

ATARI ST USER

The
top-selling
Atari ST
magazine

Volume 4
Number 9
November 1989
£2.95

EXPOSED

Atari's new souped up
Amiga-beating STE

GAMES

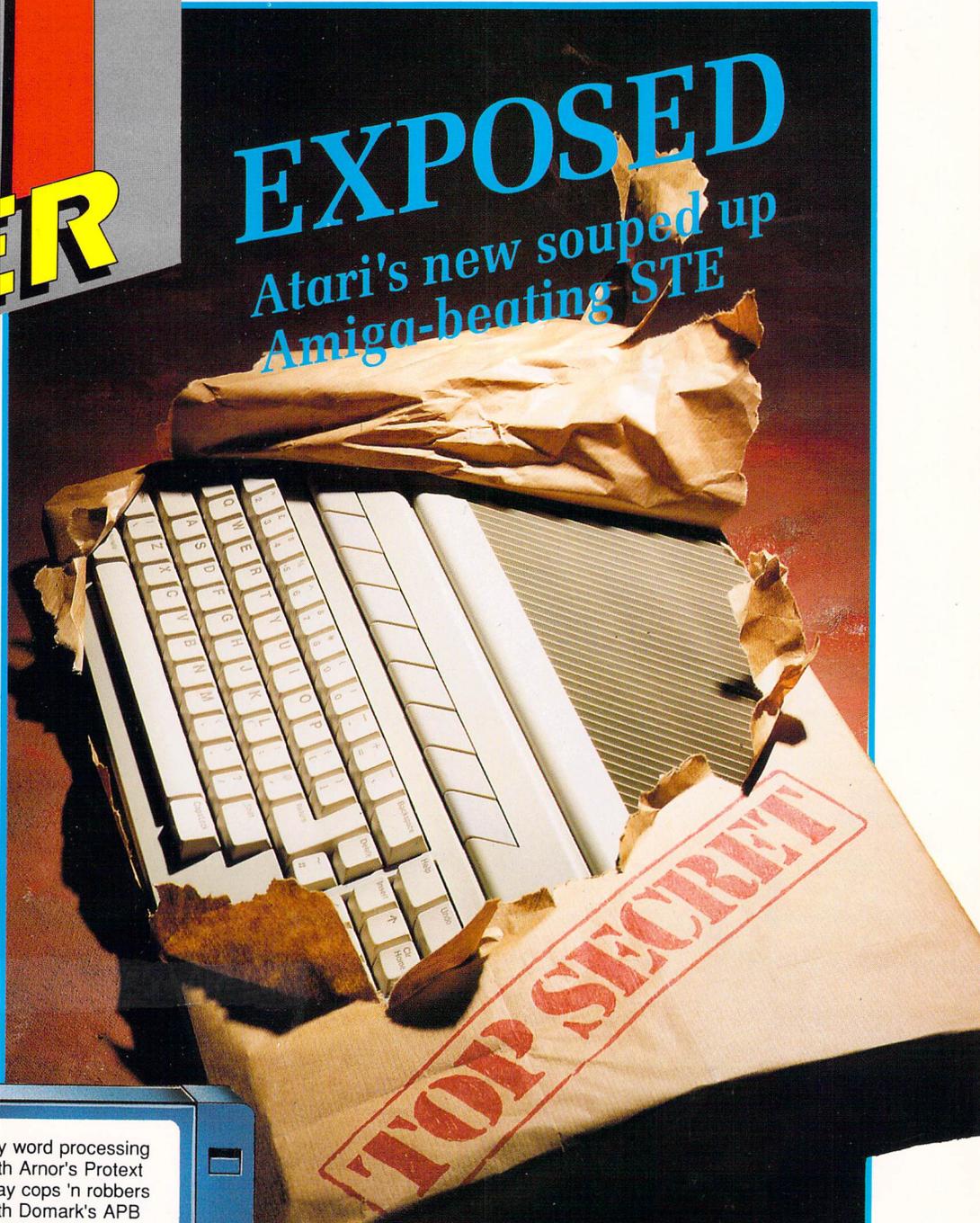
Rick Dangerous, Steel, Slayer, Quest for the Time Bird, Tankattack, Thunderbirds, Passing Shot, Legend of Djel, Battletech and APB

REVIEWS

Revolver, Turbo Kit, Hyperdraw, Instinct, Fleet Street V3, Keyword, Daatascan

PROGRAMS

Quicksort and resource files fully explained



ATARI ST USER

November 1989

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- Speed up your micro using Quick ST
- Play Asteroids and fly through space
- Check out your micro with Quick Index

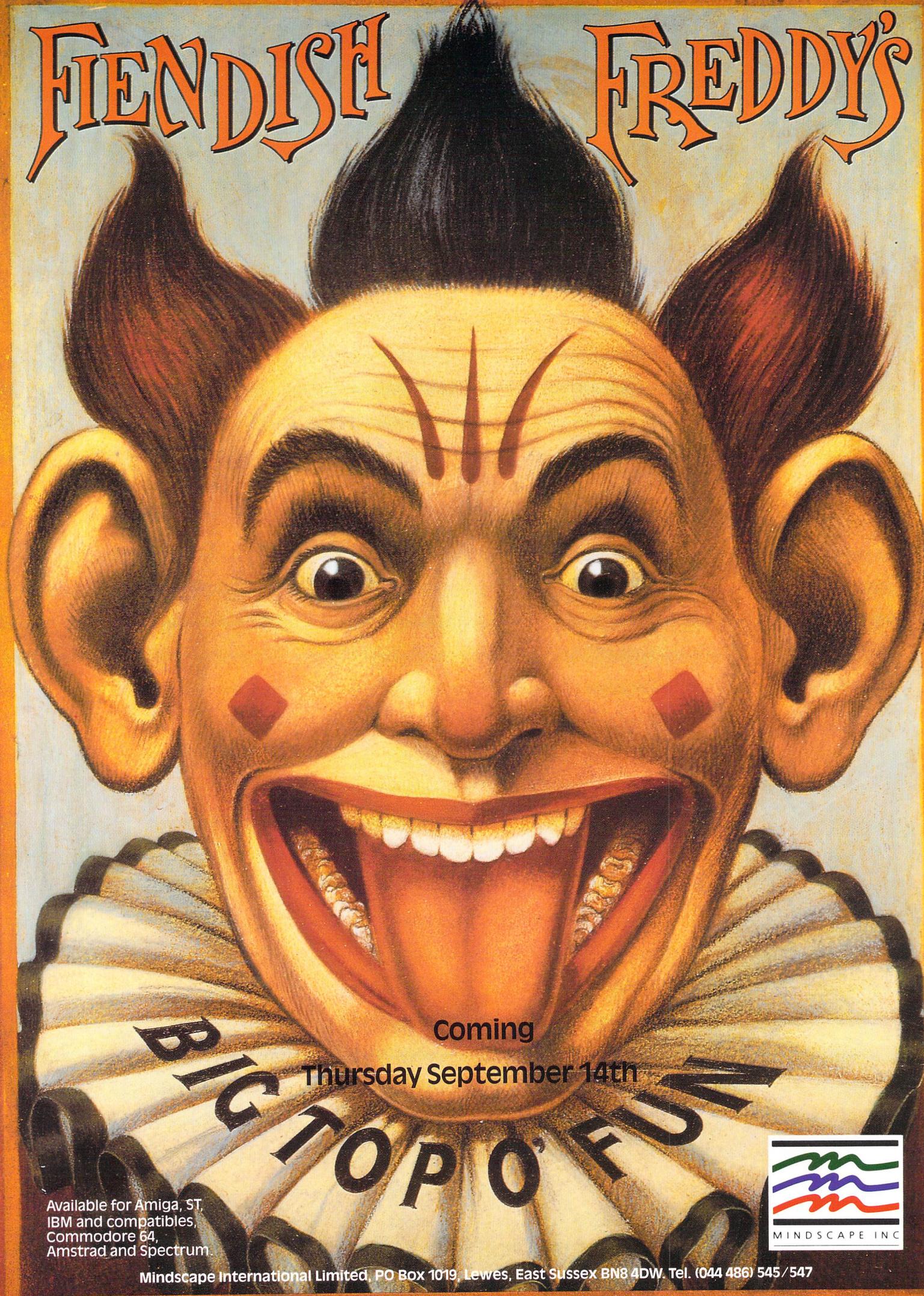
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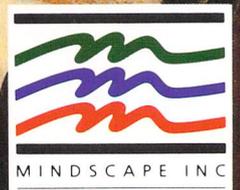


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02:00000000 601E 0100 00FC 0020 A2:00000000 601E 0100 00FC 0020 0000 A542
03:00 Desk File Search Options Program Tools
04:00
05:00 Line: 55 Col: 1 Mem:1399079
06:00
07:00 opt P=68030/68882,SUPER
SR:0
PC:0 include tt.s
include main.s
08:04
09:04 opt USER,OLD,SHORT
10:04
11:04 chkL12 chk2.b (a3),d3
12:04 cas2 d3:d7,d1:d2,(a3):(a5)
13:04 pack -(a3),-(a0),#51030
14:04 rts d1,d7,#51234
15:04
16:04 circle fmovecr.x MB,fp1
fadd.x fp1,fp1
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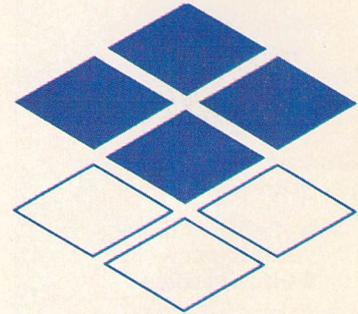
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Reviews coordinator
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Promotions Editor
Christopher Payne

Tel: 0625 878888 (All depts)
0625 899555 (Advertising)
051-357 2961 (Subs)

Telex: 94081191

Anwerback: DATAB

Telecom Gold: 72:MAG001

Prestel Mailbox: 614568383.

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Rick Dangerous

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SIDE 1

Protex

This fast, powerful word processor will enable you to write short memos and letters.

Virus Killer

Kill 99 per cent of all known bugs with this hi-tech computerised disinfectant.

Quick Index

Find out how fast your micro is with this performance test.

SIDE 2

APB

A rolling demo of Domark's new All Points Bulletin coin-op arcade conversion.

Quick ST

Speed up your micro by up to an amazing 900 per cent with this slick utility.

For more details, turn to Page 61



Atari's new TT leads the field

THE German Atari '89 exhibition in Dusseldorf saw the European launch of three exciting new ST-compatible machines from Atari. Heading the trio, and undisputable star of the show, was the long-awaited TT. The initials stand for Thirty-two Thirty-two referring to its full 32 bit 68030 processor running at a very healthy 16MHz.

The new machine runs a version of TOS and is claimed to be TOS-compatible with the ST, but it would be a mistake to regard it as simply a turbocharged version of the older machine.

Graphics have been enhanced considerably, with three modes comprising low-res at 320 by 480 pixels in 256 colours from a palette of 4,096, medium-res at 640 by 480 in 16 colours and hi-res monochrome at 1,280 by 960.

The old ST sound chip has been ditched in favour of the new Yamaha YM-2149, offering 8 bit stereo sampled sound similar to the Commodore Amiga's. There is also a socket for the MC 68881/2 maths co-processor, although the chip is not supplied.

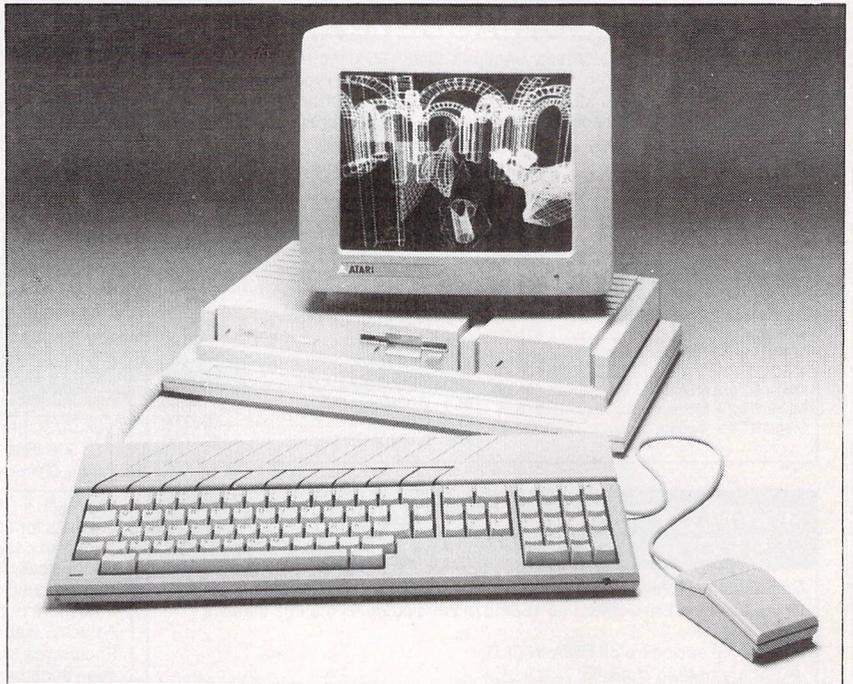
Even without it Atari representatives at Dusseldorf were claiming a speed advantage for the TT of at least four to five times over the ST running compatible software, or up to 20 times for specially written code. The former figure at least seemed certainly to be borne out from the speed of Gem screen updates.

The bad news is that Atari seems to be marketing the TT for power users only, since the lowest configuration offered will be 2Mb ram - expandable to 8Mb - with a 30Mb hard disc included.

This is expected to be bundled with a version of Unix and Xwindows for a German price of DM6500 (approx £2,150) excluding tax. An Atari spokesman told *Atari ST User* that the TT should be available in this country by next February.

The second machine at Dusseldorf was the STE, Atari's much-vaunted Amiga beater. Compatible with the 1040ST and looking almost identical to it, the STE improves on the older machine in several respects.

Sound has been beefed up with the inclusion of the same Yamaha stereo sound chip used in the TT, and the colour palette has been increased from 512 colours to 4096 like the Amiga's. Also like the Amiga, there is now hard-



Atari's flagship, the 32MHz TT



Atari's answer to the Amiga, the STE

were available to handle vertical and horizontal scrolling of the screen, and a blitter is included as standard.

Extra sockets include a connection for an external Genlock interface - under development - and, in a move which harks back to the old 8 bit Ataris, two extra joystick ports.

According to Atari, the STE will sell in Germany with a mono monitor for DM1500 - around £500 - excluding tax. It should be available in the UK later this year, said Atari.

Also on display at Dusseldorf was the laptop ST or Stacy which was featured in the June issue of *Atari ST User*. Essentially a portable 1040ST, the Stacy differs only in the replacement of the ST's mouse with a trackerball fixed into the keyboard, a good thing for people who lack desk space.

Atari claims that the trackerball is velocity proportional - meaning that

the faster you turn the ball the faster moves the cursor on the screen.

Stacy is expected to be available next year in Germany for DM3500 (approx £1,150) excluding tax. Small quantities of Stacy should be in the UK soon but it will not be available in bulk until well into next year.

Other exhibits at Dusseldorf included the Atari transputer workstation demonstrated in prototype form at last year's PC show. Now known as the ATW 800, it is expected to be released in the New Year.

And now... the Green screen

GREENPEACE, the international environmental pressure group has joined forces with MicroProse (0666 504326) to launch Rainbow Warrior, the Greenpeace computer game.

Players try to build a better world while stopping destruction of the ozone layer, nuclear power, radioactive dumping, untreated sewage and the slaughter of wildlife. Programmed by Source Software on the MicroStyle label, Rainbow Warrior comes with a Greenpeace manual and costs £24.99.

Due for release by MicroProse is Contact, its latest game on the Firebird label. The large multi-faceted space game will cost £24.99.

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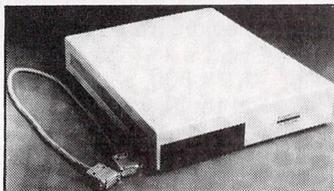
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Chinese take away joystick supplies

POLITICAL unrest in China has put a stop to stocks of Quickjoy joysticks reaching this country and has blocked the UK effects of a legal wrangle brewing in the Far East.

The row broke when Bondwell, manufacturers of the UK's biggest selling joystick the Quickshot, took exception to what it claimed were similarities in style and name between its own product and the Quickjoy models manufactured by STD in China.

Official UK agent for the Quickshot is Spectravideo, whose boss Ashwin Patel told *Atari ST User* "We have been established for 10 years and when the Quickjoy models came on to the market about six months ago I contacted our suppliers' factory and was told

that they were taking legal advice because of the similarity of name and design".

UK and European distributor for the Quickjoy models is De Gale Marketing. Luther De Gale said: "I know absolutely nothing about this legal problem. It is all happening in Hong Kong and is nothing to do with me. Even if I did know about it, I would not be in a position to comment.

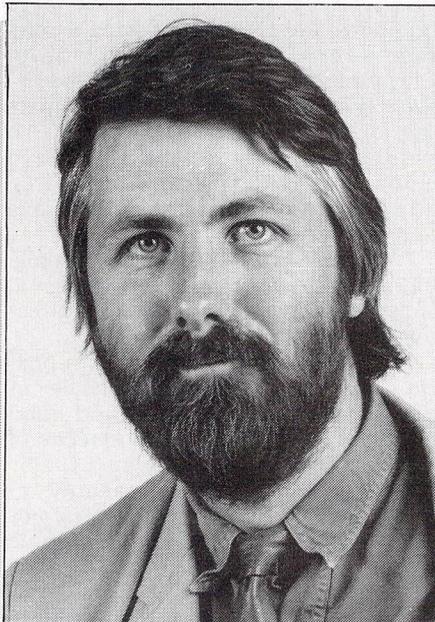
"This recent problem apart, we have now suspended supplying the Quickjoy joysticks.

"The political problems in China have affected our supplies and we do not like to be involved in any products which have supply problems because it reflects badly on us".

New chess challenger

LATEST chess program from CP Software (0993 823463) is Chess Player 2150. While the program was still awaiting packaging, it had an outing at the first World Computer Chess Olympiad in London.

"Chess Player 2150 was playing sufficiently well for us to mount a strong challenge to the dedicated chess computer manufacturers, even though they have the advantage of much faster hardware", said program designer Chris Whittington. "It put up a creditable performance, scoring 80 per cent against the other micro programs". Price: £24.95.



Music for the schools

SCHOOL Software (010353 6149477) has announced four new educational software releases - its first venture into the Atari ST market.

Magic Maths is a maths program for four to eight-year-olds and Maths Mania is aimed at pupils from eight to 12. They will go on sale on October 17.

October 24 sees the release of Three Bears, an adventure program for the five to 10s and Better Spelling which is designed for eight year-olds upwards.

They will each cost £22.95 and will be distributed by Leisuresoft and Centresoft.

ST on the air again

ATARI ST owners who missed the first broadcast will have a second chance to listen to Radio Four's computer series, Applying the Micro. "It looks at some of the newest practical uses for microcomputers in business, music, education and in our daily lives and examines their potential", said series producer Clive Williamson.

Much of the series of four half hour programmes is taken up with the ST. Transmission dates are Saturdays October 14, 21, 28 and November 4 at 5pm. The four programme titles are Computers Everywhere, Computers in Business, Micros in Education and The Musical Micro.

SOFTWARE HOTLINE

MORE than six million young viewers watch him on TV in his show which cost £5.5 million to make and is the largest animation series ever commissioned in the UK.

This latest cartoon superstar is



Count Duckula, the vegetarian vampire duck and he will soon be appearing on computer screens thanks to a deal between Alternative Software (0977 797777) and leading animation company Cosgrove Hall.

Alternative has secured an exclusive licence to use the cartoon character which has achieved 40 per cent viewing figures and spawned a staggering range of spin-off products. Latest news from the software house is that the count will be ready for his Atari ST appearance by December at £9.99.



DIGITAL Magic (051-423 5943) claims its new racing game Drivin' Force is its most impressive product to date. Variety is the spice of the game with races for trucks, formula one, bikes, cars, buggies and a bonus level for jet skis. Price £19.95.



SHOULD anyone have an unfulfilled ambition to play air hockey with the scum of the galaxy then the latest offering from Domark (01-780 2222) is the answer.

Shufflepuck Cafe is the setting with the player taking on nine air hockey opponents in "the sleaziest dive in the galaxy". Atari ST version costs £19.99.

Goldrunner shines in 3D

DESPITE poor sales of Goldrunner II – which Microdeal blames on piracy – the company is excited about its new release, Goldrunner 3D, programmed by the same team that made Falcon a huge success. So it comes as no surprise that Goldrunner 3D resembles a flight simulator.

Graphics have been pushed well past their theoretical limits by use of a cunning screen splitting technique involving a mixture of 32 and 16 colour modes, giving a wide palette yet retaining high animation speed – eight frames per second, enough to allow five big 3D baddies on-screen at once.

Listen out for the soundtrack, too – an inspiring 200k rendition of the Mars theme from Holst's Planet Suite by the popularly acclaimed David Whittaker.

In a reversal of current trends, all the graphics were developed on the Amiga and ported across. The ST, of course, will be providing the 3D routines, later to be transferred to the Amiga. This unusual parallel development will result in both versions being released simultaneously, price £24.95.

Tuning up

PAUL Sinnett of Haywards Heath, Sussex is working on a new music sequencer program for the ST.

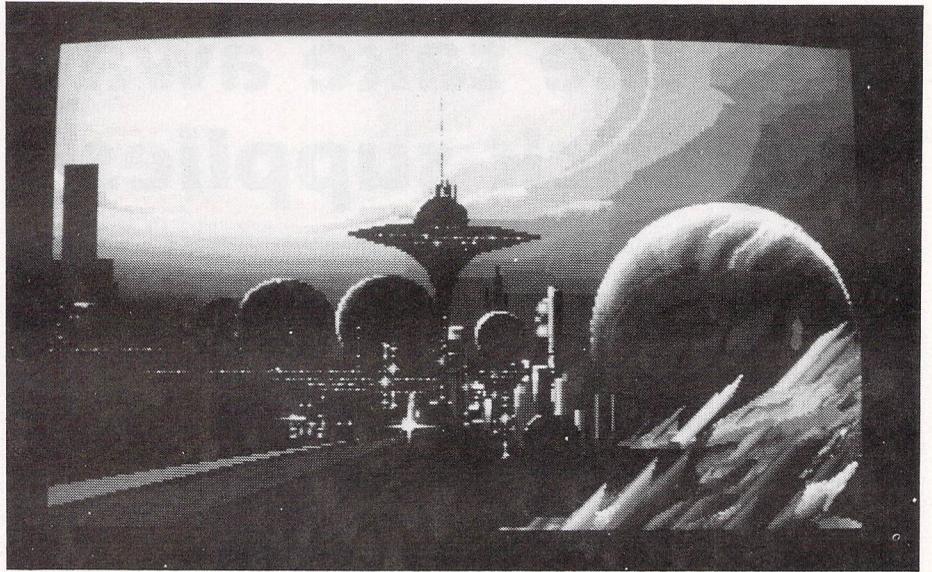
It will be ready for sale by November under his label of Harlequin Software (0444 452284) and will cost £50.

New US titles

THE Edge (01-831 1801) has secured the UK rights to all Discovery titles from America and promises wide distribution for many games which have never been released on a large scale in this country. First to be brought out on the ST will be the mammoth adventure Sword of Sodan, previously only in an Amiga version.

"We aim to enhance and improve the game for an October release", said Jim Loftus of The Edge. "Sword of Sodan is an amazing game and we intend to do it justice even if it takes four discs". Other Discovery titles to follow will be Hybris and Zoom!

The Edge has also launched a new label Rad, aimed at the large teenage audience drawn to budget games. First releases are Alien Syndrome and Soldier of Light selling at £9.99. Also new from The Edge are Taito arcade conversion Darius+ and Peanuts 1: Snoopy & the Case of the Lost Blanket. They cost £19.99 on the ST.



Goldrunner 3D... stunning graphics, inspiring music

Christmas blitz begins

PSYGNOSIS (051-709 5755) is to bombard the ST market with a barrage of new titles on the run up to Christmas. The Liverpool-based software house has spent a year preparing for this blitz of 13 ST games. To support the new releases, it is to embark on widespread advertising, attendance at shows, in-store displays and give-aways.

"We are now ready to substantially increase our share of the international games market", said managing director Jonathan Ellis.

First release was Never Mind, a puzzle game billed as "the most challenging test of joystick juggling and mind muddling". It includes 250 screens of isometric 3D puzzles and costs £19.95.

October sees the appearance of Infestation and Matrix Marauders. For £24.95, Infestation is an alien game with 3D corridors and plenty of eggs

to track down, seal and gas. Matrix Marauders will cost £19.95 and is a combat game in a 3D world of polygons played on a triangular grid.

Jewel in the Psygnosis crown for 1989 will be Shadow of the Beast, aimed at a December release. "This has taken nine months to develop and will be our biggest title of the year", said the firm's Roy Barker.

With 13 levels, Shadow of the Beast is a high speed parallax scrolling game with 132 different monsters, more than 100 colours and a 900k soundtrack at a price of £34.95.

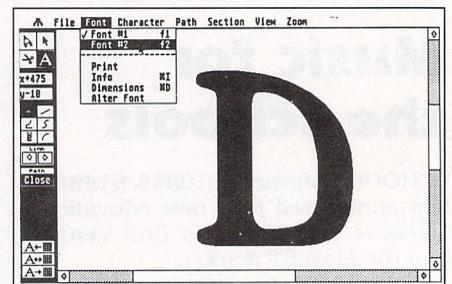
Among other Psygnosis releases for the ST will be Barbarian II, Carthage, Killing Game Show and Flash Dragon in November plus Aquaventura and Gore in December. Already on the market are Blood Money and Stryx and looking to 1990, Firestone is aimed at a February release.

A word in your Farsi ear

ELECTRONIC rub-down lettering for the Atari ST is offered by Headline, the latest product from Gate Seven Computers (01-602 5186). Developed by APiSoft of Berlin, it allows text to be written on to a wysiwyg screen then saved as graphics to be used by other programs.

Headline is particularly suited for use with Signum 2 and allows special text effects to be produced. Bengali, Devanagari, Farsi and Gujarati fonts are available with others to follow.

Headline including six fonts costs £49. Additional Roman fonts will be available at £20 for a double-sided disc and non-Roman fonts are £20 per script.



FONT Designer is a new vector-font creation package for the Atari ST. From PCG Computer Software (0229 36957), it runs under Gem and is a professional design tool for creating PostScript fonts used with the PostScript emulator.

Accuracy is the watchword, with finished fonts which can be used for anything from a three inch business card to an 18 foot high billboard. The price is yet to be fixed.

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New multi-user games bound for MicroLink

TWO major multi-user games, Federation II and Bloodstone, are to be launched on MicroLink. Anyone with a home or office computer linked to a telephone will be able to play in real-time, interacting with other players all over Britain.

Federation II has more than 900 locations and has been described as a cross between Monopoly and Star Trek.

Players wander the universe where they must work for money to buy food then fight for power in social, economic and political life.

Bloodstone is a role-playing adventure capable of supporting millions of characters. It combines loving, killing, buying and selling in an environment which can be constantly changed.

"Shades opened the door to multi-user adventures online but is now generally considered to be too expensive and too restrictive", said MicroLink chairman Derek Meakin. "Both Federation II and Bloodstone offer much more fun and excitement. They use the latest in games playing technology and do not suffer from continual resets as is the case with Shades".

There will be no surcharge to play Bloodstone during the day but anyone joining the game after 6.30pm will pay 3p a minute. Federation will cost 2.5p a minute at all times.

On October 1 MicroLink changed its carrier from Telecom Gold to Istel Inet and is now available at local call charges throughout the UK.

Way ahead - by Tramiel

THE way upwards from a 1040ST is to buy one of the new STEs according to president of the Atari Corporation Sam Tramiel. Shortly after returning to America from the Dusseldorf STE and TT launch, he knocked on the head any suggestion that Atari may produce upgrade boards to mimic the performance of the new "super ST".

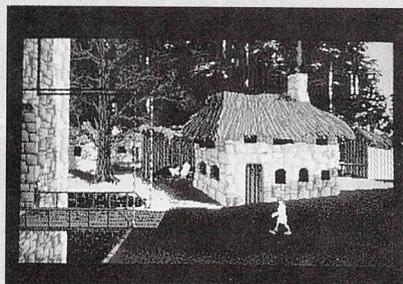
Tramiel was taking part in a question and answer session on Genie, the on-line conferencing service. Asked if there would be any upgrade path from the 1040ST to the STE, he replied: "The STE runs at the same speed as the ST. The upgrade path is to buy an STE. We do not find it economical for us or for you to charge a fortune for upgrade boards like some other companies I know of".

Grasping the nettle of the ST's poor showing in America, he confirmed that Atari is taking action to right this. "It is now time for us to re-enter the US," he said. "We are actively looking for a new US sales team and plan to launch the Portfolio with direct response big advertising and to use this machine to attract dealers for the ST line as well. As our distribution increases, so will our advertising".

The interview brought good news for ST owners awaiting the Hotz Box. Tramiel confirmed that Atari is still working on it and said he hoped to announce delivery in the US soon.

This touch-sensitive, programmable keyboard synthesiser is the brainchild of record producer Jimmy Hotz.

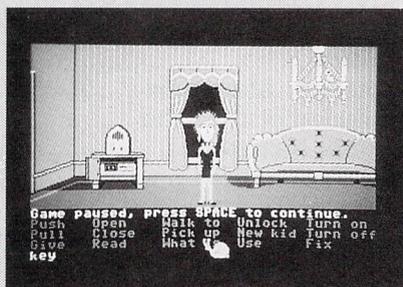
SOFTWARE HOTLINE



FRENCH programmer Paul Cuisset has spent three years developing a new type of computer game which captures the interest of an adventure without the need to type in text.

Relying on animation, his style is called Cinematique and the first title Future Wars: Time Travellers is due at the end of October from Palace Software (01-278 0751), price to be fixed.

Secret passages transport the player on a quest which spans pre-historic times, the Middle Ages and the far future. In France it has been hailed as the single greatest industry event of the year.



LATEST offering from US Gold (021-625 3388) is Maniac Mansion. It features 450 objects to be discovered in 50 rooms and is designed to cater for both the casual and the serious games player. Price £19.99.

Advanced Dungeons & Dragons fans are in for a treat in the sequel to Heroes of the Lance. Dragons of Flame retains all the best elements of Heroes plus quest and wilderness mapping levels. Price £24.99.

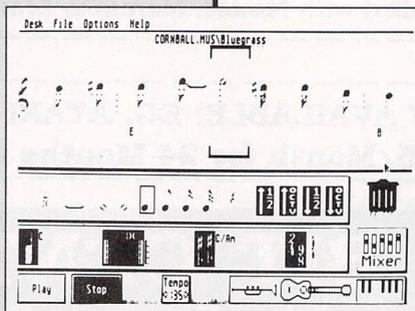
Pools of Radiance and Hillsfar are to be added to the AD & D stable for the Atari ST before Christmas. On three discs with a 60 page rule book, Pools of Radiance is a shock horror story which can keep players guessing for hours. It will cost £29.99. Hillsfar is a combination of arcade action and role playing for £24.99.

Stereo hi-fi synthesiser

A SYMPHONY of sound at your fingertips, is the way Hybrid Arts (01-883 1335) has announced its new FM Melody Maker for synthesis on the ST.

Configurable into either nine FM channels or six FM and five drum channels, it slots into the ST's cartridge port and has pseudo-stereo line level RCA phono outputs for use with a stereo hi-fi system.

The software works on all STs in both colour and mono and comes complete with 78 preprogrammed sounds, 16 different accompaniment styles and 14 chord types for £69.95.



Composer screen from FM Melody Maker

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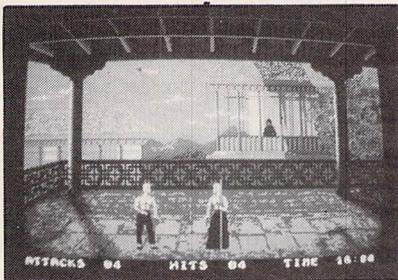


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New label brings over games from Germany

A NEW label will hit the UK games scene shortly thanks to a deal secured by Grandslam (01-655 3494). Thalio features games developed in Germany by Primesoft with Grandslam holding sole UK distribution rights. The standard of the software is underlined by the fact that Cinemaware has secured the US rights.

"This is a long term move for Grandslam", said managing director Stephen Hall. "Primesoft's team of 18 programmers has been working on the product for some 18 months. This is very



much an expansive and confident move for us and one that will help our growth and reputation as we move into a new decade".

First offering on the Thalio label in early October will be Chambers of Shaolin, a martial arts game costing £19.99. It will be followed in November by Dragon Flight, a role playing package in the mould of Dungeon Master but three times bigger. Price £24.99.

Early December will see the launch of Seven Gates of Jambala, a sideways scrolling shoot-'em-up in a castle scenario. It will cost £19.99.

With 2,000 trivia questions, Grandslam recently launched Saint & Greavsie, a £19.99 package based on the board game endorsed by TV's sport commentators Ian St John and Jimmy Greaves. On its Shades label, the company has also launched Trivia based on the pub-style trivia games for £14.99 and Terry's Big Adventure, a 12 level arcade yo-yo throwing game costing £14.99.

