into its own - the range of instant FX - split-screens, explosions, implosions, rolls, zooms and variable wipes put it firmly in the league of professional edit suite effects and illustrates the five years Alex Blok spent working for Quantel.

He describes its video bopping - audio triggered video animation - and video scratching facilities as constituting the world's first video sampler. Stored digital video sequences can be played backwards, forwards, looped and automatically synchronised to audio sources.





BLASTHESONICS

As Bit Bopper is principally configured for synchronising graphic and video effects with an audio source, it's not suprising there's three spectrum analyzers built in to the package.

The Boogie Scope allows custom sprites to represent audio waveforms whilst the 3D bouncing ball has a moving spectrum analyzer wrapped around it . But the Blasthesonic display beats the lot – it's a vector-graphic shoot-em-up in which you take a flight sim view of a world populated with skyscrapers rising and falling to the beat. The more dramatic the music, the more difficult the flight. Along the way you're able to blast the funk out of quavering crotchets.

TOTAL TITLES

In the text display department Bit Bopper also demonstrates effects only currently available in expensive broadcast systems. Messages may be entered live or loaded from preset to be treated to hi-res display in a variety of forms – from 2D smooth scrolling TV credit style to 3D light-sourced spinning cubes. Each character can be any font and colour and, again, able to be overlaid onto video.

AT THE HEART OF THE GROOVE

- 2x 8Mhz Archimedes 440s with hard disks
- 8 meg RAM
- Wildvision genlock/overlay podule
- Tecnation's own digital video and audio digitiser podules
- 300 Meg on-line data storage
- Optional 600 meg Sony Erasable optical disk
- Every MIDI and standard in/outs known to mankind

PC TOP TEN

1 JERUSALEM
Also known as the PLO, the Israeli, the Friday the Thirteenth, the 1813 or 1808, and The black hole. It slows down machines and on any Friday 13th wipes hard disks.

2 LEHIGH UNIVERSITY
The virus spreads via infected floppies used to boot the machine and after a number of replicants are produced, comes to life and wipes the hard disk clean.

3 BRAIN
Brain marks sectors on disks as unusable - to DOS they appear to be bad and unable to store information. Eventually, all sectors are designated bad and the disk is useless.

4 SEX
Displays pornographic pictures on screen whilst producing replicas of itself and infecting floppies. After a number of copies have been made the disk is fatally corrupted.

5 ALAMEDA
A replicating link virus which assumes control of the last track on a disk regardless of what it contains. In this way both programs and data can be corrupted.

6 FU MANCHU
A re-write of the Jerusalem time-bomb set to burst into life on 1st August 1989; the virus adds expletive-littered comments after the names of politicians entered into the system.

7 MARIJUANA
Although relatively harmless, Marijuana displays the message 'Your PC is now stoned' one in every eight times after booting with a floppy.

8 DATACRIME
The next nuisance. Datacrime tags itself on to existing programs and formats part of the hard disk after 12th October of any year.

9 CASCADE
Possibly the best known, Cascade infects every .COM file on a system. If the date falls between October And December 1988 the display breaks into a myriad tiny pieces and crashes to the bottom of the screen leaving a heap of 'dust'

10 TRACEBACK
Similar effects to Cascade. Ingenious in its ability to infect other programs through a mere directory search.

VIRUSES: THE KILLERS CURED

1989 has seen the number of known viruses double. It's only a matter of time before they visit you. Andy Storer dons a white coat and charts the culprits.

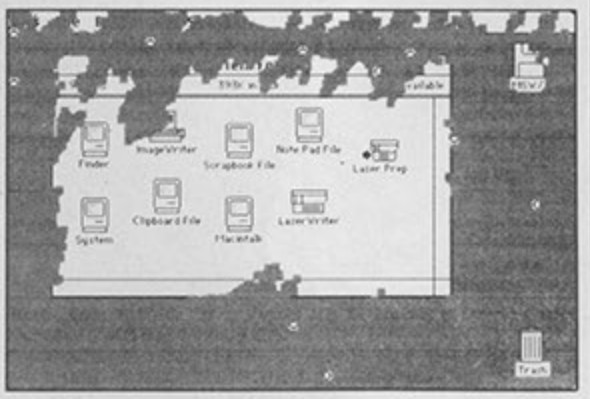
Let's get straight to the point. Viruses are the products of scum. Whether we're dealing with the seemingly harmless variety that produce amusing efffects or those specifically targetted at wiping hard disks, we're dealing with childish authors who are at best severely unhinged, at worst plain psychotic.

As computing moves towards more and more openness - standards like UNIX, networks, Electronic Data Exchange, E-Mail and emulations - it moves closer and closer to vulnerability. Whilst it's all to easy to dismiss the virus crisis as a stream of hype whipped up by the media to fill news space and by vaccine writers to whack up profits, it doesn't detract from their presence across a range of formats.

Away from the tall tabloid stories of viruses that alter spreadsheet accounts figures and other alarmist claims – have you heard the one about the virus that blows up monitors by replacing the video signal with power? – there's a steadily increasing number working their way to your system. When they arrive they may do nothing more than copy themselves – all very well until they get onto a program disk which checks the boot sector for protection code and finds it corrupted. Then whether it's Starglider 2 or dBase 3, it's money up the spout.

So what can be done? Well, in the first instance, nothing! There's no known way of either protecting or detecting all known or possible viruses. In the meantime, the viruses need to be named and described to cut the confusion and minimise the perceived threat. They can then be cracked. Some vaccine packages like CRL's Amiga Virus Killer are able to learn new ones they encounter, but the problems really begin to emerge when you consider encrypted and link viruses.

"Have you heard the one about the virus that blows up monitors by replacing the video signal with power?"



• The Crabs virus on the Mac. Apart from Cascade on the PC there's not many viruses that are so visual – instead they're more destructive.

Posing the threat

For viruses are of two main types - 'link' or 'parasitic' viruses and 'boot sector' viruses. Link viruses are the most dangerous as they are able to merge themselves onto application and program code. They don't simply reside in the boot sector where they're relatively easy to detect, they merge with the first piece of executable code they find and multiply to other executable programs until certain conditions are met. Like the system's clock reading October 12th 1989 for instance – if you have the DataCrime time bomb on your PC it's curtains for your hard disk.

Or you might come across little gems like Lamer Exterminator on the Amiga which is so heavily encrypted as to be virtually undecipherable and can randomly switch between disk sectors before finally bombing the disk entirely.

Finally, and perhaps most disturbing, is the

The TOP THREE vaccines

ST

Virus Killer from CRL on 01 533 2918. This package is able to recognise all known boot sector viruses and a number of link viruses too. It's also able to repair infected disks and immunise new disks against future infections. For £10 you can't go wrong plus for a further £4.95 you're able to update your protection every few months.

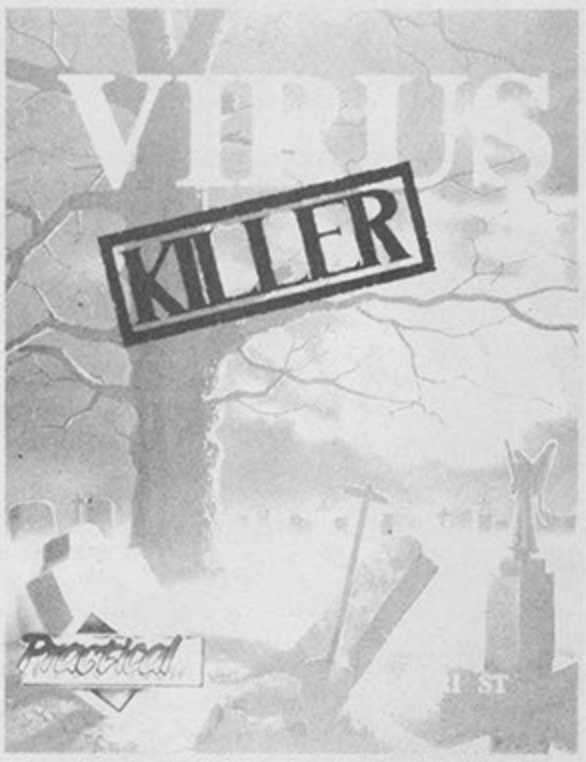
Amiga

The most effective vaccine is the Public Domain program VirusX. The latest version, VirusX 3.2, protects you from 16 viruses and can be found on the June 89 issue of Jumpdisk. Further details from PD distributor, George Thompson Services, on 0770 82234. Alternatively, you can call CRL for information about the Amiga version of Virus Killer.

PC

The Anti-virus Toolkit from Dr. Alan Solomon. The software provides a comprehensive set of tools to deal with viruses for £49.00. Available from S & S Enterprises, Weylands Court, Water Meadow, Germain Street, Chesham, Bucks HP5 1LP. Tel 0494 791900. .

WORST



• Virus Killer from CRL for the ST and Amiga. There's a PC version due in September for £29.95 which will recognise 23 viruses. All versions of the software can be updated every few months. The PC version will also recognise 'Trojans'- viruses that masquerade under the guise of useful utilities and applications.

appearance of Binary viruses like Signum/BPL on the ST. These are seemingly harmless viruses that do nothing except copy themselves. But they're only half a virus. The other half's harmless too and yet to arrive. But when it does, 2 and 2 might make five. Signum's on 1.5 million disks worldwide.

Providing the cure

But all's not as black as you might think. Organisations like Virus Bulletin are busy compiling information on viral recognition and removal for PCs and Macs, whilst CRL are tackling the problem head on by releasing vaccine packages for the ST and Amiga with a PC version on the way.

Meanwhile, there's several simple precautions you can take:

"Although it appears to just simply copy itself to other disks, informed sources suggest it's half a virus waiting for its destructive other half to appear on the scene"

1. Be wary of borrowed software and never accept pirate copies. Otherwise, power down your machine for a good ten seconds before running anything else afterwards.
2. Always write protect your program disks and use only back-ups of important or expensive software
3. Make regular back-ups of your most precious data files – virus incubation periods can be very long
4 If you're really worried – perhaps you make a lot of PD purchases or regularly access bulletin boards etc – then take a look at a proprietary virus killing program. These vaccines are utilities which search through your computer's RAM and system disks, locate any viruses that may be lurking there, warn you of their presence, and then destroy them. ●

AMIGA TOP TEN

1 IRQ (New Year's Day)
Potentially the most dangerous Amiga virus ever created. IRQ is a link virus attaching itself to the first executable file it finds and replicate itself. Not very common yet, but dangerous because it paves the way for a destructive mate

2 BYTE BANDIT
A highly infectious Boot virus residing in the highest section of RAM it can find. After three infections and seven reboots , the Amiga locks up.

3 REVENGE
Basically works the same as the Byte Bandit virus, except it changes the mouse pointer to look like a part of the male anatomy.

4 BYTE WARRIOR
Derived from the Byte Bandit virus, Byte Warrior is harmless in the fact that it doesn't affect your system, but it still replicates itself at every opportune moment.

5 SCA
The original Amiga virus now in its 5th mutation. It's a standard replicating boot virus which occasionally produces the infamous "Something wonderful has happened..." Meanwhile you lose whatever you're working on

6 NORTH STAR
North Star is an original idea since it alerts you to other viruses. However, it's a replicating boot virus itself and just as damaging as the rest.

7 LAMER EXTERMINATOR
Great name. Nasty code. Lamer's an encrypted virus that randomly moves around a disk's sectors and after a number of replications corrupts the disk entirely.

8 PENTAGON CIRCLE
Also known as the Pentagon Virus Slayer. A reset- proof boot sector replicator.

9 VKIL
Running under the guise of an anti-virus, VKIL is a boot virus that once attached to a disk prevents it from booting.

10 MICROMASTER
A new threat doing the rounds – nothing much known about this except the name.

ST TOP TEN

1 SIGNUM/ BPL
The most widely spread ST virus with some 1.5 million copies worldwide. Although it appears to just simply copy itself to other disks, informed sources suggest it's half a virus waiting for its destructive other half to appear on the scene .

2 GHOST
Very prolific at the moment, the Ghost or Mouse virus copies itself ten times and then inverts the mouse Y directions. Extremely annoying.

3 FREEZE
Each time a directory is accessed Freeze copies itself to other disks. Meanwhile it progressively slows down your system until it freezes completely.

4 C'T
A reset proof marauder that deletes File Allocation Tables on both floppy and hard disks - all data is then irretrievably lost

5 MAD
Also known as the Fun virus, Mad is relatively harmless. Once it has copied itself five times it corrupts the screen or bleeps the sound chip.

6 KOBOLD 2
Only becomes active after a second reset and is rumoured to attack hard disks. Otherwise it's not known what it does.

7 ULURU
A link virus which attaches itself to 1st word Plus and randomly corrupts documents when working with infected versions

8 CRASH
A West German reset- proof link virus which merges with loaded programs, copies itself and causes random crashes.

9 MILZBRAND
Another link virus. When the system date is set to 1987, it clears all File Allocation Data and thereby makes file retrieval impossible. A source of many mutations

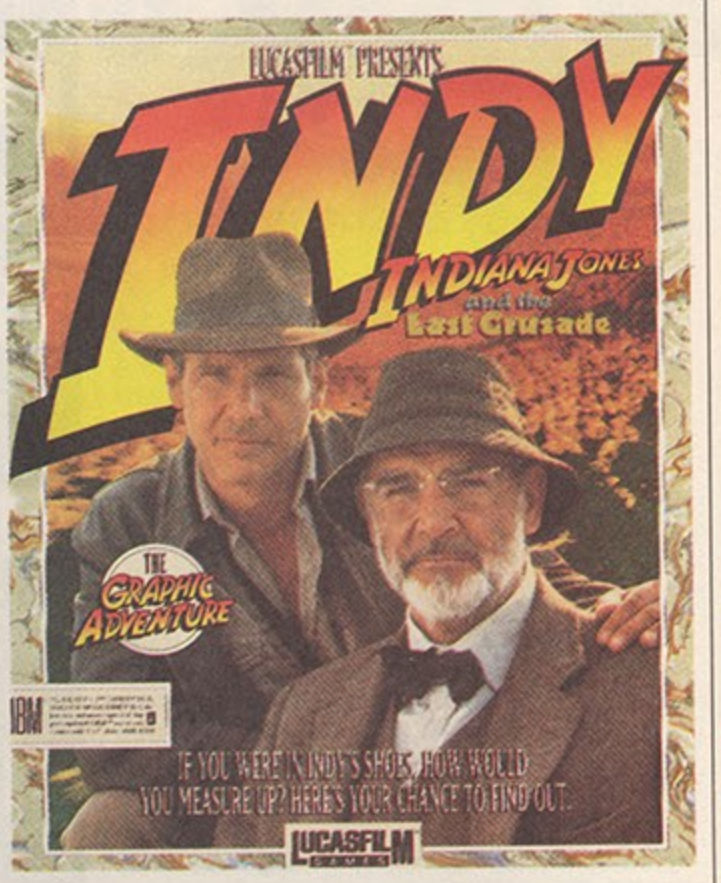
10 HELP
Not a true virus in that it can't multiply itself without help. On booting, it causes the screen to fill with bombs.

INDIANA JONES AND THE GREAT GIVEAWAY

Dozens of Indiana Jones goodies up for grabs in our Express competition...