Atari France hit by fire

AS Atari ST User went to press, Atari was still counting the cost of a blaze which gutted the offices and factory of Atari France.

Massive stocks were destroyed but a spokesman for Atari UK said the situation was unlikely to

affect this country.

President of Atari in America, Sam Tramiel said: "Atari France burned to the ground in a huge fire but luckily no one was injured. Insurance covers all costs but poor Atari France has had to regroup. It is doing so gallantly".

American fonts cut the costs

FORMED to promote Atari machines for business use, Atari Business Centre (0602 810009) is currently working on a new and cheaper range of quality type fonts for use with Calamus on the ST.

First of the range is based on the Thames face and called Tems. It costs £46. Each of the fonts will come in bold italics, narrow, tall and wide styles. Next will be a roman Bookface which should be launched with several others by the end of October.

Fifteen fonts have been sourced from an American company.

The ST's DTP broadsheet

FOR the first time in the UK, a Vidi-Wall big screen will be used for promotion by exhibitors at the International Desktop Publishing Show and its new sister show Presentations '89 at London Arena from October 4 to 6.

Made up of multiple screens with virtually seamless integration, the Superscreen gives a display area of more than 14 feet by almost 11 feet. It was developed by Neil Maroni Consultants and is being sponsored by Crossfield Electronics and General Parametrics with subsidy from organisers Database Exhibitions.

THE recent launch of the high-end TT workstation and the STE super games machine heralds new thinking in the way Atari UK will be run.

These two machines typify the latest policy which will be for a more

definite split between the business and leisure sectors of the company.

UK boss Bob Gleadow has confirmed the split which will bring two distinct divisions with different staff and different objectives.

SOFTWARE HOTLINE



ARCADE adventure Tusker is the latest offering from System 3 (01-866 5692). Taking the role of Tusker, the player's aim is to complete the African mission on which his father perished, facing angry natives, hungry cannibals, blood-thirsty dinosaurs and unhappy witch doctors. The price has not been fixed.

★★★★

VIRGIN Games (01-727 8070) has launched Shinobi, a conversion of the Sega arcade hit. The player is a master Ninja assigned to take on the terrorist network known as The Ring of Five. Hands, feet, shuriken, sword and nunchaku are the weapons. Shinobi costs £19.99.

★★★★

US Gold (021-625 3388) has released a game based on the Seoul Olympics. Including hurdles, rings, diving, sprinting and archery it costs £24.99.

★★★★

STAR Wars Trilogy is the first compilation from Domark (01-780 2222). It features Star Wars, The Empire Strikes Back and Return of the Jedi for £24.99.

★★★★

MIRRORSOFT and Psygnosis (051-709 5755) have released their second compilation, Triad II. It includes Baal, Menace and Tetris for £24.95.

★★★★

EMPIRE (0268 541126) has struck back at existing football games with its new offering Gazza's Super Soccer.

Backed by Spurs star Paul "Gazza" Gascoigne, its special feature is a boot-o-meter which shows the player how he is controlling the kick he is about to make. It will cost £24.99.

Enter the Amiga beater

Technical wizard André Willey and photographer Hans Müller reveal the ST replacement Atari has been secretly designing over the past few months



ATARI probably wouldn't admit to it publicly, but it has for some time been concerned that the Commodore Amiga is sometimes regarded as the superior machine, simply because it has more colours and a better sound chip than the ST. Although this judgement ignores the ST's Midi facility, better software back-up and deeper market penetration, the public still seems to be happiest when comparing raw numbers on specification sheets.

For some time now, rumours have abounded regarding a new "Amiga-bashing" version of the ST – originally to be known as the Super-ST, or ST-Plus, depending upon which source you listened to. Over the past few months the speculation has turned into fact, and the recent Dusseldorf Atari Show saw the launch of two new machines – the TT and the STE.

The TT is a 32 bit, 68030 based, Unix-compatible workstation which is upwardly compatible from the ST for correctly written applications.

The STE, on the other hand, is a souped-up version of our current 16 bit ST range – probably standing for ST-enhanced, ST-expanded, ST-extra, but perhaps ST-evil might be nearer the truth. Paradoxically, since all of the machines are fitted with both a modulator and an internal disc drive, the new range should really be titled STFME – but perhaps Atari wasn't keen on people referring to its machine as the STuF-ME.

Although UK details are understandably sketchy at present, it looks as though the STE will initially be available as a replacement for the existing 1040ST – with future versions up to a 4160STE, which will feature 4Mb of ram. Atari Germany has stated that there are no plans for a half megabyte 520STE version, but Atari UK still doesn't seem to have made its mind up as we go to press.

Thankfully, Atari Germany has proved most helpful, and much of the technical information we have gleaned has been obtained from its technical staff.

Improvements

The STE features four major improvements over the existing ST range – enhanced graphics and stereo sound, extended joystick ports and simpler memory upgrades. There are a number of other internal differences, but they are beyond the scope of this preview – watch these pages for further information as it becomes available.

The new graphics chips boast a much improved 4,096 colour range made up from 16 intensity scales for each of the red, green and blue hue controls. The ST colour registers have always worked with the necessary four bits of data, but the most significant bit has previously been masked off giving us the current eight intensity levels for each colour.

The German press release, which Atari's UK Press Agency has translated

rather loosely into English, says that 512 colours from a palette of 4,096 are normally available on one screen.

If such a mode was possible it would use more than 64k of memory – nine data bits per pixel. This seems rather unlikely, given the basic architecture of the machine, although interrupt colour changes could be used, in the same way as Quantum Paint and Spectrum 512, to simulate such a mode.

A figure of 256 colours per screen would be far easier to implement technically, and indeed is already one of the modes featured on the TT. Until Atari UK finally decides to discuss the machine it might be best to treat claims of 512 colours on a standard screen as a little over optimistic.

Scrolling

The press release also states that the new machines feature hardware scrolling, a description which could cover a whole multitude of features.

It transpires that the main screen address pointer can now be adjusted word-by-word, as opposed to the previously required 256 byte boundaries. Incrementing this pointer by 160 bytes would scroll the screen up by one pixel line, and decrementing by the same amount would scroll the screen down one line.

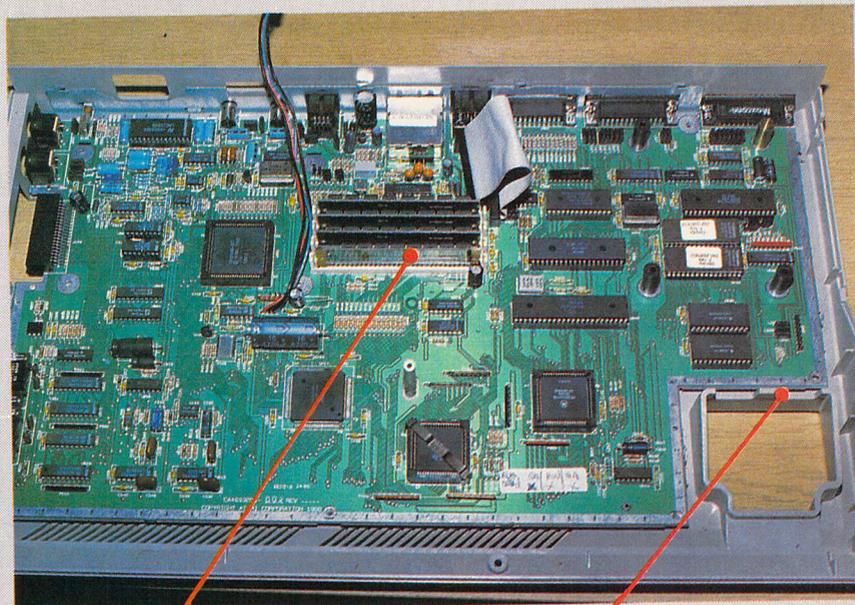
Additionally, horizontal scrolling can be achieved by declaring each line of screen memory to be longer than the traditional 160 bytes, thus turning the physical screen into a window on to a much larger area of virtual screen memory. This system allows much greater speed and flexibility when writing horizontally scrolling games – assuming you've got the memory for such large screen areas!

The quality of the sound output from the ST has always been a disappointment, so this is another area that has been addressed on the STE. In addition to the standard Yamaha sound output there are also eight extra PCM sound channels which should give audio quality close to that of a compact disc – and in stereo too.

Four channels are available for each of the left and right audio outputs, with the existing Yamaha sound superimposed equally on both channels. Two standard phono connectors are provided at the rear of the machine to allow easy connection to a conventional hi-fi amplifier.

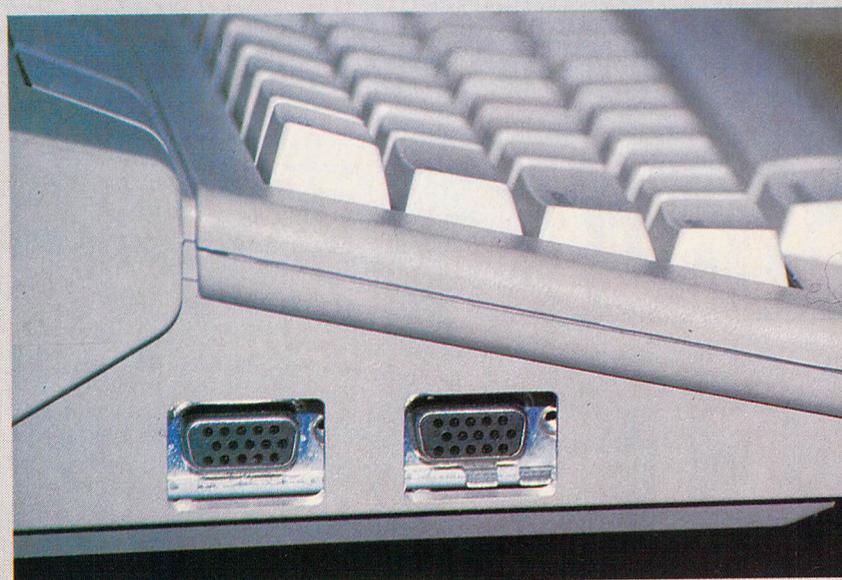
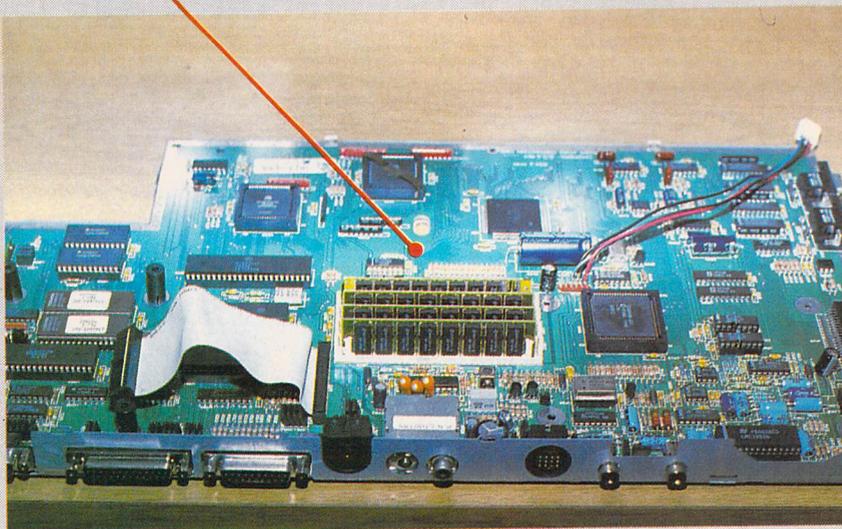
The mouse and first joystick ports are still located rather awkwardly underneath the keyboard, but two new ports are provided on the left-hand side of the machine next to the cartridge port. These odd-looking 15-pin connectors allow you to connect up to four normal joysticks (via a simple adaptor), four paddle controllers or two proportional (BBC Micro analogue style) joysticks, plus a light gun or light pen for good measure!

The connection of analogue devices



Plug-in ram cards make upgrades a piece of cake

Atari still hasn't moved those ridiculously placed mouse and joystick ports



The two extra joystick ports are of the analogue variety, similar in some ways to the BBC Micro's

◀ From Page 17

such as paddles and proportional joysticks means that the STE includes at least four analogue-to-digital converters – just like the old 8 bit Atari home computers did 10 years ago. Depending on the speed and accuracy of these converters, it is quite possible that we will see a good many new add-on devices using these ports for such things as control and digitising applications.

The supplied megabyte of ram memory is easily upgradable using tiny one megabyte simm – single in-line memory module – ram boards, as used in the Apple Macintosh, which slot into four sockets inside the casing. The first socket is the only one filled on a 1040STE, and extra boards can be added whenever you wish.

One potential problem with this approach is that the 1040STE will thus use eight one megabit dram chips rather than the traditional two half-megabyte banks. This could result in an effective 8 bit data bus, which would considerably reduce the execution speed of the processor, unless Atari has found another way around the problem.

The managing director at Frontier Software, manufacturer of a range of memory upgrades for existing ST

machines, told me that its own simm upgrade boards are designed and ready for the day that Atari finally get around to releasing the machine – probably priced at around £150 per megabyte.

The operating system is standard TOS, but the revision is apparently an upgraded version of TOS 1.4, known as TOS 1.6, which supports the new graphics and sound facilities – plus, presumably, the additional joystick ports. Version 1.6 is specifically designed for the STE and won't be made available for existing machines.

The press release states that the machines should be generally available in November, but it is unclear whether this means for the German market or worldwide. Again, Atari UK seemed unwilling to commit itself, but assuming that Atari Germany really can ship in November, it shouldn't be too long before we see STEs in the shops over here – perhaps early in the New Year – priced at around £499 for the one megabyte version.

And when that happens, the Amiga might finally have the wind knocked out of its sails.



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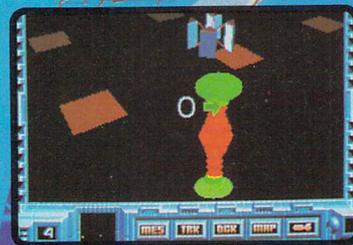
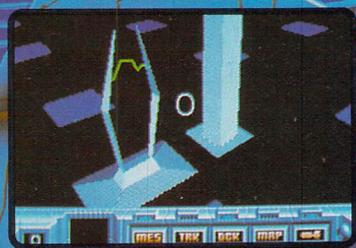
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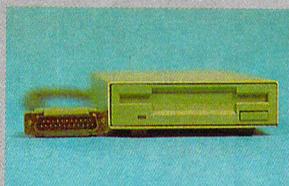
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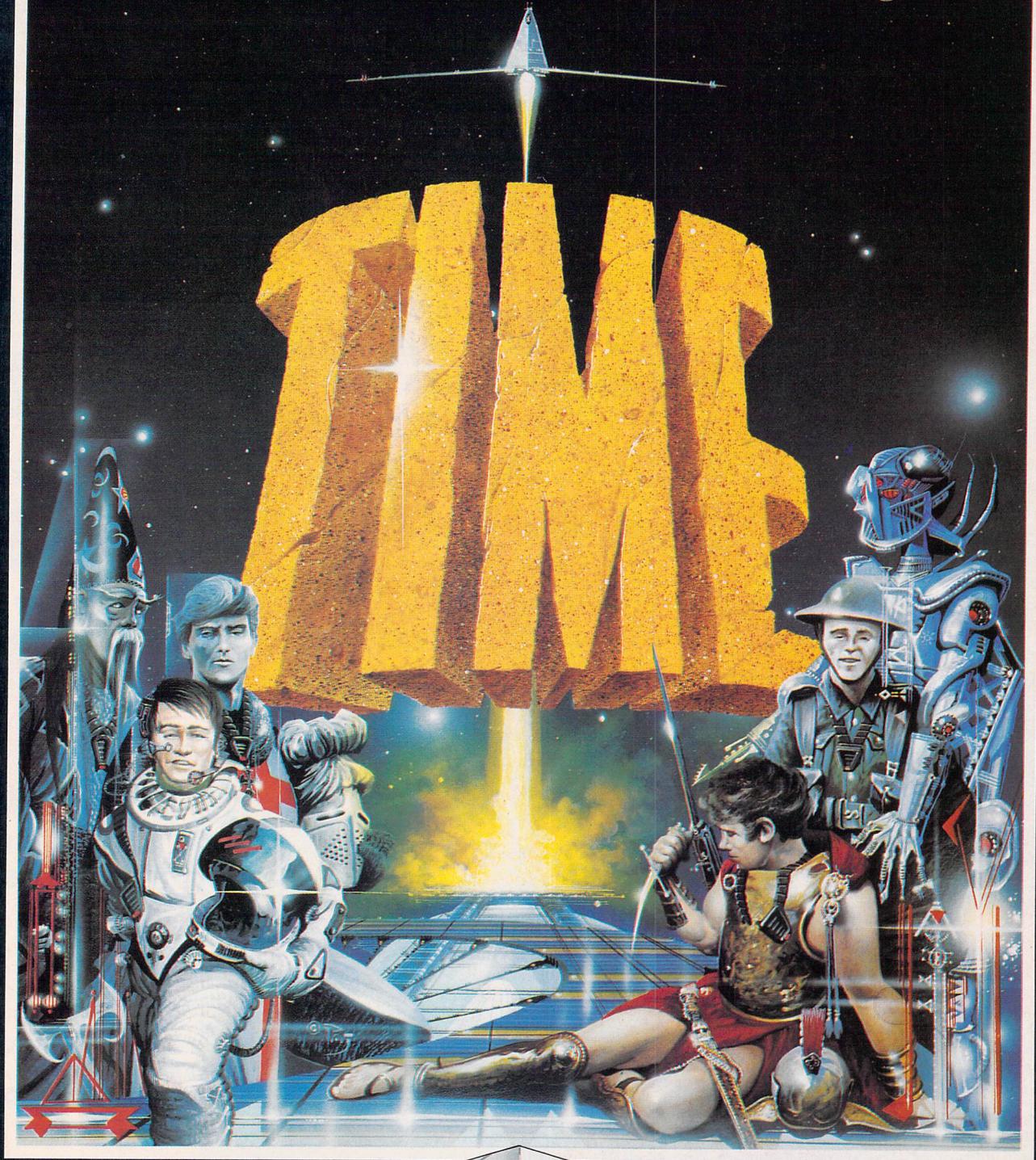
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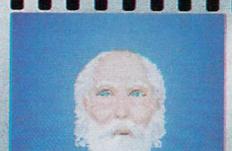
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The wizard

WELCOME to an exciting new series in which I'll be taking the lid off the ST and showing how to harness its powerful operating system - OS for short. The most effective way of accessing the OS is from machine code, but don't worry if you aren't a red hot 68000 coder as the programs will at first be quite short and simple, and I'll explain what the op-codes do as we go along.

The operating system is a mixture of Digital Research's Gem and Atari's Gemdos, Bios, Xbios and line-A routines. You can access it in many different ways, from the simple moving of Gem windows and icons using the mouse, to plotting individual pixels on the screen using the primitive but powerful machine code line-A routines.

The OS calls I'll be covering will enable you to write your own powerful machine code utilities and programming tools. By sticking to the Atari documented OS calls the programs will run on any ST without modification.

(Arcade game programmers frequently by-pass the OS in order to wring every last ounce of performance out of the micro, but before you can start down that road you must first master the OS).

So we'll start off with the most important routine of all - Gemdos function number zero. The C name for this call is *p_term_0* and it is used to end a machine code program and return you to the desktop. Bombs are likely to be printed on the screen if you miss it out or try to end a program any other way.

Program I is the simplest one of all - as soon as you run it, it immediately ends and returns you to the desktop:

```
* Program I
* Return to desktop
MOVE.W #0,-(A7)
TRAP #1
```

The first two lines are comments and the true first machine code instruction - MOVE.W - puts the value zero on the 68000's stack. The second and final instruction calls Gemdos using a TRAP #1 instruction.

Enter and assemble the program using a package like HiSoft's Devpac, giving the program a TOS file extension - PRG will do, but TOS is better for our purposes as the screen is automatically cleared when the program is run.

Run the program by double clicking on it from the desktop. Nothing will

of OS

Roland Waddilove begins a new series exploring the ST's operating system

happen - intentionally, for the code simply demonstrates the correct way to exit a machine code program.

All very interesting, but not very exciting, so let's add another Gemdos call - number one, called *c_conin*. Its function is to scan the keyboard and wait for you to press a key. When you

Turn to Page 24 ▶



Desk File Search Options Program

A:\ARTICLES.\JUNK1

Line: 20 Col: 1 Mem:59357

```
*
* Program IV
* Output a message then wait for a keypress

print    LEA mess(PC),A6      Get string address in A6
          CLR.W D0          Zero D0
          MOVE.B (A6),D0    Get character
          CMP.B #0,D0       Zero?
          BEQ wait          Finished if D0=0
          MOVE.W D0,-(A7)   Put on stack
          MOVE.W #2,-(A7)   Function 2 on stack
          TRAP #1           Call Gemdos
          ADDO.L #4,A7       Tidy up stack
          ADDO.L #1,A6       Next character
          BRA print         Loop back

*
* Wait for keypress
wait     MOVE.W #1,-(A7)    Put function number 1 on stack
          TRAP #1           Call Gemdos
          ADDO.L #2,A7       Tidy up stack
```

Entering the program source into Devpac

◀ From Page 23

do, it tells you what key was pressed by putting its Ascii value in the data register D0 and it also prints the character on the screen at the same time.

Program II waits for you to press a key then returns to the desktop:

```
* Program II
* Wait for a keypress
MOVE.W #1,-(A7)
TRAP #1
ADDQ.L #2,A7
* Return to desktop
MOVE.W #0,-(A7)
TRAP #1
```

The first MOVE instruction puts the Gemdos function number on to the stack then Gemdos is called using TRAP #1. Immediately after the OS call the stack must be tidied up, which involves adding a value to the stack pointer A7, so that it is exactly the same as it was before the call. In this case two is added, using ADDQ.L.

Notice that the code from Program I has been placed at the end of Program II, allowing the machine code to exit nicely to the desktop without causing any bombs. You can assemble Program II to a TOS program and double click on it from the desktop to run it.

The last example showed how to input characters from the keyboard, now we'll see how to output to the screen. Another Gemdos function call - number three, *c_conout* - is used. Program III prints a letter A on the screen then returns to the desktop:

```
* Program III
* Output a character
MOVE.W #'A',-(A7)
MOVE.W #2,-(A7)
TRAP #1
ADDQ.L #4,A7
* Return to desktop
MOVE.W #0,-(A7)
TRAP #1
```

Assemble and run it. Watch in the top left corner for a brief glimpse of the letter - keep your eyes peeled, as the program runs so fast you may miss it.

The Ascii code of the letter to be printed is pushed on to the stack by the first MOVE instruction. The second MOVE puts the function number

Function	Parameters	Description	Result
0	None	End program.	None
1	None	Read character from keyboard and echo to screen.	D0=character
2	char.W	Write character to screen.	None
6	param.W	If param=255 then read else write character.	D0=character
7	None	Raw input, no echo.	D0=character
8	None	Read input, no echo, Control+C, Q and S active.	D0=character
9	addr.L	Print string (terminated by a zero).	None

Table I: The Gemdos operating system calls used

on the stack and the TRAP #1 is the familiar way of calling Gemdos. The following ADDQ tidies up the stack pointer in A7. Finally, comes the return to desktop Gemdos function zero.

Now that we know how to print a character on the screen and read one from the keyboard we can write a short program to display a screen message and then wait for a keypress before returning to the desktop. One way of doing this can be seen in Program IV:

```
* Program IV
* Output a message
LEA mess(PC),A6
print
CLR.W D0
MOVE.B (A6),D0
CMP.B #0,D0
BEQ wait
MOVE.W D0,-(A7)
MOVE.W #2,-(A7)
TRAP #1
ADDQ.L #4,A7
ADDQ.L #1,A6
BRA print
* Wait for keypress
wait
MOVE.W #1,-(A7)
TRAP #1
ADDQ.L #2,A7
* Return to desktop
MOVE.W #0,-(A7)

TRAP #1

mess DC.B 'Hit a key:',0
```

The message is stored at the end of the listing using a DC.B instruction.

Its address is loaded into the address register A6 by the first instruction in the program. Each character is compared to zero. If it is, the end of the string has been found, but if it isn't the character is printed using the Gemdos function number two as before.

Each time round the *print* loop a character is printed. When an end-of-string zero marker is found program control jumps to the *wait* routine that scans the keyboard for a keypress. Finally the program exits through Gemdos zero as with previous examples.

If you thought that Program IV was a rather long winded way of displaying a string of characters you'd be right. There's a handy built-in Gemdos call to print it for us - function nine, *c_conus*. Using this greatly simplifies the code, as Program V shows:

```
* Program V
* Print a string then
* wait for a keypress
PEA mess(PC)
MOVE.W #9,-(A7)
TRAP #1
ADDQ.L #6,A7
* Wait for keypress
MOVE.W #1,-(A7)
TRAP #1
ADDQ.L #2,A7
* Return to desktop
MOVE.W #0,-(A7)
TRAP #1

mess DC.B 'Hit a key:',0
```

The first instruction puts the address of the string on to the stack, the second puts the function number on the stack, and finally there's the usual Gemdos TRAP #1 call to the OS.

There is often more than one way of performing a particular action, like reading the keyboard or writing to the screen, as Gemdos provides several similar, but not quite identical calls.

Table I shows the OS calls we have covered this month, plus a few alternatives which you could try substituting in the example programs.

● I'll continue next month with more interesting machine code programs exploring the ST's OS.

Op-code	Function
MOVE a,b	Moves a number from a to b.
ADDQ a,b	Adds a to b leaving the result in b.
PEA addr	Pushes address addr onto the stack.
TRAP #1	Calls a Gemdos operating system routine.
CMP a,b	Compares (by subtraction) the values a and b.
BEQ label	Branch to label if last operation was zero.
BRA label	Branch always to label.
LEA addr,An	Load address addr into address register An.

Table II: A brief summary of the 68000 op-codes used

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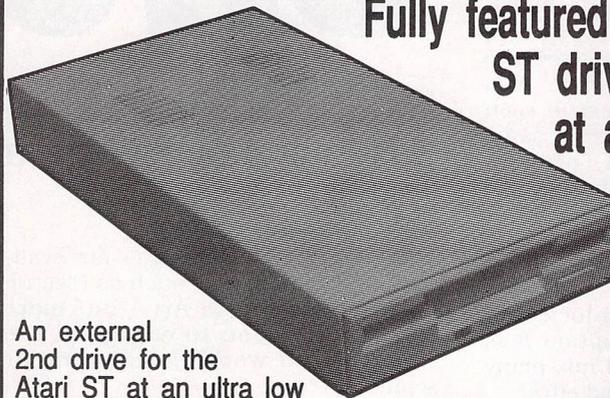
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Calling

THERE is an old adage that "Pictures sell papers". This is equally true of low budget journals or home produced pamphlets as it is of newspapers or magazines, so all pictures are worth treating seriously.

Those for use in your DTP produced work can be imported as graphic images - clip-art files - as digitised or scanned images - scan art files - or photographs pasted on to your copy.

However, before we begin to look at such processes it is important to bear a few points in mind.

The object of a picture on a published page is twofold: One is to illustrate the article and the other is to enhance the page to catch the reader's eye. So it is prudent to limit the number of pictures to a page to no more than two at A5 size, three at A4 and four at A3. Any more will reduce their effect.

Try to lead an article - especially if it is on the front page - with a picture near the top of the page - see the examples in last month's article. Also never place two pictures next to each other unless they relate to the same feature, and even then, only in extreme circumstances. Finally, if a picture is of a person or animal, always ensure that the face looks into the page - facing centrally - rather than out.

By creating a picture block and using the merge picture option it is possible to overlay text and mix many library clip art images to good effect.

Figure I shows how borders and images can be used to enclose text in an interesting variety of ways. These images are available on the graphics library disc packaged with Fleet Street Publisher.

Other PD library discs and commercial clip-art packages such as Electric Distribution's Draw Art, may also be used and pictures imported using the convert utility. Alternatively if you are sufficiently talented you may create your own pictures, borders or bubbles using a drawing package and the picture edit option in the DTP program.

Another option is to import in the same way graphics which have been scanned or digitised.

These pictures are easy to manipulate by cropping and sizing but lack in quality and definition compared with ordinary photographs. The bottle in Figure II is a digitised picture and has been made to fit snugly - by dragging and sizing - alongside the text and

the

shots

Nic Outterside continues his series on publishing by looking at the use of pictures

logo in the advertisement.

Once again, such pictures are available on library discs - such as Electric Distribution's Scan Art - but more often require you to engage in the expense and work of digitising or scanning.

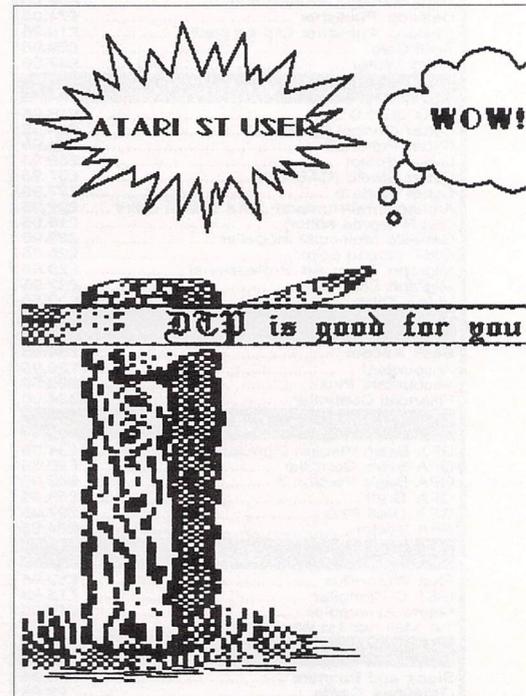
Cut and paste

Most good ST DTP produced books, magazines and pamphlets still use the old fashioned cut and paste method when it comes to pictures. The photographs used provide the clarity and natural effect which even pictures digitised then reproduced by a laser printer can't hope to emulate.

Recent examples where such amalgam technique has been used include John Wade's paperback book, *A Valet's Diction* (featured in the June 1989 issue of *Atari ST User*), the quarterly *Telegraph* magazine and the weekly *Businessman's Observer*.

In this case you provide your own pictures from photographed or photocopied sources, cut them to fit and paste in place on the page.

Colour prints do not generally reproduce very well in black and white, so



try them on a photocopier first. If the photocopy looks reasonable they should appear all right on the page. However, be warned that blues do not produce at all well and reds come out black.

Even if you are doing the whole thing yourself and then photocopying the camera copy, it might pay to have a bromide made because the reproduction is so much better.

Figure III shows the difference between a bromide and a photocopy of a colour print produced for a small circulation specialist magazine.

Even an out-of-line photo can be cropped and doctored by trimming or bleeding (see last month's glossary) to produce a stunning image.

Such techniques are fairly simple. First decide which parts of the picture to use. Take a sheet of paper and carefully cut two straight-edged L shapes out of it. These used together form a frame. Move them around over the photograph until you get the part you want.

This will rarely be the correct size for your page, so attach a piece of tracing paper over the picture and trace a box over the area you want. Don't press too hard with the pencil or

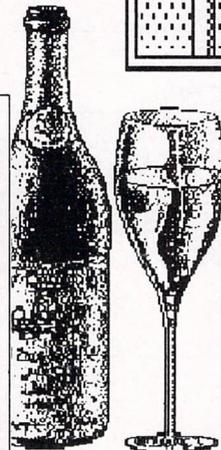
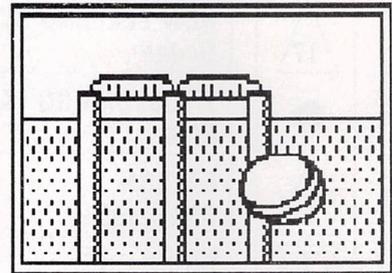


These are just a few examples of the amalgamation of graphics using a desktop publishing package on your ... try each of them out for yourself

Figure I: Clip-art images used to border and illuminate text

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22nd August - 1st September
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Fun for the whole family



Itinerary:
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Yorkshire v Kent
25th August
Yorkshire v Essex
28th August
Kent v Essex
1st September
Yorkshire v MCC
(one day match)

Figure II: A digitised image set alongside text and a logo

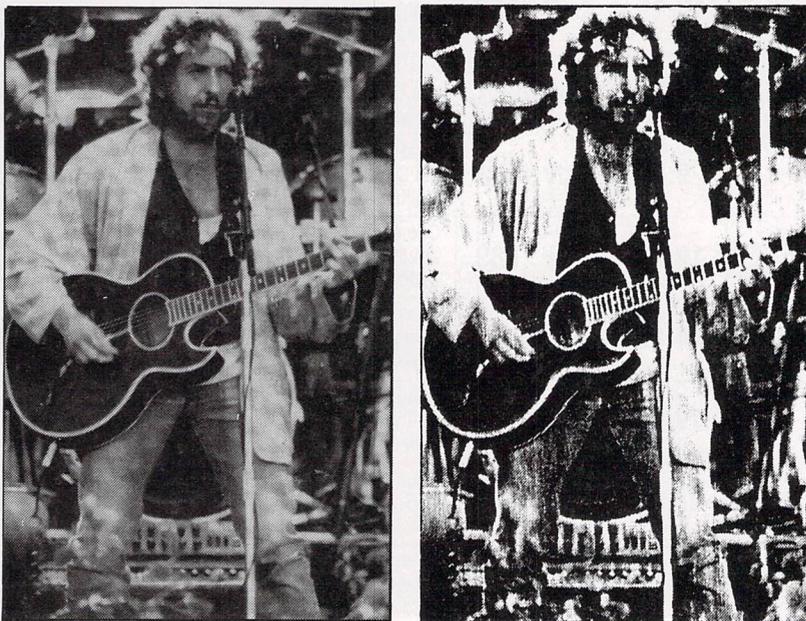


Figure III: The difference between a bromide and a photocopy

you will damage the picture.

Decide how big you want the picture to be on the page. Divide the width space on the page by the width of the actual framed picture, multiply by 100 and you will have the percentage reduction or enlargement.

Write this information on the back of the picture and take it to a local typesetter or professional photographic services.

They will charge about £10 for producing a bromide, which breaks the image up into dots to give the grey tones you can see in Figure III. A photocopy loses these tones.

If you can't afford bromides, photocopy the pictures to see how they will

turn out. If the blacks aren't very solid, go over them with a black pen to improve the image.

Even photocopied pictures can be impressive and you have the added flexibility of the photocopier's sizing utility. Figure IV shows a front page 1 designed for a catalogue. As you can see, a good photocopied photograph has been incorporated into a DTP produced page. This page can then be subsequently photocopied again or printed.

This has been a very quick tour of graphics within DTP. You can get to know more by experimenting and will only really learn by doing it for yourself.

BOB DYLAN

TAPES 1961-1989



Nic Outterside
123 Letsby Avenue
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Anythire
AB12 3AC
Tel: 061-346 6709

Quality measured on a scale of 1 to 10.
M - from master
PA - from PA tape
All timings are approximate.
Traders welcome or send appropriate blank tapes

Figure IV: A photocopied picture incorporated into a DTP produced page

Gallup Software Chart



This month	Last month	Title (Software House)	Price	Month reviewed in Atari ST User	Comments	Marks from 10
1	▲19	FALCON MISSION 1 <i>Mirrorsoft</i>	19.99	Oct 1989	Still playing Falcon, but want a change of scene? The Mission Discs will extend your enjoyment as well as the life of the game.	10
2	▲17	NEW ZEALAND STORY <i>Ocean</i>	19.99	Oct 1989	Cute and fun. You guide your kiwi past bats and teddies to rescue your friends, cruelly captured and imprisoned by a walrus.	9
3	●	THE STORY SO FAR <i>Elite</i>	19.99	*	A good-value compilation presenting re-runs of: Hopping Mad; Overlander, Space Harrier, Beyond the Ice Palace and Live and Let Die.	●
4	▲9	FALCON <i>Mirrorsoft</i>	24.95	March 1989	Prepare yourself for a Mach 2 flight in another F-16 and enjoy arguably the best in the growing class of military simulators.	9
5	▼1	POPULOUS <i>Electronic Arts</i>	24.95	May 1989	This is the game of the gods. Play on your own, against another ST, or against another micro via a modem link.	10
6	▼3	ROBOCOP <i>Ocean</i>	19.99	Sept 1989	Film to arcade and now to the ST. Stylish but slightly sluggish implementation, but good digitised speech with gameplay to match.	9
7	●	RICK DANGEROUS <i>Microprose</i>	24.99	Nov 1989	Addictive Indiana Jones type adventure as you dodge boulders, collect treasure and avoid barbed and poisonous darts.	9
8	▲10	OUT RUN <i>Klassix</i>	9.99	July 1988	Hailed as one of the best car simulations for the ST. An arcade conversion, its initial release reached the number one spot.	9
9	▼4	KICK OFF <i>Anco</i>	19.99	July 1989	One of the fastest and most exciting games around. The best football simulation ever – realism, thrills and unrelenting action.	9
10	▼6	BATTLE CHESS <i>Electronic Arts</i>	24.95	Aug 1989	You'll be surprised what happens in this chess game – a vicious queen, metamorphosing rooks and mischievous pawns.	9
11	▲15	LICENCE TO KILL <i>Domark</i>	19.99	Sept 1989	Bond returns to the small screen in the game of the film. Reasonably good graphics and varied gameplay.	7
12	▲20	WATERLOO <i>Mirrorsoft</i>	24.99	Aug 1989	After Borodino came Waterloo, and courtesy of PSS you can change history and the outcome of a battle Napoleon shouldn't have lost.	9
13	▼2	FORGOTTEN WORLDS <i>US Gold</i>	19.99	Sept 1989	An interesting variation on a theme. Very enjoyable with hours of fun for even the most hardened arcade fanatic.	8
14	▼5	SILKWORM <i>Virgin/Mastertronic</i>	19.99	Aug 1989	If you're after a good blast and have a partner to help then look no further – it's brilliant. Good even as a one-player game.	10
15	●	INDIANA JONES - LAST CRUSADE <i>US Gold</i>	19.99	Oct 1989	Trace the exploits from the cinema to the arcade – from rumbling trains to rat-infested corridors and to the first prize. Not bad at all.	9
16	●	ROCKET RANGER <i>Mirrorsoft</i>	24.99	Nov 1989	The Nazis won, and on the fiftieth anniversary you have to change the course of history using spies and sheer brute force.	9
17	▼7	DRAGON NINJA <i>Ocean</i>	19.99	Aug 1989	The President has been kidnapped by a group of ninja warriors. Rescue him while surviving against horrendous odds.	5
18	▼12	LOMBARD RAC RALLY <i>Mandarin</i>	24.95	Jan 1989	Back to the racing circuit, but this time with a rallying slant. Win enough race legs and you can customise your Sierra Cosworth.	9
19	*	KULT <i>Infogrames</i>	24.95	July 1989	Lively, colourful and challenging. Best of its genre on the ST. The unexpected, humour and puzzles promise many sleepless nights.	10
20	▼11	F-16 COMBAT PILOT <i>Digital Integration</i>	24.95	July 1989	Impressive documentation, but the aircraft handling is not very realistic, with a tendency to over-respond. It's too easy to crash.	8

KLR SPECIAL AMIGA A500

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- ★ Superbase
- ★ Photon Paint
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STRETCH

mini OFFICE

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The Mini Office Professional suite heralds the beginning of a new era in productivity software for the Atari ST. The suite consists of five powerful modules which are available separately. Each one is simply bursting with features, and is both intuitive and quick to learn. It also makes the fullest use of the Gem environment with its pull-down menus, icons and dialogue boxes. All of them will work with any Atari ST with one or more disc drives and a monochrome or colour display.

The modules are fully integrated to maximise your efficiency. This means that you can pull graphics, spreadsheet tables and database information into the document processor – and do powerful mail merging too. You can load database files into the spreadsheet, or spreadsheet files into the database, and turn data from both into attention-grabbing charts. And any file can be sent to other ST owners down your telephone line using the communications module. The opportunities are endless.

Every module comes with a set of invaluable desk accessories, described by ST World as “so useful that they might on their own justify buying the package”. There’s an all-purpose text editor, handy memo pad, pocket-style calculator and disc utilities – enabling you to format, rename, erase, copy, show info and list directory to screen, printer or a file – which you can use from within each program. You’ll also find that we applied the same attention to detail to the manuals too. ST World went on to say that the Spreadsheet manual was “one of the clearest and easiest to follow manuals I have seen for a long time”.

What is even more remarkable is the price – just £24.95 for each power-packed module (*Document Processor £34.95 – available late summer*). Start with one module – and you’ll want them all. You’ll be joining nearly 500,000 others who have discovered that the Mini Office range has revolutionised their productivity.

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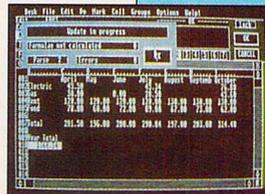
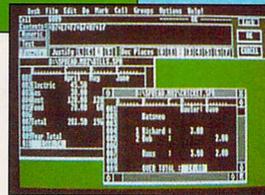
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Keeping your financial affairs in order is easy with the Mini Office Professional Spreadsheet. With it you'll be able to make short work of budgets, costings and what-if calculations.

"Offers excellent value and deserves to do well" – ST World
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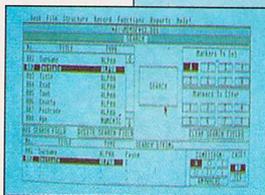
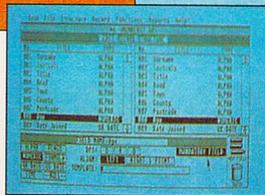
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Get your data organised!

The Mini Office Professional Database makes short work of arranging your data at home or at work. This flexible package is perfect for cataloguing your record collection or keeping track of stock levels. And it makes full use of Gem to bring all its labour-saving features to your fingertips.

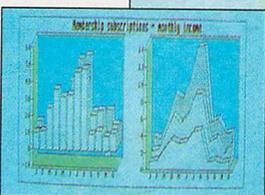
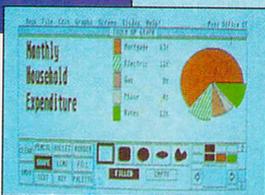
- Choose from eight data types
- Create numeric fields up to 15 digits long and alphanumeric fields up to 99 characters in length
- Total the values of all or selected fields
- Use a formula to modify the contents of all or selected numeric fields (EG: Increase all salaries by 15%)
- Incorporate conditional statements in formula fields
- Create templates for screen layouts and report formats
- Perform up to four different sorts on your records and switch between them at the click of a button
- Do powerful searches and save selected records to disc
- Merge databases together



Bring your statistics to life!

Turning data into vibrant visuals is easy with the Mini Office Professional Presentation Graphics module. This flexible package is perfect for creating dynamic graphs, information-packed charts and attention-grabbing presentations – it even comes with its own art tools for adding that final touch.

- Import data from the Spreadsheet and Database or any DIF file
- Hold up to 10 data files in memory at once
- Plot your data in any of five graph types: Bar chart, pie chart, line graph, area graph and scatter graph
- Display up to four graphs at once
- Plot up to 10 datasets on one graph
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- Use automatic or manual scaling
- Touch up any screen with the comprehensive art program: 10 brush types, five shapes, five text heights, five text styles and 12 bullet types
- Create a slideshow containing up to 50 slides – and cycle automatically or use the mouse button



Link your Atari ST to the outside world!

Connect to MicroLink, Telecom Gold, Prestel and specialist bulletin boards all round the world with the Communications module. Send fax, telemessages, electronic mail and more.

"Very polished ... far and away the easiest comms utility for complete beginners" – ST World
"A dream to use" – Atari ST User

- Select your modem from the comprehensive list supplied on disc – or define your own
- Supports all popular Teletype, VT52 and VT100 emulations
- Access vntdata with full-colour graphics plus mailbox editor and slideshow facility
- Create your own list of services with the autodialling phone book
- Record all your actions into a log-file while you are online
- Keep a tally of your phone calls, with all details recorded to a log
- Download telesoftware using Ascii, Xmodem or Kermit file transfer protocols
- Exchange any Mini Office Professional file with other users – anywhere in the world



GALLERY



Uplift

THIS month's Gallery is devoted exclusively to 16-year-old Rajeer Doshi's work. Rajeer started his artwork on an old ZX Spectrum computer, but transferred to the ST after seeing its much improved graphics capabilities.

Using the public domain Neochrome (v1.0) art package he produced a superb range of computer graphic art. The pictures were then ported across to the more powerful Spectrum 512 where extra colours were added. Uplift took around seven hours of non-stop drawing.

A science fiction space theme

runs throughout the three pictures, and the results are quite spectacular.

If you have a work of art you would like to see exhibited on our worldwide stage why not send it in on disc to Gallery? Remember though, anything you submit must be original, unusual and all your own work.

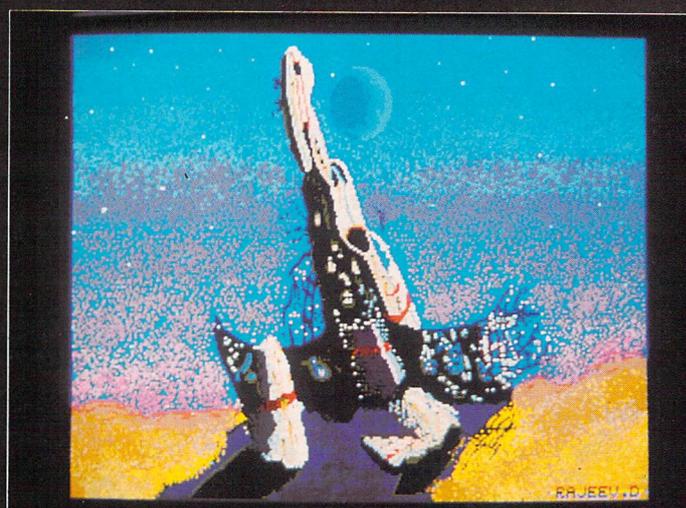
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Please enclose an sae for the return of your discs. The address to send your masterpiece to is:

Gallery, Atari ST User,
Europa House,
Adlington Park, Adlington,
Macclesfield SK10 4NP



Forever



Wrecked

Announcing PRODATA – the Arnor database Software for the 1990s

Arnor, the makers of PROTEXT, are pleased to announce the arrival of our complementary database program, PRODATA.

This is the program that our customers have been requesting for years. Prodata is an ideal companion to Protex - it uses the same key strokes and many of the same concepts, so Protex users will immediately feel comfortable. Prodata offers the same standards of ease of use and flexibility as Protex.

But you do not need Protex to use Prodata - it is a powerful database manager in its own right, ideal for all your filing applications. The program uses a simple set of menus which may be used with the keyboard or a mouse, as required.

Prodata is being launched simultaneously for the IBM PC and compatibles, Commodore Amiga and Atari ST, at a special introductory price of £55, available only until 30th November 1989. The recommended price will then become £79.95.

Variable length fields, up to 300 fields per record. Data files automatically extended as data is entered. Extra fields may be added at any time.

Indexed files may have up to 5 indexes, which may use supplementary sort fields. Instantly switch indexes to change sorting method.

Flexible layout design includes field, text and variable items, line drawing mode for boxes, layouts wider and longer than screen sizes with automatic scrolling, formatting of items (decimal places, justify, centring), printer attributes (bold, italic etc) both global and on each item, special 'attach' attributes to join items. Duplicate layout facility. Up to 100 different layouts.

Printing. Comprehensive set of printer drivers, full use of printer control codes, options to set all margin sizes, headers and footers, microspacing used to give correct output in proportional fonts, background printing, print to printer or to a disc file.

Filtering of data using any expression, Filters stored with descriptions, selectable from menu. You can instantly switch between displaying all records, those selected, or others. Individual records may be de-selected after filtering.

Importing and exporting of data in different formats suitable for other software including Protex. Selective importing allowing data to be checked and altered as it is imported.

Prodata is exceptionally versatile:-

You can keep data files which are automatically sorted as you add information. The type of data can be very varied, ranging from simple names and addresses to inventories and catalogues and even invoices and records of transactions.

You can keep the data sorted in several different ways, e.g. by name, number, date. Almost instantly find information using any of these sort keys.

You can design different ways of presenting the data, e.g. straight list, address labels, tabulated data.

Using Prodata is simplicity itself :-

All facilities are accessed from a few simple to use menus. To set up a new database file you merely need to enter names for each data field - you need not concern yourself with the size of fields or the type of data to be stored or even the total number of fields.

Undo changes. The most recent data changes / deletions / insertions are logged and may be reversed to allow you to correct mistakes easily.

Password protection. 5 levels, ability to protect individual layouts to restrict access to sensitive data.

File management screen with directory map, rename, erase, copy, type, attribute display and alteration.

Powerful expression evaluator provides date calculations, substrings, conditional expressions, rounding. The result of an expression can be assigned to a field throughout the database.

Data entry verification. Fields may be required to be integer, number or date within a given range, or a string subject to a maximum length and mask.

Data editing with ability to duplicate an existing record, insert and overwrite mode, insert and delete line that automatically move fields up or down, swap characters, convert to upper or lower case, change layout or index from display mode, finds individual record almost instantly.

International compatibility includes full use of accented characters including correct sorting, keyboard configurable to 10 different national layouts, printer drivers supplied to print special characters.

Menu driven. Simple, easy to use system of menus and pop up windows. Keyboard or mouse may be used.

Plus macro record mode, batch delete facility, configuration program, example data files, on screen indication of bold, underlining, italics, comprehensive manual.

```

PRODATA v1.00 (c) Arnor 1989 Printer (PI) EPSON Directory E:\PROD
Open: INVOICE (49F) Recs: 12 Sel: ALL Layout: 1 Index: 0 15:23:22

          INVOICE
          Select field name
          Field 4 : Address 3
          Field 5 : Address 4
          Field 6 : Address 5
          Field 7 : Del Addr 1
          Field 8 : Del Addr 2
          Field 9 : Del Addr 3
          Field 10 : Del Addr 4
          Field 11 : Del Addr 5
          Field 12 : Telephone
          Field 13 : Fax
          Field 14 : Contact
          Field 15 : Invoice Number
          Field 16 : Order Ref
          Field 17 : Quantity 1
          Field 18 : Description 1
          Field 19 : Unit Cost 1

Invoice Address
-----
-----
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-----
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-----
-----
-----
-----
DATE
????????????????????

Your Ref
    
```

Top left = (0,0), Pos = (3,17), Length=20.
Variable name: DATE Use @@ to move, ^@ and @ to resize
(F)ield (T)ext (V)ariable (L)ine draw (A)ttres (D)el (E)dit (TAB) next:

Designing a new layout

```

PRODATA v1.00 (c) Arnor 1989 Printer (PI) EPSON Directory E:\PROD
Open: ARNOR (16F) Recs: 3621 Sel: ALL Layout: 2 Index: 1 15:55:04

Name      Mr G B      Smith
Address   34 Mulberry Way
          Lower Thrashley
          Witton-under-the-Hill
          Wittonshire
          W112 5GT
Tel No

Computer  IBM PC AT
Protex Reg  7312
Date Purchased  13/8/89
Protex Reg  4447
Date Purchased  3/2/98
Notes
    
```

(E)dit (F)ind (A)dd (C)opy (D)elete (P)rint (X)port (I)ndex (L)ayout
(B)ack (N)ext (A) First (L)ast (U)nsselect (ESC) Quit, Opt->

Displaying and entering data

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ATARI STAR USER GAME

Product: Rick Dangerous
Price: £19.95
Supplier: Firebird, Unit 1,
Hampton Road
Industrial Estate,
Tetbury, Gloucestershire
GL8 8DA.
Tel: 0666 54326

RICK Dangerous is a brilliant game on Microprose's recently acquired Firebird label. Within minutes I was hooked on this compulsive arcade adventure.

Rick, very much like an Indiana Jones type of character has crashed his plane in a South American jungle and wanders into an Aztec temple. The natives aren't very friendly and he must find his way out, grabbing treasures along the way.

The game features comic book characters, scrolling screens with superb graphics and many puzzles to solve in order to progress.



Jungle jaunt

You, as Rick, start off running along a tunnel chased by a large boulder which presents the first puzzle - how to avoid it. Bullets bounce off and a stick of dynamite appears to be just as ineffective.

Run right and jump down a shaft - fortunately, falling from great heights does no harm - then run left and jump down the next.

At the bottom is a spear-wielding native ready to run you through, so jump to the right when you hit the ground and the boulder squashes him flat.

After making your way through the next tunnel and climbing down some rocks you spot a golden sun treasure, but an armed guard is patrolling below. You jump down, whip out your pistol and gun him down.

When you climb up and reach for the treasure you trip a

boobytrap causing spears to shoot out of the wall and impale you. You soon discover that by jumping up the treasure can be reached without setting off the trap.

Next you climb down the ladder and dispose of the guard below. Down the next ladder, dodging spears which shoot out of the wall, leap across to a ledge then down another shaft. Place a stick of dynamite against a wall and blast your way through to the next cavern. And so it goes on.

The puzzles are easily solved and the boobytraps can all be avoided, which makes the game maddeningly addictive as you know it can be completed. Succeeding is usually a matter of trial and error. Remember your blunders and the boobytraps and avoid them next time around.

Sometimes a trap is just off the bottom or side of the screen and you walk straight into it. It's frustrating at first, but you quickly learn where to stand, how to jump and when to duck.

The graphics are superb cartoon style characters drawn on detailed background screens. As you walk off the screen edge or fall down a pit the background scrolls smoothly in the appropriate direction.

The short piece of music at the start is excellent and there are some nice sound effects during play. The sampled scream when Rick dies is quite comical.

Firebird has come up with a winner with Rick Dangerous. It is fast, fun, puzzling and addictive. With four missions and 30 screens it will keep you occupied for quite some time. Recommended.

Roland Waddilove

Sound.....	9
Graphics.....	10
Playability.....	10
Value for money.....	10
Overall	10

SECOND Sight

Rick Dangerous is a cute character lost in an Aztec temple. Booby traps and puzzles abound so you'll have to apply the old grey matter in order to help him escape.

Great graphics, super sound and addictive action make this compulsive computing. Rush out and buy it.

Janice Murray

Product: *Passing Shot*
 Price: £19.95
 Supplier: Imageworks,
 Irwin House, 118
 Southwark Street,
 London SE1 0SW.
 Tel: 01-928 1454

WHAT! You cannot be serious! You are the pits, Man! Sorry, I got carried away practising for *Passing Shot*, a new tennis simulation on Mirrorsoft's Imageworks label. With probably the most realistic gameplay I've seen on a micro it makes me want to scream like McEnroe at the ST's computerised judges.

Passing Shot is a coin-op licence from Sega which is intended to be as close as possible to the original arcade game machine. You play a season of singles championships (or mixed doubles with the two player option).

The opening screen shows maps of France, Australia, USA and England at the top of the screen with two tennis players at the bottom. Press the fire button and enter your initials for the scoreboard. I was a bit annoyed that I couldn't enter my full name.

During the service you have a 3D perspective view from behind the base line. The ball is tossed into the air and you hit the fire button and move the joystick to belt it over the net. Once the ball has been hit the display changes to a bird's eye

Courting success

overhead view.

The court is larger than the screen and smoothly scrolls to keep the ball visible. Its size shows how high it is - the larger the higher.

Another annoying aspect is that the screen follows the ball, which means that your player is often off-screen and not visible. This happens every time the ball is hit by the player on the other side of the court.

Working blind, you must make your player run to the spot where the ball is going to bounce. Once there you press fire to hit it - flat by pressing forward and fire, sliced with fire and left, top spin with right and fire, lobbed with back and fire.

You can run or try to hit the ball, but not both at the same time - again, very annoying.

I like computer-generated music, but *Passing Shot*'s didn't appeal to me and was turned off within two minutes of loading. The sound effects are minimal too, so I preferred to play in

silence. The graphics are good, but not outstanding.

Despite these criticisms this game is still exciting and very addictive. I have no hesitation in recommending it.

Roland Waddilove

Sound.....	4
Graphics.....	7
Playability.....	9
Value for money.....	8
Overall.....	8

SECOND Sight

A superb computerised version of tennis, but even on the easiest level I was beaten every time. Reasonable graphics combined with good gameplay make an entertaining way of whiling away the time until next Wimbledon..

Janice Murray

Product: *The Quest for the Time-Bird*
 Price: £19.95
 Supplier: Infogrames, Mitre House, Abbey Road, Enfield, Middlesex EN1 2RQ.
 Tel: 01-364 0123

THE Quest for the Time-Bird is the latest release from the French company Infogrames, and follows in the footsteps of previous releases, *The Sydney Affair* and *Passengers in the Wind*. In style it is more akin to the latter being more graphics-based. The game is mouse-driven and there is no typed input whatsoever.

Based on a French cartoon strip, the action takes place on the planet Akbar at a time when magic is still in the air.

The quest begins at Bragon's farmhouse. One of Akbar's boldest knights, his peace is shattered by the arrival of Roxanna, daughter of the witch-princess Mara, who brings a message from her mother who is seeking Bragon's help.

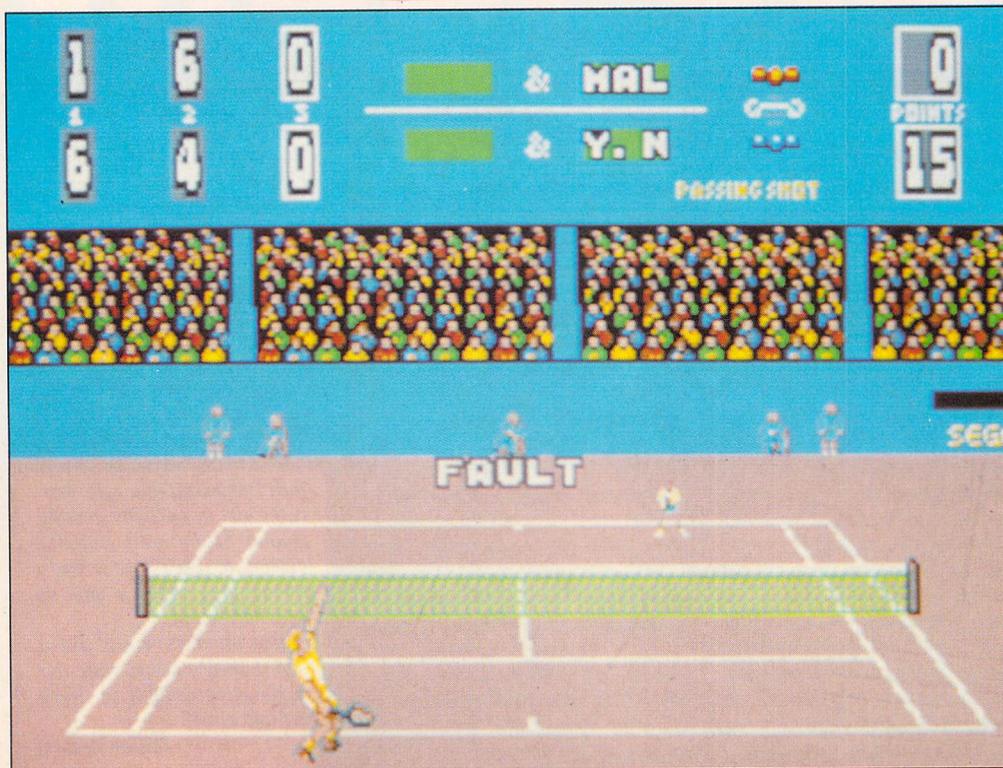
Long ago when Akbar was ruled by gods, one of them, Ramor, tried to take power for himself. He was overwhelmed by his peers and imprisoned in a conch using strange incantations. The gods retired eons ago and Akbar's seven territories are now governed by wizard-princes and a princess.

The spells which have imprisoned Ramor lose their effect on the night of the Changing Season - only nine days away. Mara has recovered the Sacred Book of Magic and has deciphered the incantations, but then she needs the conch, which is guarded by another wizard-prince.

The chant is so long that she needs the Time-Bird which is responsible for the flux of time. Only it can grant her the time necessary to cast a spell of renewal over the conch and so keep Ramor confined for ever more.

Your task is to guide the main characters to the conch and enlist the Time-Bird's assistance. Initially, the party consists of Bragon and Roxanna, but in their quest they will meet two other characters, Bulrog and the Unknown Knight.

The game consists of three elements - travelling between the territories of Akbar, exploring them and interacting with the characters. When you are travelling you see a full screen map and each location is depicted by a white dot. Click on the





Based on a French cartoon strip, the action takes place on the planet Akbar

The French connection

appropriate spot to move to a territory.

You then see the party make their way there by either air (on Lopwinds, like flying tortoises) or by land (on foot or mounted on Caropaxes, armour-plated camels) or by sea (via Balants, Jules Verne type submarines). An amber dot showing the party's location moves across the map to the next location.

So far the game sounds mouth-wateringly good and a must buy with all the ingredients of a classic adventure game. However, although graphically pretty it falls down when it comes to gameplay.

A character in the party is accessed by clicking the right mouse button. A picture of him or her then overlays the current screen. Click the mouse to

access either their inventory or actions. A character can speak, charm, attack or eat.

Each character would be expected to have their own possessions, but you can access only the party's collective inventory. I was intrigued by the fact that both Bragon and Roxanna had an axe called Reaper, that both had exactly the same food rations and had

conch at one stage and immediately hot-footed it back to Mara and proudly presented it to her. The ungrateful so-and-so did nothing with it, and once an object is given away you can't retrieve it.

The save/load facility isn't very good. You can only save one position per disc and only after five minutes play. Also, you can't save while travelling or in certain territories at certain times.

This isn't the best one I have played, which is a shame, as it had all the promise of being a very good adventure indeed.

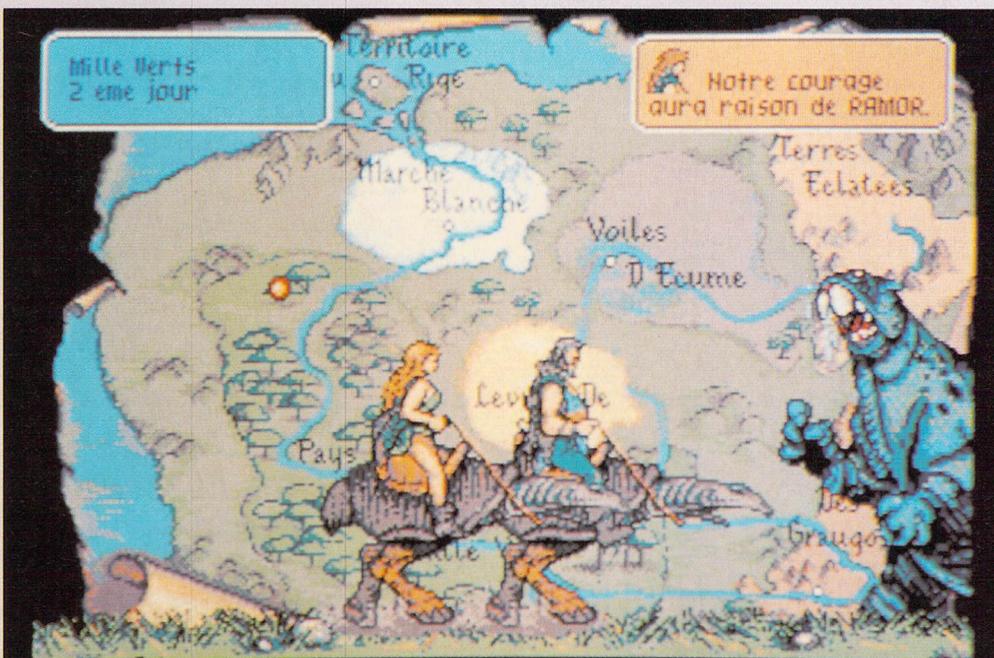
Bruce Marshall

Sound.....	8
Graphics.....	9
Playability.....	5
Value for money	5
Overall	7

SECOND SIGHT

The graphics are brilliant, but I sometimes found the text difficult to read. I loved the strange animals and the general feel of the game but was frustrated by the inability to save/restore at will - plus frequent crashing.

Ralf Little



Although graphically pretty, it falls down when it comes to gameplay



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Product: Dark Fusion
 Price: £19.95
 Supplier: Gremlin Graphics,
 Alpha House, 10 Carver
 Street, Sheffield S1 4FS.
 Tel: 0742 753423

DARK Fusion from Gremlin Graphics is a test in three parts - against mutant hordes of the underworld, a batch of marauding space fleets and monsters in the Pit of Despair.

Basically this sideways scrolling shoot'em-up takes several different game styles and fuses them together. Each level is divided into three sub-zones - combat zone, the alien zone and the flight zone. You have to locate and enter fusion pods to progress to the next zone.

The first zone resembles the Hewson game, Exolon. You control a small, gun-toting space-age Rambo type character. If you bump into either of the first two fusion pods found within the combat zone you enter a spaceship where you battle with an enormous alien who must be destroyed before you can re-enter the same zone.

When two aliens have been zapped you can enter a third pod which takes you to a flight zone. The fusion pod at the end of this takes you to the combat zone of the next level.

A control panel running along the base of the screen displays remaining lives, energy, amount of shield time left, a laser power-up meter and your inventory.

The laser meter performs a similar function to that found in R-Type. You can accumulate laser energy for one big blast - handy for foes that take a lot of hammering to defeat.

The inventory consists of two icons - the weapon you are using and the one you are carry-



Testing time

ing. Bolt-on bits and pieces add variety. When you kill certain enemies they transform into a weapon. After making contact the weapon shows in the icon window and is activated by pressing the spacebar.

Bumping into another weapon capsule will add another

weapon to your store. When activated it replaces your current one. Additional hardware includes multi-directional shots and extra jump power.

Dark Fusion is a well designed piece of software, but has nothing to make it stand out from the crowd. Also the

difficulty level has been set rather high.