★ 20 T-SHIRTS ★ 10 COPIES OF GAME

★ 10 POSTERS OF FILM



In case you hadn't noticed, the latest Indie Jones film – The Last Crusade – has been storming the cinemas across the country. US Gold's game of the film will be out as you read this – but Express readers can pick one up for free in our competition.

The first ten correct entries pulled out of the Express hat on August 25th win a copy of the game for their machine (so tell us what you've got). It's out on all major formats.

The next twenty names win an Indiana Jones T-shirt, and the next ten win a film poster.

What to do

Here's what you have to do. Answer the three questions below and send them with your name and address, plus the name of machine you own, to:

Indie Jones Comp, New Computer Express,
4 Queen St, Bath BA1 1EJ.

We also want to know a tip, cheat, poke or bug on your favourite game – you ain't gonna win anything without one!

Questions

A *Who directed Indiana Jones and the Last Crusade?*

B *Which actor in the film used to play James Bond?*

C *Indiana Jones teaches what subject at his University?*

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BULK	250		430.00	600.00	140.00	165.00	375.00	68.00	170.00	430.00	455.00		250	BULK
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MIMIC		40	**92.00	**92.00	**120.00	33.00	40.00	94.00	21.00	44.00	73.60	81.60	40	MIMIC
MIMIC		80	**102.00	**182.00	**230.00	64.00	72.00	185.00	41.00	85.00	138.00	154.00	80	MIMIC
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MIMIC		40	92.00	92.00	175.00	50.00	50.00	148.00	35.00	70.00	94.00	95.00	40	MIMIC
MIMIC		80	182.00	182.00	345.00	96.00	96.00	290.00	68.00	135.00	178.00	180.00	80	MIMIC
MIMIC		100	220.00 MAXELL	220.00 AMSOFT	425.00 MAXELL	105.00 SONY	105.00 SONY	350.00 SONY	84.00 MAXELL	160.00 MAXELL	215.00 VERBATIM	220.00 VERBATIM	100	MIMIC

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ACCESS

520ST-FM SUPER PACK

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

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The MEGA ST computers are styled as as lightweight keyboard with a separate CPU, connected by a coiled telephone style cable. There are two versions of the MEGA ST, one with 2Mbytes of RAM and the other with 4Mbytes. Each version has a 1Mbyte double sided disk drive built-in to the CPU unit. The MEGA ST's do not come with modulator built-in and must therefore be used with a monitor. With every MEGA ST purchased, we will add the 'Professional Pack' software (worth £384.83) detailed above, plus the Silica ST Starter Kit (worth over £200) both Free Of Charge. Return the coupon for further details.

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

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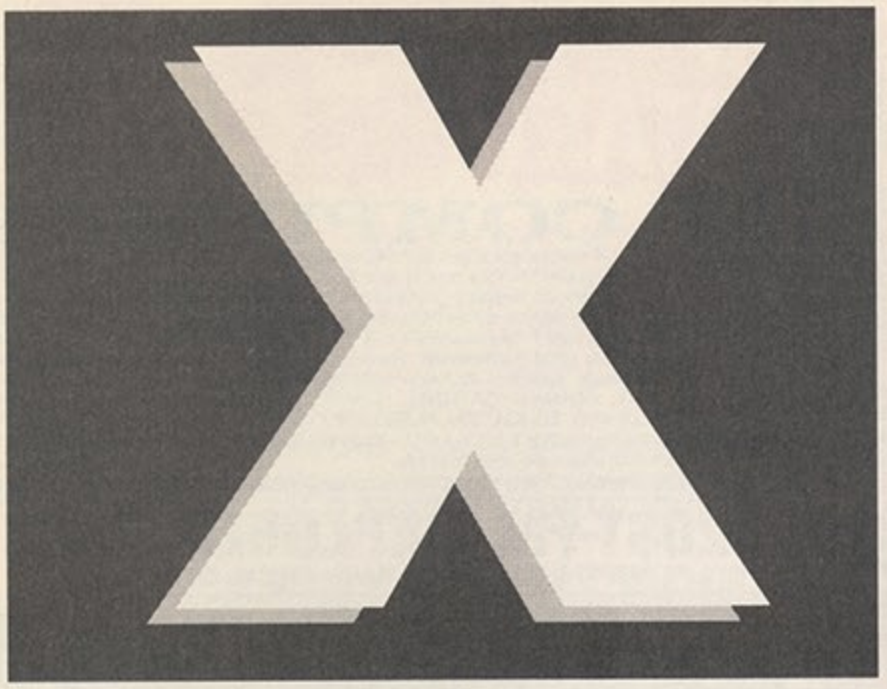


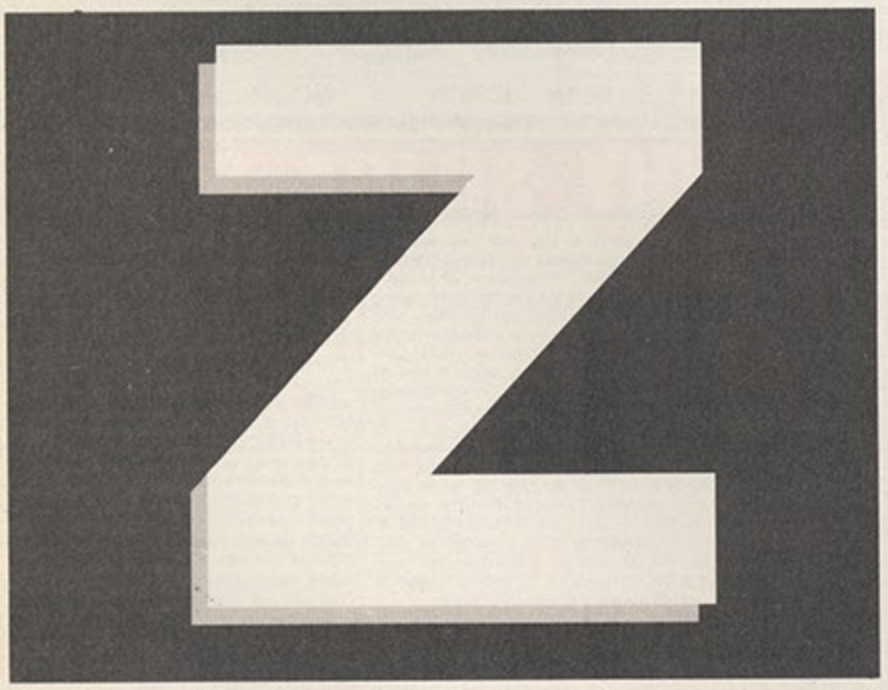
XENIX (OS): Modelled on the popular Bell Laboratory's Unix operating system, Xenix is a version intended for use on microcomputers. Created by Microsoft Corporation, Xenix behaves almost exactly like its role model. The operating system allows users of PCs to experiment with and learn the more arcane aspects of Unix without needing access to expensive mini-computers. Unfortunately, like Unix, Xenix has received only minimal use outside teaching establishments.

XENON (G): Vertically scrolling shoot-em-up from the Bitmap Brothers featuring four levels of play. Notable only for being extremely overrated.

XEROGRAPHIC PRINTER (T): A type of printer which reproduces optical images by using electrostatically charged paper which, when dusted with a powdered ink, produces the image. The ink is dusted over the paper and clings to charged areas. It is then melted into the paper by heat.

XEVIOUS (G): Superlative coin-op game from Atari ahead of its time due to stunning gameplay and graphics. Released in 1983 the game features a scrolling landscape dotted with gun emplacements and various munitions strongholds.

X-Y PLOTTER (T): A printing device which produces points and lines based upon X and Y co-ordinates using a barrel of pens. The plotter is used extensively in drawing and draughting offices to create technical drawings.



Z80 (T): Probably the most popular 8-bit microprocessor ever. Originally designed and marketed in the late 70s this chip was at the heart of many of the most popular microcomputers this decade – ZX80, ZX81, Spectrum, Apple, Memotech, CPC and PCW. Today, you can buy the little CPU for a pound or so each.

ZX80 (C): The first of Clive Sinclair's computers. Based around the Z80 central processor and employing many innovatory features – not least of which was the price – the machine sold in vast numbers and helped to create the home computer boom in the UK.

ZX81 (C): After enjoying considerable success with the ZX80, Clive Sinclair quickly cashed in on the wants of the newly created home computer market by launching the ZX81.

The machine was a rehash of the ZX80 with some major improvements. By using a custom gate array chip Sinclair was able to cut the chip count inside the machine from over 20 to just 4 making it easier to build, cheaper and ultimately more reliable. It is generally accepted that the ZX81 is probably the best machine ever to come out of the Sinclair stable – well thought out, well made, reliable and above all, priced at a level the punters could afford.

The ZX81 opened the eyes of the general public to the fact that computers didn't have to be tended by persons wearing white lab coats but could be programmed by ordinary individuals with a little application. The machine sold a million and was the first to be distributed via the W. H. Smiths chain.

• Compact and bijou, the Z88 is justly popular with travellers

Z88 (C): Another innovative machine from Sir Clive Sinclair, the Cambridge Computer machine is an A4 size laptop which works entirely from RAM and ROM – it has no disk drive capabilities making it very light and inexpensive, but which makes permanent storage of data tricky. It has built in word processing-cum-spreadsheet software, PipeDream, plus communications, organising and diary utilities.

As an inexpensive portable electronic notepad which can download data to the micro at home it has found favour among writers and journalists.

ZAK MCKRAKEN (G): Zany graphical adventure from US Gold which places you in the role of a cub reporter for a *Sunday Sport* type newspaper looking for a story. The game relies heavily on an off-the-wall plot to sustain interest.

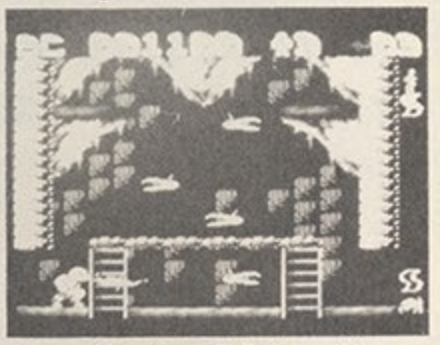
ZANY GOLF (G): Cleverly programmed, colourful mini golf and putting game from Electronic Arts.

• One of the many quality lap-tops from Zenith

ZENITH (CO.): Consumer electronics manufacturer which markets a range of top selling computers ranging from the Easy PC – a cut down 'starter' PC compatible to several good quality portables and lap-tops.

ZEPPELIN (CO.): Geordie budgeteers producing cheap but good quality software for a range of home micros including the Atari 8-bit range. Notable offerings include Zybex and Draconous.

ZORK (G): The adventure that started the ball rolling for American adventure giant Infocom. Featuring stunning descriptive passages detailing the various locations in the game, intricate problems to solve and an excellent text parser *Zarch* quickly became a favourite amongst players interested in the genre. *Zork* spawned several equally enjoyable sequels which consolidated the success of the original.



• Grandaddy of them all, Zork paved the way for sophisticated adventures

ZARCH (G): Programmed by David Braben author of the evergreen space trading and tactics game *Elite*, *Zarch* was billed as *the* reason to buy an Archimedes! The game features a scrolling patchwork landscape, super flight simulation and lots of things to shoot. Released under the name *Virus* on other micros, the game has gone on to become a best seller.

• After enormous success as co-author of the space trader *Elite*, David Braben scored again with the original, fun game Zarch

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

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Starting a small business? Running a club? Or just managing your household affairs? An integrated package – one with word processor, spreadsheet, database, maybe even comms and graphics modules as well – could save you having to fork out for a lot of different packages. Neil Booth investigates a new addition for the PC – and rounds up some of the other all-in-ones…

HIGHLIGHTS
Good spell checker
Very easy to use
Powerful spreadsheet
Good report generator
Data completely interchangeable between modules
The price!

DRAWBACKS
Not 1-2-3 compatible
Problems with dBase II files
British spell checker not out yet

● The Secretary Bird: Best ever all-in-one budget package for the PC?

HIGHLIGHTS
Spell checker
Large thesaurus
Data more interchangeable than before
Better setup options

DRAWBACKS
Lots of significant bugs
Spell checker doesn't work from inside wp!
Thesaurus doesn't either
Both extra programs slow
American thesaurus

● Mini Office – new version for the PCW promises much but delivers little extra

• On screen menus make things easy for you

THE SECRETARY BIRD

£39.95 • Software Toolworks/ Mindscape (0444 86545) • PCs

Given the usual price of PC software, you might suppose that a program with a naff title and a price tag of £40 that claims to be a word processor, spell checker, database, spreadsheet etc etc, couldn't be much good.

You'd be wrong. *The Secretary Bird* is the best budget all-in-one package to come out on the PC in recent years. It's easy to use, reasonably powerful and above all cheap.

It has four main parts, the word processor (*Writer*) the spreadsheet (*Calc*) the database (*Filer*) and the Manager which runs all the packages. The blurb claims that you only need to know how to use the escape, arrow and enter keys, and certainly it's extremely easy to use – there are pull-down menus which also have shortcut commands (control-S always saves to disk for example) and the [f1] key can be pressed at any time to get a context-sensitive help screen. It's one of the few programs that you can use without needing to consult the manual every five seconds – as all software should really be!

Write approach

The word processing module is easy to use and powerful. It can cope with large files – up to 280K – though tends to be a bit slow. The only problems are the layouts; you're restricted to one per document which is rather restricting for anything other than simple letters.

The spell checker doesn't suggest alternatives to queried words, thankfully! This is in my opinion a vastly overrated feature of spell checkers and if it has kept the price down, all well and good. The dictionary holds 50,000 words – all American spellings at the moment, but a British version is under preparation.

You can mail-merge using information from the database but only to a maximum of fifty. There's a good macro function too.

The spreadsheet is a standard affair. Size is limited only by the size of the memory and there are the standard functions plus some for linear regression. You can also cross-reference one sheet to another, so that FARCI (F34) will insert the same value in that cell as there is in cell F34 of FARCI.CAL.

The database is another standard affair with the usual types of field – text, numeric, monetary, date and so on. you can redesign the format without losing any data – a very powerful feature – and data files are limited only by the size of the disk. You can find, sort, and produce printed output from selected records using the report generator.

One nice feature is that files are completely interchangeable between modules – you can load up a word processor document in the spreadsheet for example and the items separated by tabs appear in adjacent cells. You can even cut and paste chunks of information from say the database to the word processor.

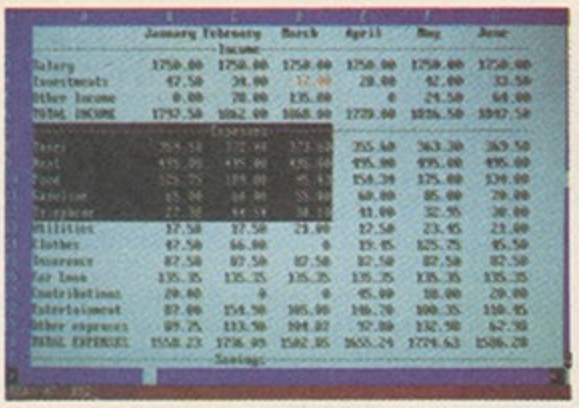
All in all this is an excellent buy for the money. The British version is out in October but you can buy now and upgrade later.

For the small business, club secretary or home affairs organiser this will cope with all your needs and is a great bargain.