Paul Rigby

Sound.....	7
Graphics	7
Playability.....	7
Value for money.....	8
Overall	7

QUICK PEEK

PIRATES

Microprose (0666 54326)

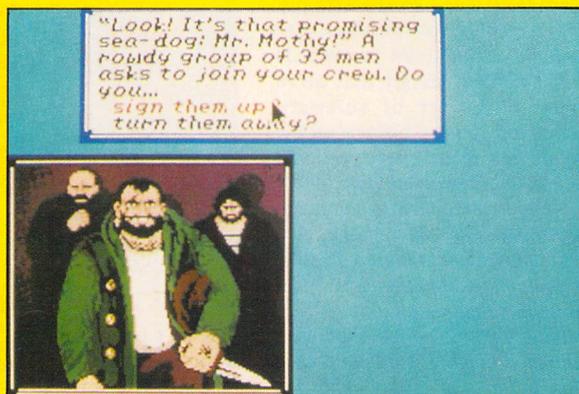
TAKE a trip back in time to the days of sailing ships and captain a pirate ship in Microprose's Pirates. In it, you chase fame and fortune on the high seas. It's a swash-buckling graphic adventure simulation of 17th century life.

Starting off in a busy port, through a series of menus and graphic displays you can gather together your crew, buy or sell food, equipment and even information. The only way of leaving town is by sea, so you set sail for the Caribbean.

Other ships are met en route and can be engaged in battle by sailing alongside and blasting away with your cannons. Alternatively you can ram them then jump aboard and duel with the captain using longswords or cutlasses. Lose a fight and you are thrown in jail to rot; win and you gain the ship and its cargo. You can choose to take the cargo and sink the ship or leave some of your men to man it.

Excellent graphics, good gameplay and a wealth of information in the packaging makes Pirates a good buy.

Roland Waddilove



SECOND Sight

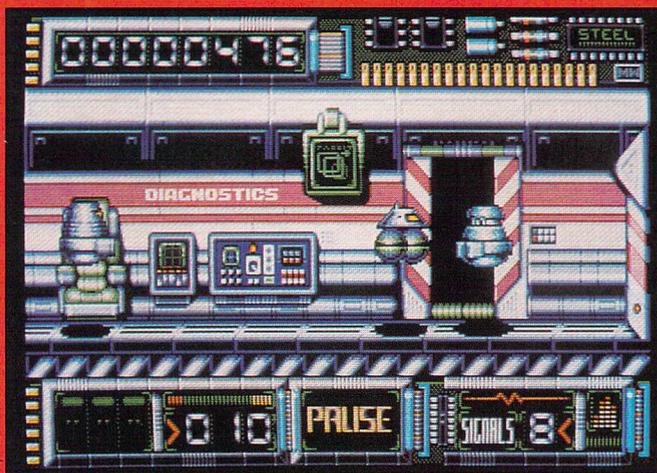
This is an interesting mixture of sub-games. Sideways scrolling, ladders and levels, space shoot'em-up and so on. The variety held my interest for quite some time. Well worth considering.

Janice Murray

Space ace

Program: *Steel*
 Price: £19.99
 Supplier: Hewson, Hewson
 House, 56b Milton Park,
 Milton, Abingdon, Oxon
 OX14 4RX.
 Tel: 0235 832939

A ROBOT commando, a spaceship and a mass of dangerous droids go to make up this latest Hewson release. You are the commando and your task is to board the spaceship *Steel* and save it from mutinous droids who are trying to destroy



it. There is only one way to foil their plan - collect eight cartridges and place them in the relevant slots hidden about the ship.

To activate the cartridges you need to shut down active terminals placed around the ship. This involves a sub-game where you must shoot a databus within a given time limit.

With eight active terminals to shut down, don't expect to complete the game in an hour.

When the droids attack you can fire your laser or bump into them, so decreasing their energy level (and yours).

You have a limited amount of energy which decreases each time a droid attacks, but there are replenishing points around the ship.

The game is illustrated with colourful, realistic and extremely detailed graphics.

The introductory music wasn't as good as I had expected but the sound is excellent while playing.

Steel is quite difficult to master - my first attempt lasted only 20 seconds - but the instructions are clear.

Once you become familiar with the exits from the rooms and you know where to go it

becomes more enjoyable.

My main criticism lies with the number of droids. Don't be surprised to find five of them hot on your tail.

Patience is more than a virtue where *Steel* is concerned: It's a necessity. You must be prepared for a few short games until you find your way around. It is also a frustrating and original blast, so expect your blood to boil.

This is probably the best arcade game I have played, ousting *Cyberoid* from my favourites list.

Sarah Garner

Sound.....	6
Graphics	9
Playability.....	8
Value for money.....	8
Overall	8

SECOND Sight

A good quality game, with excellent use of sound. Complicated and fast moving with an interesting mixture of suspense, fun and frustration.

Janice Murray

Program: *Slayer*
 Price: £19.99
 Supplier: Hewson, Hewson
 house, 56b Milton Park,
 Milton, Abingdon, Oxon
 OX14 4RX.
 Tel: 0235 832939

A MONG this month's crop of scrolling shoot-'em-ups is Hewson's *Slayer* and compared to the dozen or more games of this genre already released this year it looks very ordinary. That's not to say it is sub-standard, simply that we've seen this sort of software umpteen times before and a game has to be very special to stand out from the crowd.

The screen scrolls smoothly from right to left as you pilot a space fighter through a tunnel. Along the walls are gun emplacements and weird alien machinery that fires photon lasers, rocket missiles and explosive pods at you. The flak must be avoided while you destroy the opposition.

Extra weaponry is available by collecting the pods scattered through the tunnel. Smart bombs explode all gun emplacements on the screen and orbit-

Slay it yet again, Sam



ing pods fire in unison with your gun while absorbing some of the enemy fire.

There are some very difficult sections to negotiate and even after practising for a couple of hours I haven't yet blasted my

way through to the next level. About one go in 10 I've made it to the end of the level, but the giant guardian blocking the way refuses to die, no matter how much I blast it.

The graphics aren't outstand-

ing compared to other software of this type. The sprites are very ordinary too. The game features simple, smooth scrolling background graphics, but they are not of the parallax variety. The music is fair.

Slayer is a competently programmed game, but it is hard to get excited about it when there have been so many other variants on this theme.

Janice Murray

Sound.....	7
Graphics	7
Playability.....	7
Value for money.....	7
Overall	7

SECOND Sight

Yet another sideways scrolling shoot-'em-up, this time from Hewson, and it is probably a safe bet that it won't be the last. I'm bored with this format and want to see something with more originality.

Roland Waddilove

Product: *Rocket Ranger*
 Price: £24.95
 Supplier: Mirrorsoft, 118
 Southwark Street,
 London SE1 0SW.
 Tel: 01-583 1454

ROCKET Ranger's high quality graphics and gameplay have already made it legendary on the Amiga. Now it's available for the ST and looks set to take the software charts by storm.

This is one of Mirrorsoft's Cinemaware products - games which have stunning graphics, a good plot, different scenes and a cast - in this instance you play the lead role of Rocket Ranger.

The year is 1940, an American scientist is sitting in his laboratory when a rocket pack, radium pistol, wrist monitor and documentation pop through a portal in time.

He reads the document and discovers that the Nazis are about to win World War II, condemning mankind to centuries of Fascist rule. With the aid of this futuristic hardware only he can redress the balance of power.

The Nazis aim to smash the Allied forces using lunarium bombs and a fleet of rockets is ferrying lunarium from the moon to their bases. One of your objectives is to locate five sections of a rocket and sufficient lunarium to get you to the moon so you can destroy the enemy base.

Another equally important mission is to track down Professor Otto Barnstorff and his daughter who were kidnapped. By employing the professor's genius the Nazis can improve the efficiency of their lunarium refining process.

To succeed you have to make full use of America's spy network. From the war room in Fort Nix you can communicate with your men in the field. They submit frequent intelligence reports and can be ordered to organise resistance groups to slow the Nazis' progress.

Travel between countries is performed via a decoder wheel. Turn the dial until your current location is visible, then read off how many lunarium units are needed to reach the destination.

This system works fine until you get carried away with your success against the might of the German empire and forget to

War game

set the wheel. If you enter an invalid number of lunarium units the rocket pack explodes and you die.

Every Nazi base you visit is guarded in a variety of ways and you have to complete an arcade sequence to claim your prize - lunarium, rocket parts, the freedom of brainwashed women or the rescue of Barnstorff and his daughter.

Rocket parts are invariably protected by a Nazi stormtrooper - a huge brute with fists like melons. Ducking and weaving you pummel him with blows to the head and body. As his strength fails he crumples to the floor and the rocket parts are yours.

Soaring through the clouds

you fall prey to a squadron of Me-109s. Your radium pistol is more than adequate for the job, but the fighters are agile and trigger happy. I found this to be the most difficult of the arcade sequences.

When flying over Germany you will encounter anti-aircraft fire - this is a very similar sub-game to the fighters, but the gun emplacements are easier to hit and their shells can be avoided.

In the depths of the jungle the Nazi forces have set up a base in an ancient temple. Peering over the trunk of a fallen tree you wait for one of the numerous machine gun nests to give away its position. You leap to your feet and deliver a well

placed volley of radium. These hit and run tactics are essential to progress.

The zeppelin chase involves picking off zeppelin torpedoes at a distance and then moving in close for the kill. Once within range you are supposed to accurately shoot the gunner who sits in the tiny gondola beneath the huge craft. Aim a fraction too high and it's great balls of fire.

Rocket Ranger requires both strategic cunning and arcade skills. I rank it alongside *Populous* and *Archipelagos* as one of my favourites of 1989.

Jon Revis

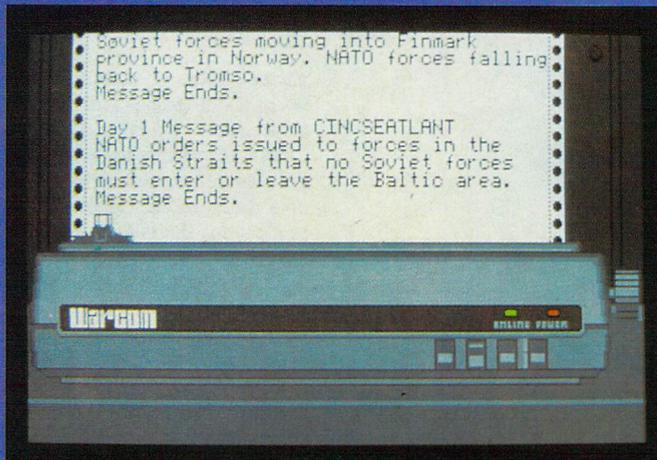
Sound.....	9
Graphics.....	9
Playability.....	10
Value for money.....	9
Overall.....	9

SECOND Sight

Hype or hit? A company with the marketing muscle of Mirrorsoft could sell sand to the Arabs, so I am always wary of games such as this. However, I am delighted to report that *Rocket Ranger* is a sure fire smash hit. Both packaging and program are top class and more than justify the £25 asking price.

Carol Barrow





Product: Conflict Europe
Price: £24.95
Supplier: PSS/Mirrorsoft,
Irwin House, 118
Southwark Street,
London SE1 0SW.
Tel: 01-583 3494

Nuclear crunch!

THE stream of superb releases has not yet abated from the new Mirrorsoft stable. Now comes an excellent PSS developed wargame, Conflict Europe.

I did cringe slightly when I first realised that the game allows you to portray a Nato/Soviet nuclear holocaust. But I went on to enjoy many hours of European theatre tactical warfare and strategy.

Conflict Europe is a development of the 8 bit game Theatre Europe and now includes diplomacy options to allow you to negotiate ceasefires and avoid the nuclear climax.

The game comes on two single-sided discs and is packaged with impressive and detailed documentation.

Boot up the program disc and you are presented with a haunting digitised picture of a mother and child alongside a scrolling newspaper report that the States and the Soviet Union are drifting inevitably into war.

Your task is either to control an Eastern Block advance into

Western Europe or to secure Nato defence against such an advance.

From an initial menu you can choose from one of five opening scenarios including a pre-defined battlefront after a two week build-up, a Star Wars (SDI) option, a shock fall into warfare, a nuclear-free West Germany and a "What if?" situation without American Nato support.

What follows is like a standard wargame on a strategic and colourful map of Europe.

Conflict Europe is by design a strategic wargame, although tactics do play a small part and this may be developed by use of air superiority, special forces

operations, conventional war-head cruise missiles and chemical weapons.

All options are entered via a Command Area control panel which lies below the battle map. By simple mouse movement you can bring up population and radiation maps of Europe and choose from a variety of supply and reinforcement facilities.

Cunning strategy will almost guarantee success, but inevitably you will have to draw heavily on your airforces and may even have to use battlefield or short range nuclear missiles.

You should only resort to strategic or intermediate nuclear weapons as a last resort.

Your atomic arsenal is activated by a command terminal which requires the entry of password keys from the manual. Don't forget that use of nuclear weapons is sure to draw a reflex response from the other side.

Judicious use of these horrific weapons can boost your chance of success, but hot-headed deployment could lead to a no-win situation and nuclear winter for mankind.

Conflict Europe must be compared in some way with Red Lightning which tackles the same theme in a similar way. It

falls short of its contemporary in some detail and complexity of the breakdown of the armies and lacks the vast scrolling map of Lightning.

However, it more than compensates with its instant gameplay, realistic sound effects and ghoulish graphics of nuclear holocaust.

Nic Outterside

Sound.....	9
Graphics.....	8
Playability.....	10
Value for money.....	10
Overall.....	9



This is an absorbing and instantly playable wargame which allows an infinite variety of approaches. Maybe not for the purists but it will appeal to most gamers.

I particularly liked the digitised images and the eerie sound effects as a nuclear bomb drops and the screen whites out. Morality aside, I can highly recommend it.

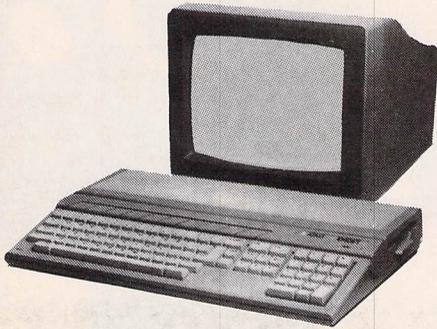
Jayne West



Plan strategy on a colourful map



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Magical adventure

Product: *Legend of Djel*
 Price: £24.99
 Supplier: Coktelevision/
 Active Sales, Studio
 Centre, 1 Ranelagh
 Gardens, London SW6
 3PA.
 Tel: 01 384 2701

AS Djel, magician and outcast resident of the Kingdom of Ashes, you are required by the Council of Sages to deal with a triple threat. As this three disc adventure begins Azeulisse, mistress of the 100 countries, curses the women-folk, preventing them from

bearing children. She promises to cancel the spell when her missing daughter is returned.

The top of the screen shows your location, while the bottom third is taken up by an area for messages from the various creatures encountered, along with an icon to return to Djel's den.

Gameplay is via the mouse in the current point and click fashion. This invites comparison with adventures such as Chrono Quest or the Icom games, but the graphics are not as squeaky clean as the former nor as simplistic as the latter, having a unique, moody look. Sampled sound effects enhance the

atmosphere.

At the start of the quest you have 250 gold coins, one candle and six magic powers. Each click of the mouse diminishes the candle and when it goes out you can't go on.

More candles can be found, as well as extra powers, lead crystals and bats, all of which are needed to make gold.

Djel's den contains many useful artefacts, most important of which is the eagle-headed statue with the bull's horns that provides a means for your spirit form to reach distant lands.

Also present are an owl, a test tube, a crystal ball and a jar



containing a dragon's brain, all possessing arcane properties.

Finally there is a window through which you can visit the outside world, and an entrance to the library where you may seek advice, make gold, and obtain other valuable items.

Your first journey is to the

Cops 'n robbers



Product: APB
 Price: £19.95
 Supplier: Domark, 51-57
 Ferry House, Lacy Road,
 Putney, London SW15
 1PR.
 Tel: 01-780 2224

ALL Points Bulletin (APB) from Domark is a cops and robbers computer game. In it, you play a rookie American cop as he goes through his daily routine. Starting off arresting litter bugs you progress to hitch hikers and eventually murderers.

A cop's work is tough; and dull too, if this game is anything to go by.

Control is awkward, with the joystick being used to rotate



Land of the Rivers of Fire, a strange, volcanic landscape where, with a little persistence, you will meet its denizens and gain another power, a lead crystal and some information.

Next there is a choice of locations to visit: The Land of Everlasting Thirst where you may

bargain for a diadem, or the Moving Lands, a Daliesque place where you'll have to do a spot of landscaping before earning a further piece of wisdom.

Upon your return, the owl warns of an intruder's presence in the library. You'll soon find yourself plunged into a sub-

game where you can choose to confront evil by force or by mind.

The first is a tricky sequence similar to the old game of stone, scissors and paper, where you and your opponent become dragons of fire, water or earth. Fire is stronger than earth, but water quenches fire, while earth soaks up water.

Clicking on coloured crystals changes your appearance and the objective is to eliminate the other dragon by spitting balls of fire at it.

The alternative places you on an eight by eight grid where you are represented by an eagle's head and your enemy by a skull.

You are able to move one square in any of the eight compass directions and fill in any other square. Unfortunately, so can your opponent, the idea being that one of you has to trap the other by making it impossible to move.

Quick wits and fast reflexes are necessary here.

This occurs several times throughout the adventure, failure usually resulting in the loss of something important, in this case Kal's statuette which can be regained, albeit at a price.

A regular visitor of more friendly aspect is the gnome Petroy, whose counsel proves helpful. The accompanying novella/instruction booklet, translated from French, is full

of hints, along with hilarious misspellings.

Although disc swapping is kept to a minimum, loading time is frequently slow. There was no save/restore option and some of the looping of samples wasn't too good. The discs are double-sided, despite the fact that none uses up more than 320k.

Legend of Djel is a thoroughly enjoyable romp, and should you complete the quest an endgame known as the Dragon Action Phases is accessed, where you play against the computer or another player.

Phil Armstrong

Presentation.....	8
Atmosphere.....	8
Puzzlement.....	6
Value for Money.....	7
Overall.....	8

SECOND SIGHT

Legend of Djel is an interesting graphic adventure with a French flavour. The artwork is good and the sound effects add to the moody atmosphere. Not the top of its class, but well worth looking out for.

Janice Murray

your car clockwise or anti-clockwise, accelerate and brake. The fire button is used to either sound the siren or make an arrest, depending on context. The problem here is that it is over-sensitive.

Lawbreakers see the car, hear the siren and instantly repent. They take their ticket and don't do it again. Not a likely tale.

The screen is split into two windows - the left one is where the action takes place while in the right hand one is officer Bob's notebook.

APB's graphics are nothing to write home about. Small, neat cars and the odd hitch-hiker, but little else. The only nicely animated sequence is the end game one, where you are dragged from your patrol car, searched and hurled into a dustbin. However, this sequence quickly becomes annoying when repeated after every game.

David Whittaker excels at producing computer game music. He did the music for All

Points Bulletin and his melody is superb. If only the rest of this discordant program had been as finely tuned.

Roy Stead

Sound.....	7
Graphics.....	5
Playability.....	5
Value for money.....	4
Overall.....	6

SECOND SIGHT

Domark receives full marks from me for originality - it's nice to see something a bit different. The car's controls were difficult to get to grips with at first, but became easier to use with practice.

The graphics are fairly ordinary, except for the funny end-of-game sequence. The accompanying music is good. Worth considering, but try before you buy.

Janice Murray

QUICK PEEK

MR HELI

Microprose (0666 54326)

FOLLOWING the recent trend of sideways scrolling shoot-'em-ups, Microprose is jumping on the bandwagon with Mr Heli. Unlike Blood Money, Menace and the rest of the genre, this one features big, bold, cartoon style graphics - which makes a pleasant change. You pilot a helicopter and your task is to collect crystals for which you are then paid. You can fly left, right, up and down, and as you approach one of the screen edges the background will scroll.

Initially progress is through a tunnel to the right. Crystals can be blasted out of the rock by firing missiles up to the roof or dropping explosives to the ground. The crystals are then picked up by flying over them.

Emerging from the tunnel you make your way down a cliff face then left through another tunnel filled with water. At the other side you have to pilot your chopper through the clouds which for some unknown reason cause your craft to explode.

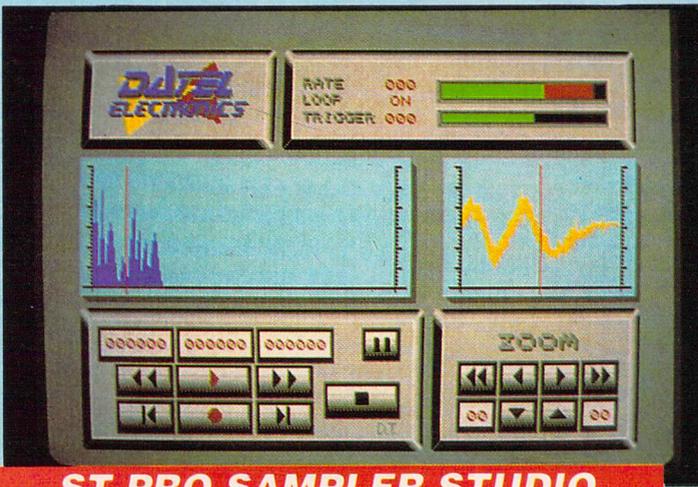
Bullets from dozens of tiny helicopters constantly sap your energy, but the antagonists are easily disposed of using your guns. The gameplay is fast, furious and quite difficult, leaving me breathless after just a few games. It would have been nice to have a few quiet sections to regain my strength.

Roland Waddilove

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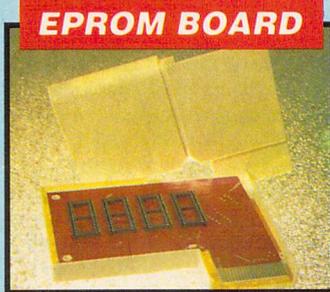
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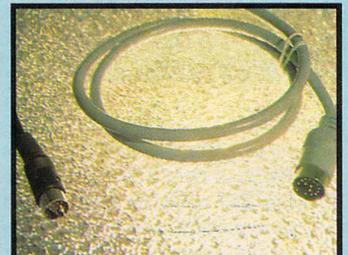
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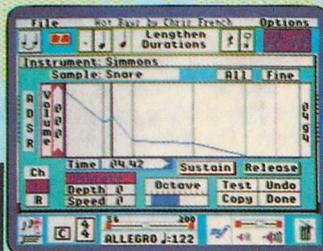
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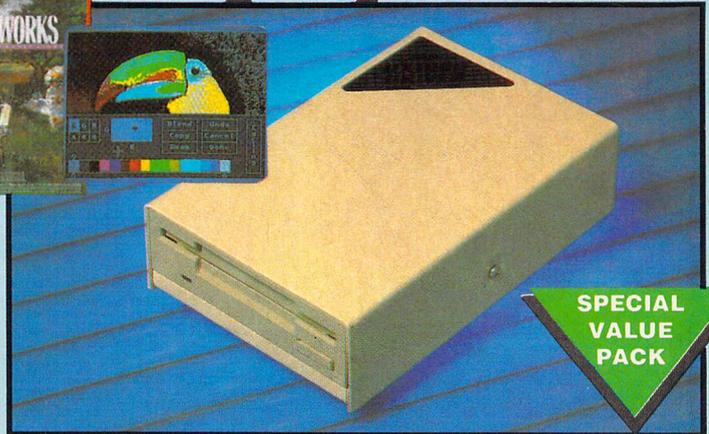
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Product: Tankattack
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TANKATTACK is a micro-based board game designed for two to four players, where each takes the role of a general commanding one of four countries' tank corps consisting of one or more armoured divisions.

Your objective is to destroy or cripple the enemy vehicles and finally capture their headquarters. This will require planned strategic deployment of your forces and regular duels between your own and enemy units.

Several factors play a major part in deciding the outcome of the game - careful management of rebuild and repair facilities, weather, morale, skill, judgement, planning, foresight and, of course, a bit of luck.

The quality fold-away game board measures 16.5 inches square and shows a map of four adjoining countries - Armania, Kazaldis, Sarapan and Calderon - with physical features such as towns, mountains and rivers which restrict or deny movement and firing. Superimposed on the map is a hexagonal grid to regulate movement of the playing pieces.

There are areas of special significance on the board: An HQ that you must defend against infiltration of enemy pieces, repair depots where your tank can be renovated after damage, rebuilding yards where a completely destroyed unit can be replaced.

Each division comprises eight tanks and four armoured cars, represented on the board by small plastic replicas. The pieces vary in firepower and players take it in turns to move and fire them in an attempt to destroy the opposition.

On-screen headlines comprising a news flash, political comment and a weather report are displayed before each round of



battle. Weather conditions can have a marked effect on the movement capability of one or more armies, depending on the location of the weather front.

The computer controls the major aspects of the game from a single options screen and calculates the results of all duels from information input by the players regarding the strength of their units and the distance between them.

A status panel shows the name of the country currently moving, the number of units active and in repair depots, the state of the rebuilding yard, the number of moves for the current turn and the HQ status.

Movement and firing are achieved by clicking on small animated icons at the bottom of the screen. The Movement icon brings to life the communications panel which issues commands and messages via a simulated telex machine. It first indicates the number of moves available to spread between all your units.

As you move your pieces around the board you will eventually come within range of the enemy. At this point clicking on the Engage Enemy icon allows you to input the target country,

the battle strength of your own and the enemy's units, and the range between them. Once you know the odds, you can either bow out gracefully or take the plunge.

Should you decide to carry on, you click on Confirm and the communications screen gives way to some detailed animated sequences to depict the encounter and its result, all calculated by the micro.

Should you be on the receiving end of a direct hit, the micro will indicate the severity of the damage and whether your piece must be repaired or removed from the board. You then pass on the move to the next player.

Completion of all turns signifies the end of a day, and the local rag, War News, appears on the screen containing information based on the recent happenings. As with the normal press some of the facts get distorted and there are propaganda reports that could mislead the unwary.

I'm not really into wargames but I thoroughly enjoyed my experience with this. If wargaming is your scene you'll find Tankattack a superb program that does away with a lot of the

donkey work.

By leaving the monitoring of repair times, damage assessment and weather reports to the impartial logic of the micro, you can get on with what really counts - strategy.

Alan Sergeant

Sound.....	5
Graphics.....	6
Playability.....	9
Value for money.....	8
Overall.....	7

SECOND
Sight

I expect this is a wargamer's delight but for me it's a waste of a disc. It doesn't seem to achieve a great deal more than you could with a dice and a sheet of paper. It's nicely presented and a lot of work has gone into it, but the board was so big I needed a separate table at the side of my computer desk in order to play it. Nope, not for me.

Bill Differs

Distinctly Digital

Cleverly written and always favourably reviewed in the press, Digita produces a range of powerful, low cost software for the home and business user.

DGCALC

The fastest and most powerful spreadsheet available in this price bracket, with 512 rows by 52 columns, giving you up to 26624 cells. As with all Digita products, the operation of the program is clearly thought out. Being either menu, mouse or command driven you'll be able to start using it within minutes - even if you've never used a spreadsheet before. Some of the features which make it such good value are the exporting of ASCII files for integration with other programs, adjustable column width and text overflow, programmable function keys (macros), and a unique windowing facility, so that you can look at different parts of a sheet at the same time.

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Do you ever have to print names and addresses at awkward places on envelopes, or do you ever need to fill in tricky forms or invoices where the text has to be in exactly the right place? Usually you have to do it by hand, or get your trusty old typewriter out of the cupboard and dust it off. Well not anymore. The Emulated TYPEwriter transforms your computer and printer into a fully fledged typewriter, supporting bold, underline, italic and other type-styles. Because it can display and print text INSTANTLY you can line up your form, press Return and Space a few times to move to the correct place, and then start typing. Alternatively you can switch to line-by-line mode, which offers word-wrap, justification and proportional spacing, so that you can edit each line before it's printed.

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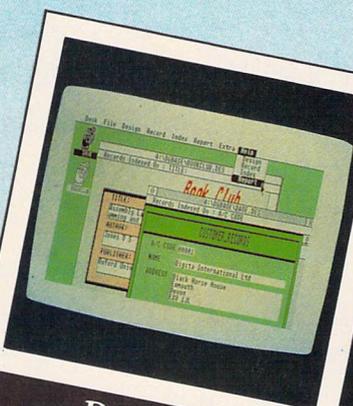
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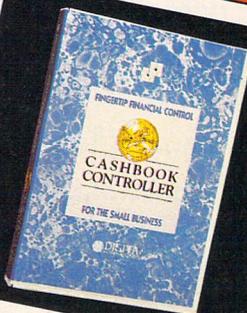
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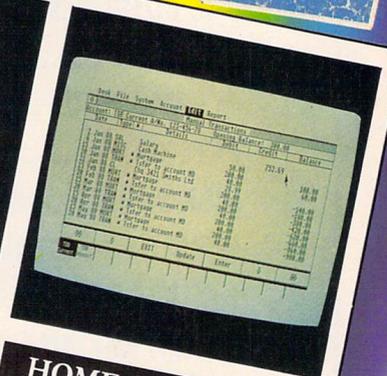
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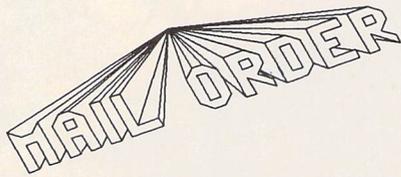
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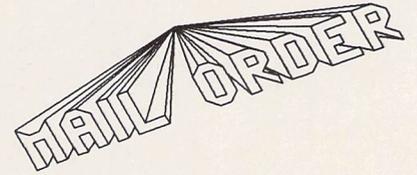
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GERRY Anderson's Thunderbirds have been rescuing the victims of accident, disaster and crime for donkey's years. Now Grandslam bring the International Rescue team under the command of anyone buying its newly launched Thunderbirds game.

International Rescue is an organisation dedicated to saving life, set up and headed by Jeff Tracy. From his tropical island base he directs the five Thunderbirds and their crew - his sons Alan, Gordon, Virgil, Scott and John. Completing the team are Brains, Lady Penelope and her loyal butler "Yus-m'Lady" Parker.

The game is played in four sections and you are not allowed access to the later stages until preceding ones have been completed and you have the required password.

The manual briefly describes each level and gives hints on tackling the first three.

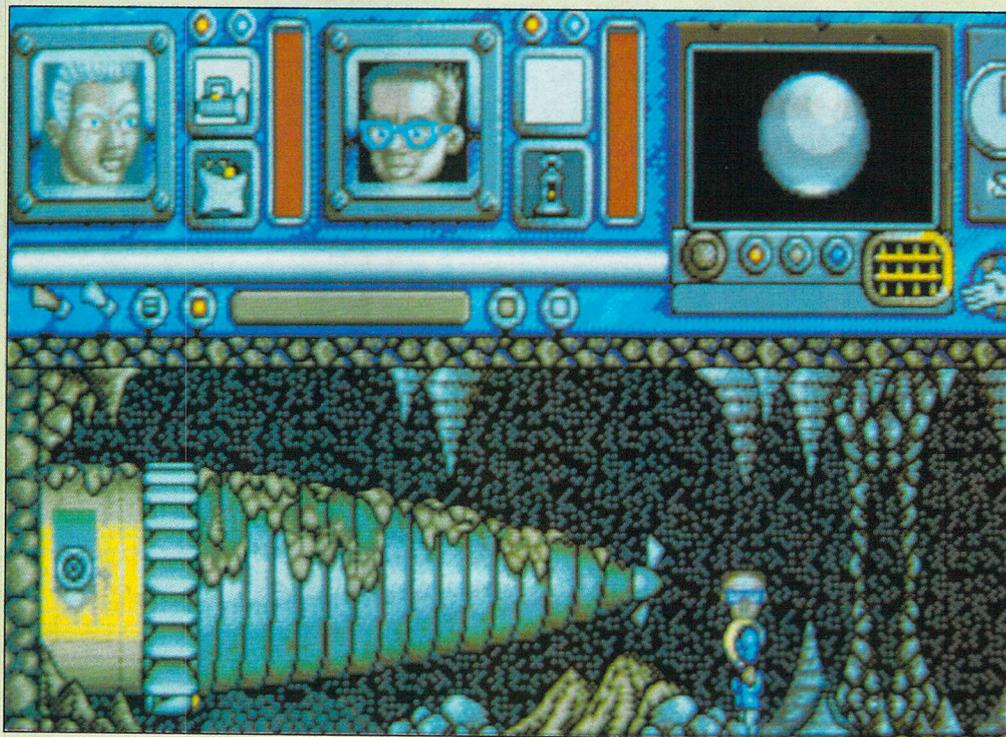
In level one Brains and Alan have to free two trapped miners following the destruction of their lifting gear. Level two involves Alan and Gordon in an attempt to neutralise an atomic reactor in a crashed nuclear sub before it slips into an underwater volcano.

The penultimate level has Lady Penelope and Parker raiding the Bank of England for documents needed to trace the culprits responsible for sabotaging the sub. Lastly Virgil and Scott (always the super-cool models in the TV series) chase after The Hood, the villain responsible for all the previous devious goings on.

Before the mine rescue can start Alan and Brains have to be fully kitted out. You can give them two items each from a list of six, ranging from laser cutting equipment to gobstoppers.

Once equipped, the rescue begins with Brains starting below ground while Alan is nearer the surface. Only one character is on screen at a time and you can switch between them using the spacebar.