★★★★★

The opposition

Migent's *Ability* is bundled with some Amstrad PCs at the moment. It's a perfectly good package, but is look-



• The Secretary Bird's spreadsheet is powerful and straightforward, and the word processor quite adequate for the job

ing a bit dated now and while you'd be happy to get it for free, at £100 it can't compare with the *Secretary Bird*. In fact, none of the other budget all-in-ones beat the *Secretary Bird* for value.

If you're after a more powerful package, you could try Microsoft *Works* or Ashton Tate's *First Framework*. Both are over £100 though.

MINI OFFICE PLUS

£49.95 • Database (0625 878888) • PCW

The Amstrad PCW is a favourite choice for the small business or club organiser and there is a new version of *Mini Office* now out for that machine.

The original, *Mini Office Professional*, is still available for the PCW for £29.95 and boasts a good fast word processor with lightning fast word count, a spreadsheet which has sideways printing and unlimited size spreadsheets, a good database, a graphics module which can produce very impressive looking bar and pie charts, and an excellent comms module which is great for Prestel users. The only problems are that data is not really interchangeable between all the modules – data is just database/ word processor and spreadsheet/ graphics interchangeable.

The upgrade, *Mini Office Professional Plus*, costs £49.95. It allows ASCII files to be imported into, or exported from, the database or spreadsheet, and has a spell checker and thesaurus, in theory allowing more interchangeability. There's a manual and a book by respected technical author John Hughes detailing how to use the package included in the price, which is a welcome addition. The package now supports 24 pin printers and can be used more easily with third party printers (eg. dot matrix printers for use with your 9512) from the revised setup screen on the main menu.

However, the spell checker doesn't work from within the *Mini Office* word processor, meaning you have to save the document, exit to the main menu, and run the spell checker separately. Even then it's very slow – compare the two minutes *Mini Office* took to check a 100-word document with all words correct to *Prospell* (24 seconds) or *LocoSpell* (17 seconds)! The thesaurus is very slow too, and contains American spellings. It refuses to recognise 'colour' or 'honour' and insists on spellings such as 'traveling' and 'itemize'.

An irritation for 8256 owners is that they need to send off and wait for special version of the thesaurus for their machine.

There are also several bugs on the current version which prevent you from spell checking LocoScript 2 files, don't allow loading ASCII data into the database, and dump you into CP/M at odd moments. The spell checker is neither as good nor as fast as *LocoSpell* or *Prospell* and the thesaurus is really a waste of time; the original was great, and perfectly adequate for any small business or club, but the upgrade frankly isn't worth it.

★★

Mini Office: One for all machines...

Perhaps the definitive all-in-one program was *Mini Office*, released in 1984 for the BBC. The idea of putting a word processor, spreadsheet, database and graphics module together for £6 at the time was so revolutionary that most retailers reputedly refused to stock it! *Mini Office* is now approaching 500,000 sales on all formats...

The original cassette version is still available for the BBC, Spectrum, CPC and C64 for £2.99 from Alternative Software on 0977 797777. The upgrade, *Mini Office 2*, came out in 1985, on BBC, C64, CPC (not Spectrum!) and Atari 8-bit. It's still available widely from mail order for around £14.95 (cassette) to £16.95-£19.95 (disk) or from Database on 0625 878888.

It's now coming out for the ST, but in separate stick-together modules for £29.95 each, and doesn't really count as an all-in-one pack.

Mini Office 2 is a good basic word processor, spreadsheet, database and graphics package and has a very good comms module too. There's also a label printer making it ideal for anyone who uses mailing lists. As a starter pack or an all-in-one for a small business it is excellent value for any machine.

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ST

Crack of the wp

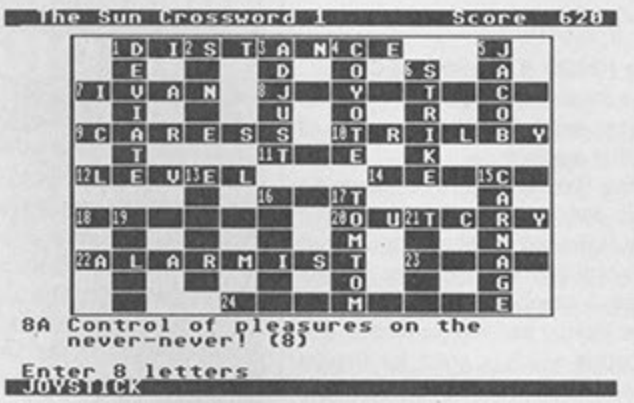
There haven't been any decent word processors on the ST all summer and now two have come out of nowhere. That's Write from Cavendish and Hisoft's Tempus 2 have both caused a stir on the ST scene. I took a look at Tempus 2 which claims to be more a text editor than a word processor but either way it has some powerful features.

Tempus looks at files as characters from 0 to 255 so any character in the range may be inserted into a text file. Combinations of codes can be selected so that they're recognised as carriage returns (not necessarily 13). It's then possible to create text files which contain printer control codes or even files which exploit the VT52 codes used in the SHOW FILE desktop option.

Tempus 2 is a follow-up to an earlier version and has been written entirely in machine code so that word-wrapping, text justification and alterations in line length can all be executed virtually instantly. A built-in calculator and the ability to call other programs from within Tempus 2 are both of enormous benefit but it's the text manipulation commands such as the addition of line numbers, sorting and particularly comparison between files which are really important.

The comparison feature will look at two files and highlight any differences between them – great if you're a programmer trying to track down differences in a piece of code.

HiSoft are on 0525 718181.



▪ The Sun crossword on a high-res. screen. It's slow and there are no pretty effects but crosswords are always addictive.

Blow it

Lakmeyer have released an EPROM programmer which plugs straight into the ST cartridge port and will accomodate the latest 32-pin 1Mb chips. A high-speed feature allows you to program chips in super-fast time. The software with the unit will convert 16- or 32- bit code into several 8-bit EPROMS if necessary.

Bundled with the EPROM programmer is a special piece of software which can turn the programmer into a second drive.

The programmer costs a hefty £190. Details on 01-316 1779.

Never a crossword

Akom have obtained the licence to release computer versions of The Times and The Sun crossword puzzles across all formats.

The effects employed in the game aren't going to blow your mind but nevertheless it's still painfully addictive. Several puzzles are crammed onto each disk with the majority being standard puzzles from each paper.

As you'd expect there's a typical difference between the puzzles of each paper. An option to play in teams and extra clues for difficult questions make up the only major difference from the real thing. The inability to pick up your screen and carry it off to the nearest reference dictionary is a disadvantage but it's still great fun.

Times disks are available for £19.95 while The Sun costs £18.95 from Akom on 01-852 4575.

More help please

GFA have just released the software development book to backup GFA Basic 3. With sections on Line-A commands, AES functions and GDOS, it's designed to encourage us to exploit far more of GFA 3's less popular instructions. Of course if a better manual had been written in the first place then it wouldn't have been necessary.

The 350 page manual is designed to appeal to the dedicated programmer who's interested in faster code or in using GEM applications. Despite the occasional dip into mumbo-jumbo it's extremely helpful.

A program disk can be purchased with the book and this contains all the example programs.

GFA can be contacted on 0734 794941.

Kim Harmagh

Prize RAM

RAM upgrades are notoriously hard to fit as anyone in need of more memory has probably found out by now. If you don't want to pull chips out of your ST or spend time tracking down the nearest soldering iron then Third Coast have the answer. They're offering additional RAM boards to upgrade any ST all the way to 4 Mb.

The cost of this extravaganza is fairly reasonable. Upgrading a 520 ST to 1 Mb costs £150. A 1040 can be increased to 2 Mb for just £250 and the Mega ST2 can be raised to 4 Mb for £299. Another board with 4Mb of memory may be fitted into any ST for nearly £700. Unfortunately due to the design of the ST there is no way to extend the memory above 4Mb. Third Coast have said that the 2 and 4 Mb upgrades use 100ns chips which are extremely fast so there's no need to worry about problems in the speed department.

Upgrades for the Mega 2 are the only ones which need to be soldered into place with the others fitting on top of the memory management chip. This design removes the frustration involved in fitting upgrade units.

Third Coast can be contacted on 0257 426464

AMIGA BLIT

Word Perfect U turn!

After the recent announcement that it would be stopping further development of any products for the Amiga, the US WordPerfect Corporation has taken a U-Turn and started re-supporting the Amiga.

The decision came about after they received heavy criticism and a bombardment of complaints from Amiga bulletin board users in the States. The company have now reemployed their old Amiga programmers and work has already started on updates of their current products.

While the company has ruled out the possibility of a version 5 of WordPerfect for the Amiga, it does intend carrying out major enhancements to the current release which will include the implementation of full A-Rexx support and file compatibility with version 4.2 of WordPerfect as well as many other enhancements. Who says public pressure doesn't have an effect?

Key tip

You know what they say, 'The greatest inventions are often the simplest' and this is certainly true of the following tip sent in by Dave Collins from Salisbury in Wiltshire.

Dave suggests that if you're bothered by the relatively short length of the A2000 keyboard cable, then you can cheaply extend it using a standard 5 Pin DIN to 5 Pin DIN lead (male connector on one end and female on the other). These are readily available from shops such as Tandy for about £2.50 and not only give you more room to work with, but can also extend the life of the keyboard's connector. Simple but very useful!

CBM take A-rexx

As predicted in AmigaBLIT many moons ago, Commodore have licensed the A-Rexx multi-tasking programming language for inclusion within Workbench 1.4. A-Rexx is a powerful script-like programming environment that allows compatible programs to communicate with each other amongst other things.

Kickstart 1.4 includes a major overhaul of Intuition and the rest of the Amiga systems software as well as providing direct support for the soon to be released Enhanced Chip Set (ECS). Alpha test versions of kickstart and Workbench 1.4 have been in the hands of several major software developers for months now. Unfortunately, us users are going to have to wait for at least a year before we'll be able to get our hands on the new OS.

Games news

Paperboy ▪ Elite ▪ After many months of waiting, Paperboy is soon to be unleashed on unsuspecting Amigas near you. Following close on its heels are Elite's other classics, Ghosts 'n' Goblins (a personal favourite of mine) and Commando.

Sabrewulf ▪ Firebird ▪ Anyone who has used a Spectrum for more five minutes will instantly recognise the name of this classic Ultimate game. The Amiga version is being written by the same people that brought you PacMania and rumour has it that it is going to be pretty special. Also planned are Amiga versions of NightLore and UnderWurlde.

Hawk ▪ Argonaut/Electronic Arts ▪ Call it what you like, Hawk or Aggressor, Argonaut's latest 3D extravaganza is shaping up into something pretty special. I was lucky enough to have a quick look at it when I recently popped up to see the Argonaut crew, and from what I've seen, San fans can rest assured that Hawk isn't going to disappoint anyone.

Jason Holborn

• WordPerfect – alive and kicking!

My top ten!

Lists of favourite likes/ dislikes about the computer industry seem to be all the rage in Express just recently, so I though I'd compose my own top ten list of Amiga specific dislikes.

1. People who slag off AmigaDOS but have probably never sat down and used it for more than five minutes. Admittedly, AmigaDOS may have its faults, but it is a very powerful DOS that makes many other disk operating systems (MS-DOS for example) look like toys.
2. Companies who promise that a product is 'two weeks away' and then don't actually ship the product for about a year.
3. Games that are ported across from the ST – this really gets me! If I wanted to play ST games on my Amiga, I would have bought an ST! (would 64 users be happy if Spectrum games were ported onto their machines in their entirety? – I think not!)
4. Copy protection on serious software – when I pay £100+ for a piece of software, I want to be able to protect my investment from malicious coffee spills
5. Dongles – these aren't the answer either, as they can be lost very easily. Also, you're stuck if you want run several tasks at the same time that all require dongles.
6. People who say the Amiga is a hard machine to program – sure, the Amiga systems software is a (guinea) pig to work with, but try programming the machine from the hardware level and you'll be amazed at how simple programming the machine becomes.
7. Virus programmers – these people should be lined up against a wall and shot.
8. Jerky scrolling in games software – tome on people, there's just no excuse for jerky scrolling when the machine has smooth hardware scroll built in (refer to point 3 for the reason why this occurs).
9. Serious software that doesn't support the full PAL screen. There is no excuse for this as Commodore have published all the necessary info required to enable programmers to write software that functions fully within both NTSC and PAL environments.
10. PC Users and certain PC publications that disregard the Amiga as nothing more than a toy – try getting a 512k PC to multi-task!

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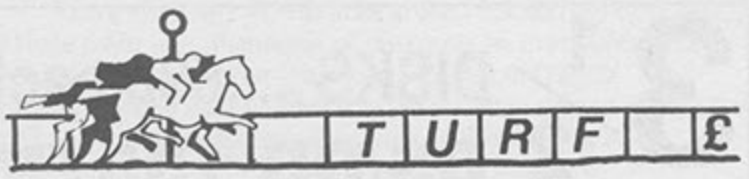

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PC UPDATE

Collage plus

You have to have a fairly specialised use to get excited by a screen grabbing utility. If you're trying to put together a manual for a PC product, though, or need to capture screens for photography, it can be crucial. *Collage Plus*, from Software Forward on (0234) 272474, is the bravest attempt yet at capturing just about any screen and saving it to a file or printing it out. Although there are a few reservations about the program (see 'A la mode') it auto-detects most kinds of screen and will save them all to *PC Paintbrush* PCX files.

Why *PC Paintbrush* you may ask – go on, please ask. Well, I'll tell you anyway. *PC Paintbrush* is one of the most common standards for graphic exchange on the PC because for years the program was supplied free with every Microsoft mouse sold. Though the program may not be in wide use, the file format has stuck and is supported by such highbrow programs as *Ventura* Publisher and Aldus *Pagemaker*. This is the key to the choice of the standard for *Collage Plus*. The program is described as publishing utilities, and with it you can call screen shots into many DTP programs to help make up illustrated documents.

The software is divided into four programs: SNAP, SAVE, VIEW and SHOW. The first three are TSRs and will sit out of the way until called up from within an application, with [Shift][PrtSc]. Once called they offer the facilities to capture the underlying screen (SNAP and SAVE) and to display screens (VIEW). SHOW is a screen file organiser and displayer, but isn't memory resident. In almost all situations *Collage Plus* seems to be able to auto-detect the screen type and grab the right bits. Well worth investigating.

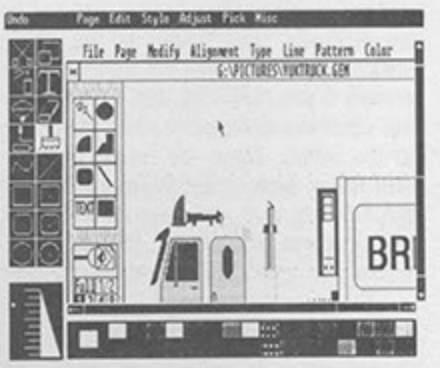
A la mode

It probably all looks very easy, but putting together a survey of PC packages is less about the evaluation and writing these days than the screen shots. Magazines such as *Express* and *PC PLUS* quite rightly demand screen shots of the packages reviewed, to illustrate the writing. These screen shots are created in two stages: the reviewer captures the screens to disk files and a photographer then calls up the screens and photographs them.

Capturing screens should be a simple process, but it isn't, due to the hundreds of screen modes available on the half dozen different PC graphic adapters. I recently had five packages to survey, one which ran under GEM, one which used an EGA graphics screen and three which ran in CGA mode. At my disposal were copies of *Pinch3*, from Iolo Davidson, and *Collage Plus*, both designed specifically for capturing screens.