Flooding makes exploration of the mine hazardous, so Brains must first fix the pump. Tools are dotted about the mine, but being able to hold only two items means a lot of



Thunderbirds are go!

**SECOND
Sight**

dropping and going back for objects.

Careful thought and planning is essential, but on the other it gets tedious trudging back for bits dropped miles away.

Thunderbirds looks good, the graphics and animation are well done, though there is a disappointing lack of visual and aural effects. Coming complete with

poster, stickers, and theme music audio cassette, it is worth considering.

Niels Reynolds

Sound	6
Graphics	8
Playability.....	7
Value for money	7
Overall	7

For all its graphic qualities I found Thunderbirds a little disappointing in content. As a platform game there is not enough action and as an adventure it's not sufficiently taxing.

A bit of a compromise, though not without its own appeal, and perhaps worth considering if you can try it first.

Mike Rowe

QUICK PEEK

SKYFOX II

Electronic Arts (0753 49442)

FEDERATION engineers have developed the Skyfox II warp fighter to meet the threat of a Xenomorph uprising. Your mission is to deal with each conflict as it arises. This is the plot behind this new 3D space combat simulation from Electronic Arts, yet again a variation on a worn out theme.

The screen shows your view from the cockpit and there's a scanner offering front or rear views in short, medium or long range. Also on display are

additional weapons, shield strength, energy and damage levels and autopilot status.

Your main weapon is a neutron disruptor, but you can also launch photon pulse bombs which lock on to and destroy the enemy, and anti-matter mines which you can drop from the rear. Additional features available include a deceptor device which renders you invisible to radar, shields to give added protection, and the facility to dock at a Federation starbase for repairs.

And that's it really. Trouble is, it's all been done before and better - the graphics don't really exploit the ST to the full.

Carl Bates

Product: *BattleTech - The Crescent Hawk's Inception*
 Price: £24.95
 Supplier:
 Infocom/Activision, Blake House, Manor Farm Road, Reading, Berkshire RG2 0JN.
 Tel: 0734 311666

INFOCOM has come a long way since the days of *Zork I* and *Wishbringer*. Now teamed with Westwood Associates, the masters of adventure launch a role-playing graphical jaunt.

BattleTech is unlike any micro RPG adventure you have seen before, and after 16 hours' almost constant playing I am well and truly hooked. It derives from its wargame/role-playing tabletop ancestors.

Far into the future, the fate of the world is in your hands. You are 18-year-old Jason Youngblood, the son of a legendary Mech warrior, and you have to train and prepare yourself to save your planet in an age of never-ending wars.

BattleTech is mouse controlled and presented on two discs in the stylish packaging we have come to expect from Infocom. Alongside the software you will also find an informative manual, easy reference guide and a luscious glossy poster.

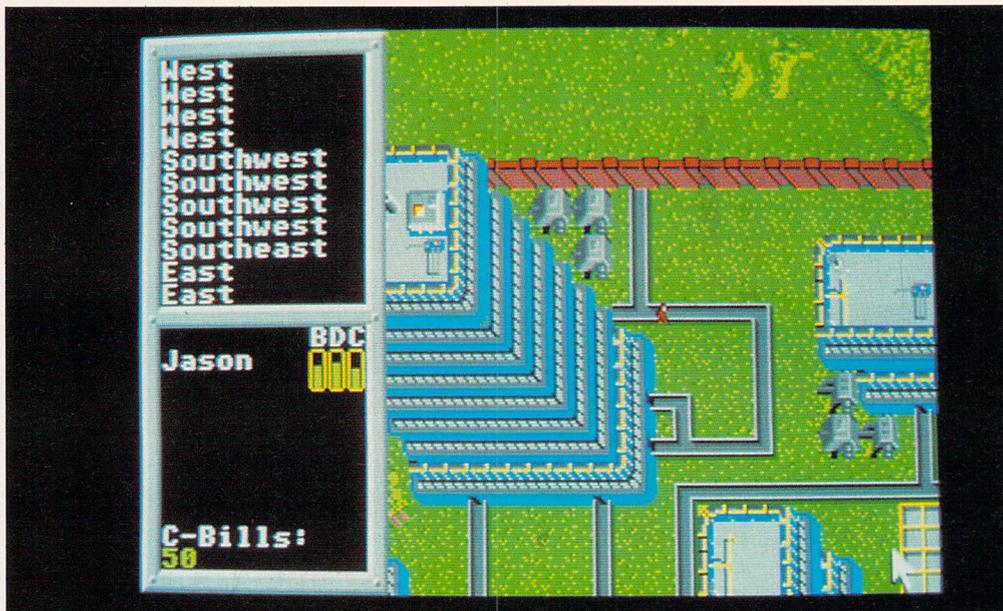
Boot up the discs and the game quickly loads to display an overhead view of a Lyran city sited in a main screen to the right of two smaller windows. The upper left window serves several functions including indication of direction of movement, action descriptions and graphic images of battles.

The lower left window lists any characters in your party along with a bar chart representation of their main attributes. During combat this window becomes your command window.

Pressing the spacebar also brings up a main option menu which is particularly useful at various points in your quest - especially the small scale overhead map of the *BattleTech* area.

Back at the main screen you are able to move Jason quickly and smoothly across a scrolling landscape. You can explore many features and buildings including the Citadel, various workshops, the Comstar station (stock exchange) and the Mech Training Centre.

The graphics and animation are good, and despite the strong



Futuristic fantasy

adventure orthodoxy of this game, there are also some nice arcade overtones.

Your first task is to explore and get the feel of the gameplay, and this easygoing introduction will be a boon to novices. You also have an opportunity to dabble in stocks and shares and build up your personal wealth to buy weapons and armour.

You must also train in combat skills, such as the use of bows, blades and firearms and most importantly learn how to use the Mech fighting machines - Transformer-type robots.

Training sessions with the Mechs is the key to success or failure. This occurs in a predefined area and requires strategy, care and some mouse dexterity.

Even if you fail at a session, you are given a second chance.

If you are particularly successful you get bonuses, though further exploration and decision making is usually required to

achieve them.

The learning curve is gradual and should not daunt any player - I made it to training session seven with no problem whatever.

Once you are fully prepared you may then join the battle proper and your manual fighting skills as well as your Mech training will come into their own.

You plan, explore, inspect, react, move, heal and command as you fight for your life and that of the Lyran Commonwealth. At this point many of the true adventure features are supplanted by the more vigorous role playing aspects.

This is an excellent game with clever graphics, smooth scrolling and animation, realistic sound effects, good command interpreter, excellent plot and a wide variety of play.

The open nature of the game and save feature enables onward play and backtracking over an unlimited period.

As a former text adventure diehard, I have now been converted and will surely be playing *BattleTech* for many moons.

Nic Outterside

Sound.....	9
Graphics.....	10
Playability.....	10
Value for money.....	10
Overall	10

SECOND SIGHT

This is an absorbing RPG game with high quality graphics, novel - if quirky - tasks and above all, addictive playability. At first glance I thought *BattleTech* was just kiddy fodder, but how wrong I was. I strongly recommend it to any adventurer, young or old.

Jayne West

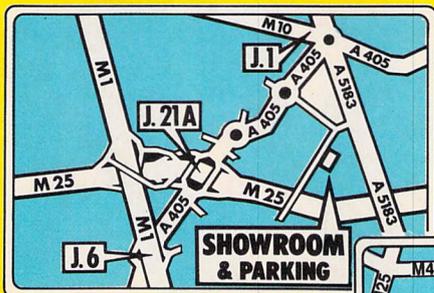
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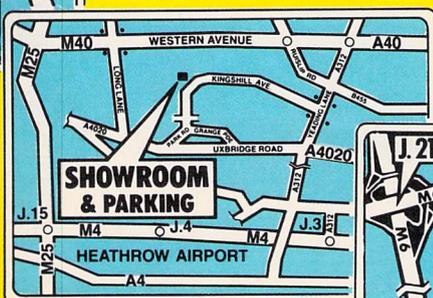
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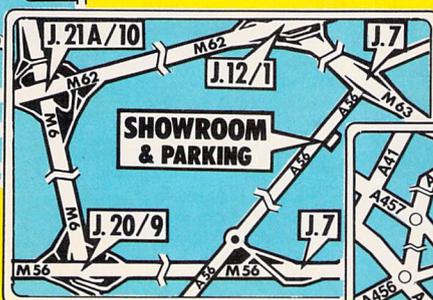
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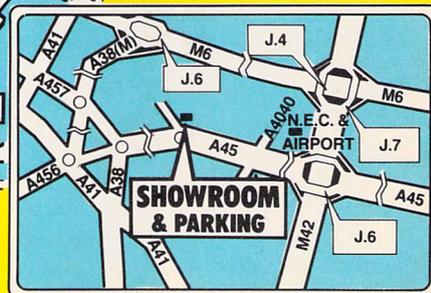


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In future years it may well be that 1989 will be looked back on as the year of the ST flight simulator. One of the front runners so far has been Falcon by Spectrum Holobyte, marketed by Mirrorsoft. The many features of this simulation include super-smooth screen handling and a gradation of realism with tolerance to mishandling and fragility from rookie to Top Gun.

It has proven so popular that an extra disc is now available, adding another 12 mission scenarios to the 12 initially provided.

To make life easier for those finding it heavy going, here are some hints and tips gained by hard-earned combat experience.

The ranks

First Lieutenant: You can't crash, you can fly through mountains and you're indestructible. Use the opportunity to get to know the weapons and navigation systems and to scout out the lie of the land.

Don't bother trying to land the plane, as you won't know whether you've crashed, but try out some landing approaches. There is very little realism at this level. For instance, speed is directly related to throttle setting, that is you can pull a vertical climb or a nosedive and your speed will remain constant.

This is the time to go sightseeing. Watch out for SAMs, the two bridges, the village just south of the home base airfield, and the telegraph poles found by the roads. You may even spot a convoy of trucks going along the road - great for target practice.

Aim slightly low and to the right to get a good lock when lining up Mavericks. You'll get the hang of this after a few attempts.

You can use autopilot to track the enemy when dogfighting. Do this by getting a lock on your bogey, and press Control+D. The autopilot will now take over the guidance systems leaving you to worry about throttle and fire control. Sometimes the autopilot loses the lock, so stay on your toes and remember that you'll turn better at low speed.

This facility is quite useful when going head-to-head and has a high gun kill rate on the first pass. It is not much good if you and your quarry are going round in circles chasing each other's tailpipes.

As you move up through the ranks this ploy will become less useful as you will instinctively be able to get a better lock on the target than the autopilot. This is because the machine tends to trail when tracking the target, while a human can anticipate and be better placed for the shot.

Keep your speed to a minimum and dampen the stick for precise control



Wizard prang!

Colonel Steven Murgan provides a Top Gun guide to the ultimate flight simulator, Falcon

when lining up on ground targets.

You won't see your bombs hit when CCIP bombing. One useful way of checking whether you hit the target is to take a rear view, stick back and throttle up (kick in the afterburner if necessary). You should be able to see exactly where your bomb dropped by the crater and damaged enemy installations. This manoeuvre is more difficult at higher ranks.

Finally, when lining up Mk 84s, Durandals and Mavericks, remember to clear the lock before selecting a new target, otherwise you'll just keep on firing at the old one.

Captain: You can now crash the plane, fly into mountains, or be shot down by enemy aircraft. SAMs may be launched at you, but they never hit. Your aim is to master the art of landing. Without this skill you'll never make the grade.

As at First Lieutenant, speed is still linked to throttle setting and is irrespective of attitude. Additionally, the aircraft stops too quickly on the ground to be realistic.

Taking off is easy at this rank - just kick in the burner, pull the stick back, tuck up the gear, and you're up and out. Landing isn't so easy, but if you

keep alert you'll come through OK.

Give yourself plenty of room. Line up with the runway from at least 10 miles out. Dampen the stick and enable trim. Reduce speed to 100kts, but not less or you'll stall and may crash.

Remember, the slower you go the more time you give yourself and the easier it will be. Drop the landing gear and aim for a point just before the runway threshold, pulling up as you approach.

You should cross the threshold at less than 300 feet. Make sure you are lined up correctly, select external view and rotate the view angle until you are looking side-on at your plane. This will give you a better idea of your attitude during final approach. Watch for the shadow of your plane - it's an invaluable depth cue.

At this rank your plane will stop on a sixpence, so don't worry if you seem to be running out of runway. If you are coming in from the north or the west you will be able to touch down where the runways cross and still have room

enough to stop.

Descend carefully to about 30 feet, then adjust your descent to less than two feet per second. Remember, if in doubt go around and try again.

Kiss the runway. A perfect landing will be silent. A bumpy one will be accompanied by screeching tyres, but you'll be down safely. You'll know if you've fluffed it. Engage the airbrakes and wheelbrakes once you're down, and throttle back until the engines shut down.

Stay clear of mountains - they are closer than you think. Too many pilots have underestimated the size of their plane, and have crashed into the farm on the mountainside as a result.

Once you have destroyed the primary target your mission is complete. If there is a high degree of risk involved in getting back to base I would recommend that you end the mission immediately, collect your ribbons and merits, and live to fly another day.

If you decide to try for a home run, take it low and fast - 2,000 feet maximum and less than 1,000 feet if you can manage it - but don't use your burner unless you want a SAM up your tailpipe. Steer clear of known SAM sites.

Major: Now the realism steps up considerably. The speed handling is more sluggish. As speed and attitude are now linked you will lose speed while climbing and turning and gain while diving. This means the throttle needs almost constant attention.

You thought you had mastered landing? Think again. Landing - and

Turn to Page 58 ►

◀ From Page 57

bombing – are now more difficult as your speed will tend to run away as you descend towards the target.

This is where the fighter jocks and the ground-grippers are separated. It's a whole new ball game, so make sure you know all the rules before you go into battle.

A lot of care is needed on take-off if you are not to damage the aircraft. Here's how it's done: Dampen the stick to zero, engines on, wait for warm-up. Wheelbrakes off, and throttle up to power.

Kick in the burner as soon as you are rolling if you're flying a heavy load. Once speed is above 120kts stick back into a gentle climb and tuck up the landing gear.

Now select control tower view. If you've done it right you'll be rewarded with the sight of an incredibly realistic F-16 take-off as it flies by the tower.

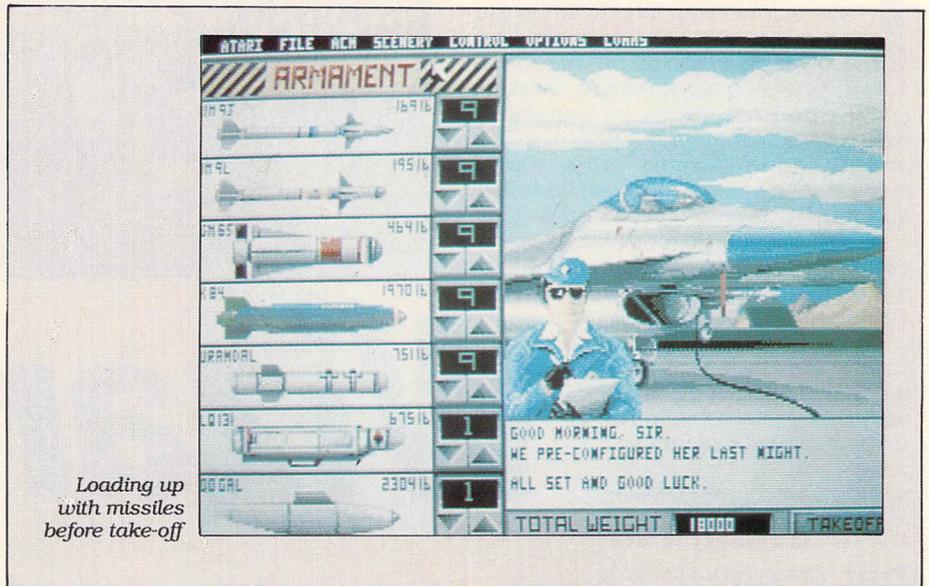
Practise landing until you have mastered it. Unless you can do this there's not much point in trying anything else. Don't be afraid to go around if you're too fast or high.

Up until now afterburner staging has made no difference to engine thrust, but from here on in it becomes significant. You will find that afterburner performance and fuel consumption now increase dramatically when you shift the burner up a stage.

Make a mental note to whack the burner up to stage five whenever you want all she's got.

Lieutenant Colonel: The plane now becomes less tolerant and extremely realistic. The engine will stall easily if you pull hard turns at low speeds and the plane may go into an uncontrollable spin if pushed too far.

The F-16 is a force to be reckoned with, but only when in the hands of a competent pilot. At this level it will not suffer fools gladly. Pulling stupid stunts can result in a flat spin from which the only escape is via the ejection seat.



Doing this over hostile territory is a spectacular way to end your career as you will be taken prisoner.

Colonel: You're up against first-class enemy troops and equipment, and only the best come home alive. If you've got this far you are in with a fighting chance. Complete a tour of duty at this rank and you can retire as undisputed Ace of the Base.

The Missions

Milk Run: Bank slowly right after take-off, keeping your speed fairly low. Aim to approach the target from the north. If you succeed in taking out the first building, banking right fairly quickly should put you in a perfect position for approach and landing on runway 27.

Black Bandit: Load up with as many Sidewinders as you can – 9Ls preferred – and strap on an extra fuel tank. This will be empty soon after takeoff, so drop it before engaging the

enemy. This will have the effect of giving you extra time, and enable you to use burners in combat without worrying if you will have enough fuel to get home.

If the bogey engages by flying straight at you, a gun shot will often kill him on the first pass.

Rattlesnake Roundup: Load up with AGM-65s and take out three SAM sites. Any three will do, not just the ones shown on the mission map. You will find you can take out a SAM site at about 500kts without slowing down.

The key points to remember are to line up on the site from a long way out, aim slightly below the target, get in close, and fire when the reticle crosses the target.

Remember to trigger twice – once to pick the target, again to launch the missile.

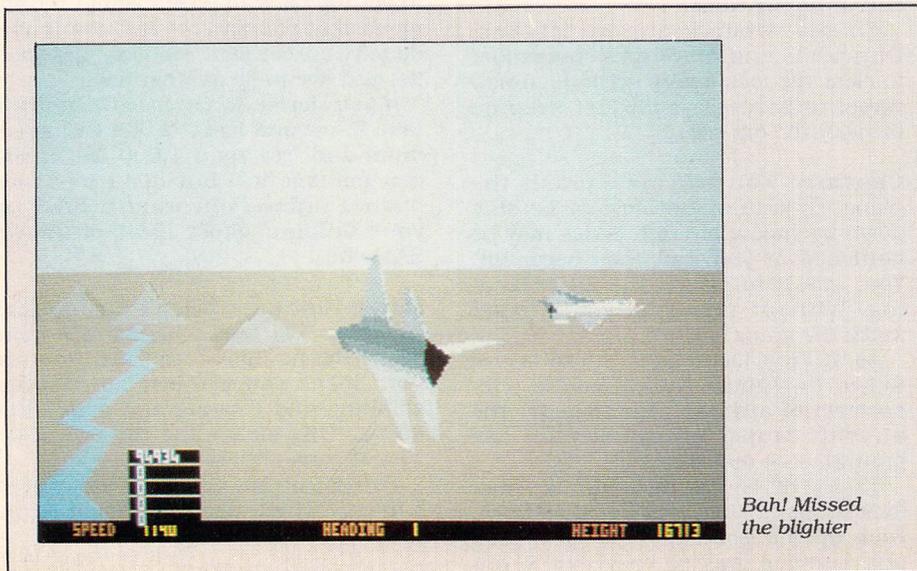
Double Trouble: Refer to the points outlined in the Black Bandit mission. If you have selected multiple bogeys, keep an eye open as one may try to sneak up behind while you are busy chasing another.

Keep a finger on the air-to-air weapons toggle so you can go to guns when you get too close to use missiles. If you can't switch over quickly enough he may get round you, and this can cost you the battle, if not your life.

Dragon's Tail: Bank left slowly after take-off and keep it low and slow, then follow the road in. At Major's rank or higher, completing this mission without a jamming pod is the easiest way to win the DFC.

If you have any Mavericks left don't waste them – those SAM sites look ripe for some target practice.

Dragon's Jaw: This is a bit of a problem, as those 2000lb Mk 84 bombs are so heavy your plane will steer like a



cow. I prefer reticle aiming (used with Mavericks and Sidewinders) to CCIP aiming (used with Mk 84s and Durandals), which takes some getting used to.

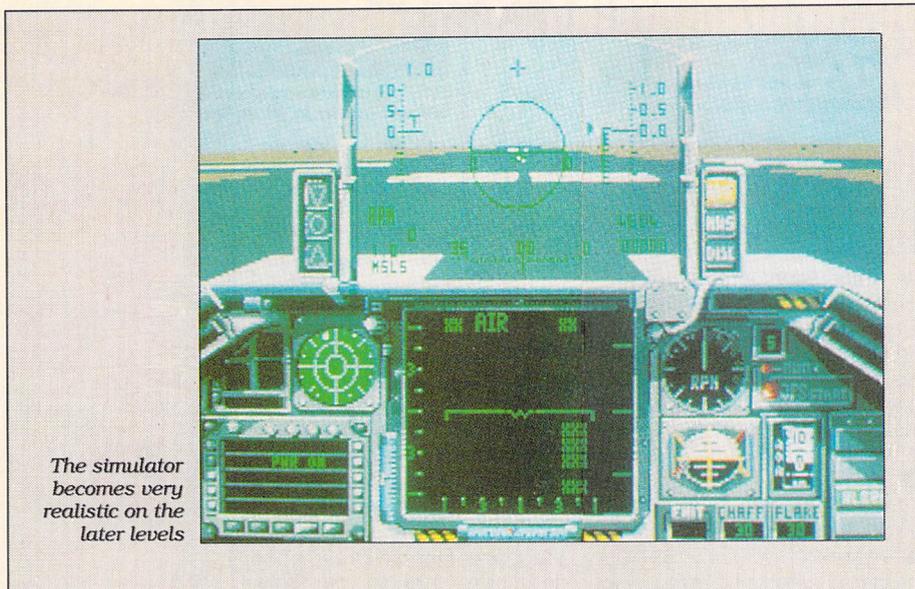
With CCIP bombing the key point to remember is to come in slow. This gives you more reaction time when the CCIP pipper crosses the firing reticle.

Hornet's Nest: The technique of CCIP bombing is outlined in the Dragon's Jaw mission. Approach the enemy runway as if you were going to land on it. Destroy it and get home fast.

Bear's Den: You'll need an extra fuel tank. Load lots of 65s as the area is full of SAMs.

Venus Flytrap: Remember the lessons learnt in the Rattlesnake Roundup mission. If you have any spare 65s left over there's the control tower, hangars and lots of other ground targets.

Strike Palace: Load up with 65s and an extra fuel tank. Go to bearing 270 after take-off and approach the target from north or south, as this will allow you to take out both targets in a single pass. Head for home, making good use of any leftover 65s on the way.



The simulator becomes very realistic on the later levels

Double Dragon: Destroy the north bridge first using Mk 84s. You can only carry one pair of them at ranks above Flight Lieutenant, so get it right first time. Scrub the mission if you miss. If you destroy the first bridge, keep heading west, then bank slowly left so that you are approaching the second bridge from the west.

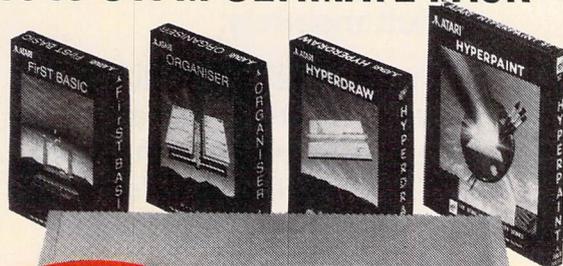
You have several chances as you

can usually load up with at least three 65s.

Grand Slam: An extra fuel tank and a jamming pod will carry you to the danger zone, then drop them. At Lieutenant-Colonel or higher you will receive the Air Force Cross if you bring the plane home. The crew chief will be quite pleased, too.

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- Wanted Infocom's Enchanter and Zork III. Desperate, please help. Phone 0204 883249. Leave message for Andy.
- Evesham 3.5in DS drive, external PS. £45. Tel: 0382 815949.
- 520ST, 0.5 meg drive, Basic, Logo, word processor, database, Doodle Draw, good condition (needs monitor), £150 ono. Tel: Wellfield 0429 880722.
- Atari 520STFM upgraded to 1Mb. With DSDD, monitor, joystick, copying and comms software. Also games and utilities. Unused. Over £1,200 software. Also books and blank discs £550 ono 01-890 3995. Best to try early evening.
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ST11

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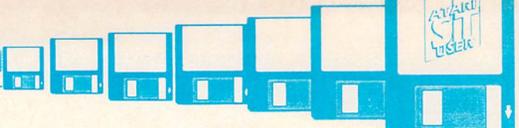
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On this month's cover disc . . .

**SIDE
1**

Quick Index

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62 Test your micro with this handy utility and find out how fast it really is.

Virus Killer

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64 This hi-tech computerised disinfectant will kill 99 per cent of all known bugs.

Protex

PAGE

64 Write short memos, letters and programs with this powerful word processor.

Asteroids

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65 Play this Fast Basic version of the classic battle in outer space.

**SIDE
2**

APB

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62 Take a look at this superb rolling demonstration of Domark's new All Points Bulletin coin-op arcade conversion.

QUICK ST

PAGE

62 Speed up the way your micro accesses the screen by up to an amazing 900 per cent with this powerful desk accessory.

Using the cover disc

Place the disc in the drive and switch on, then double click on the README file when the desktop appears. If you have a double sided disc drive then double click on DOUBLE.TOS to access the programs on the other side. Some of the files have been archived to save space – these are recognisable by their .ARC file extension – and must be de-archived before use. To de-archive LISTINGS.ARC for example, copy ARCX.TTP and LISTINGS.ARC to a blank, formatted disc. Double click on ARCX.TTP and enter LISTINGS into the box.

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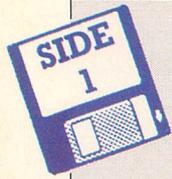
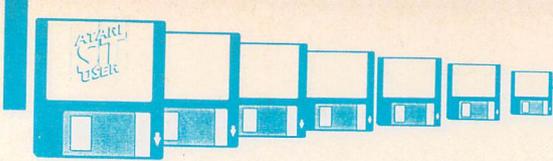
The Disc Editor,
Atari ST User,
Europa House,
Adlington Park,
Adlington,
Macclesfield
SK10 4NP.

Please include an sae if you want your submission returned.

Disc problems

If you have any difficulties loading programs from your disc it will be reloaded free of charge. Send it with your name and address to: Protoscan, Burrell Road, St. Ives, Cambridgeshire PE17 4LE.

If you damage the disc yourself please include a cheque/postal order for £1.50 made payable to Protoscan. If the disc has been damaged in transit please return it to Database Direct at the address shown at the foot of the order form on Page 119.



To load: Double click on PROTEXT.PRG.

- Low resolution colour
- Medium resolution colour
- Monochrome

PROTEXT

PROTEXT is one of the most powerful word processors available for the ST and on this month's cover disc you'll find a complete working version. The only restriction is the amount of text you can enter - up to 2k, which works out at about a screenful.

Protex has two methods of operation, command mode and edit mode. Text entry is carried out in edit mode, while command mode is where all instructions relating to printing documents, saving and loading files and many other operations are carried out.

When Protex is first loaded it is in command mode. The Escape key is used to toggle between the two modes. The command mode banner line disappears in edit mode, leaving only the status lines at the top of the screen and the text, if any, on the remainder of the screen.

Protex has two methods of entering text - insert and overwrite modes. When you enter edit mode you will be in insert mode. This means that when you type in any letters or numbers the cursor will push any existing text ahead of it. In overwrite mode the text entered replaces whatever is at the cursor position. At the top of the screen you will find "Insert" on the

status line. If you press the Insert key it will change to "Overwrite".

Try entering some text, but when you get to the end of a line don't press Return as you would with a typewriter, simply keep on typing and you will notice that if you were in the middle of a word when you got to the end of the line Protex will automatically move it to the start of the next line. This process is called word wrap. The only time that you have to press the Return key is when you reach the end of a paragraph.

The cursor keys move the cursor around one character at a time. With the right arrow key you will find that it goes past the end of the line of text, and if you hold it down you will find that the screen will scroll sideways.

This is because Protex can handle documents of unlimited width and when the text is wider than the screen it is scrolled across so that you can see what you are typing.

You can also jump a word at a time, or from one end of the line to the other. Press Shift+cursor right and you will find that the cursor now hops from the start of one word to the start of the next. Shift+cursor left hops backwards through the text. Press Control+cursor right and you will find that the cursor hops to the end of the

line, and pressing Control+cursor left will return the cursor to the beginning of the line.

There are also several commands which allow you to move up and down through the text more quickly. If you press Control+cursor down you will find that the text jumps a full screen with each press. This provides a convenient way to quickly scan through a document.

Protex also has two commands which let you jump straight to the beginning or the end of the text. To jump to the beginning press Control+[and to the end press Control+].

If you make any typing mistakes while entering text, move the cursor back to where the mistake is and position it over the character you want to change, then press the Delete key. You can also use Backspace, which deletes the last character typed.

One very common mistake is to get two letters the wrong way round in a word, such as "teh" instead of "the". Position the cursor on the first of the transposed letters and then press Control+A.

Press Control+Z to mark the start of a block of text, move to the end and press Control+Z again. The block marker is an inverse video square bracket and the block is enclosed by opening and closing ones. The Status line's *No markers set* message will be changed to square brackets to indicate that both block markers are set.

You can now decide whether to move, copy or delete the block. Press Control+Insert to copy the text to the cursor position. Press Control+M to move the text. Press Control+Delete to delete the block.

FIND - typed in command mode - searches for a string of characters, while REPLACE will both find and replace them with a substitute string. From command mode type FIND and press Return. You will be prompted with "FIND string" and should now enter the word or characters that you want to find. Next you will be asked to select "Options (A,B,C,G,W,n)".

A global search of the whole document is performed by pressing G, search backwards with B, search for whole words only with W, search only for words with all characters in the same case as the search string with C, search for the nth occurrence of a string - any number between 1 and 255 - and finally there is an automatic option (A) which can be used to return the total number of occurrences of the

VIRUS KILLER



To load: Double click on VIRUS.PRG.

- Low resolution colour
- Medium resolution colour
- Monochrome

THIS handy Gem-based utility will seek out and destroy viruses that have installed themselves in the boot sector of your disc. This is the most common type on the ST. Boot up the program, insert a disc into the drive and click on the Check button. A message will be printed in the dialogue window stating whether the disc is clear or infected. Click on the kill button to kill a virus.

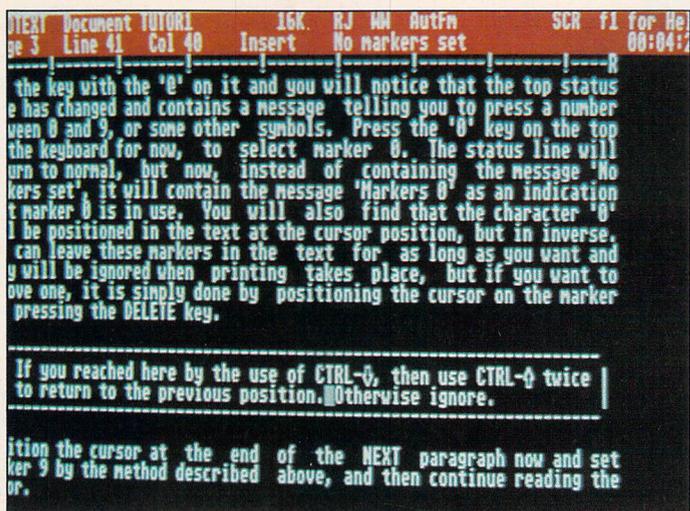
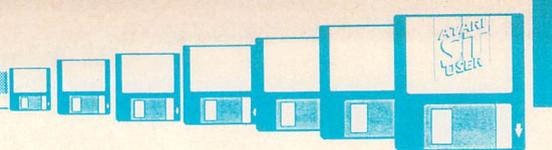
The program loads the first sector

or the disc - the boot sector - and checks that the first two bytes are zero. If they are, all is well. If they aren't the boot sector probably contains an executable program.

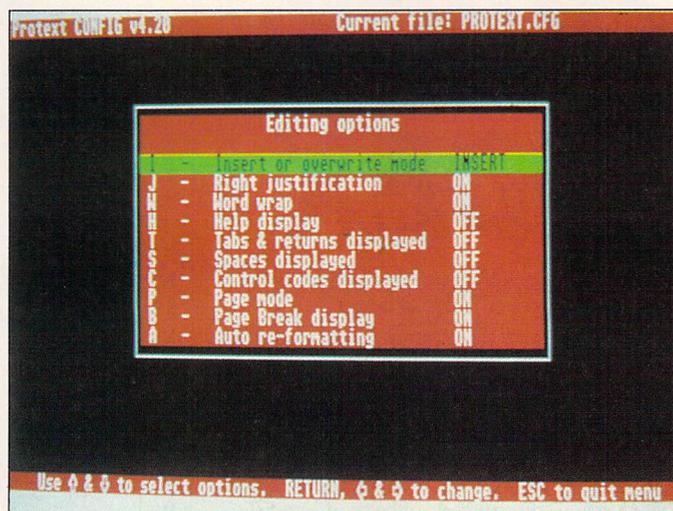
Arcade games that run automatically when you switch on have a perfectly normal and harmless executable program in the boot sector and the utility may think that the disc is infected with a virus. Don't try to kill it or you may ruin the disc.