The GEM screen was comparatively easy, though I remembered that *Pinch3* had trouble with GEM colours and tended to reproduce things with an odd palette switch. That screen was saved away with *Collage Plus* for later reconstitution. Two of the CGA screens were again captured with *Collage Plus*, but on redisplaying them, all the pixels had been stretched so that the top eighth of the display had disappeared off the top of the screen. I captured them instead under *Pinch3* and added them to the other.

This left the EGA screen and one of the CGA ones. The EGA display consisted of a two-colour graphics screen with a two-colour menu box (different two!) over the top. All that was captured by *Collage Plus* was the menu, and that in black and white. So I saved the graphics screen as a GWBASIC BLOAD block, one of the options from the target program itself. I then loaded this into *Optiks*, a graphic exchange utility mentioned before



• A GEM screen within a PC Paintbrush screen, thanks to Collage Plus

in this column, popped *Collage Plus* up over the top, changed the palette colours back to the ones of the original screen and saved that one, too.

That left only the third CGA screen, which proved to be beyond either capture program as it took complete control of the keyboard and ignored any [Shift] [PrtSc] sequence. The only way to photograph a screen from that one was to transfer a copy of the program to floppy and send it to the photographer with copious instructions.

And the moral? Don't expect one program of a given type to solve all your problems. There are many ways of cracking the same nut.

3Five plus

The handy little extra floppy driver card I mentioned last week has one other trick up its drive cable. As well as automatically recognising 360K, 720K, 1.2Mb and 1.44Mb MS-DOS disks (depending on drive type, of course), the 3Five card also deals with Apricot, HP Portable, PS/2, HP110, HP150, GE Workmaster, Data General One and Atari ST. This could make it very useful for file transfer, as well as being a third drive. Again, ring Datamation on (06285) 28326.

Simon Williams

Stopping TYPE

A simple thing, I know, but several people recently have asked me how to stop a text file scrolling up the screen too fast. They're using the MS-DOS TYPE command, of course, and on the increasingly fast PCs available today, it can be very hard to read documentation in this way.

There are two answers. The first is to press [Ctrl][S] to stop the scrolling and the same again to restart it. You need to be careful here, though, as typing any other Control key combination will stop [Ctrl][S] working until the end of the file has been reached. The second way to make TYPE more manageable is to add | MORE to the end of the TYPE command, separated from the name of the file you want to display by a space. This will stop the scrolling after every 24 lines and display a little '-- More -- ' message at the bottom of the screen. Pressing any key then displays the next 24 lines. There must be room on the disk for DOS to create a temporary file during the MORE operation, otherwise it won't work.

CPC centre

Job centre reopens

Once again this column offers itself as a recruitment service. This time, wearing my hat as editor of *Amstrad Action* (the day job), I'm after a Technical Editor. If you are convinced that CPC stands for Commodore Personal Computer, think that CPM+ is some kind of algebra and are firmly of the opinion that a peripheral is a plant that flowers for a number of years, you'd be well advised not to waste your stamp.

If, on the other hand, you're a wiz at Basic, know your way around M/C, think that the CPC has great untapped potential and reckon you can write a bit, then don't hesitate to write to me, Steve Carey, *Amstrad Action*, 4 Queen St, Bath BA1 1EJ. Enclose a formal application, personal details and qualifications and a shortish piece of writing (about 300 words will do nicely) demonstrating your abilities. Previous experience is preferred but by no means essential.

CPC cheated!

You know how I hate to be the bearer of bad news, especially where overdrafts and the CPC are concerned. Well, I'm sorry to hear about your financial troubles, but this one concerns the disappointing news that Cheetah, best known in the Amstrad world as the joystick firm (though it's much more than that), has no plans to launch a CPC version of its forthcoming and much trumpeted lightgun, developed in conjunction with budget kings Code Masters. Cheetah boss Howard Jacobson told me that he believes it simply isn't worth his while to spend the money necessary to develop software and hardware. The Commodore version, he predicts, will shift 200,000; the CPC, 20,000, tops.

Of course in one sense it doesn't matter a jot: we have the Virgin/Mastertronic *Magnum*, developed under the Amstrad name and bundled with, among others, *Operation Wolf*. With all due respect I don't suppose Code Masters will come up with anything quite in that league, and in any case few people are going to need both guns.

What is disappointing – and worrying – is that Cheetah don't see a market big enough to be worth bothering with. How soon will it be, I wonder, before the snowball effect takes hold, and more and more companies follow the leader and abandon ship? It's distressing, because it's such a vicious circle. If Cheetah throws in the towel (yes yes I know, mixed metaphor, but I'm getting worked up here, dammit!) others will too.

Well, I just hope that Virgin/Mastertronic shift 350,000 *Magnum* bundles. That'll serve Cheetah right!

Pandora

To the lucky but frustrated winners of our *Pandora* giveaway of last month: apologies for the delay in getting your copy to you (all my fault, I'm afraid), but you should have received it by the time you read this. If not, let me know and I'll put things right.

Secondhand titles

My mini-comp, "This One's Got A Dubious Title," leaves me so far in little danger of being inundated. John Kerr suggests "Anything with Roland in the title that's even remotely connected with Amsoft," and "Super, Pro, Mega Simulator, Simulator," suggesting he's missed the point entirely. But that does suggest a mini-comp for the worst or most clichéd game title of all time.

My own nomination is Code Masters' tired and unemotional *Pro BMX Simulator II*, though I admit that's a bit like shooting fish in a barrel. There are, for instance, all those daft punchin' games with *Ninja* in the title, and a surprisingly long string of games along the lines of *Vindicators, Dominator, Eliminator, Procrastinator* and so on. Get your entries in, and win yourself a mystery item of software. Address as for the job announcement above.

Steve Carey

PS Anyone got some playing tips for *Rick Dangerous* yet? I've got halfway through the second mission (Egypt) and am totally stuck.

• Domark's latest Bond, *Licence to Become Rich Wacky Funsters*, looks very promising indeed...

Bond is saved!

A fortnight ago *(NCE* 38) I helped a reader stuck in Domark's *Living Daylights*, a predecessor to their impending *Licence to Get Seriously Rich*. Unfortunately I couldn't assist with the last two levels.

Now secret agent Patrick Cruikshank has blown his cover to get us out of trouble. I'm under oath not to reveal his whereabouts, but I can say that it's not the Perth which is in Australia. Anyway, here goes...

LEVEL 7: The military complex
Shoot the first man with the PPK and then change to the bazooka. When the helicopter makes holes, just jump Don't try to run and jump.
weapon: bazooka

LEVEL 8: Whittaker's house
Leave the weapon as bazooka, and as soon as a man comes on screen, shoot him. And that's it – end of game!
weapon: bazooka

Share your latest hacking exploit with thousands of eager CPCers. Send your infinite potato-peeling poke for *Gunship* to: *Steve Carey's CPC Centre, NCE*, 4 Queen St, Bath BA1 1EJ.

Meanwhile, the latest Bond licence from Domark, *Licence to Kill*, looks to be rather a corker. There are three "scenes" – three separate arcade scenarios, in effect – each taken from the plot of the film.

What's slightly different about *LTK*, though, is that instead of the challenge being to finish the game, you'll probably find you can do it fairly comfortably. But once you master each sequence you get to go round again – only the second time it's much, much harder. Making the key the score rather than simply finishing the game is a good move, because it means that more people should be able to congratulate themselves on completing it, while the real arcaders can amass improbably high scores. Nice one!

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SPEX

Royal Command Performance

When Rainbird revealed their plans for a Speccy version of Carrier Command most people said it was impossible, impractical, inconceivable and lots of other long words beginning with i.

As you saw from the review a few Expresses ago the ACC Epsilon has finally chugged into Spectrum waters to prove them wrong. After several hours at the helm I can unexclusively reveal that Andy Onions of Realtime, for he's the man responsible, has written one of the biggest and best Spectrum games for aeons.

In some respects, and this better not go any further, it's a considerable improvement on the 16 bit (hiss) versions with some weaker points of the original game tweaked to give superior playability.

There's now a 'time lapse' icon for example which speeds the clock up when you're moving the Carrier to another island and eliminates the comatose inducing boredom ST owners had to suffer when attempting a similar manoeuvre.

The really impressive thing is the speed everything moves at. Without a flicker, glitch or jerk in sight and all on the computers whose middle name is supposed to be humble.

Unfortunately there's no 48K version but after a few games you'll be wondering how they managed to cram it into even the larger Speccies without serious spillage. Anyway, 48K owners shouldn't feel to dismayed because another long awaited and seemingly unlikely conversion candidate has just arrived on the shelves of your local software shop.

Rainbird has pulled off another mission impossible with a great conversion of Starglider II, a game which gave 16 bitters palpitations in its original incarnation. Naturally a few things have disappeared even in transit, solid coloured 3D graphics are a bit much even for the Spectrum, but you'll be much more surprised at what's survived the conversion process and been left in.

There's still a decent sized collection of weapònry for you to use on the Ergons, a few tunnel networks running under certain planets, a tractor beam built into your ship and the innovative 3D bar chart method of displaying energy levels etc.

Thanks to Carrier Command I can|t let you know if the long term addictiveness of the original ST/Amiga game is also present on our machine but I'm looking forward to finding out.

To conclude, the two games enthused over above are shining examples of just what our favourite machine can do when programmers put their mind to it. When it comes to laying games the Spectrum can still compete with the best and most expensive of them.

All for Kixx

I told you all to buy Hewson's Heatwave compilation last week and now want to tell you about another Hewson product which should go in the same bag. Recently re-released on the Kixx £2.99 label is Cybernoid, one of the best shoot-'em-ups from the Spectrum's huge back catalogue of similar things.

It's an out and out, bits fly everywhere blaster with a surprising amount of strategy as you have to decide which of your five different weapons to kill the aliens with. The passing of time hasn't affected this one too adversely and at the piffling price they're now asking it's a compulsory purchase.

I've enough problems of my own, thanks

Peter Bellingham from Kent has written to hoist some more of his problems on me. (Hasn't he heard of Clare Rayner?) Help is required for these two:

a) How do you increase the buffer size of an Amstrad DMP2000 printer?

b) Does anyone know how to convert Tasword Two to the Rotronics Wafadrive so that all the original's features work? (Underline, for example)

If you've got any ideas write to the usual address or direct to Peter at 46 Woodside, Barnehurst, Kent DA7 6JZ

Beggar me

Here's another one of those regular begging spots where I get on my knees and implore you to keep the feedback and contributions coming in.

The following items are particularly welcome: Hints, cheats and pokes for any Speccy games, wrinkles and shortcuts for utilities and programming, fanzines, details of user groups and clubs, hardware and gaming problems, opinions, comments and generally if it's connected with the Spectrum I'm interested.

Send everything to *Robin Alway, SPEX, New Computer Express, 4 Queen St, Bath BA1 1EJ.*

Include an sae if you want a hand made personal reply and don't forget the mystery software freebies on offer to the senders of really good pokes and tips.

Robin Alway

Tons of tips

Jon Rose has sent in another bundle of tips he's discovered from years of merciless baddie-killing on his Spectrum. My, and hopefully your, eternal thanks to him.

Batman 2 (A fete worse than death):

1. Use bulb in dark room
2. Use torch and mask in sewer
3. Use shade in Joker's fun house
4. Eat fish and carrot
5 Use wire clippers to defuse bombs
6 Use card where you see 'Card Trick' caption
7. Use false teeth in Joker's house when above sewer
8. The dog gives energy

LED Storm

When you run out of energy push UP and wait for an energy pod to appear. Also try starting a game, press Pause and then hold down break until the screen turns green. Return to the game with mega points.

Rambo 3

Skip level by holding down QWERT at the start of a level and be transported to the next one.

Renegade 3

Beat baddies by going to the far right of a level and turn left to fight. Also push foes off ledges, into rivers etc.

SECTOR 64 SECTOR

`New releases

- **US Gold** have four new titles on the way starting with Capcom's *Forgotten Worlds* released on C64 at £9.99 on cassette and £14.99 on disk. *Forgotten Worlds* features brilliant graphics along with great gameplay.
- **Epyx** have *Street Sport American Football* which is on disk only at the moment for £14.99.
- Coming out this month **SSI** have *President Elect* for £19.99.
- *Indiana Jones and the Last Crusade* is due out for release in September. The game is based on the film, of course, so let's hope there's as much action in the game as there is in the film!
- Coming out this week *SSI* have another game called *Curve of the Azurebonds*. Details when we get them.

Worry, worry...

What will happen to the 64 market if Nintendo stop coin-ops being licenced, as they seem liable to do? It's a sad thought but its console has knocked the C64 off in the US. The Nintendo games console has a larger percentage of users in America than the 64 and Amiga put together in the UK.

Everybody is buying arcade licences now but if companies like US Gold or Ocean are getting turned away because Nintendo are getting the game first through high sales, the computer industry could die.

Companies like Sega won't be offering Nintendo their games simply because they have their own console to compete with, but many Sega games now are getting more and more ridiculous to convert.

The companies which are prime targets to offer Nintendo their licenses first are people like Taito who make many easily converted addictive games.

Ian + Mic

Light fantastic

Thanks to Robert Brammel of West Midlands for lighting things up with this neat little listing. It's impossible to describe – just type it in and see what happens!

It looks really good on Excelerator and Discoing LEDs. Rob would like to hear from other enthusiasts. His address is 50 Red Leasowes Rd, Halesowen, West Midlands B63 45E.

Keep those listings and tips coming!

```
0 PC=49152
5 FORL=0TO127:READA:POKE PC+L:NEXTL
8 SYS49152
10 DATA 160,50,169,8,32,177,255,169
20 DATA 111,32,147,255,169,77,32,168
30 DATA 255,169,45,32,168,255,169,87
40 DATA 32,168,255,152,32,168,255,169
50 DATA 5,32,168,255,169,1,32,168
60 DATA 255,185,77,192,32,168,255,32
70 DATA 174,255,136,16,205,169,8,32
80 DATA 177,255,169,111,32,147,255,169
90 DATA 85,32,168,255,169,67,32,168
100 DATA 255,32,174,255,96,169,255,170
110 DATA 32,27,5,32,27,5,202,224
120 DATA 1,208,248,32,27,5,32,27
130 DATA 5,232,224,255,208,248,240,235
140 DATA 138,72,73,255,168,169,16,141
150 DATA 0,28,202,208,248,169,255,141
160 DATA 0,28,136,208,248,104,170,96
```

ATARI 8-BIT ANTICS Roadshow

Plumbing the depths

A little routine from Rob Berry of Nottingham. Have you ever looked on with envy at other 8-bit computer users whose machines can manage true lower case descenders? No, neither have I, but here's the program anyway.

```
10 DL=Peek(560)+256*Peek(561)
20 Poke DL+3, 67
30 For A=6 to 23:Poke DL+A,3:Next A
40 For A=24 to 26:Poke DL+A, Peek
(DL+2+5) : Next A.
```

The routine is using Antic mode 3 in a display list to generate the descenders. Antic mode 3 uses 10 scan lines (rather than the usual 8) and by using scan lines 1 and 2 as 9 and 10 the y, j, f etc., characters can be redefined.

Flight of fancy

Hands up all those who fly Sub Logic's Flight Simulator? FSII as it's popularly known is a comprehensive and fascinating piece of software which has some very interesting bugs in it. Mountains that disappear, strange posts in the ground, daylight at in the dead of night etc. Well if *you've spotted anything unusual whilst flying around, write, giving positional details and I'll print them in the column. Who knows what devilish bugs we might discover...

Animated talk

Staying with a graphics theme, for those of you who are new to the world of Atari 8-bit and would like to get into animation, or, if you want to write a game using animation but don't know where to start, then try this little routine.

```
10 Graphics 1+16
20 SCRNSZE=Peek(88)+256*Peek(89)
30 For I=0 to 19
40 Poke SCRNSZE+I+20*I,33
50 Poke SCRNSZE+I+20*1,0
60 Next I
70 End
```

This program prints a what appears to be a moving character 'A' diagonally across the screen.Line 40 pokes the ATASCII character 'A' into the first position on the screen (ATASCII is Atari's own version of standard ASCII. A would normally be 65 in ASCII, but i ATASCII it becomes 33). Line 50 erases the character A from the screen at the position it was last printed. The illusion of animation is created by lines 40 and 50 which print then immediately erase the A character to and from the screen. Because this takes place faster than the eye can detect, the A appears to travel across the screen. Now although this is pretty basic stuff as far as animation is concerned, it is the basis for all computer animated graphics.

And finally...

Have you ever wanted to increase the speed of your cassette loading? Rambit, a company based in Lincs, has developed a method of increasing the speed of your cassette by up to 75%. You're limited to a maximum 48K program length, but that's a lot of code. For more details contact Rambit at 16 The Green, Thurlby, Lincs PE10 0HB.

Edmund Blake

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PCW PATCH

Caught out

For all cricket fans – if there are any left after England's miserable performance this summer – Graham Gooch's Test Cricket is still available from Audiogenic, not Alternative, as I said a bit ago. It costs £19.95 and works on the 8256 or 8512. It's still in a few shops or can be ordered from 01 861 1166. Audiogenic are working on a 9512 version which should be 'out soon' – well, before England regain the ashes at any rate.

Adventure corner

As promised, a round-up of adventures on the PCW. The best of the current bunch are: ***Lancelot*** – Arthurian legend, well written dialogue, nice illustrations, good gameplay. £14.95 (Mandarin 0625 878888); ***The Pawn*** – Typical 'Middle Ages' adventure with good illustrations and fiendish puzzles. £24.95 (Rainbird 01 240 8838); ***Time and Magik*** – Trilogy of time travel. Good atmosphere. £14.95 (Mandarin 0625 878888); ***Jinxster*** – A slightly cynical and jokey adventure with a more modern humour. £24.95 (Rainbird 01 240 8838); ***Corruption*** – Set in a City world of insider trading and dodgy high finance: get them before they get you! My current favourite. £24.95 (Rainbird 01 240 8838); ***Fish*** – Decidedly odd game; you're a fish and have to save your aquatic world. Great graphics. £24.99 (Rainbird 01 240 8838). Honourable mentions too for anything by Infocom and Level 9.

One series I haven't heard of before is Audiogenic's £19.95 'Classic Quests', including *Goblin Towers*, an easy game and *Cornucopia*, which is big and difficult. All come with sealed envelope containing hints. Details from Supersoft/ Audiogenic on 01 861 1166. I'd be interested to hear if anyone has played them.

Less is more

You can issue two commands in CP/M by separating them with a ! thus:

```
DIR A:! DIR B:
```

for example will give you a directory of A then B. This gives you a nice way of assigning two or more commands to one keystroke in a SETKEYS file: a neat trick if you want to go into BASIC from Protext (to sort a file perhaps) and then automatically go back into Protext when BASIC finishes would be to make one key return the line `BASIC!PROTEXT`[RETURN].

Basil Pigg

Pigg Book of Records

Strangest PCW

David Rathbone of Eisenstein converts PCWs into the strangest machines.

He repackaged the PCW in a box and called it the 'Odessa', a portable PCW which runs off batteries. He has also put together an amber screen 9512 with two disk drives and 1024K of memory, and even a sideways-on PCW – a conventional model tilted round 90 degrees so that the disk drives are at the bottom. The screen is therefore taller than it is wide, like a piece of paper, and specially written software by David switches the screen round so it suits the new format.

QL corner

Solent group

A few issues ago (*Express* 36) I listed the various QUANTA regional sub-groups and thought you might like an account of the activities of one such group.

The Solent group is quite typical, in that it has a total of about 30 members, with around 12 turning up at the meetings, usually held on the first Saturday of every month at the College of Maritime Studies, which is about half-way between Portsmouth and Southampton.

Most meetings are informal, with members setting up their systems and showing one another their latest hardware or software acquisitions. There's plenty of discussion and advice swopped about the various QL packages.

Having been involved with the running of this type of group in the past, I suspect that many members go to meetings not just because they can meet other QL users but also because it gives them a few hours to play with their computers without frequent interruptions from 'She Who Must Be Obeyed'!

Occasionally a guest speaker is invited, or one of the members give a talk. Members are available at meetings, or any other time, to help other members who have problems.

If you live in the Southampton or Portsomouth area, why not go to one of their meetings? Details from Graham Evans on (042 121) 3350.

Crash your QL!

It is not generally known that pressing the Control, Alt and '7' keys simultaneously causes the QL to 'crash'. Strange as it may seem, this is not a bug but a perfectly intentional debugging aid!

This unlikely combination generates a Non Maskable Interrupt that was intended to transfer control to debugger software in EPROM on a board plugged into the expansion port, and connected to a 68000 development system.

If you know what you are doing, you can make this interrupt do something useless - I've seen it used to print 'EEK!' at the top of the screen. You can use it to do something just as interesting!

Packet racket

Leon Heller, G1HSM, was operating a packet radio station using a QL at the recent Sussex Amateur Radio and Computer Fair, held at Brighton Racecourse.

Leon has just set up a packet mailbox/BBS in Hastings. The call sign is BG7HAS, if any of you with amateur radio licenses and packet facilities would like to send him a message. The BBS has to run on a PC, unfortunately, as suitable software isn't available for the QL.

The Hastings and Rother RAYNET (that's the nationwide amateur radio emergency network) organiser also uses a QL for packet radio at his base station, with a Z88 for portable operation.

John Torofex

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BEEB BOX

Gobble, gobble

This is the one you've been waiting for. Yes, does the much hyped Ballistix's bite match it's bark, or does it go "gobble gobble." The game is a strange mix between pinball, and football, with the player scoring goals by forcing a ball into the opponents net by firing smaller balls at it. There are various obstacles, twists and other enhancements added on, but the basic gameplay is quite simple.

The main ingredient of the game is speed therefore, which it has in plenty on the BEEB.

Share and enjoy

In mentioning the Acorn Shareware group a few issues ago, I fully expected that would be the last to be heard from them. So, I was pleasantly surprised to receive some software for review from them. It's difficult to get excited about character definers, I have seen some superb ones in my time, but Chardef is certainly a very competent example of the genre. Icon driven, the program is also fast and easy to use. Just one criticism, the error trapping mechanisms are a little primitive, and it's very easy to find yourself back at the BASIC prompt. Keep sending the software!

Alas, the Electron version in no way matches up being sluggish and generally much less fun to play, in spite of Peter Scott's efforts. The verdict is, for the BBC version a thumbs up, and for the Electron version a thumbs down.

Star trekkin'

After bemoaning the lack of new hardware for the BBC last week, I was delighted to be lent a Trekker robot vehicle.

Supplied by Clwyd Technics, it's a superb piece of engineering, and although not completely new this is the latest version. Everything you need to get started is included, right up to overhead transparencies, and activity worksheets.

That last item gives the purpose of the vehicle away. Its main place of use will be the classroom helping children with all kinds of learning. Small firms wanting to investigate the use of robots, without losing several limbs for the privilege will no doubt also be interested.

So it's a pity that the control software felt, well a little agricultural in use. And although comprehensive, the large listings section at the back of one manual was difficult to read. Why not just put them on disk?

The only other criticism I have regards the umbilical cord. This tends to tangle up very easily, perhaps a heavier duty round cable would be in order here? Otherwise, a total joy and well recommended.

The Trekker Robot runs off the User port, as do many other peripheral devices. Can it be programmed? The answer is yes it can. Memory addresses &FE60, &FE62 (part of SHEILA) are your starting point here.

Andrew Brown

MSXTRA

Socket to me

Jon Tasker of Prenton, Wirral, asks if it is possible to purchase a new cassette recorder socket for his Toshiba HX/10, as he is experiencing loading difficulties, and believes the socket is to blame.

Well John, you could ask your local Toshiba dealer if he could help. Toshiba are quite a large company, and keep stocks of most items for several years. Failing that you could try one of the repair companies that are willing to handle MSX computers, such as PM Engineering, Unit 8, St Ives, Cambridgeshire, Tel 0480 61394. You may find that a new socket is not required, and a resoldering job is all that is needed.

Give me a freehand

Last week I had the opportunity to try version 3 of the amazing Salas Freehand, the graphics program for the MSX2.

To see high quality digitised pictures loaded, and then manipulated using an icon driven system is impressive in itself, but to know that the entire program is written in MSX 2 BASIC takes some believing. This program does everything a PRO drawing and graphics program does, yet cost only £10.00, and is supplied on 3.5 inch disk. This is surely a must for any MSX 2 owner.

David Webb of 11 Ayscough Avenue, Spalding, Lincs is the person to contact on 0775 711108 if you want to buy one.

Winding me up

Michael Walsh, from Dundee, is asking what has happened to the Konami Club Magazine. He paid £8.00 in Dec 1988, and has yet to receive a magazine.

KSC has now been officially wound up. All members should have received the last magazine, and a form to claim your refund.

If you haven't received your copy, I suggest you write to them at Sherwood House, 22 Courtenay Park, Newton Abbot, Devon TQ12 2HB. Mark Smith of the KSC has assured me that he will deal with the matter personally (nice chap that he is).

Nemesis comes

Finally I would like to thank a young man (I presume from the writing) for sending in a tip for Nemesis.

To get to the first bonus stage fly between the third pair of back to back heads on the Easter Island Head level.

If you fly through the gap in the rocks at the bottom of the screen on the first level, then through the rocks at the top of the screen on the level that is like the first level, but is inverted, this will also send you on to a bonus level.

My correspondent also says that the game end is disappointing with only a brief message to say well done. If you'd given your name, I could have mentioned it here, and that would have been much better than finishing *Nemesis*!

Anyone who writes, please send your name as well. Thanks also to all those who write in to this column, your letters are much appreciated.

Keith Neal

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These ads will go in the new ad section which starts on September 2nd (issue 43).

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

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

HELP!
Amiga COBOL?

I am a proud owner of a Commodore Amiga A500 – although I cannot afford to upgrade it to 1 meg of memory yet. I am a second year student on a OND course of computer studies at Exeter College in Devon. This year we will be learning COBOL. Can you tell me if there is a COBOL language package available for the Amiga, who makes it and also the price?

Phil Palmer, Crediton, Devon

• I've been unable to find any commercial COBOL packages but have a rummage in the public domain wherein you should be able to come up with COBOL compiler.

One of the better Amiga public domain services is that run by George Thompson Associates. Call the company on 0770 82234.

HELP!
Frequency modulated

What is an MFM track on an Amiga floppy disk?

Also, in your printer round up last week (*Express* 38) you said that the Panasonic 1084 was fully Epson compatible. I tried using the Epson drivers from the Amiga workbench disk to run on the printer but found it would not work with graphics (Photon Paint) and often sent some wierd characters out while printing text.

Bill Turner, Bristol.

• MFM is the frequency modulation method used to physically record data on to the magnetic surface of the floppy disk.

Did you *read* the printer review? I said the Panasonic 1081 (not 1084) printer was Epson compatible. The 1081 has all of the control codes used by Epson as well as several extra commands to perform Panasonic-specific tasks. The machine is faster and significantly cheaper than Epson printers and is one of the most popular 9-pin printers at the moment.

HELP!
Perform the operation

I write hoping that one of your readers might be able to help me in my quest for an operation instruction manual for a serial 8056 Compact printer, which was on sale about three and a half years ago.

I bought the printer without a manual and of course it is not much use without it.

T. Moncur, Hull, Humberside

• Any techtippers with an unwanted copy of the manual? Send it in, I'll pass it on and reward you...

BUG OF THE WEEK

Anyone using the PD/Shareware word processor *WundaWrita* should take the following action: douse it in petrol immediately and torch it.

It is riddled with bugs, some of which I have detailed below...

1. If you delete a file on disk from within the word processor, it deletes it fine – along with every other file on the disk!

2. If you try to save a file with the same name as an existing one, it saves the new one as a completely empty file.

3. If you print out a file which includes the word 'bold', all the text following the word comes out as bold. A similar thing happens for italic and underline!

Raj Chatterjee, London

• Thanks, Raj – your bizarre collection of bugs has won you a sub to *Express*. Come on, you techtippers out there, get writing in with the bugs you've found in a utility or game and you could win yourself an *Express* subscription or a piece of software!

• Nonexistens mirabilis Superficially similar to *Notoxus monoceros*, this beetle inhabits public places where it has the unusual property of disappearing as soon as it is caught

HELP!
Auction man

I recently bought a printer described as Epson compatible from MCD Auctions.

On getting the printer home, I began having difficulties getting it to work with my PCW8512 so contacted the user club to be informed that this printer was not Epson compatible.

I then contacted MCD, told them what had happened and asked for a refund. This was refused and a suggestion was made that I submit the printer at the next auction.

I hope that by writing this letter other readers will made aware of what can happen.

A. A. Stultz, Harlesden, London

• An unfortunate experience, but if it is your intention to use the machine with LocoScript 2 on the PCW (which from the smiling faces, musical notes and other jolly glyphs adorning your missive I assume it is) then the machine doesn't need to be Epson compatible – LocoScript provide lots of printer drivers on the program disks and can supply you with a driver to suit any machine if you telephone them. Contact LocoScript on 0306 740606.

HELP!
Horses for courses

I will be starting an A level computer science course in September and will be learning and using Pascal frequently.

I have a PCW 8256 and would like to know whether it is best to learn Mallard BASIC and then pascal, or if it is possible to for me to learn Pascal in about eight weeks with only a simple understanding of BASIC.

Also could you suggest a good book on Pascal and a cheap but effective Pascal language package for the PCW.

Simon Owens, Knapwell, Cambs

• Learn Pascal in eight weeks, indeed! If you apply yourself, you can learn pascal in eight hours – the rub is learning to manipulate the language effectively, which can take some people years, maybe forever. No-one fully absorbs a language so that they can't learn some new wrinkle.

Go ahead and get to grips with Mallard BASIC if you want. Understanding one language is the key to understanding others – programming languages are all built upon the same principles (getting the machine to do something using loops, subroutines, variables etc).

A very good book with which to begin Pascal is *Mastering Pascal Programing* by E. Huggins, published by Macmillan and priced around £4.50. This is one of the standard texts detailing the language. You can buy a very good PCW Pascal compiler from HiSoft (Pascal 80) for £49.95 (even cheaper mail order). This compiler is fast and produces compact code. Contact HiSoft on 0525 718181.

HELP!
Monitor milking

Slapped wrist time for not paying attention to you, as I'm sure you've answered both of these questions before, but...