Ordinary discs don't have programs in the boot sector so destroy it if one is found.

To make sure your micro isn't infected switch on with nothing in the disc drive and wait until the desktop appears. Double click on VIRUS.PRG on the cover disc, insert the infected disc and click on the Kill button.



The Protext edit screen showing the text and status lines



Some Protext functions are available from menus

string. REPLACE is very similar to FIND, the only difference being that you are also requested to give a string with which to replace the original.

Formatting is the process which determines the layout and final appearance of a document and takes two distinct forms. Automatic formatting occurs while typing in or editing a line of text. Manual re-formatting is the process of rearranging the text into another layout, correcting misalignment of text caused by insertion or deletion of areas of text, or by altering rulers after text has been entered.

Protex uses a ruler line to determine the text's width. When you load Protex the default ruler is displayed at the top of the screen beneath the status lines. Each ! on the ruler marks a tab position and the L and R indicate the left and right margins.

You can create new ruler lines to suit the layout you require by typing the new ruler line as you would a line of text.

The line must have a greater than symbol (>) in the first column. Unless you wish to inset the left margin you should not enter the L. By default Protex assumes the first column to be the left margin.

The main use of left margins is to indent a section of text. When Return is pressed or the end of a line is reached, the cursor moves to the left margin rather than the left hand column, so by insetting the left margin, text can be indented automatically.

When the text is formatted with the FORMAT command any text within the left margin, that is to the left of the left margin setting, is unaffected. This means that the left margin can be used to include marginal comments with the text.

Another feature which has a direct effect on the appearance of a document is right justification. This is the process whereby the right hand edge of the text is made straight. By default right justification is on, but this can be changed by pressing Control+J.

If a considerable amount of the text has been disrupted by editing and moving blocks of text about, press Escape to enter command mode then type FORMAT. There is also a command FORMATB which will only reformat the text within a block.

Some of the delete commands are fairly severe in their effect on the text, so Protex provides an Undo command. The Undo key restores the last piece of text deleted.

Protex has two different HELP options, one for command mode and the other for edit mode. The edit mode HELP is intelligent, to the extent that it can provide information which is relevant to the type of line of text the cursor is on. Press Control+H to call Help from edit mode. Pressing it again

will display the next page of Help, and so on. Help can be turned off with Control+V H.

Command mode Help is obtained by typing HELP when in command mode. HELP followed by a command will provide an explanation of that command.

Protex command	Function
Control+ cursor left	Go to start of line
Control+[Go to start of file
Control+H	Call up help facility
Control+U	Undelete
Control+Tab	Insert/overwrite mode
Control+F	Format
Control+J	Justify on/off
Control+W	Word wrap on/off

ASTEROIDS



To load: **ASTEROIDS.BSC** is stored in the **LISTINGS.ARC** archive. De-archive the program using **ARCX.TTP** then boot up **Fast Basic** and load the program. Set the workspace to **100k** using the **Show Info** menu option.

- Low resolution colour
- Medium resolution colour
- Monochrome

ASTEROIDS is an arcade-style game using full colour graphics and sound written in 68000 machine code. What's so new about this? This one is a Fast Basic listing with true sprite graphics

and, what's more, you can easily extract the routines for use in your own programs.

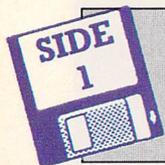
This is a cross between Space Invaders and Atari's evergreen Asteroids. You control a ship which moves left and right across the bottom of the screen and the asteroids fly about just like the real thing.

At the start of each wave you are confronted by four large ones heading down the screen. You are the cigar-shaped ship at the bottom, and as you blast the asteroids they break up into smaller hemiroids. On the first level each asteroid only spawns one hemiroid, but on later levels... well, just wait and see.

CONTROLS

- Left:** Left Shift
- Right:** Right Shift
- Fire:** Alternate

QUICK INDEX



To load: Double click QUICKST.PRG.

- Low resolution colour
- Medium resolution colour
- Monochrome

QUICK Index is an interesting utility which measures the performance of an ST. It has six built-in references - TOS 1.0 in all three resolutions and TOS 1.4 also in three resolutions. To see how your ST compares in speed to say, a monochrome 1040ST with TOS 1.0, click on the button marked 1.0 and on the button marked Mono. Then click on the Do All button.

The screen dump shows the performance figures for a Mega 2 ST fitted with a Blitter chip. If you have a 520ST run Quick Index and compare the figures - they should be slightly smaller, indicating that the micro is running slower.

The categories are divided into two groups. The first, in the top half of the screen, contains benchmarks which are relatively independent of TOS version and screen resolution. The second group is very dependent, as they are screen output tests. Click on a category name to run a test or Do All to run them all.

The Gem test includes a wide variety

QINDEX15.PRG

Quick Index 1.5

The ST Performance Index

Ignac A. Kolenko and Darek Mhocka

© 1989. PROGRAM MAY BE COPIED. NOT TO BE SOLD.

Your system performance:

CPU memory	100%	<input type="checkbox"/> A:	<input type="checkbox"/> B:	<input type="checkbox"/> C:	<input type="checkbox"/> D:
CPU register	100%	<input type="checkbox"/> E:	<input type="checkbox"/> F:	<input type="checkbox"/> G:	<input type="checkbox"/> H:
CPU divide	100%	<input type="checkbox"/> I:	<input type="checkbox"/> J:	<input type="checkbox"/> K:	<input type="checkbox"/> L:
CPU shifts	100%	<input type="checkbox"/> M:	<input type="checkbox"/> N:	<input type="checkbox"/> O:	<input type="checkbox"/> P:
DMA read	112%	<input type="button" value="Help"/> <input type="button" value="Info"/>			
GEMDOS I/O	197%	<input type="button" value="Do All"/> <input type="button" value="Exit"/>			
Disk (RPM)	300				

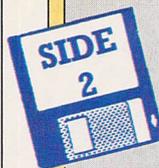
BIOS text	116%	<input type="button" value="1.0"/>	<input type="button" value="1.4"/>
BIOS string	109%	<small>Set TOS and monitor type</small>	
BIOS scroll	181%	<input type="button" value="Low"/> <input type="button" value="Med"/> <input type="button" value="Mono"/>	
GEM dram	160%		

of objects. The Bios text test uses all 80 columns if possible.

The tests check three major areas of the ST: Disk I/O, screen output, and CPU speed. The CPU results should always return 100 per cent unless your ST is equipped with some sort of accelerator board or cache.

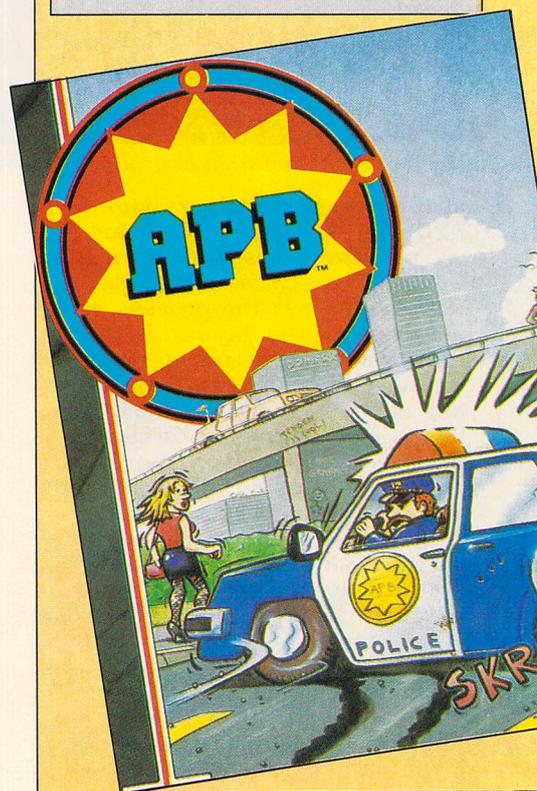
With some companies claiming to have 16MHz accelerator boards for the ST it will be interesting to see the results of running Quick Index on their hardware. The screen output benchmarks can be used to see how effective programs like Quick ST, Turbo ST, and Gdos are, and can also be used to test the blitter chip performance.

The disc benchmarks show how fast a disc can be read, how fast you can create files, and how fast the drive spins. The results will be affected by how the disc is formatted, that is single sided, double sided and so on.



To load: Double click on DOUBLE.TOS to make the cover disc double sided, then double click on APB.TOS to make a game disc. Have a blank formatted disc ready and insert it into drive A when prompted. Boot up with the APB game disc.

- Low resolution colour
- Medium resolution colour
- Monochrome



QUICK ST



To load: Double click on QUICKST.PRG or rename it to QUICKST.ACC and reboot the micro.

- Low resolution colour
- Medium resolution colour
- Monochrome

QUICK ST is an essential utility that speeds up screen output by replacing the relatively slow C routines in the ST's rom with faster ones written in 68000 assembly language. The speed increase can be as little as 10 per cent for Gem-based programs but as much as 900 per cent for some text-based programs.

The program must be installed either as a desk accessory or run after the desktop has come up. Rename the file to either QUICKST.ACC or QUICKST.PRG depending on which way you want to run it.

When used as a desk accessory, Quick ST can be configured and turned off. Run as a program, it stays memory resident, but can't be configured or turned off. However, in this case it frees an accessory slot.

Quick ST is most effective on monochrome monitors. It is reasonably effective on colour ones in medium resolution, but has little effect in low resolution. The reasoning is that low resolution isn't used for serious work, just for games. Most games

Quick ST 1.2 - June 9, 1989

by Darek Mhocka & Ignac Kolenko

© 1989. This program is shareware. Copy it!

Fast BIOS Text	<input type="checkbox"/> No#	Yes	Fast GEM	<input type="checkbox"/> No#	Yes
----------------	------------------------------	-----	----------	------------------------------	-----

- standard TOS settings

Terminal mode	<input type="checkbox"/> VT52*	<input type="checkbox"/> ASCII	<input type="checkbox"/> Ram	<input type="button" value="OK"/>
---------------	--------------------------------	--------------------------------	------------------------------	-----------------------------------

For a \$20 shareware contribution you will be mailed Quick ST update disks. For just \$10 more, you also get Quick View, Quick Print, Quick Find, Quick Inf, Quick Index, Quick CLI, and future Quick utilities.

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Kitchener, Ontario, Canada N2H 6M2

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bypass the screen output routines in the operating system, so Quick ST would be ineffective anyway. Low reso-

ALL POINTS BULLETIN

A PB is an amusing new coin-op conversion from Domark on the Tengen label. In it you play the part of officer Bob, a tough American cop. Your job is to patrol the streets in your police car and apprehend any lawbreakers you spot.

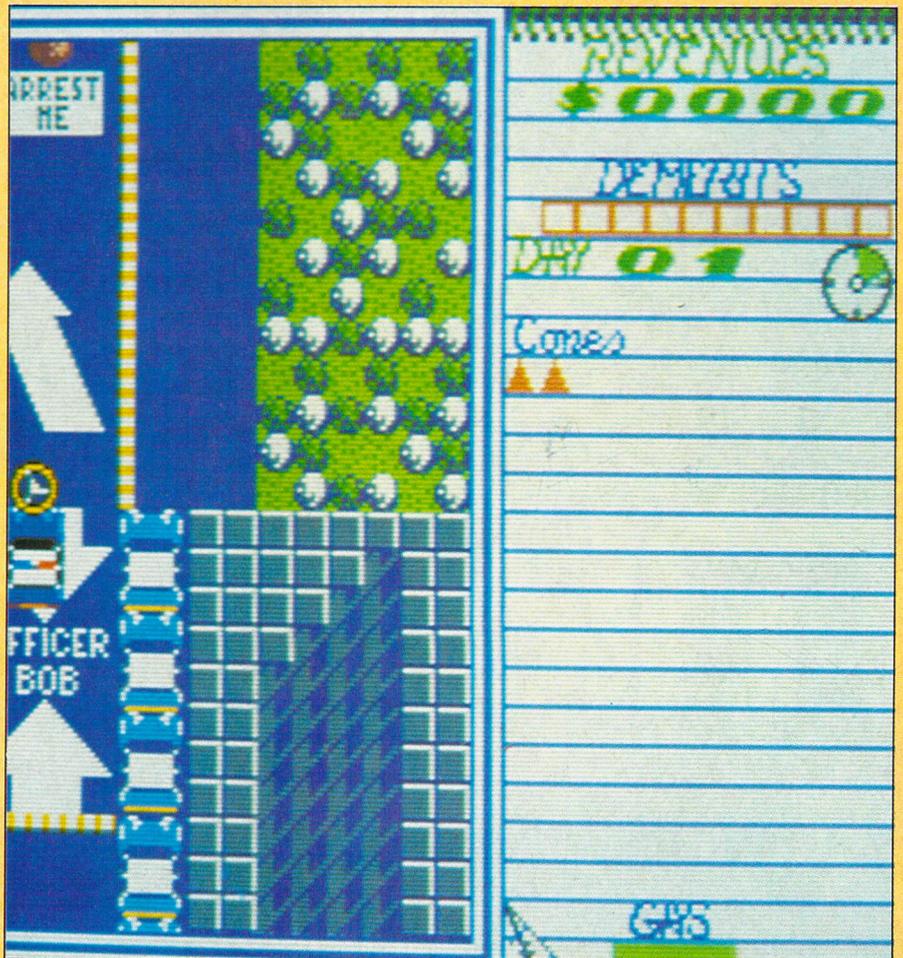
Each day you are given a quota of offenders to fill in order to keep your job and earn a nice pay bonus. The criminals are initially litter louts, drunks and hitch-hikers, but after gaining experience you'll receive APB messages and told to track down such dangerous villains as Sid Sniper and Freddy Freak.

Once caught, these criminals are returned to the police station for questioning. You must wring the truth out of them before the chief catches you committing GBH.

The major part of the screen is a large window showing a bird's eye view of the town. As Bob drives around the screen scrolls to keep him onscreen. On the left-hand side is Bob's notepad where he jots down the criminals apprehended.

Boot up this rolling demo then sit back and watch the amusing antics of officer Bob as he goes about his duties.

APB costs £19.95 and is available from Domark, Ferry House, Lacy Road, London SW15 1PR. Tel: 01-780 2224



lution is therefore not fully supported to save memory.

The desk accessory has three configurable options, Fast Bios text, Terminal mode and Fast Gem. The first option activates the fast Bconout and Cconws code. If you are a non-programmer, this means that text programs - those ending in .TOS or .TTP - will speed up. This facility is compatible with most text-based programs, but if you have problems turn this option off.

Terminal mode is only effective if Fast Bios text is turned on. It disables the ST's VT52 emulation and turns it into straight Ascii emulation. The Raw mode ignores Ascii control codes too, and outputs all characters.

The third option, Fast Gem, speeds up Gem windows, dialog boxes and other graphics objects. If you are running a Gem-based program and it seems to misbehave, you may have to turn this option off.

DISC COPY



To load: Compile the files COPYDISC.BAS and TINYCOPY.BAS using HiSoft Basic, then quit and double click on COPYDISC.TOS or TINYCOPY.TOS.

- Low resolution colour
- Medium resolution colour
- Monochrome

THE cover disc has a special extended format which is used to cram more programs and data on to it than the standard Gem formatted variety.

This means that it can't be copied using the normal method of picking up the drive A icon and dropping it on to drive B. Copydisc and Tinycopy are two utilities that will do the job for you.

Before this can be done you need to compile the programs using HiSoft Basic. Tinycopy is written for the

520ST and Copydisc is for all other STs. Once this has been done, format a double sided disc, with 81 tracks and 10 sectors per track using the formatter off either the August or October cover disc. Run Tinycopy or Copydisc and enter 2 when prompted for the number of sides and 81 for the tracks.

If you have a single sided disc drive you can still copy side one of the disc. Format a single sided disc with 81 tracks and 10 sectors per track. Enter 1 for the number of sides and 81 for the tracks.

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MicroLink

1
OCT

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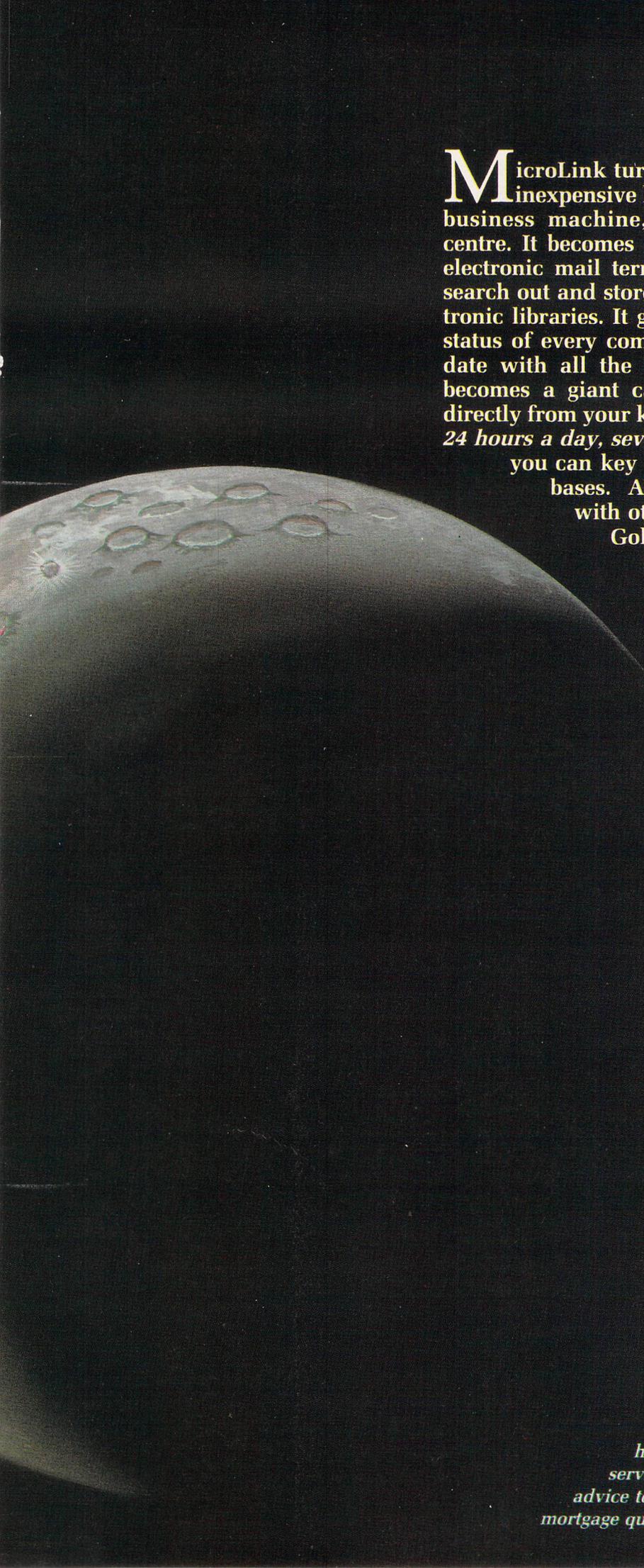
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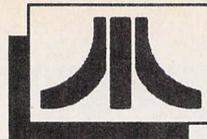
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ADVENTURES

Pendragon looks over good things coming for Christmas

Dark as a dungeon, deep as a mine



THE leaves are falling from the poplars, my Astrolabe is shining brightly and it is time for the first of the promised Readers' Top Twenties of ST adventures.

The current chart – and those that follow – is based purely on the marks sent in by you, the readers, for your favourite ST adventure games.

I find this first chart very interesting both in terms of the number of older adventures which readers hold in such high regard and the rampant positions new releases have taken.

The Infocom dominance is perhaps not surprising but a few other factors are. I knew *War in Middle Earth* was impressive and backed by successful marketing hype, but its pitch straight into the number one position is quite amazing.

Also the immediate popularity of *Kult* and *Personal Nightmare* bears testimony to their excellence and positive critical appraisal.

It was also warming to see my own personal all-time favourite, *The Jewels of Darkness Trilogy*, lodged in at number 20, some 10 years after the original *Colossal Cave* was released.

I will publish the next readers' chart in the March 1990 issue of this column – so watch this space.

New releases once more abound, and sorting out which to buy is no easy task. *Sierra On-Line's Space Quest III* has been out for a short time now and follows in the strong tradition of its two prequels.

However, in a totally new vein, *King Arthur* will have you transfixed. It has resemblances to other Arthurian micro adventures such as *Epic's Quest for the Holy Grail*, *Level 9's Lancelot* and *Microdeal's Grail*, but is written in the avant-garde style we have come to expect from Sierra.

The third release from the Californian stable is a brilliant spoof of a jaunt with the ominous title *The Plan-*

Problems solved

First letter out of the bag this month is from T.W. Nicholson who has recently completed the excellent RPG **Heroes of the Lance** with total points of 38,320. He complains about the drabness of the final congratulatory screen after such a brilliant game. A bare screen simply says: Congratulations, you have recovered the disks of Mishakal.

It is a complaint I echo and wonder if adventure authors could offer a little more in the way of a reward to diehards who battle for many hours to finish an epic.

Keeping in the role-playing vein, A.P. Sawyer writes to give some timely tips for **Dungeon Master**. He offers help with the coins and gargoyles problem in the difficult level four of the game. If you are having trouble with the pink worms, he suggests that you place a coin in front of a gargoyle before you walk past it.

It seems that the gargoyles are generators for the pink worms – they create more worms every time you pass – and the coins help decrease the number of the little beasties you then encounter. The same tip applies to other levels where the dreaded gargoyles exist.

Another tip offered by Mr Sawyer is to keep generating the worms one pair at a time until you are strong enough to kill them easily. They provide all the necessary food themselves. Try throwing it in front of you to increase your Ninja level.

Colin Bass writes to make a couple of small amendments to his successful route – published in last month's column – through **War in Middle Earth**.

He says the Nazgul hid from the Ring bearer at the Ford of Bruinen and not the Last Bridge. Further, the Ring bearer travelled South and East from Minas Tirith to circumnavigate Mordor.

George Jackson offers more tips for the same game. He says that it is best to avoid the Nazgul by taking paths that do not cross the routes of Sauron's forces.

Readers' Top Twenty

1	War in Middle Earth	Melbourne House	96%
2	Bureaucracy	Infocom	94%
3	Fish	Magnetic Scrolls	93%
4	Hitchhiker's Guide	Infocom	91%
5	Lurking Horror	Infocom	90%
6	Kings Quest III	Sierra On-Line	88%
7	Kult	Infogrames	85%
8	Dungeon Master	Mirrorsoft	84%
9	Guild of Thieves	Magnetic Scrolls	82%
10	Police Quest I	Sierra On-Line	78%
11	Chronoquest	Psygnosis	77%
12	Beyond Zork	Infocom	75%
13	Personal Nightmare	Horrorsoft	74%
14	Shadowgate	Mindscape	71%
15	The Pawn	Magnetic Scrolls	70%
16	Willow	Mindscape/Infocom	68%
17	Lancelot	Mandarin/Level 9	67%
18	Corruption	Magnetic Scrolls	64%
19	Stationfall	Infocom	63%
20	Jewels of Darkness	Rainbird/Level 9	62%

George also lists (right) the locations of some of the more important items to be collected in your quest.

Meanwhile Kevin Harris of Upminster is having problems with **Leisure Suit Larry II**. It appears that while sitting on the plane he can't stop the guy from Lefty's bar from scalping him.

The correct in-flight procedure is to give Ken the pamphlet and ensure you have the sick bag. Then wear the parachute, pick the tail section door with the pin, pull the handle, jump and open the parachute after two movements in the sky.

Finally, Ofir Galmor has a few questions on **King's Quest IV**. He asks where he can find the bridle for the unicorn, what use is the peacock's feather and how he can enter the ogre's house?

You will find the bridle in the boat on the island – make sure you Look Down first. The feather should be used to tickle the whale's tongue after you have played Jonah and you can enter the ogre's house if you give the dog a bone.

More hints and tips next month.

Item	Location
Black flask	South of Mount Gram Tuckbrough
Blue potion	North of White Towers Grey Havens Michel Delving
Elven blade	Tom Bombadil's house
Elven cloak	Lorien
Glowing vial	Lorien
Gnarled staff	East of Buckland
Golden sceptre	West of Annuminas
Hammer	North of Erebor
Mithril mail	South of Mount Gram Belegost Rivendell
Red arrow	South of Mount Gram
Rope	Lorien
Silver orb	Ruins, east of Mount Gundabad
Sword	South of Ost-in-Edhil

tation Murders. Set on a plantation near New Orleans in the 1920s you play the role of Thelda Tallent. Your car has broken down on a dark and stormy night and you have been forced to seek refuge in the plantation mansion.

The game features a fair smattering of slapstick, and borrows heavily from Mel Brook and Agatha Christie. Link that with superb graphics and a strong theme and you are in for a real treat.

Code Name: Ice Man makes up the

release batch from this company, and is a real chiller. An American ambassador to a North African country is kidnapped, the cold war is at its coolest and tensions are rising in the Middle East.

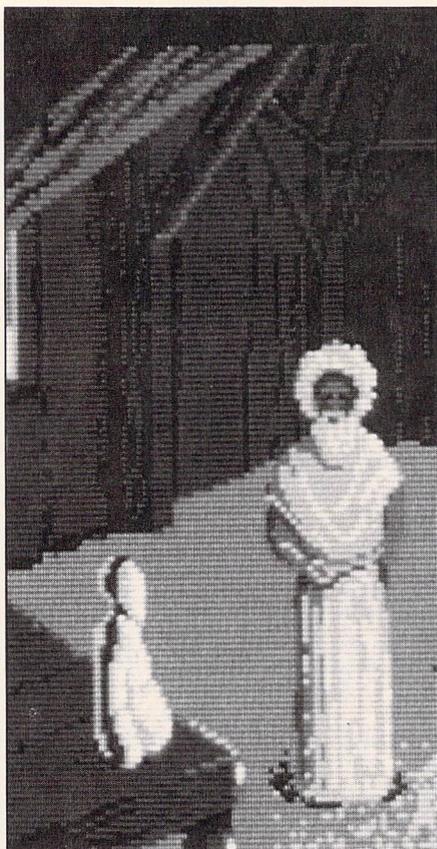
War is just around the corner, and it is up to you to stem the tide. This 3D animated adventure is certainly one for the collectors among you, as it will surely soon be regarded as a classic.

From Mirrorsoft comes the news that the long awaited Chaos Strikes

Back – due for imminent release – will not just provide extra scenarios and levels for Dungeon Master.

Instead, it is now intended as a stand alone sequel into which you can transfer any character you have built up in the original dungeons. Mirrorsoft's Cathy Campos suggests that you make your characters as strong as you can – at least to level four –

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◀ From Page 71

before transferring them to the new game.

Interceptor has recently informed me that a topical ecology-based adventure, *Debut*, is ready for release. In it you play a professor who alone can save a planet from self destruction.

It sounds fun and is certainly the first adventure I have heard of to jump on to the green bandwagon. Meanwhile, *Galdregon's Domain II* is now set for an early 1990 launch.

Other titles to check out this month include Horrorsoft's *Elvira*, Active Sales' *Legend of Djel*, Electronic Arts' *Hound of Shadow* and Broderbund's *Wings of Fury*.

Landing with a resounding thump at the castle gate was a surprise package from adventure club specialists *Official Secrets*. Along with an excellent magazine came an exclusive *Magnetic Scrolls* coded club-only adventure entitled *Myth*, which is not available on general release.

The magazine, *Confidential*, is compulsive reading for all silicon wayfarers and *Myth* is a pure delight to play and everything you would expect from the *Scrolls'* programmers.

Official Secrets (0279 726541) offers all kinds of delights for a £19.95 annual subscription including free games, an adventure contact service and competitions. Sounds interesting – but don't forget that your definitive source of all adventure news, hints, tips and advice will always be guaranteed here by *Pendragon* first!

Well, there's plenty there to keep your appetites whetted and your wallets empty. So until the cryptic becomes logical, happy adventuring!

Overture and beginners

I dwelt briefly last month with pictorial methods of mapping an adventure. I now wish to ponder a rather more sophisticated routine. For the following logical procedures I am deeply indebted to my colleague in *The Micro User*, the Mad Hatter, who taught me such wonders many moons ago.

Throw away your pencils and pick up your pens, for what I am about to impart is purely a written exercise. The table below shows an example of such a map, of the opening locations of *Colossal Adventure* – available on Level 9's *Jewels of Darkness* trilogy.

Each location you encounter is given a room number, hence the opening room is usually numbered 001 – see the first location. There then follows a precis of the room description – in the example I have called the opening scenario *Volcano rim*.

I also list the available exits and the result of moving in a particular direction. This usually results in a new location number – but not always. Hence moving South from 001 in *Colossal Adventure* takes me to jagged rocks at 002, or moving West results in my entering a lava expanse at 003.

But also notice that if I journey North or East I get involved in a confusing repetition of the same scenery descriptions. Similar repetitions occur with certain movements at locations 002, 004 and 007.

Initially it is prudent to make such jottings on rough paper until a pattern emerges, such as that displayed here. Then all the relevant information can be transcribed to neat lined paper and if you wish, to a word processor file.

How you number the rooms is not important just as long as each location has a different number and you are aware of your own numerical logic. What is important is that you annotate in the description box any treasures or objects you find on your journey.

Note that at location 010 in the example I have noted the first objects I found – the sandwiches – with a symbol T to indicate they are a treasure.

I can vividly remember during my first excursion through an adventure that I came across some *Stilton* cheese in a goblin's dairy but forgot to make a note of its location.

Later I discovered a mouse scurrying around some castle dungeons but all efforts I made to catch it failed. It then dawned on me that mice like cheese – but could I remember where I had seen that *Stilton*?

It took some two hours of hitting the keys and a few choice profanities before I could retrace my steps to the dairy and that prized blue-veined morsel. I certainly made sure that I became more thorough in my mapping after that.

Room	Description	Move	Result
001	Volcano rim (opening below)	N & E	Repeats
		South	2
		West	3
002	Jagged rocks	East	Repeats
		North	1
		West	3
003	Lava expanse	South	6
		North	1
		East	2
004	Scrubland	West	4
		South	5
		North	Repeats
005	Small hill	East	3
		West	11
		North	3
006	Cliff edge	East	6
		South	7
		West	13
007	Lost in forest	North	2
		West	5
		N & W	Repeats
008	Huge oak	South	8
		Up	9
		South	10
009	Sitting in branches	Down	7
		010	
		Picnic area (sandwiches)	NW & N
010		West	15
		East	20
		SW & S	22

A logical map to the beginnings to *Colossal Adventure*

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THERE are two basic ways in which Gem programs communicate with users – through windows and dialogue boxes. Of the two, the boxes are easiest to program, and the displays are attractive, too. In this article I'll show how to use resource files and access dialogue boxes from C programs.

If you're not quite sure what exactly a dialogue box is, take a look at Figure 1, which shows the result of double clicking on TEST.PRG stored on this month's cover disc. It doesn't do anything useful, apart from demonstrating how a dialogue box works.

Buttons A and B are called radio buttons. If you click on A it turns black to show that you've selected it and B turns white. If you click on B, that turns black and now A is white. Radio buttons are used to select one option from a list – in this case you can select A or B, but not both.

Also present is an Exit button that is used to quit the dialogue box, two types of text and a white box. We'll see how this is all programmed, and it's by no means as difficult as you might imagine.

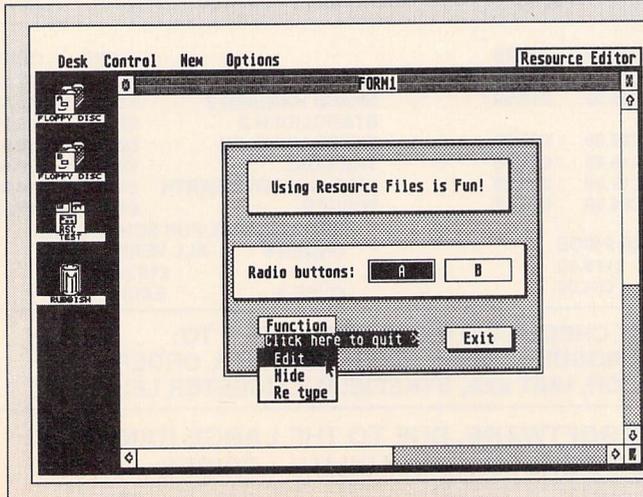
Dialogue boxes are made using a specialised type of construction kit. You draw a box on the screen, select the objects you want – text, buttons and boxes – from a menu, pick them up with the mouse and paste them in the desired positions. The finished dialogue box is saved in a resource file on disc in a special format with the file extension .RSC.

There aren't very many packages around to do this work, and Kuma's resource construction set is probably best known as it has been around a long time. Recently HiSoft brought out a similar package called Werces, and Laser C contains its own utility.