Will the Amstrad CPC colour monitor connect to to the Atari ST? If so, is it good enough to work with the ST for word processing and games?

Secondly, all my word processing files on the 6128 written with Protext, will have to be re-typed if I can't somehow port them across either as an ASCII file or via a CP/M emulator. If you could explain in words of one syllable, if and how files can transferred from 6128 to ST, I would be deeply grateful.

Rick Billson, Staines, Middx

• Not paying attention, huh? You're a very naughty nephew. Cough up some of your pocket money for a back copy of Express (issue 39) which details both colour monitor to ST connections and file transfer between different format machines. Send the ridiculously large sum of 75p to *Express Back Issues, The Old Barn, Somerton, Somerset TA11 7PY* and you'll get one by return of post.

HELP!
Ménage à trois

Three questions for you:

1. Can you tell me the best assembler for the Spectrum? I need one that's compatible with microdrives.

2. Can you recommend a book for finding out really heavy stuff about computer chips etc. I want to know how they work, rather than be told that they do something when they're told to. I hope to design my own processor one day.

3. Where can I get a copy of Quazitron for the Spectrum?

Geoff Winkles, Leicester

• 1. The Code Compressor/Z80 Tollkit from Lerm (call 091 2533615). The package includes an assembler, disassembler, full screen editor and lots more. Price? A very reasonable £8.99. State your drive configuration when ordering.

2. Designing your own microprocessor? Especially pertinent considering you own a Sinclair Spectrum. A very good introduction to the microprocessor and dependant chips is Integrated Circuits and Microprocessors by R. C. Holland, published by the Pergammon Press. The book should cost about £11.50.

3. I'm afraid I've absolutely no idea (honest, huh?) and I've never heard of Quazitron.

If anyone out there can tell me where to find it, I'd be deliriously grateful. ➤

TECH TIPS

HELP

TIP!

Hi, it's CLI IFF

Anbody who has used the Amiga CLI would realise how useful it would be to know exactly what commands the disk has.

For example, Deluxe Paint has a *command (showpic)* which allows you to load any IFF pic files into CLI windows.

The way in which you find this out is by typing List C <return>. This shows the contents of the directory 'C' which is where all the CLI commands are kept.

By copying commands off other disks you could create your own 'super CLI' with the commands you want.

Robin Hill, Dudley, West Midlands.

HELP!

Improve your size

I have owned a Sinclair spectrum +3 for about two years now and I am becomming very frustrated by the tiny amount of information you can put onto a three inch disk, only about 170K per side.

I have heard of programs for the Atari ST that allow you to format the disk so that it can hold much more information, I was wondering if you can get something like that for the +3, to say format the disk to 750K instead.

Whilst I am writing to you I will ask you a question on my Father's behalf *(that's jolly decent of you – Uncle Techtip)*. He owns an Amstrad CPC464. He wants to know where you can get CP/M software from and can you get any PD software for the CPC?

Michael Kirk, Stevenage, Herts.

• A big formatter for the Spectrum? There appear to be no big formatters around for the Spectrum. The problem lies with the DOS rather than the drive mechanism itself which would happily format to around 700K.

If any Techtipper has knowledge of a public domain utility, call your Uncle and I'll publish and be damned.

There is an abundance of good public domain software available in the CP/M format for the 8-bit Amstrads. Try:

CP/M User Group, 72 Mill Road, Hawley, Dartford, Kent DA2 7RZ.

PD Software, Winscombe House, Beacon Road, Crowborough, West Sussex TN6 1UL. Tel: 08926 63298.

PD-SIG, 90 Braybourne Close, Uxbridge, Middlesex UB8 1UJ.

HELP!

Can you C another pun

I've just finished my A levels and am about to start a degree in Computer Science at the Central London Polytechnic.

As part of my course, I shall be making extensive use of the C programming language mainly on the Unix operating system. I also have an Atari ST at home which I am going to program in C in order to help my studies.

Can you recommend a good text book on the C programming language? I already know BASIC so I do understand some of the finer points of programming (I don't need to have a complete beginners book).

S. Flyte, Bridey, North Yorks.

• The definitive text detailing the C programming language is *The C Programming Language* by Kernighan and Ritchie and published by Prentice-Hall. Kernighan and Ritchie are the programmers responsible for the design and writing of the C language.

Unfortunately the book is a little expensive when purchased from a student grant (£23 or so) and not really for newcomers to the language. Obtain a copy of *C: Step By Step* published by Harvard W. Sams and Company, priced £22.95.

This refernce book is an ideal introduction to C and covers every aspect of the language. Both books are obtainable from any high street book shop.

HELP!

More about monitors

I have recently upgraded from an Amstrad CPC464 to an Amstrad PC1512 mono and I would like to know if it is possible to use the colour monitor from the CPC on the 1512?

Also, is it possible to upgrade to a higher resolution (EGA for instance) given a suitable power supply?

Don Cooper, Plymouth, Devon.

• It would not be possible to use the CPC's monitor without extensive tinkering with power supplies, cables etc. You can upgrade the 1512 to colour although it is a tricky and involved process. (Why did Amstrad locate the power supply for the system in the monitor?).

The Portobello Trading Company of Edinburgh is offering a mono to colour upgrade service. Contact the company for further details of prices etc., on 031 657 2988.

HELP!

Z88 data

I've just bought a second hand Z88. It's ideal for portable word processing but I'm worried about the data I store. Last month I took it on holiday and switching it on one day I found all the data had gone – I had to 'hard reset' the machine. This despite charging the cells the day before!

How can I keep my data permanently stored?

Imogen Parker, Cardiff

• The first thing to do is to take your rechargeable cells firmly in one hand, walk outside and throw them as far into the Bristol Channel as possible.

The problem is that the voltage they supply is barely enough to power the Z88, and when they fail the power cuts out almost immediately. One slightly dud or weakening cell and the power dips suddenly, wiping your Z88 clean. Use normal alkali cells – they are much stronger and fall off gracefully, giving you that 'bat low' sign for plenty of time before your data is in danger.

If you want to keep your data permanent, there are no quick answers. you could buy an EPROM pack (this retains data semi-permanently and can only be wiped with a special device) or a disk drive (very expensive) but the only safe way is to transfer your writing to the safety of the disk drive on your home micro asap.

If you plan to spend long periods away from home, dare I suggest that the Z88 is not a good option, and that you'd be better off with a portable PC (see this issue of *Express*).

SEE THE COMPLETE RANGE OF

mini OFFICE

PRODUCTS AT THESE SOFTWARE LINK DEALERS UNTIL THE END OF SEPTEMBER:

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Antics, 16 St Swittins Street, **Worcester** (0905 22075)
Antics, 8 Regent Circus, **Swindon** (0793 611253)
Aylesbury Computer Centre, 38 Kingsbury, **Aylesbury** (0296 89480)
Bits & Bytes, High Street, **Bognor Regis** (0243 867143)
Bits & Bytes, 47 Upper Orwell Street, **Ipswich** (0473-219961)
Bits & Bytes, 45 Orwell Road, Felixstowe, **Ipswich** (0394 279266)
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Chips, Clarks Yard, Darlington, **Durham** (0325 381048)
City Software, 66 Lime Street, **Liverpool** (051-708 7100)
Club Computers, 6 Evans Yard, **Bicester** (0869 248600)
The Computer Shop, 329 Ashley Road, Parkstone, **Poole** (0202 737493)
The Computer Shop, 4 Holland Walk, High Street, **Barnstaple** (0271 78787)
Comtazia, The Shopping Mall, Merryhill Shopping Centre, **Brierley Hill,** West Midlands (0384 261698)
Comtazia, 204 High Street, **Dudley,** West Midlands (0384 239259)
Dataworld, 13 Trinity Street, **Gainsborough** (0427 810151)
Dataworld, 185 Froddingham Road, **Scunthorpe** (0724 858744)
Dataworld, Shopping Arcade, Bridge Street, **Worksop** (0909 472032)
Dimension Computers Limited, 40-42 High Street, **Leicester** (0533 517479)
Erol Computers, 125 High Street, Walthamstow, **London E17** (01-520 7763)
Evesham Micro Centre, 63 Bridge Street, **Evesham** (0386 765500)
Gamer, 71 East Street, **Brighton** (0273 728681)
GB Microland, 7 Queens Arcade, London Road, **Waterlooville** (0705 259911)
Hobbyte, 10 Market Place, **St Albans** (0727 41396)
Hobbyte, Unit 1G, Arndale Centre, **Luton** (0582 457195)
Intoto, 1 Heathcoat Street, Hockley, **Nottingham** (0602 410987)
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Mansfield Computers, 33 Albert Street, **Mansfield** (0623 31202)
Mays HiFi, 57 Churchgate, **Leicester** (0533 516789)
Micro Centre (Evesham), 1762 Pershore Road, Cotteridge, **Birmingham** (021-458 4564)
Microfun, Unit 12, The Guardian Centre, **Rotherham** (0709 360000)
Microfun, 83 Holme Lane, Hillsborough, **Sheffield** (0742 345002)
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Number One Computers, De Carteret House, Hilgrove Street, St Helier, **Jersey** (0534 77268)
Panther Computers, 2 Regents Arcade, **Wantage,** Oxfordshire (0235 74831)
Shekhana, 2 Gladstone House, Woodgreen High Road, **London N22** (01-889 9412)
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Soft-ly, 5-7 Deer Walk, Shopping Buildings, **Milton Keynes** (0908 670620
Soft Spot, 5-6 Broad Street, **Banbury** (0295 68921)
Soft Spot, 42 High Street, **Daventry** (0327 79020)
Software City, 59 Foregate Street, **Stafford** (0785 41899)
Software City, 1 Goodhall Street, **Walsall** (0922 24821)
Software City, 3 Litchfield Passage, **Wolverhampton** (0902 25304)
The Software Shop, 8 The Arcade, Eltham High Street, **London SE9** (01-850 6177)
SRS Microsystems, 94 The Parade, **Watford** (0923 226602)
Sunderland Computer Centre, 29 Crowtree Road, **Sunderland** (091-565 5711)
T.C.S. Business Centre, 123 Bournemouth Road, Parkstone, **Poole** (0202 746353)
Witney Computer Centre, 105 High Street, **Witney** (0993 78294)
Worldwide Software, 1 Bridge Street, **Galashiels** (0896 57004)

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DATABASE SOFTWARE

STREET TALK

By Rik Haynes

A **TRIO** of ST and Amiga Hewson games are due for release over the coming months, including the latest title from the *Verminator* authors: Chris Hinsley and Nigel Brownjohn. *Onslaught* is a role-playing adventure with four arcade hack'n'slash sequences. I've played an early version, and the graphics are well up to Brownjohn's usual high-standards. The other two games are *Steel*, a space arcade adventure, and *Slayer*, the 16-bit version of Rack-It's C64 shoot'em-up. *Slayer* will be the first out next month, with *Steel* and *Onslaught* following in October and November respectively.

PC GAMEPLAYERS can rejoice in the fact that Psygnosis is launching three of its top titles onto the PC during the next few weeks. *Menace*, the horizontally-scrolling shoot'em-up, *Ballistix*, an action ball game, and *Baal*, a platform arcade adventure, are all due for release between now

• Was the end-of-level guardian's weight loss caused by waiting for the ST version to come out?

and the beginning of September. EGA *Menace* is looking great, if a little slow. Psygnosis is also shortly releasing *Blood Money* on the ST and C64, and *Ballistix* on the C64. Finally the long-awaited sequel to *Barbarian* is reported to be "coming along nicely"- out sometime in the Autumn.

ROLE-PLAYING FANS should be interested to hear US Gold is releasing a new SSI game on the PC soon. Sword of Aragon is a "unique roleplaying/ strategy game with success depending on your skills at allocating resources and tactical combat manoeuvring".

DO YOU THINK computer magazines over-rate games in their reviews? Tell us by calling our 24hr hotline on 0225 444439. Alternatively write to, or fax Playback (normal address and fax number).

TAME GA

CHEAT: PC ELITE

A complete set of powerful pokes for this classic space trading game, courtesy of Bill Turner from Bristol

To be a PC Elitist you'll need: one original saved CDR file from *Elite* (at the same position on the disk as it was saved) and a disk editor (PCTools, Norton, etc). Then edit the file as shown in the table:

Bill comments:
"Although I've tested most of these options, some have intermittent side effects. The best way to cheat (and be safe) is to shove $FA in all the cargo locations and sell your booty, this will raise enough resources to equip your ship to all its needs. But just experiment – save a file, change a few of the values, load it up and see the results."

• Well done Bill, see what you can do with the PC version of the superb Millenium 2.2 from Electric Dreams...

OFFSET	ENTER	RESULT
$78	$00-$FF	Loadsa Missiles (0-255)
$79	$00-$FF	Cargo Bay Extensions (0-255)
$7D	$00-$FF	Fuel Scoops (0-255)
$7E	$00-$FF	Escape Pods (0-255)
$7F	$00-$FF	Energy Bomb (0-255)
$80	$00-$FF	Extra Energy Unit (0-255)
$81	$00-$FF	Docking Computers (0-255)
$82	$00-$FF	Galactic Hyperspace (0-255)
$83	$FF	Mining Laser
$84	$FF	Military Laser
$86	$FF	Pulse=Fore, Aft, Left & Right
$88	$??	Loadsa dosh...
$89	$??	...and then some more!
$97	$00-$FA	Tons of Food
$98	$00-$FA	Tons of Food available to buy
$99-$B8		Same as $97 and $98 but for each item
$B9	$00-$FA	Tons of Refugees
$BD	$01	Mission 1 – Sun going Supernova
$BD	$02	Mission 2 – Cloaking Device
$BD	$03-$FF	Mission 3 – Attack on Coriolis space station
$BF	$FF	Witch Space for Skywalkers only

DO YOU OWN THESE GAMES?

● THE NEW ZEALAND STORY
● INDIANA JONES AND THE LAST CRUSADE
● RIK DANGEROUS
● THUNDERBIRDS

We've declared war on five of the hottest releases. We want to tame them and we need your help. Have you found a hidden cheat mode? How about a poke, or the odd tip to get you through a difficult stage? What about a bug?
If you have the info, you could win a fantastic new game, T-shirt or poster, by writing to Tame the Game, New Computer Express, 4 Queen Street, Bath BA1 1EJ or fax us on 0225 446019. Please state what machine you use.
Everybody who gets a tip, cheat, poke or bug published wins a prize! So what are you waiting for?

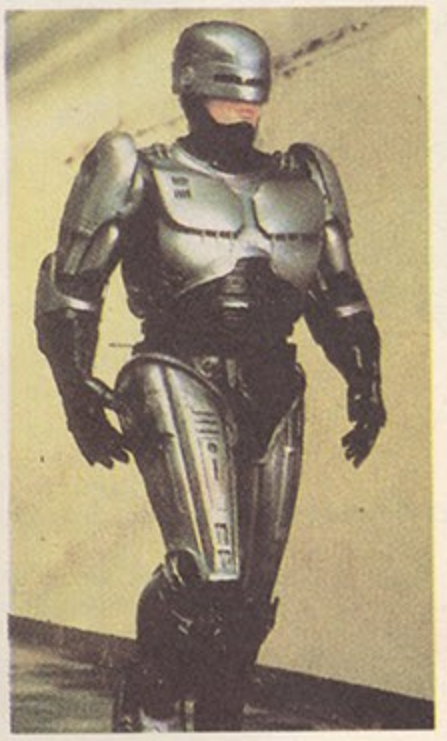
DON'T FORGET! We're also interested in high score claims on all the latest games – and we'll print the highest, provided you also give us THREE TIPS on how you achieved the score! Write to the address above.