Once the dialogue box is drawn, the C code can be written. The standard way of starting up a program is:

```
int i;
appl_init();
handle=graf_handle(&cw,&ch,&i,&i);
for (i=0; i<10; work_in[i++]=1);
work_in[10]=2;
v_opnvwk(work_in,&handle,work_out);
```

This code initialises a program, gets



Creating a dialogue box using a resource editor

A dialogue with an ST

Roland Waddilove shows how to make the most of your micro's resources

the VDI graphic handle and opens a virtual workstation. What this means is that each program in memory – and there can be several, like desk accessories – can print on the screen in its own text colour and style, and draw with any lines and fills it likes without interfering with the style and colour settings of another program.

The variable *handle* holds the graphics handle, and *cw* and *ch* are set to the character width and height.

The resource file containing the dialogue box can be loaded with:

```
rsrc_load("test.rsc")
```

The dialogue box is stored in memory in a peculiar way, but a C structure contains all the information you need. You can get its address with:

```
OBJECT *dialog;
rsrc_gaddr(0,0,&dialog);
```

The dialogue box is displayed on the screen by first making sure it is in the centre, saving what is on the screen –



so it can later be restored – then drawing the object:

```
form_center(dialog,&x,&y,&w,&h);
form_dial(0,0,0,0,x,y,w,h);
objc_draw(dialog,0,32767,x,y,w,h);
```

Now that the dialogue box is on the screen we have to find out which buttons the user is pointing at, which he clicks on and so forth. Fortunately this entire operation is carried out by Gem, using one simple function call:

```
result=form_do(dialog,0);
```

Each object – button, text, box, icon – in the dialogue box is numbered starting from one and when the user clicks on an object, like the Exit button, the variable *result* will be set to the appropriate number. When you create the dialogue box using a resource construction set, the utility will also create a text file which holds the object names and numbers. This can be included in your program.

When a button is clicked on, a flag is set in the *dialog* structure and the button usually turns black – the resource construction set allows you to specify what will happen. You can test for this or reset any selected buttons with:

```
dialog[result].ob_state ^= 1;
objc_draw(dialog,result,0,x,y,w,h);
```

Finally, the screen display is restored when the dialogue box is finished with and the memory used to store the resource file is released back to the system:

```
form_dial(3,0,0,0,0,x,y,w,h);
rsrc_free();
v_clsvwk(handle);
appl_exit();
```

That, briefly, is how to use dialogue boxes. I have only skimmed the surface of this vast subject and a good technical manual is essential for further work. The Prospero C manuals are particularly good and devote around 80 pages to dialogue boxes.

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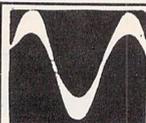


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Where no man has gone before

HAVING used STOS to write Fun School 2, I've discovered many undocumented features – and a few bugs, along with methods to get around them. It's only fair to share these with other users, so here goes. In this series of articles I'll be showing some of the programming problems you are likely to encounter when writing STOS games, and I'll show how to solve them.

The first problem I'll look at isn't a bug or error, as every version of Basic I know does the same thing. Take a look at Program I:

```
10 REM Program I
20 num=100
30 num$=STR$(num)
40 PRINT num$
50 END
```

You would expect the string *num\$* to hold the characters "100", but if you check you'll find that a space is added to the start, so the string is " 100". The simplest way around this is to remove the initial space by changing line 30 to:

```
30 num$=MID$(STR$(num),2)
```

The next problem also concerns the use of **MID\$**. Try entering the following direct commands, that is without line numbers, and see what happens:

```
a$="ABCDE"
a$=b$
MID$(a$,3,1)="Z"
PRINT a$
PRINT b$
```

For some reason, which I have yet to work out, altering the middle letter of *a\$* also changes the middle letter of *b\$*. Have no worries though, as this problem doesn't seem to occur when the commands are executed from within a program.

Going loopy

The next two problems are related to FOR...NEXT loops and involve floating point number accuracy – not really a bug, as again many other versions of Basic have this fault. Enter and run Program II:

```
10 REM Program II
20 FOR num=1 TO 2^(4-1)
30 PRINT num
40 NEXT
```

The printed numbers are from one to seven. You may think everything is OK, as the program didn't report any errors, but take a second look at the

Phil Lawson starts a new regular STOS column uncovering some of the language's unusual and unexplored features

end of line 20. Four less one equals three, no problems there, but two to the power of three, (2 x 2 x 2), is eight. Therefore, line 20 is equivalent to:

```
20 FOR num=1 TO 8
```

So why didn't the loop print out eight numbers instead of just seven? The reason is because the floating point maths routines are used to calculate the loop limit expression and these are not perfectly accurate. Rounding occurs, and some numbers after the decimal point are lost. You can't avoid this, so always bear in mind the limited accuracy of floating point calculations.

The second error with loops concerns nested loops and unexpected errors concerning the use of the NEXT statement. Try this example:

```
10 REM Program III
20 FOR a=1 TO 10 : FOR b=1 TO 11
30 PRINT a,b
40 NEXT : NEXT
```

Everything looks all right, but running it gives us a *NEXT without FOR* error. The reason is that STOS expects every NEXT command to be followed by a variable name. To get Program III to work change line 40 to:

```
40 NEXT b : NEXT a
```

Some versions of Basic allow the variable names to be omitted, so even if you're proficient at Basic programming read the manual at least once to discover how STOS differs from other Basics.

Spritely commands

As many of STOS's graphics commands concern sprites, it comes as no surprise that one or two peculiarities exist here. Run Program IV – don't type it in, load it from the cover disc to set up the necessary sprites:

```
10 REM Program IV
20 MODE 0:KEY OFF:CURS OFF:HIDE
30 SPRITE 1,0,100,1 : WAIT 50
40 PUT SPRITE 1
50 SPRITE 2,160,0,1 : WAIT 50
60 PUT SPRITE 2
70 SPRITE OFF 1 : WAIT 50
80 SPRITE OFF 2 : WAIT 50
```

First one sprite appears at the left of the screen, followed by a second at the top, then the first one disappears. According to the program (lines 40 and 60) each sprite should have been drawn on the screen before being turned off. Sprite two was in line 60, therefore the problem lies in line 40.

In case you can't guess, the PUT SPRITE command doesn't work if the X coordinate is zero. The solution is to alter line 40 to:

```
40 SCREEN COPY PHYSIC,X SPRITE(1),Y
SPRITE(1),X SPRITE(1)+64,Y SPRITE(1)
+64 TO BACK,X SPRITE(1),Y SPRITE(1)
```

Here we're copying part of the physical screen where the sprite is to the background screen – exactly what PUT SPRITE does. This, however, will only work if the hot spot is at the top left

Turn to Page 78 ▶

◀ From Page 77

corner of the sprite and a multiple of sixteen.(32, 48, 64..).

For this month's final problem we'll take a look at combined screen copy and fade commands. Load and run Program V from the cover disc (don't type it in):

```
10 REM Program V
20 MODE 0:KEY OFF:CURS OFF:HIDE
30 RESERVE AS SCREEN 7 : CLS 7
40 UNPACK 5,7
50 SCREEN COPY 7 TO PHYSIC:WAIT 50
60 FADE 5 : WAIT 35
70 UNPACK 6,PHYSIC
80 FADE 5 TO 7 : WAIT 35
90 GOTO 90
```

What this program is intended to do is display an initial screen, fade it out, and then fade in again with a bit more added to the picture. Unfortunately, the effect of the fade is cancelled out.

To get around this, quite a few changes need to be made:

```
65 LOGIC=BACK : UNPACK 6,BACK
70 FADE 5 : WAIT 35
80 SCREEN COPY BACK,0,160,320,200 T
O PHYSIC,0,160 : LOGIC=PHYSIC : FADE
5 TO 7 : WAIT 35
```

Line 65 uses the LOGIC command to prevent the unpacking cancelling

out the fade. We then unpack the second screen to the background and fade the colours to black. The area required at the bottom of the screen is then copied to the physical screen, which is reset as the logical screen.

The syntax for the SCREEN COPY instruction is:

```
SCREEN COPY screen1,x1,y1,x2,y2 TO sc
reen2,x3,y3
```

In Program V *screen1* and *screen2* are BACK and PHYSIC respectively. This means that the block we want to copy is stored in the background screen, and it will be copied to the physical screen.

The variables *x1* and *y1* mark the top left hand corner of a rectangle, with *x2* and *y2* marking the bottom right. Everything lying within this area will be copied across to the physical screen, with the top left corner placed at position *x3,y3*.

According to the manual, the X coordinates are automatically rounded down to the nearest multiple of 16. This isn't quite true, for as long as the difference between *x1* and *x2* is a multiple of 16 everything will work normally. Note, however, that *x3* will be rounded down.

Now that the screen contains the correct picture all that remains is to

fade back in again. The rest of line 80 sets the logical screen back to PHYSIC and restores the colours with the FADE command.

FADE can turn all the colours to black, but you may not realise how to get them back again. FADE works on the current logical screen, which in our program is now PHYSIC. The number five represents a time delay, so that the colours change at a steady rate, but the TO 7 alters the colours to those in screen 7.

● Next month we'll continue with some more screen effects, and also cock a critical ear to the music and play commands. In the meantime if you think you've found a bug and a way around it, or an interesting effect, write in and I'll pass on the information via this column.

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Stuck for

words?

GAMES apart, ST users must have more word processors and text editors to choose from than any other kind of software. Protext, K-Word 2, 1st Word Plus, TextPro, WordPerfect, Word Writer and Wordup are just a few that spring to mind.

They differ enormously in power, features supported and price, from top of the range WordPerfect that will set you back in excess of £150, to the public domain 1st Word given away free at one time with old STs.

Any publisher launching a new word processor into such an already overcrowded market must have tremendous faith that his product either has a more powerful range of features or he's set the price to make it absolutely irresistible.

Regent Software of California has just released a budget version of its Regent Word II word processing package for all ST machines. It is Gem-based and wysiwyg. So what has it got to offer to make it stand out from the rest of the pack? The answer, I'm afraid, is not a lot.

As you would expect being Gem-based, it is controlled by a system of drop-down menus from a top menu bar, with some features available via function keys as short cuts. A document is scrolled either by single line or in 18 line chunks using the mouse and Gem sliders. You can also select to move to the top or bottom of the text.

Comparing the speed of these facili-

ties with the notoriously slow 1st Word left me rather bewildered. From top to bottom of an 18k 3,300 word file using 1st Word involved a very slight delay, whereas with Regent Word II it was almost instantaneous. Scrolling through the same document line by line however took 82 seconds in 1st Word, but an unacceptably tedious 150 seconds in Regent Word II.

It has a lot of the basic facilities you need for word processing and some advanced ones too. There's insert/overwrite, block manipulation for moving, copying, deleting and changing style to bold, italic, sub and superscript and underlining.

You can search and replace locally or globally, set up and delete rulers, and create headers and footers. And you can save files in document or Ascii format. However, this range of editing functions is far less than 1st Word.

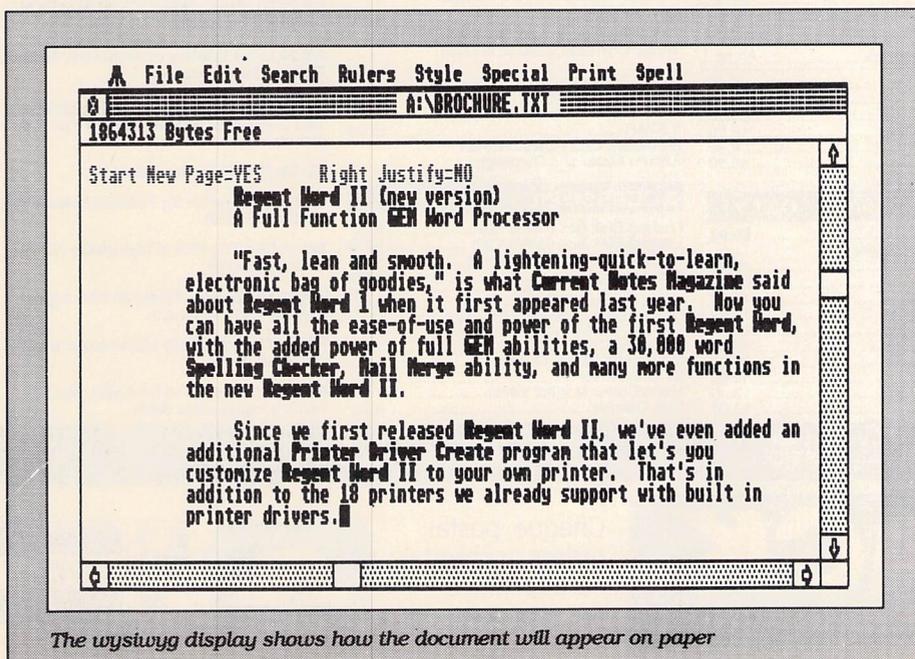
ties with the notoriously slow 1st Word left me rather bewildered. From top to bottom of an 18k 3,300 word file using 1st Word involved a very slight delay, whereas with Regent Word II it was almost instantaneous. Scrolling through the same document line by line however took 82 seconds in 1st Word, but an unacceptably tedious 150 seconds in Regent Word II.

Although it's described as Gem-based, Regent Word II's block define facility surprisingly moves away from the accepted method of dragging a rubberbanded box around and highlighting the text to be dealt with. Instead, it involves defining the start and end of each block and then selecting what you want to do with it - even for a single word.

The package's only redeeming features are its integral mail merge facilities, a 30,000 word spelling checker, a word counter and a simple calculator function.

The manual is a simple A5 sized photocopied booklet. It's easy to read and clearly written but contains a few howlers, the major one being in the explanation of how the package deals with rulers. It's completely wrong: The writer couldn't have been looking at the same software I was using.

To be fair though, Word II does what it sets out to do well enough, and if you haven't already got a word processor it's easy enough to use and would be worth consideration. But even if it was half the price I'd be hard pushed to recommend it as a serious alternative to any of the existing products.



The wysiwyg display shows how the document will appear on paper

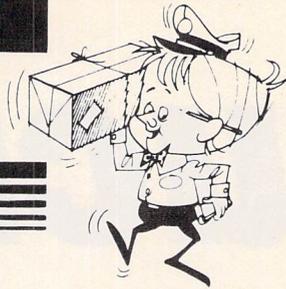
FACT FILE

Product: Regent Word II
Price: £29.95
Distributor: ISM, 29 Hillmorton Road,
Rugby, Warwickshire CV22 5AB.
Tel: 0788 75010

POINTS FOR:
Integral mail merge facility and spell checker. Easy to use. Lowish price.

AGAINST:
Nothing new to offer an already overcrowded market.

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- BU.36;** Superb Recipe database!
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- BT.04;** Shanghai, Fully playable first level of this board game
- BT.35 Autoroute;** The intelligent map, working routeplanner demo

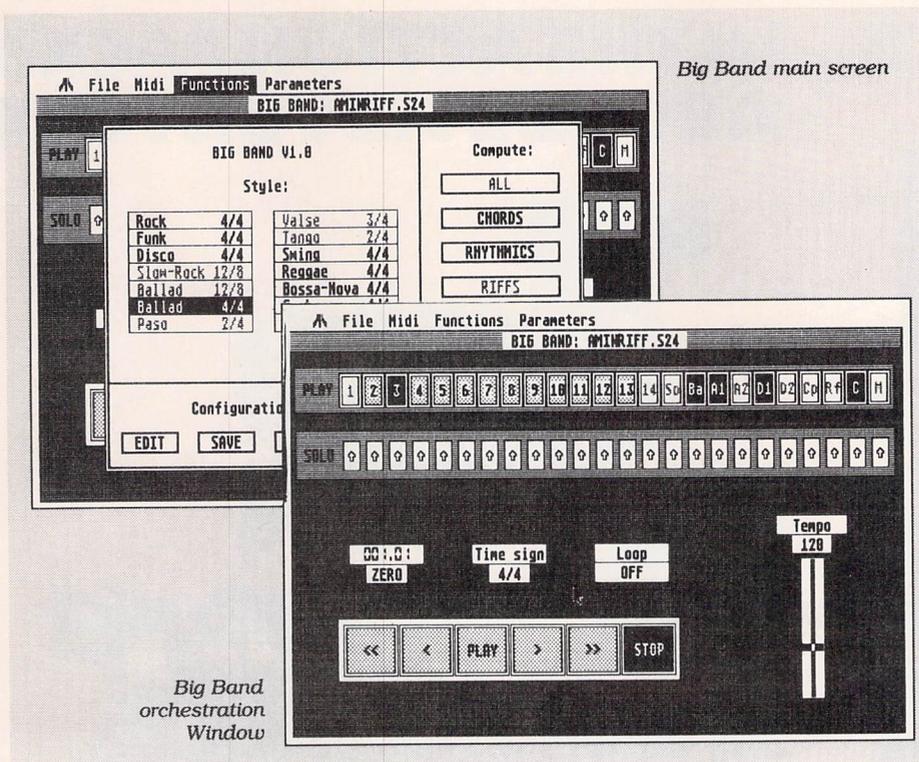
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Composition on the grand scale

Ian Waugh playtests
Big Band, a Studio 24
add-on facility

THE most fascinating type of music program is one that composes. The first for the ST was Intelligent Music's M - reviewed in the May 1988 issue of *Atari ST User* - and several more have followed.

Most are algorithmic composition programs which work by manipulating a series of notes - altering the order in which they play and changing their duration. This is low level composition, but some clever results are possible.

Soundbits' Big Band however, approaches the composition process from a higher level. It will harmonise a melody line, create one for a chord sequence or, left to its own devices, will produce both chord sequence, melody line and harmony.

Big Band is available on its own or as an add on to Studio 24 - also from Soundbits and reviewed last month - as a program extension. Studio 24 can load up to three programs or extensions of which Big Band is one.

Used alone it has limited editing facilities and no record facility although it is compatible with the Midi file format. You can't enter a line in step-time, see a melody, edit or print it. The only track you can edit is the

Chord track. In practice I found using Big Band on its own severely limiting.

It has a built-in set of 14 musical styles - rock, funk, disco, slow rock, two ballads, paso, waltz, tango, swing, reggae, bossa nova, samba and blues.

These can include bass, drums 1, drums 2, accompaniment 1, accompaniment 2, riff, counterpoint, melody, solo and chords. The bass, accompaniment and drum pattern parts are grouped together under the heading of Rhythmics. Not all parts, however, are available with all the styles.



First you set up the configuration parameters for the styles so they suit your Midi equipment. They consist of a Midi channel, velocity level, program change number and volume level.

Each style has its own configuration page and after editing you're sent back to the main screen when the place you really want to be is the orchestration window again. There should be a configuration copy function here. The con-

figurations can be saved and the disc contains a ready made one for Roland's MT32.

The next step is to produce a chord sequence - you can't do anything without one. If you're short of ideas, Big Band will produce one for you and you can select a major or minor sequence.

Next you choose one of the styles. Most can produce a variety of rhythmic accompaniments and then you go on to add other parts.

Although all parts aren't available for all styles, you should be able to mix and match. For example, although Melody isn't available with the bossa nova you can produce bossa nova rhythmics then change to another style which does support melody.

You can also load a melody line or create one if running within Studio 24 and have Big Band compute a chord sequence for it and add other parts to taste.

The program is restricted to music in 2/4, 3/4, 4/4 and 12/8 time although you can program parts in a different time signature and then revert to a compatible one to create other parts.

The compositions sound middle of the road. The styles aren't very flexible and remind me of the auto accompaniment features found on single keyboards and home organs. Some of the parts have their own characteristic traits, but within its limitations, the program produces a fair variety. This is only to be expected.

The program shields you from the decisions which would have to be made in order to produce greater variety. As it is, the software is very easy to use and is an example of the trade off between ease of use, complexity and variety of output. However, I'd rather have more variety at the risk of increased complexity of operation.

The manual is quite short but reasonably clear, although it suffers from some Franglais, and certain aspects of the program could be improved.

Big Band is fun and is recommended if harmony and arranging are not your strong points. It can be used alone, but that would mean missing out on the facilities it gleans from Studio 24 - and the reduction in flexibility is considerable.

FACT FILE

Product: *Big Band*
Price: £169.99
Supplier: SoundBits Software, 48 Galton Tower, Civic Close, Birmingham B1 2NW
Tel: 021-233 3440

POINTS FOR:

Easy to use. Can produce interesting compositions.

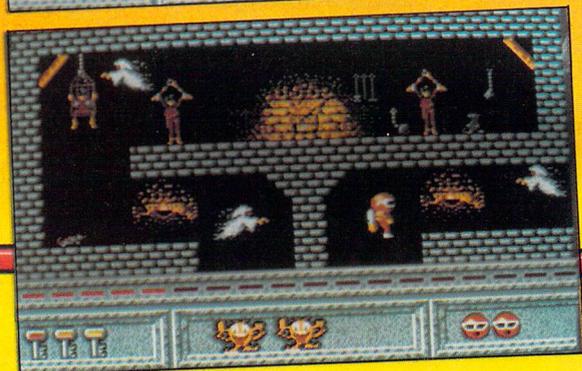
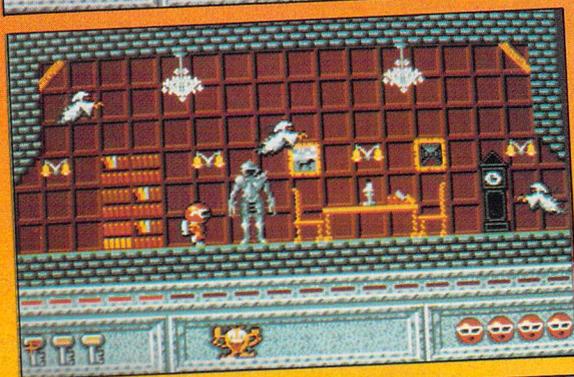
AGAINST:

Best used within Studio 24. Compositions are middle of the road.

"CAPTAIN CRUMBLE IS THE MOST INSTANTLY APPEALING CHARACTER TO HIT THE ATARI..." PAGE 6 / ATARI USER

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Add some go faster stripes

Phil Lawson evaluates new utilities for beefing up hard discs

TWO reasons for hard disc drives being so popular are their greatly increased storage capacity and much faster access times compared with normal floppies. After being used for a long time hard discs do slow down slightly, however, Turbo Kit from Microdeal can restore a drive's speed and optimise it for either reading or writing.

The time taken to access files is longer if they are scattered all over the disc than if they are packed together at the start. Not only can files be scattered, but also fragmented – split into sections and stored on different parts of the disc.

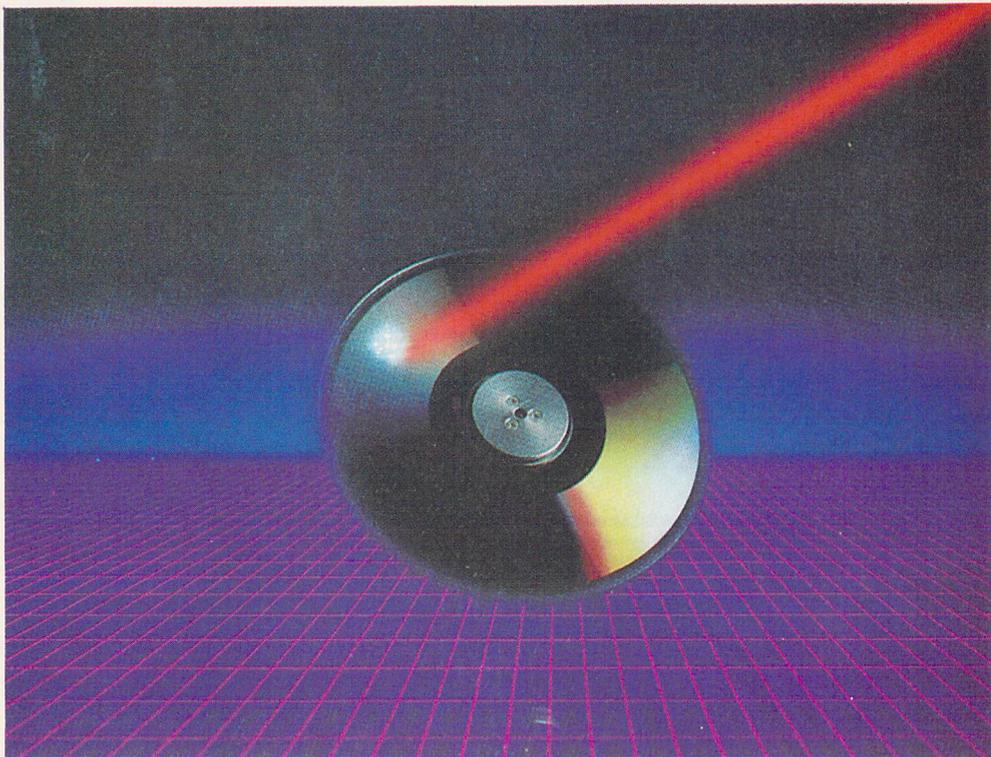
If you save three files to a disc and delete the second one you'll end up with a file, an empty space where the second file used to be, then the third file. After being used for a while a disc will have lots of such gaps.

As you might expect, it takes longer for the hard disc controller to find and gather together a fragmented file than one stored in one continuous block at the start of the disc. Now Michtron's Turbo Kit allows you to join together all these fragments and so speed up read and write times.

TuneUp

Two speed optimising methods are available, the first being the back-up facility. This involves copying the whole of the hard disc on to floppies, re-formatting it, then transferring the files back again. This will certainly place all the files in contiguous blocks, but it can take a long time and a lot of floppy discs, especially so if the hard disc is nearly full.

The second method is to use Turbo Kit's TuneUp option, which allows you to optimise the disc for either reading or writing. This facility performs two operations: All files are stored in contiguous blocks if possible and all free spaces are collected together.



Hard discs allow you to treat them as two, three or four separate discs called partitions. For example, a 20Mb disc could be used as two tens, a ten and two fives or four fives.

You can specify which partition to use. This welcome feature means you can copy drive C to D before optimising it. So if anything goes wrong, say a power cut, you won't lose any files.

In addition to the speed optimisation, TuneUp provides four other services – show all files on a disc, show disc organisation, graphically show used blocks and check file structure of disc.

TuneUp is best used on a disc with plenty of free space, at least as large as the largest file. If not enough space is available, it will try to use some of the computer's memory. This will slow it down a bit, especially if some files are considerably larger than available ram.

Every time you access a disc the operating system needs to know where the files are stored on the disc surface. This involves checking the directory

and the file allocation table (FAT). If a great deal of disc accessing is necessary, such as when compiling a language like C, the process can be speeded up by storing the directory and FAT information in memory.

Sector cache

M-Cache is a short utility which caches frequently used sectors so speeding up disc access. It comes with its own configuration routine so you can set aside as much memory for the utility as you wish.

Double clicking on MCONFIG.TOS clears the screen and you are asked if you want to cache any of the drives C to P. Next it asks for the numbers of sectors to cache, which can be anything from one to 1024. Pressing Return without entering a value defaults to 200 sectors. As each sector requires 520 bytes, 200 will need more than 100k. For this reason it's recommended that only the first couple of

Turn to Page 84 ►

◀ From Page 83

drives are cached in this way.

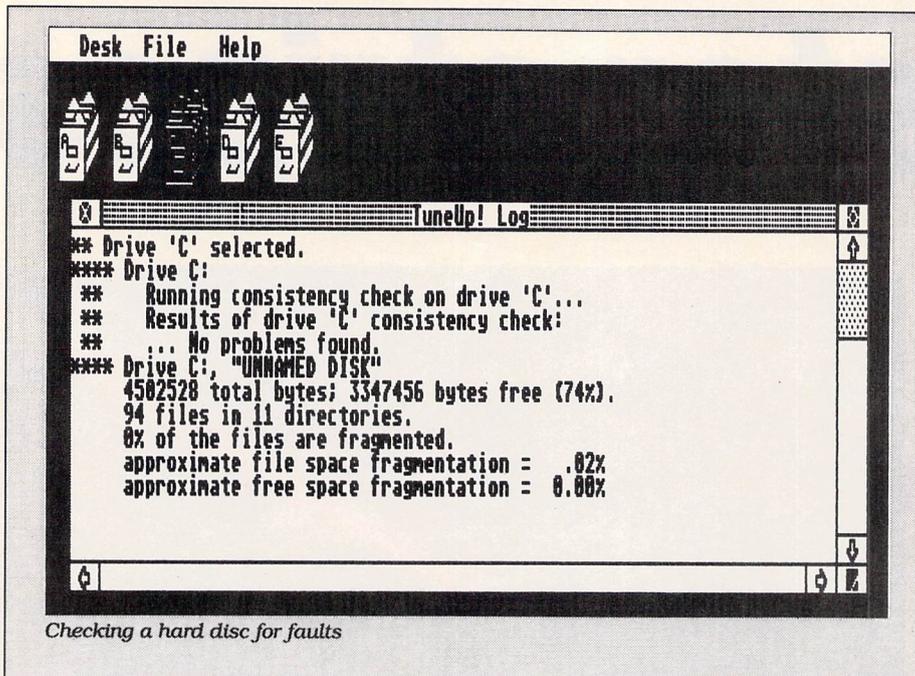
The first time you access a cached disc the data sectors will be read into ram, and all subsequent accessing will

read the ram copy rather than the slower disc.

Turbo Kit is an excellent package, but is somewhat let down by the manual's use of technical phrases. This normally wouldn't be a problem, but

as one wrong move can mean wiping out 40Mb of files, the utilities could have been explained more clearly. A glossary might have helped solve this problem. On the credit side it includes an index.

TuneUp and M-Cache have been available separately in the past, but only recently have been combined together in this Turbo Kit. Having just got my hands on a new hard disc, I'm on the lookout for anything that makes using it easier and faster.



FACT FILE

Product: Turbo Kit
 Price: £29.95
 Supplier: Microdeal Ltd, Box 68, St Austell, Cornwall, PL25 4YB.
 Tel: 0726 68020

POINTS FOR:
 Excellent at backing up, speeding up, and optimising file positions. All controlled from a Gem-like desktop, giving it a very friendly appearance.

AGAINST
 Manual could be better.

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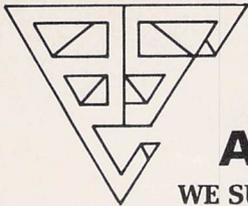
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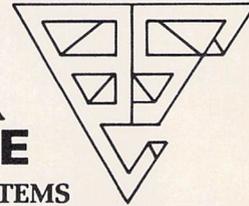
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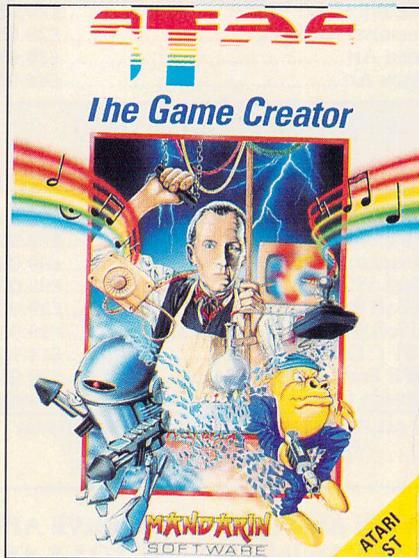


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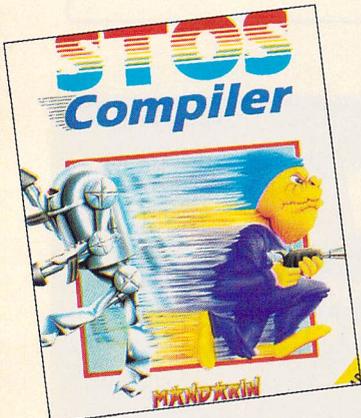
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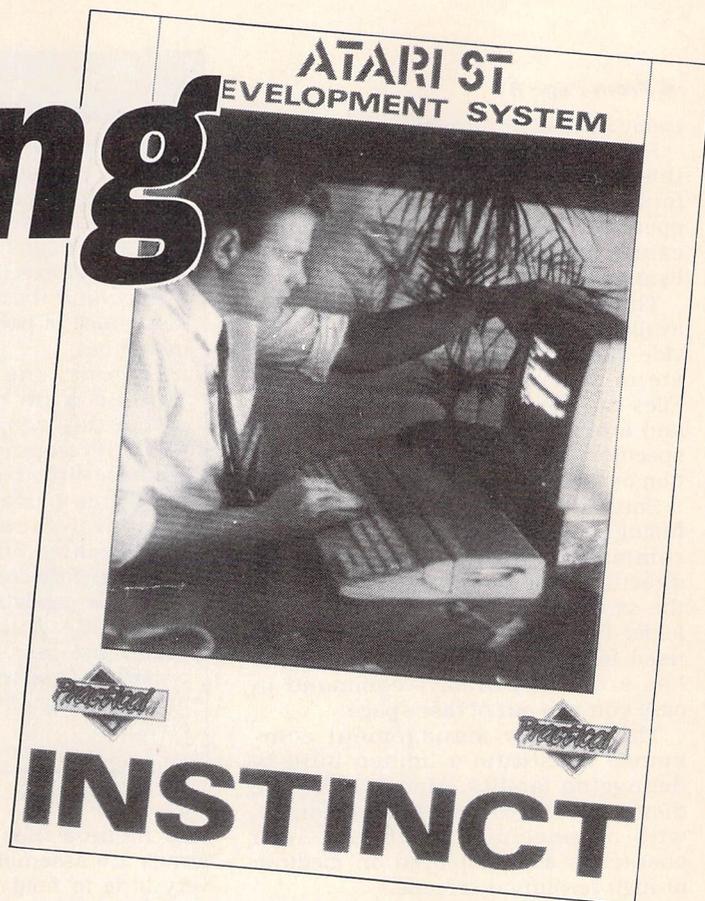
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MANDARIN
 SOFTWARE

Breaking the mould

Mick Randle tries a new assembler which is not based on Gem



INSTINCT is the latest assembler for the ST, offering an alternative to the usual Gem-based products we have come to expect. Considering its capabilities it is quite a short program, and this is due partly to the elimination of the coding overhead required to operate Gem.