P.S. We're also interested in **high score claims** on these titles – and we'll **print** the highest, *provided* you also give us **THREE TIPS** on how you achieved the score! Write to the address above.

REPLENISH ROBOCOP

Fancy infinite energy on the ST version of the No. 1 game? GARY BRACEY of Ocean tells you how...
"Pause the game and type 'ALEX MURPHY', then just press the left mouse button to restore your energy."
• Sorry, no prize for you Gary – you've more than enough games at Ocean already!

More *ROBOCOP* tips from J. McGLASHAN of Fife in Scotland
"When you're down to your very last bit of energy, if you kill something by punching it, you'll gain invulnerability for that stage of the game (this works best when punching bikes). When trying to free the woman on Stage Two, shoot at the attacker's right shoulder. Finally, when trying to shoot Dick Jones on Stage Nine, shoot at his head."



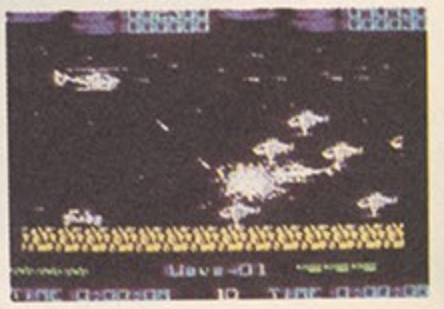
• We hope you enjoy the CPC version of Domark's* Licence to Kill, *J McGlashan

CHEATING AT: FORGOTTEN WORLDS

US GOLD provides a cheat for this popular coin-op conversion
"On the title screen of the Amiga version, type 'ARC' and press the '[HELP]' key. This starts a two-player game, with a cheat mode. Press 'S' to go to the shop (only once per level) or 'L' to move to the next level. If you buy a satellite at the shop, press '1', '2' or '3' to boost its power."

TREACHEROUS SILKWORM TACTICS

Some tips for the brilliant Virgin



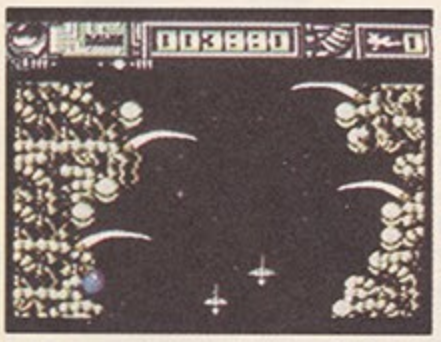
GAME

Games blaster from JASON SMITH of Telford, Shropshire
"When playing this fantastic C64 conversion of a crappy arcade game, always get a friend to be the jeep and you control the helicopter – because most of the enemy bullets go for the jeep. Also get the jeep to face its gun left, so it can blast any enemy helicopters that come up from behind. To avoid getting shot, keep moving your helicopter around in a big circle."

● *WEEK'S BEST HIGH SCORE!*
Jason claims a score of 926,300 on C64 Silkworm.
Sneaky stuff, Jason, but it's paid off this time 'cause you've won a copy of Xybots, Domark's latest coin-op conversion.

Another *SILKWORM* tip thanks to COLIN NEAL, Editor of Arcade Fanzine
"This cheat on the C64 version works when you've lost all your lives on any level: Hold the joystick downwards after the GAME OVER message is displayed, wait until the game level has scrolled to the end, and the guardian has come on screen, then plug your joystick into the other port and press fire. This should activate the other mode of transport, allowing you to go further in the game with a new set of Jeeps and Helicopters."

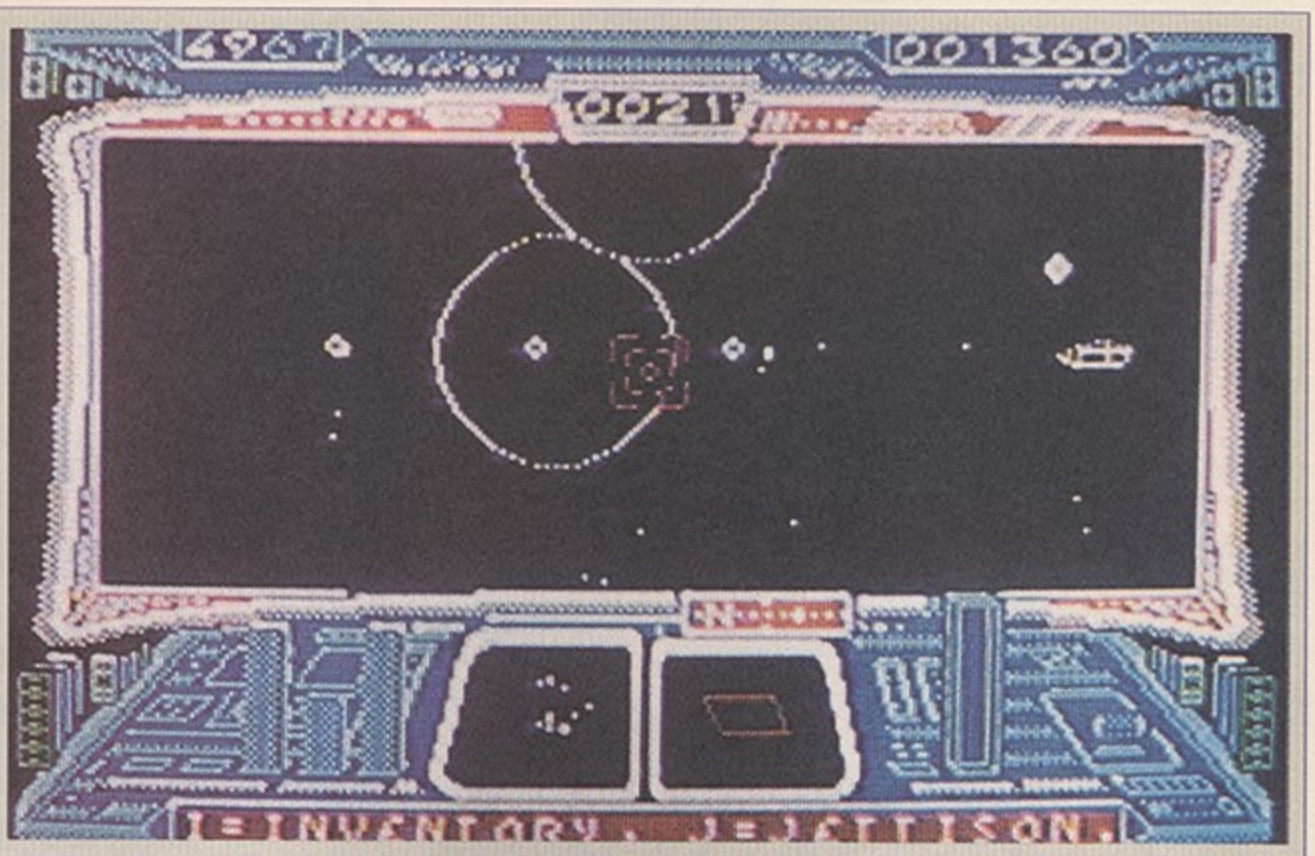
DOMINATING DOMINATOR



COLIN NEAL also has a cheat for the C64 version of the over-rated shoot'em-up from System Three
"During play on the first level, press 'X' and '[SPACE]' to change the alien attack waves and make the game a bit easier. When you lose all your lives (on the first level) the game will scroll to the end of the level to show you the heart."
***• Good luck with the fanzine, Colin. In the meantime, your reward for the info is Domark's new 007 Bond game,* Licence to Kill**

DENARIS INFINITY

A great cheat for a great shoot'em-up, thanks to UK publisher US GOLD
"When inserting the data-disk during loading, hold down the 'Z' key. Then plug your mouse into the joystick port and keep the right mouse button depressed. Press the left mouse button to start the game. Once the game is running, replace the mouse with your joystick. You now have infinate lives. You don't get a score, though, just a count of how many lives you've had."



STARGLIDER II

From Rainbird • Spectrum version reviewed

***Starglider II* was a huge success when it was released last year on ST and Amiga, and now, exactly a year later, comes the Spectrum version, but has it been worth the wait?**

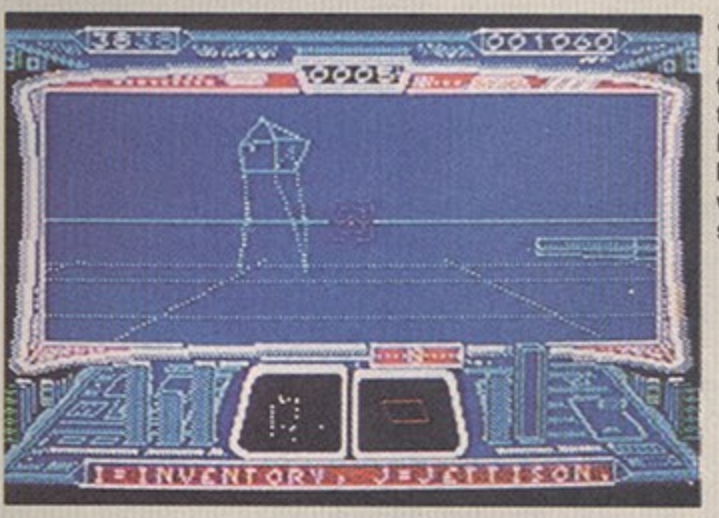
GAMEPLAY • Following on from the original plot of *Starglider*, you take control of the new Draggon Industries' prototype policecruiser in an effort to destroy the Ergonian beam projector on the planet Millway. But enough of this juvenile scenario, what about the game? Essentially, *Starglider II* is a cross between *Mercenary* and *Elite*, and can be played as a strategy game or a high-end shoot'em-up.

GRAPHICS AND SOUND • Some would say that the ST and Amiga versions of *Starglider II* are little more than impressive interactive demos of solid 3D graphics, so how can the Spectrum possibly hope to match the graphical superiority of these 16-bit decks? Answer: by doing the best it can. The wire-frame vector visuals are fast, and only slightly jerky – the sound-effects are okay, but not the best we've heard on the Spectrum. Considering the limitations of the machine, it's a faithful reproduction.

VERSION	PRICE/FORMAT	DUE OUT
Spec	£14.99cs, £17.99dk	Now
C64	No version planned	
CPC	No version planned	
ST	£24.99dk	Now
Amiga	£24.99dk	Now
PC	£24.99	11th Sep

OTHER VERSIONS • The ST and Amiga versions of *Starglider II* are the kind of games that you load up to impress your friends and relatives, thanks to their impressive filled 3D graphics which move on-screen with no noticeable loss of speed. *Starglider II* should be on the shopping list of any new ST or Amiga owner.

VERDICT ★★★★★
The hardest decision for Spectrum gameplayers to make is: which Rainbird game to buy – *Carrier Command* or *Starglider II*? The immediate answer is easy... both. But if you haven't the money to afford the two, we think *Carrier Command* may just have the edge in terms of depth of gameplay. Still, you should check out *Starglider II* before making any final decision.



• It may not be quite like the helm of the USS Enterprise, but it's still very impressive

WELL DUNN!

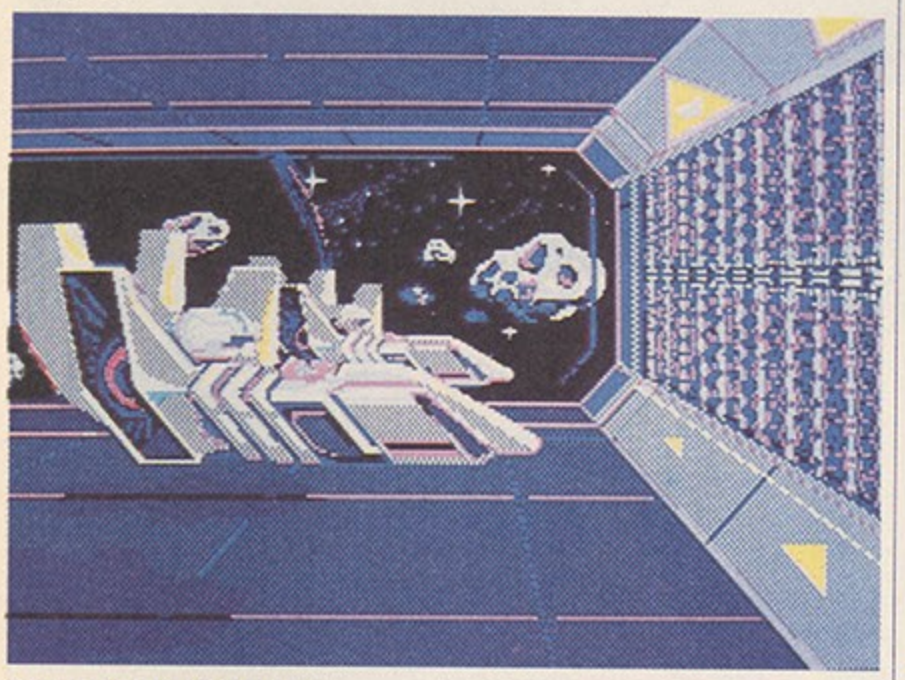
Spectrum *Starglider II* was written by Steve Dunn, a freelance programmer working under contract for Argonaut Software. Dunn previously wrote the Spectrum version of *Virus*, and is currently writing the first game for a new software company, Vivid Image, due for release at Christmas. *Starglider II* took 7 months to write, with Dunn coding on the PDS development system using a 286 PC. He encountered no major problems writing the game, and is especially proud of the 3D rotation routines, which he states are better than the original 16-bit versions. Game-cheat hunters are in for a major disappointment, though, because Dunn didn't put any cheats into the game. He felt cheats unnecessary due to the Spectrum version of *Starglider II* being too easy, even though some games testers disagreed with him on this. Rather less surprising is Dunn's claim that *Starglider II* "is the best Spectrum game ever". Tell us if you agree with him – call 0225 444439 now.

MINI-REVIEW

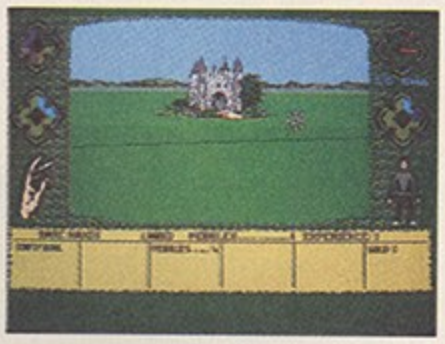
PURPLE SATURN DAY ★★★★★

Infogrames • CPC £9.95cs, £14.95dk / PC £24.95dk • Also on ST, Amiga • Out on C64 next month

This superlative blend of five separate games has finally made it onto CPC and PC formats. Already reviewed back in *Express* 4 on ST, the CPC and PC versions have lost none of their predecessors audio-visual quality or depth of gameplay. One particularly nice touch on PC *Purple Saturn Day* is the set-up screen allowing you to change graphics modes, sound-effects on/off, etc. If you've got a CPC or PC buy it, you won't be disappointed.



SLEEPING GODS LIE ★★★



Empire • Amiga • £24.99dk • Also on ST • Out on PC in mid September

Empire's debut game is a reasonable role-playing graphic adventure with adequate visuals and more than enough locations and characters to explore and meet. Unfortunately for Empire, *Sleeping Gods Lie* will be overshadowed by Infogrames new epic role-playing game, *Drakken* which is out next month.

LEONARDO ★★

Starbyte • Amiga • £19.99dk • Also on ST • Out on C64, PC in early September

We were playing arcade puzzle games like this five years ago, and we didn't enjoy them then either. Mundane sprites and backdrops, irritating audio and insipid gameplay. That's *Leonardo*! A (very) poor substitute for *Boulderdash* inspired play– we wish First Star had done 16-bit versions of this C64 and Atari 8-bit classic.

ONE-LINERS • ONE-LINERS

• Those spend-sprift guys at Microprose are shelling out another £2500 on their new racing-sim, *Stunt Car Racer* – in order to improve the graphics and "generally tidy-things up to make the game more presentable".

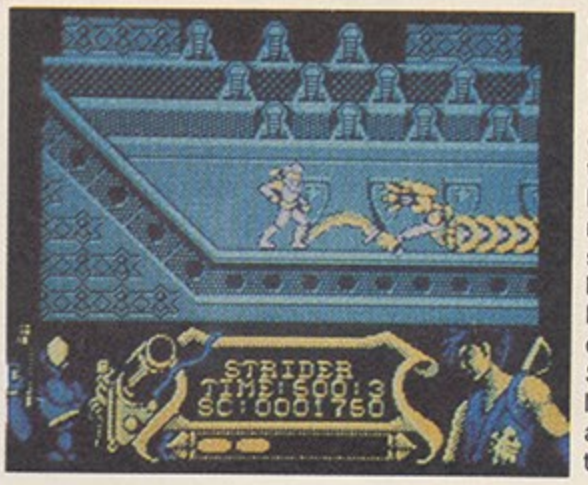
• England may have lost the Ashes but at least you can play E & J Games' new strategy cricket sim, *Cricket Master*, due for release next month on Spectrum, C64 and CPC.

• The follow up to that old faithful Microprose flight-sim, *F-15 Strike Eagle*, will include a special haze distance perspective mode in the PC VGA version.

• Good news for Mac gamesters: a Mac version of *Starglider II* has been written, the trouble is Rainbird isn't sure if it's going to release it in the UK.

• Microprose's *Ratpack* has been delayed till January 1990 cause of its "immense complexity".

FIRST PEEK



• The first exclusive look at the CPC version of *Strider* from US Gold. This Capcom coin-op conversion should be out in early to mid October on Spectrum, C64, CPC, ST, Amiga and PC. Gamewise, *Strider's* a multi-level, platform-scrolling shoot-em-up with you single-handedly taking on the Russian Red Army. We've played an early preproduction copy of *Strider* on the Amiga – and it's looking good. Keep reading for a full update when we've played the finished version.

Forget the sales level, feel the quality. These are, in our opinion, the best titles of the last two months.

HIT LIST TOP 5 GAMES

1. KICK OFF
Anco • C64, ST, Amiga
The best football-simulation ever. Realistic, fast and incredibly addictive.

2. NEW ZEALAND STORY
Ocean • Spectrum, C64, CPC, ST, Amiga
Accurate and playable conversion of one of the hottest coin-ops around.

3. CARRIER COMMAND
Rainbird • Spectrum, ST, Amiga
Spectrum owners have waited almost 2 years for this arcade strategy sim – fortunately it lives up to expectations.

4. SILKWORM
Virgin Games • Spectrum, C64, CPC, ST, Amiga
Playable conversion of a relatively unknown horiz-scrolling shoot-em'up coin-op.

5. STARGLIDER II
Rainbird • Spectrum, ST, Amiga
Spectrum owners are spoilt for choice – another brilliant conversion from a 16-bit classic.

Play back

YOUR views on the latest software – call 0225 444439

"Who the hell does Fielding Mellish think he is? He has no brain, proved by his *Citadel* review in *Express* 37."
An irate Martin Walker fan (and Fielding Mellish hater), no address supplied

"Is *Blood Money* from Psygnosis going to appear for the humble Spectrum? I've played it on the Amiga and it's totally wicked."
Geoff Winkless, Kirby Muxloe, Leicester
• *First the bad news: Spectrum* Blood Money *isn't very likely. But the good news is there's a C64 version due in late September*

"Why does everybody over-hype the Bitmap Brothers? They're just a bunch of boring programmers who've never written anything original or fun to play!"
Greg Williamson, Edinburgh

"The new design looks great – but where's the news on Activision's great line-up of *Dynamite Dux, Super Wonderboy, Altered Beast, Bomber, Powerdrift* and *Ghostbusters 2* ??!!!!"
Amanda Barry, Activision

"Silkworm on the ST is too fast – you can't keep up with the sprites. Bit of a disappointment"
Peter Flint, North Wales

"How do I get past the pack of bikers on Level 3 of *Robocop* on the CPC?"
D. Baker, Preston, Lancs
• *Try reading this week's Tame the Game...*

"When is *Ancient Mariner* by System Architects coming out on the Amiga? Are there going to be any more *Dragon's Lair* type games?"
Tahir Ahmed, Chesham, Bucks
• *Probably never, because System Architects went bust months ago. Yes, at Christmas or early next year*

"Everybody I know says *Denaris* on the Amiga is too hard – I cannot get past the second level. Firebird's *Warhawk* on the Atari 8-bit has better music and only costs £2.99"
N. Barnes, Kingstanding, Birmingham
• *Too hard? The same goes for you*

"In your last issue you said *Tempest* was only out on the ST. It's been out on the CPC for two years!"
Gerald Broad, Maidenhead

Are you delighted or disgusted with your latest games purchase? Get your opinion into print within seven days! Just call our 24-hour hotline on 0225 444439 ready to speak your mind. Or write on a post-card or the back of an envelope (in less than 50 words) to Playback, New Computer Express, 4 Queen Street, Bath BA1 1EJ or fax us on 0225 446019.

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COMPUTER CHAOS

More true life computer anarchy from the archives of Mel Croucher...

Washington DC

The label on a bottle of prescription medicine is printed by 24-pin dot matrix. It gives the patient's name, instructions for use, the name of the prescribing doctor and a compressed print message at the bottom.

Two things are interesting about the label: the name of the patient, George Dukakis, and the half-height bottom line which reads, 'this computer sucks'.
(Village Voice)

Woolongong, NSW, Australia

76 year old David Jameison goes into hospital for two weeks, and runs up a debt of A$58 in unpaid council house rent.

He clears the debt the following week but the State's IBM mainframe logs him as a bad debtor, due to programming error.

Some months later he applies for a home swap, because his health is deteriorating and he wants to be nearer his daughter. Housing officials write him a letter saying that he cannot have a new home because of rent arrears.

His daughter appeals on his behalf, and another letter is sent apologising for the programming error. It arrives on 13th November 1985.

Mr Jameison never reads it, having shot himself the day before with his army service revolver.
(Sydney Morning Herald)

Ivory Towers, Great Britain

The Association of University Teachers calls a one day strike in protest against Government underfunding. They target the university computer centres, which they reckon can be closed down and thereby bring the education system to a grinding halt.

In the event, nobody notices any difference when the computers go down, and university department carry on as usual.

There is one victim of the strike, however. A militant professor is picketing in the car park and gets run over by the caretaker.
(Kent Messenger)

Bath, Avon

A certain computer magazine publisher is very proud of its Mac-based desktop publishing system which means writers can type their copy direct onto the page on screen.

Unfortunately the editor on one of the magazines forgets that there is no traditional 'sub' who looks at the copy before it gets sent to the printers. The February issue goes out with text accidentally left in at the bottom of each news story including one which says clearly 'Comment: This is boring'.
(Anonymous)

Newport, Gwent, Wales

Gina Verrechia is the matriarch of a family firm of caterers, established for forty years. Her sons persuade her to invest £50,000 in an NCR-8270, to process accounts, stock, ordering and sales.

Problems begin at once. The VDU blows up because it is a US voltage model, the printer spews out garbage and the computer overheats. £15,000 is needed to keep the system going, and a back-up unit takes five months to deliver.

Finally, Gina is told that she needs an additional 120 megabytes and promptly sues everyone in sight. Unfortunately she goes bankrupt before the case come to court.
(Licensed Victuallers Association)

Los Angeles, California

Bank of America abandons its $20 million computer system after wasting five years and $60 million more trying to make the damn thing work.

The funding begins in March 1984, with software pioneer Steven M Katz promising a definite deadline of December 31st.

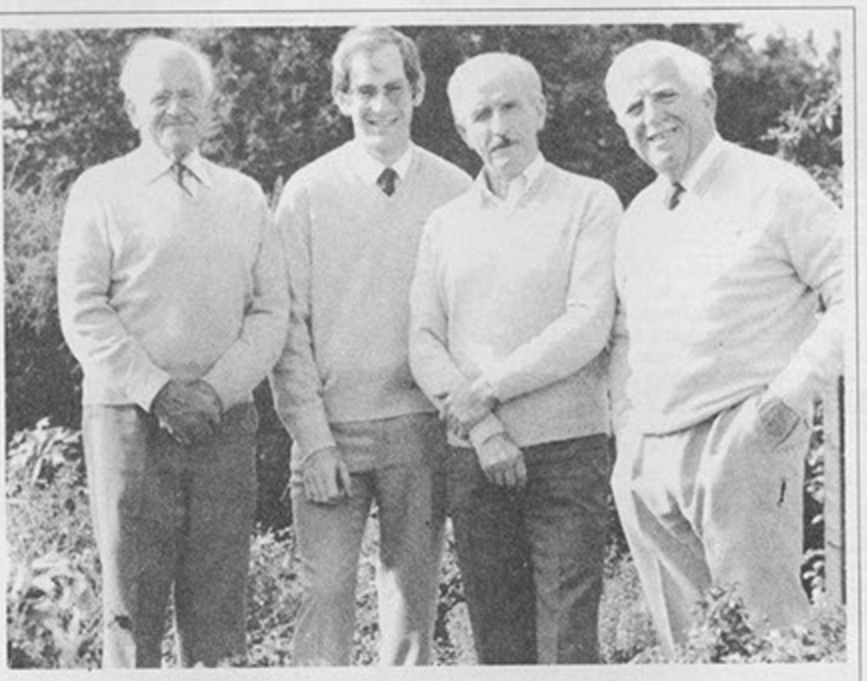
By March 1987 the system is still infested with bugs, and the first disk drive explodes. 14 more units self-destruct the following month.

Key staff members quit, more are sacked, a witch hunt begins and the head of the program resigns saying, 'I cannot understand why they (Bank of America) abandoned this system, 95% of it is working very well.'
(Los Angeles Times)

London Underground

On Thursday 2nd October, one line of corrupt information gets fed into a Hewlett Packard HP21MX mini computer by a rail employee.

The data feeds into the computerised signal system on the Piccadilly line, and ten thousand commuters are stranded for one hour while the line of data is corrected.
(Evening Standard)



• Who are these men? The *Express* editorial staff? A group of PCW owners who have aged somewhat while waiting for LocoScript to scroll through a document? The first people to visit all 10^{38} worlds in Federation of Free Traders?

No, the V-neck sweaters give it away. These good people are behind Central TV's *Gardening Time*, for whom an 8,000 plant database was put together. The program will be on sale towards Christmas for the PC.

NEXT WEEK ■ NEXT WEEK ■ NEXT WEEK

On sale Thursday August 17th – Don't miss it!

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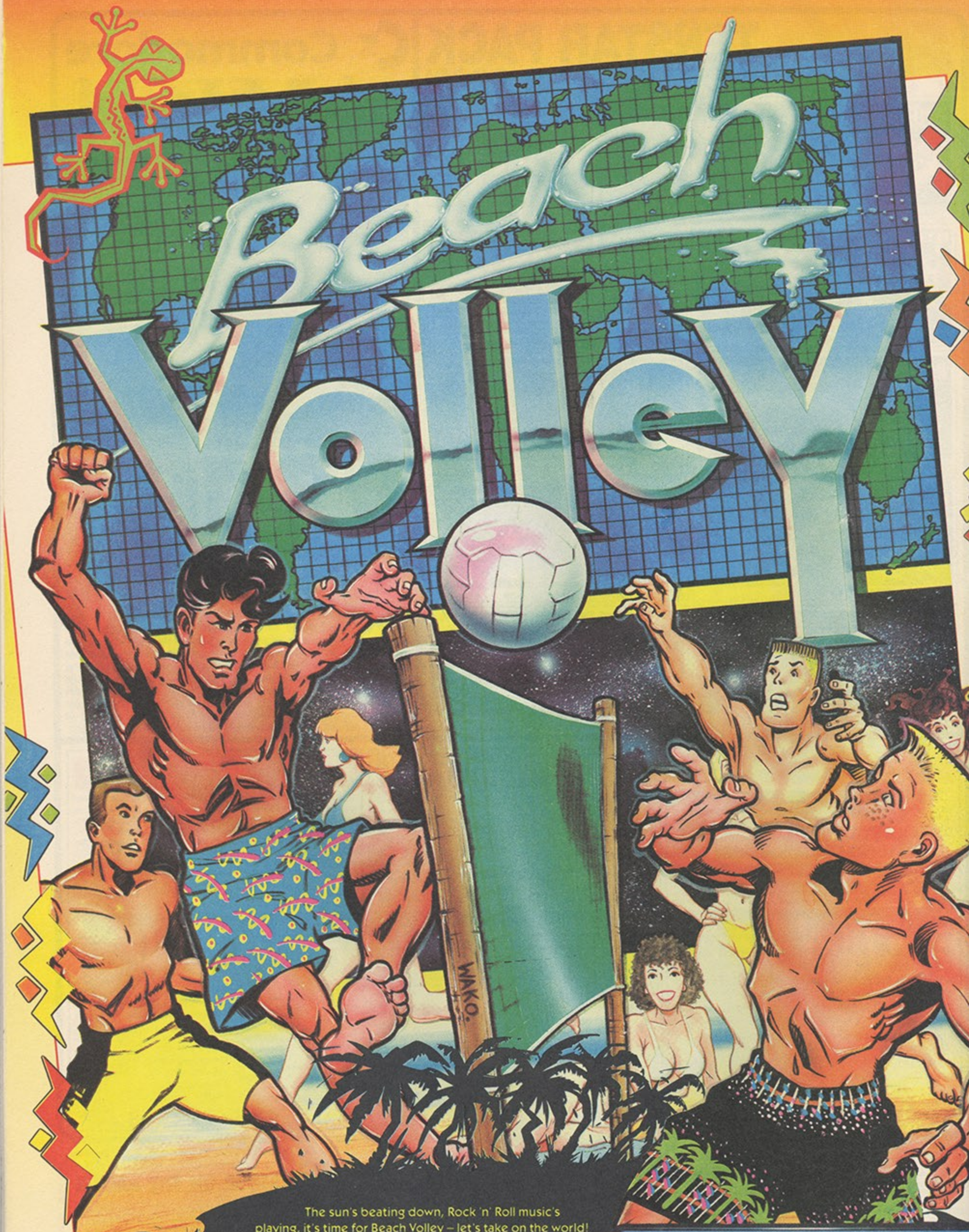

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