The whole package resides in memory and provides instant access to such features as the editor, assembler, disassembler, disc management and help

routines. It runs in any screen resolution and the entire program is only 40k in size, although additional memory is used for source code, symbol tables and object code.

This compactness is in contrast with many applications which seem to waste large amounts of memory, leaving very little for your own use. With Instinct, even on a 512k machine there is still well over 300k of workspace available so large programs

can be developed on a standard 520ST without resorting to hardware upgrades.

The built-in program editor is probably the most visible example of Instinct's memory efficiency, being little more than an old-fashioned, no-frills, command driven line editor. It may take some time to get used to if you have been spoiled by screen editors like Tempus which are more like specialised word processors.

Its limited range of commands are surprisingly useful and well chosen for maximum efficiency. Operation becomes almost instinctive after a little practice, and I suspect that many people will prefer it to more comprehensive packages.

You can import Ascii source code from files produced by other editors or word processors, and Instinct will automatically add line numbers and convert labels to its own format. This procedure makes it possible to use a different editor, but that would defeat the object of having a memory resident system by prolonging development time. It is far better to persevere with the Instinct editor and use the IMPORT command only for converting existing source files.

The AUTO command enters line numbers and other commands provide line renumbering, deletion, and cut and paste between blocks of lines in memory or on disc. They all worked well and I found it impossible to accidentally overwrite existing lines. Other commands, such as FIND and REPLACE, complete the armoury of

```
>*CAT
Drive:A Library:*. *
Dir:\

AUTO      <DIR> INCLUDES      <DIR> MLOAD      <DIR> INSTINCT.PRG      A2BC
README.DOC 14E4 PROG.ASM      568  PROG1.ASM      2DC  PROG.PRG      2D6
PROG2.ASM  28D TOSPROG.ASM    243

>
>LOAD "PROG.ASM"
>LIST 10,130
10 LET start=$77000
20 ORG start
30 TOS
40 .begin
50 MOVE.L A7,A0
60 MOVE.L 4(A0),A0
70 MOVE.L $14(A0),D1
80 PEA prog(PC)
90 MOVE #30,-(SP)
100 TRAP #14
110 ADDQ.L #6,SP
120 CLR -(SP)
130 TRAP #1
```

Programming using Instinct is reminiscent of the old BBC Micro

Turn to Page 88 ►

◀ From Page 87

easily used editor functions.

I was a little apprehensive about this editor at first, but with practice found it quite quick and logical to operate. The HELP command significantly reduces the learning time by listing all the functions.

The disc management commands available from the editor prompt provide all the functions you need to create or remove files and directories. Files can be loaded, saved and copied, and a binary file can be loaded into a specific address for immediate execution or inclusion into a program.

Some disc commands appear confusing at first. For instance, the DIR command does not show the disc directory, but switches directories in the same way as double clicking on a folder from the desktop. CAT must be used for a directory listing. Instinct has a useful FORMAT command in case you run out of disc space.

The memory management commands constitute a limited built-in debugging facility. Memory may be disassembled to 68000 mnemonics, with hexadecimal codes and Ascii characters also displayed on medium or high resolution screens.

As with the editor, the range of debugging commands is limited but well chosen. However, I am surprised at the lack of a trace facility, and it is not possible to directly modify the cpu registers although memory values can be altered with the MZAP command.

Despite this, quite a lot can be achieved as an unlimited number of breakpoints can be used, each producing a screen listing of the cpu registers in hexadecimal and Ascii form.

The assembler is a competent package and fully capable of producing large programs. Most of the usual assembler facilities are available, such as macros.

CLS and PRINT are two directives particularly worthy of a special mention. As you might guess, they respectively clear the screen and print a line of text on the screen. The PRINT command can be used to display text strings, the value of source code labels, and send control codes to the screen. These useful commands can reduce debugging time drastically without having to hard-code debugging routines directly into source code.

Other assembler commands worthy of note are TOS, which automatically prefixes an assembled program with a TOS header to create an executable program file when saved, and MLOAD which loads a binary file at the current memory address and automatically adjusts the program counter to account for the length of the file. This is ideal for loading data files containing screen or sound sample data, and it may be used anywhere in a program.

Instinct also supports conditional assembly, multiple statement lines

The development cycle

There are many programming languages available for the ST and although they all have their merits, no one can deny that assembly language reigns supreme in terms of speed of execution, compactness of code and the ability to wring the last ounce of performance from the computer.

However, one slightly annoying aspect of many current assemblers is that they adopt the classic compiler development cycle of edit-compile-link-run, with separate programs performing each step. This involves much time wasting while waiting for the next module to load before continuing the cycle.

This is grudgingly accepted as a fact of life, but those of us who recall the fast 8 bit assemblers regard it as a retrograde step and an irritating obstacle to program creation.

and include files. It is fast as programs are assembled to memory. With very little to hold up the development cycle working with Instinct is almost like using an interpreted language like Basic.

Documentation

The manual devotes about half of its pages to the description of assembler commands and 68000 mnemonics. Each instruction is listed with a concise description written in plain English, although the manual is not intended to be a tutorial on 68000 programming.

On the whole it is a mine of information, with appendices covering screen control codes and Ascii character values. It is marred by errors in spelling and grammar, but the review copy was obviously a pre-production version without page numbers, so the errors will hopefully be removed and a decent index added before publication.

One or two flaws tend to cloud an otherwise good product. There isn't any TOS or Gem documentation. Other assemblers, such as Devpac, provide respectable coverage of these vital areas whereas Instinct just ignores them.

This really is a serious omission as you can't write effective assembler programs if you don't know the operating system. You must be prepared to invest in a reference book or two which is a significant financial consideration when comparing alternative products.

The second problem is the lack of a linker. Other assemblers supply one and this allows you to build a program from ready made libraries of object code.

Binary files produced by Instinct do not conform to the GST link standard, but can be incorporated into Instinct programs at assembly time to provide a limited degree of modularity. Source code may be imported from Include files.

It is clear that this assembler is best suited to the creation of stand-alone programs rather than the creation of binary libraries.

Who is most likely to gain from using Instinct? The manual and advertising blurb tend to point towards professional or expert programmers. This group would no doubt have plenty of system documentation so there would be no problems there, and the speed advantage may well be important.

On the other hand, Instinct's binary file format would probably rule out many people who would rather put up with a slower assembler for the sake of compatibility with their existing compiler libraries. Instinct would probably be more appropriate for game programming than more serious applications.

Assuming the cost of reference manuals is acceptable, beginners would probably thrive with this package. It is ideal for writing machine code speed-up routines for high level languages such as STOS or ST Basic. There is no reason why you could not use this assembler to produce autobooting TOS programs, or even fully fledged Gem applications with a little experience.

Instinct's interpreter-like operation is more familiar to Basic users than other assemblers which adopt a traditional approach.

The package does its job well, with the minimum of fuss, and is a viable alternative to existing assemblers. It is not for you if you prefer to work within the Gem environment. However, this may be just what you are looking for if you feel that Gem gets in your way and divorces you from the hardware.

Ironically, Gem-based assemblers can seem less user friendly and awkward after using Instinct for a while. It is one of those highly individualistic programs that are capable of developing a cult following, and I have no doubt that it will find its niche in the market.

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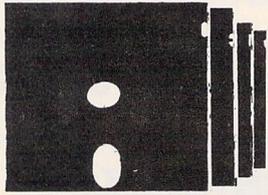
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Seven Disk

IMAGINE the scene. You're just about to complete the final level of Mega-Invaders From Planet X, when the boss walks into the room. Until now the only feasible course of action was to reset the machine, which is bound to make any gaffer a little suspicious.

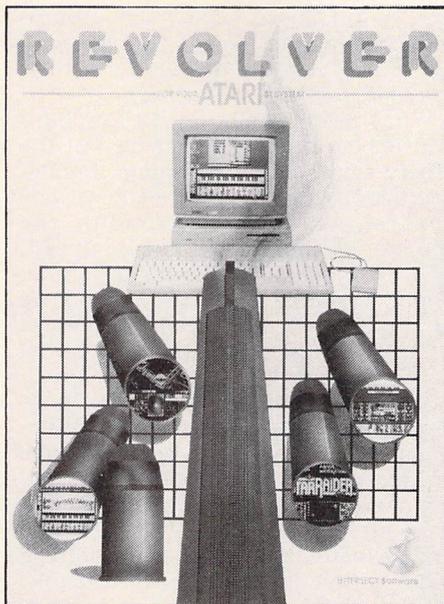
Now, there's a better method. Revolver, from Intersect Software, lets you swap the program in memory with one stored on disc or memory in a matter of seconds. You can reload a spreadsheet, word processor, database and so on along with all the files and data, in under 15 seconds from a hard disc. Floppy discs can also be used, but it takes a little longer.

Revolver, unlike some program switcher utilities, isn't a desktop accessory, and is therefore available at all times, even in the middle of playing some arcade games. It works in all three resolutions and so can be used with both colour and monochrome systems.

Running the installation program will create an AUTO folder, along with the necessary boot programs, so producing a start-of-day disc. If you wish to use programs which auto-boot, the files in the AUTO folder must be copied on to your program disc, making sure that REVLOAD.PRG is the first file in the folder. This is because Revolver first installs itself, and then performs a normal boot to run any other programs the folder contains.

Once the system is running Revolver can be called by pressing the Alternate and left-Shift keys simultaneously. To avoid interrupting the system at a critical point, these keys will be ignored if the computer is busy - say if a disc is being accessed or some heavy I/O functions are being performed.

Also note that some games and business packages actually turn off the keyboard, or reconfigure the keys



for their own use. In these cases, although Revolver is present, you may not be able to access it.

Once into Revolver, you'll be presented with a main menu offering a dozen options. Most contain sub-menus, making this powerful suite of programs very easy to use. The three most important options are Rollout, Rollin and Switch.

Switch lets you swap between various programs stored in different parts of the computer's memory. You're allowed up to eight partitions, each containing a different application. All you do is click on a number - one to eight - and the ST will immediately start executing that program from where you last left it.

You can only switch to a program that has previously been stored, which is where the Copy function comes in. Once you've booted up and loaded a

program, you can copy it to another partition and load something else. Now you can swap between the two, or even load more whenever you wish.

With all eight partitions in use, it can be difficult to remember what is in each, so the View function lets you examine the contents of each without loading it. Selecting a partition will show you its screen, allowing you to see what it is and read any information required.

Rollout saves the contents of a selected partition to disc. This can take a while, because as the data is written to disc it's verified to make sure everything is correct - otherwise faulty data could crash the machine when you try to load it back in again.

As large files could easily fill a floppy disc, the data is compressed, so an average 1Mb machine would produce a file around 300k long. Machines with more memory using larger programs could result in longer files, so it's just as well that Revolver works perfectly with a hard disc. Just make the hard disc auto-booting, and put the necessary file in the AUTO folder.

You can even set up an alert box, which after a specified time, will appear and prompt you to perform a Rollout. If, for example, you specify a time limit of five minutes, the alert box will appear every five minutes.

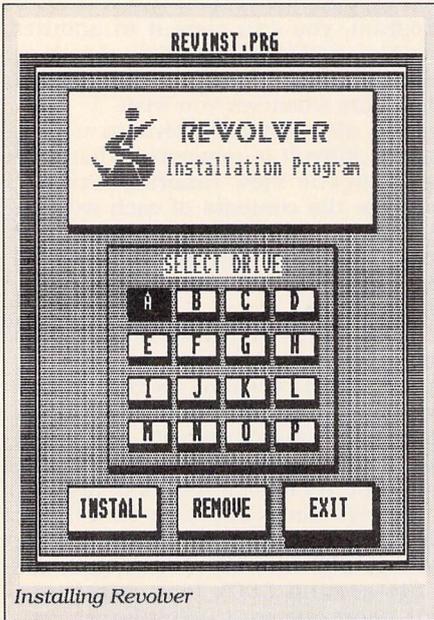
This is extremely useful when working with important data which needs to be saved at regular intervals. You could, of course, just save the information through the software's normal save facility, but this can often take longer than using Rollout.

Rollin, as you might expect, works in reverse. To use this function, click on the Rollin box, select a partition to load into, and choose the filename.

Turn to Page 94 ►

Phil Lawson checks out Revolver, a very useful program switching utility

**Shot
in the
arm**



Installing Revolver

◀ From Page 93

The program will now load, be decompressed and set up at the exact point you last left it with all your data intact.

It's these options that make Revolver so different from other switching programs. The simple fact that the vari-

ous sections can be examined, saved to disc, and used at any time and in any combination, makes Revolver well worth the money. But there are still a few more functions to look at.

What System Info, VT-52 Emulator and Reboot do is self evident, but the others could bear explanation. Configuration allows you to set all of Revolver's general parameters, including the number of partitions, mouse speed, size of ram disc, Rollout alert time, and key repeat to name a few. The manual clearly explains all of these functions, and offers suggestions on how best to use them.

Disc Commands opens another submenu containing another 14 selections. From it you can copy, rename and delete files, examining their contents, create and delete folders, search a disc for certain files using wildcards and format a floppy disc. The ability to hide or unhide files is also available, as are lock/unlock. These last two protect files from being accidentally erased or overwritten.

Snapshot Screen saves the current screen in standard NEO format. You can then load any popular art package which supports this format and examine the screen, making any changes you wish. This would be extremely valuable for desktop publishing users,

as they could include screen shots of games and business packages in the final layout.

Anyone who has to swap constantly between different applications will find Revolver an absolute godsend. The manual explains every function, although not always clearly. Even so, after using it for only an hour, it'll seem like an old friend. Upgrades will be offered to existing users at discount prices, but really I don't see how you can get much better than this.

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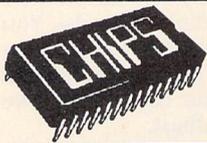
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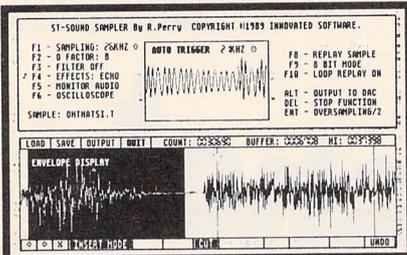
Really needs at least 1Mb of ram. Doesn't work with everything.



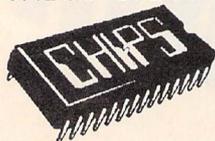
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Keyboard capers

Roland Waddilove
brushes up his typing
skills with a new tutor

THAT intriguing title, Mavis Beacon Teaches Typing!, leaves no doubt as to the nature of this program from The Software Toolworks. The packaging also says it is "The finest typing program in the world" and to back up this claim is an award sticker boasting Best Home Learning 1987 from the (American) Software Publisher's Association. How could I resist trying it out for myself.

Typing tutors seem fall into two categories, those that try to teach by asking you to type random letters and those that develop proper keyboard skills by making you type real words. I'm pleased to report that Mavis teaches the correct way, and great fun it is, too.

Before you can start the package must be installed. This is a simple procedure which creates a data disc with the correct files on for either a monochrome or colour monitor - you can use either.

The package presents a series of lessons, starting with practice using the four keys under the left hand, then those under the right hand and adding more keys as you improve. You are told which fingers are used to press each of the keys and then a graphic display of a pair of hands on a keyboard demonstrates as you type.

You start off with just the left hand ASDF keys and without looking at the keyboard you must type the text printed on the screen. Your words appear directly beneath the text. You've no choice but to type a few random letters here as you can't make many words from ASDF, only sad, fad and fads spring to mind.

In lesson two the right hand is added - the JKL; keys and now you learn to type proper words like lad, lass, dad, salad, adds, flask, asks and so on. Master those keys and two more will be added - E and I. Now the

range of proper words is vastly increased, and although the text doesn't make sense yet you are building up proper typing patterns.

After each lesson you are told how accurate your typing is and your speed in words per minute. In addition you can also ask Mavis to display graphs of word typing speed, individual key speed, number of errors made,

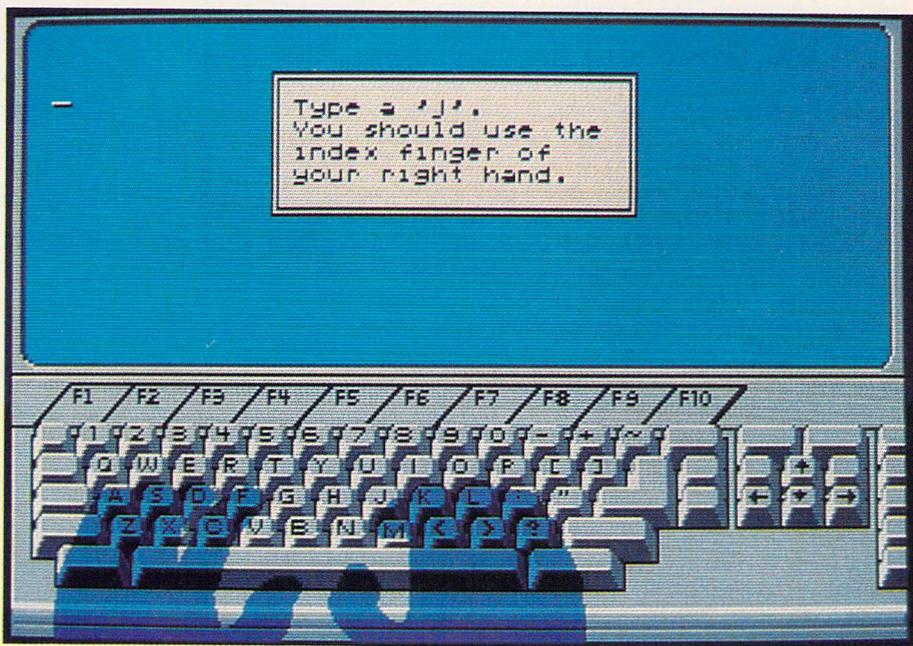
metronome to type in time with. An editor can be used to customise the lessons, allowing you to set their length, the learning aids used, whether Return is required at the end of a line like a typewriter, how frequently games are played and so on.

My only criticism is that Mavis forces a very quick pace and tries to teach too many things too quickly. However, the comprehensive menu options and lesson editor enable you to slow the pace to one you are happy with.

After using the program to replace my two-finger jabbing technique with slow, but rapidly improving, proper touch typing skills I can report that the claims on the packaging are justified.

After just a couple of lessons the program gives you the feeling that you can achieve your goal of becoming a touch typist and that spurs you on, making it quite addictive.

Mavis Beacon is a brilliant teacher and this package is highly recommended for all keyboard bashers who want to learn the correct way to tickle those keys.



The shadowed hands onscreen show which fingers to use

recovery rate after errors, mirrored errors (where you should have pressed say, the S key with the third finger of your left hand but pressed L instead with the third finger of your right hand) and a host of others.

Every so often a game is played to relieve the tension and allow you to relax. In it you race a computer controlled 3D car along a straight road. Words appear on the screen and the faster you type the faster your car travels. An onscreen wordometer replaces a speedometer and an accuracy meter replaces the rev counter.

The tutor is packed with superb features like Help screens available at every stage and an onscreen

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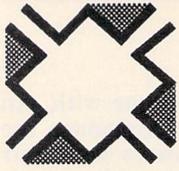
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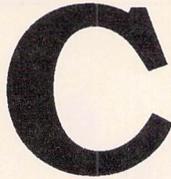
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Making DTP

FINDING good clip art for desktop publishing projects isn't too difficult, as there's plenty about, mainly in the public domain. But frequently these illustrations, though of quite good quality are inappropriate to the text they are to accompany.

The solution is to draw your own, and with this in mind Atari has released Hyperdraw, an object based, icon driven graphics package specifically designed to produce DTP artwork.

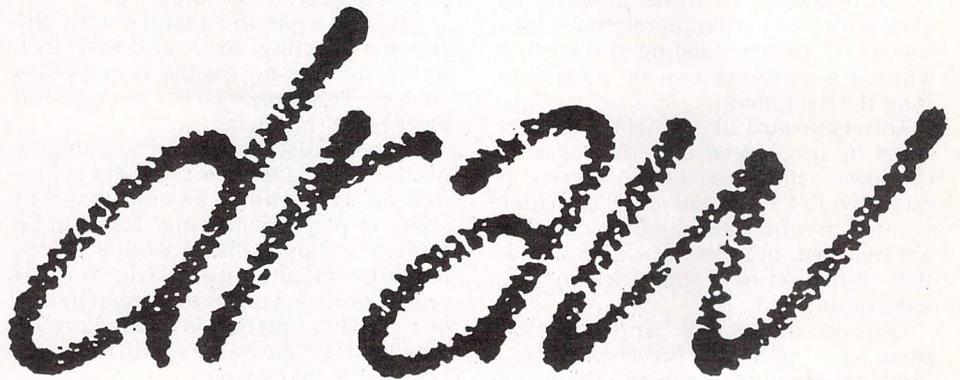
Supplied as a two disc package, with program and Gdos distribution discs, it will run on any ST. Greater machine power allows more working windows, and a hard or second drive allows personalisation of the program via Gdos routines.

All three screen resolutions are supported giving a range of 16, 4, or 2 colours. Being Gem-based it is almost totally mouse controlled, allowing freedom to compose graphics without constantly breaking off to use the keyboard. However, regularly used commands are duplicated as short key functions.

Whenever I start to use a package of this nature the "feet first" philosophy prevails. I explore its capabilities until out of my depth, at which point I turn to the manual for help.

If this litmus test reflects the program's ease of use and comprehension then Atari has a winner here, for several hours were spent enthusiastically drawing before any instructions were required. Hyperdraw's versatility encourages experimentation, often making it difficult to know when to stop.

a bigger



Dominic Boyes tries out a new graphics program to augment the ever-present clip art

On loading, the program displays a typical Gem window bounded along its top by pull-down menus for file and style functions. Down the side are drawing tool icons, and below a box combining colour selection and a continuously updated X and Y cursor coordinate readout.

In practice the coordinates do not allow the CAD type precision it might suggest, but provides an accuracy good enough for referencing points on screen. Indeed that is quite sufficient, as the beauty of the drawing package is its speed.

Drawing is fully wysiwyg with impressively swift re-drawing allowing the program to lag only slightly behind your imagination.

The screen is used as a graphics tablet on which the picture is composed of successive overlaid objects. The choice of tools is comprehensive,

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Figure I: The Gem-based software's facilities are accessed by clicking on the icons and pull down menus

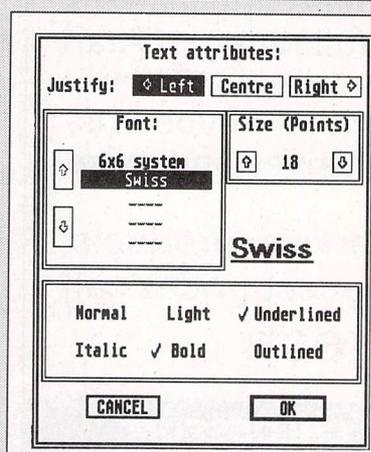


Figure II: Two default fonts are provided, but more can be installed if you have the memory

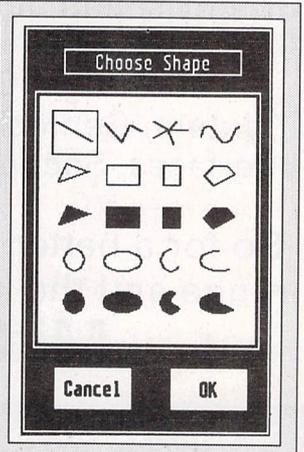


Figure III: A variety of shapes are available by double clicking on the SHAPE icon.

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including lines, text, circles and geometric forms. Each is sub-divided to allow the specification of fill, line thickness and type and so on.

Add to this one of the most easily used and smoothest curve generation procedures on any small art package, and the program's potential becomes apparent.

Once drawn, each object may be edited by dragging a box around it with the mouse in edit mode. This allows cutting, pasting and copying, not only in the current window, but into any of the 10 accessed by pressing the function keys.

The current window number is shown in the coordinate reference box, though an itemised listing of the other window's contents can be called up from the icon menu.

This clipboard-like function is indicated by a coloured icon displayed in the lower left corner of the screen. It has obvious uses not only in frame animation where only minor changes are required, but also for experimentation with a set of graphics leaving the base untouched.

Object selection and editing becomes a matter of precision once a drawing becomes complex. Trial and error is easily corrected by the Undo key which toggles between display and

deletion of the last operation. In addition, objects may be manipulated singly or as a group where the relative positions must be maintained.

In producing any graphic illustration its success depends as much on the strength of the image as the skill of the drawing. With this in mind Hyperdraw's zoom feature allows a defined area to be enlarged for detail work, actual size reproduction and full page overview.

It is a competent package that because of its clarity and simplicity will narrow the difference in output between the artistic and the inept. Hyperdraw works and saves in Gem picture format allowing artwork from other packages to be imported.

You can combine images with the clipboard facility, work and save in a format readily accessible to packages such as Timeworks DTP, Calamus and Fleet Street Publisher.

There is also the facility to import Ascii text files, though handling is limited and the choice of only two font styles is very constricting. Text can be rotated or flipped like any other object, through either one of the default angles or as specified to a fraction of a degree. This function is lacking on the smaller DTP packages, and will be a godsend to many users.

Printed output depends entirely on your hardware, and the program will

support paper sizes as large as A0 down to the tiny A7, all in landscape or portrait format.

As a support program for those using DTP it must be said that Atari has come up with the goods yet again, though for those who aren't publishing there is still a great deal to offer.

Hyperdraw's potential for other graphic uses in design, presentation, and even interactive illustration is readily apparent. However, don't expect another Degas or Quantum Paint clone. It exploits the requirement for graphics rather than pictures and is an essential for those who need such a tool.

FACT FILE

Product: Hyperdraw
Price: £25
Supplier: Atari, Railway Terrace, Slough, Berkshire SL2 5BZ.
Tel: 0753 33344

POINTS FOR:

Good range of functions. Works in any screen mode. Creates standard .GEM files for DTP packages.

AGAINST:

Very little to complain about apart from the limited text handling.

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Quick as a flash

Nigel Belcher sorts out some fast Basic procedures for putting things in order

IN ten years of programming the one routine I had always wanted to write, but could never understand – even when taught as part of my computing degree – was Quicksort. My sorts were restricted to the easy-to-explain, but very slow Bubblesort for all that time.

After reading the computing text book, *Fundamentals of Data Structures*, by E. Horowitz and S. Sahni, I finally sussed it out. They write it in a sort of pseudocode which, although initially confusing, is quite easy to convert into the structure of Fast Basic. Thank goodness Fast Basic

allows recursion.

The routine was originally designed by C.A.R. Hoare and a brief description may help. The procedure is recursive (repeatedly calling itself) and so a physical limit may be imposed on it by the size of the machine stack. I have, however, not yet found this limit, after sorting 11,000 numbers with this routine.

It takes the first element in the array to be sorted – this is called the key – and goes through the rest of the array using two pointers, one starting at the beginning and moving forwards (pointer1) the other starting at the end of the array and moving backwards (pointer2).

When pointer1 finds an element larger than the first key, it stops moving. Similarly, when pointer2 finds an element smaller than the key, it too applies the brakes. If the pointers haven't crossed over, the items pointed to are swapped, and the pointers con-

tinue moving in the same way.

The aim is to get all the elements smaller than the key in the first part of the list, and all the elements larger than the key in the second part.

When the pointers have crossed over, they have found the position in the list where the key should go. The key is moved there. We are then left with a list where the key is in the right position, all elements in front of the list are smaller than the key, but not necessarily in order, and all elements after the key are larger than the key, again, not necessarily in order.

These two sections of the list are then sorted separately as shorter lists using the same recursion technique.

This is the most efficient sorting technique used. The number of comparisons made is in the order of $n \cdot \log(n)$ where n is the number of elements to be sorted. The number of comparisons made for a Bubblesort is in the order of n to the power two. This means that for large lists Quicksort is much faster than Bubblesort.

As a general rule, for fewer than 30 elements use a Bubblesort, but unless you know the list is almost in order anyway, for more than 30 elements use Quicksort.

Quicksort

We will use the following list to give a practical example. Square brackets show the unsorted portion of the list:

```
[26 05 37 01 61 11 59 15 48 19]
```

The first element in the list (26) becomes the key, against which everything is compared.

The forwards-moving pointer ($i\%$) is placed at the beginning, while the backwards-moving pointer ($j\%$) is placed at the end.

The pointer $i\%$ moves forwards until a number larger than the key is found. In this case it stops at position three (37). Similarly $j\%$ moves backwards until it finds a number smaller than the key and stops at position 10 (19). Because the pointers haven't crossed the numbers pointed to are swapped. The list now looks like:

```
[26 05 19 01 61 11 59 15 48 37]
      i%                j%
```

The pointers haven't crossed over, so they continue moving. This time, $i\%$ stops at position five (61), and $j\%$ stops at position eight (15). Again, the pointers haven't crossed, so the two numbers are swapped, and the list becomes:

```
[26 05 19 01 15 11 59 61 48 37]
      i%                j%
```

The pointers continue moving. This time, $i\%$ stops at position seven (59) and $j\%$ stops at position six (11). How-

```

┌ Desk File Edit List Run Special ┐
├── QUICKSORT DEMONSTRATION ───┘
key -> 359
      125
           158      <- i
      411
      555
      198
      428
           369      <- j
      524
      583 sorted
      659 sorted
      775
      885
      663
      939

      i and j haven't crossed over
      369 (i) is bigger than 359
      158 (j) is smaller than 359
      These 2 numbers are swapped

      Level of recursion 3
      Comparisons        38
      Swaps               7

```

The Quicksort demonstration shows the swaps, comparisons and level of recursion

Turn to Page 102 ►

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ever, the pointers have now crossed over:

```
[26 05 19 01 15 11 59 61 48 37]
      j% i%
```

The correct position for the key is pointed to by *j%*, so the key and the number pointed to by *j%* are swapped. The list becomes:

```
[11 5 19 1 15] 26 [59 61 48 37]
```

We now have two unsorted lists. All the numbers before 26 are smaller, but not in order, and all the numbers after 26 are larger, but again, not in order. We then sort the first unsorted list using the same procedure.

Bubblesort

To show how Bubblesort works we will take the same unsorted list as we used in the Quicksort example. This time we have only one pointer (*i%*) which starts at the beginning of the list and moves forward one step at a time.

Each time it compares the number it points to with the next number. If they're out of order it swaps them. It continues in this way until the end of the list is reached:

```
[26 05 37 01 61 11 59 15 48 19]
      i%
[05 26 37 01 61 11 59 15 48 19]
      i%
[05 26 37 01 61 11 59 15 48 19]
      i%
[05 26 01 37 61 11 59 15 48 19]
      i%
[05 26 01 37 61 11 59 15 48 19]
      i%
[05 26 01 37 11 61 59 15 48 19]
      i%
[05 26 01 37 11 59 61 15 48 19]
      i%
[05 26 01 37 11 59 15 61 48 19]
      i%
[05 26 01 37 11 59 15 48 61 19]
      i%
[05 26 01 37 11 59 15 48 19 61]
      i%
```

At the end of the first pass, the largest number has been caught by the pointer and taken to the bottom of the list. This means that one number is already in the correct place and we don't need to go that far next time.

The process continues in the same manner until all the items are in the correct order.

The saving in time when using Quicksort instead of Bubblesort

becomes apparent after just a few sample sorts. It can be predicted that to sort 10,000 numbers using Bubblesort will take the ST roughly 40,000 seconds (approximately 11 hours), whereas using Quicksort it takes only 150 seconds.

Even more stunning is that for 1,000,000 numbers Bubblesort would take 400,000,000 seconds, roughly 12.7 years, while Quicksort would be finished in 25,000 seconds – about six hours.



Bubblesort and Quicksort demonstration programs can be found on this month's cover disc in the LISTINGS.ARC archive.

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MICHAEL Jackson's name alone is worth millions world over. So it is little wonder that when it was first suggested that his Moonwalker film could be available for licence on to a range of home computers, that US Gold snapped it up.

With so much money tied up in franchises - US Gold wouldn't reveal how much this one cost - a lot depends on its success. The planned release date was chosen to coincide with the UK video release. The video was advanced, and so has preceded

the game by several months.

Will it be the Jackson phenomena or the game itself which will sell? How do you convert a film to the computer monitor screen? For any film this is a difficult task, but for Moonwalker - a collection of videos - this is harder still.

Primarily, Moonwalker is a vehicle for Jackson's music. The film hangs together very loosely, only coming together in the final section. Throughout it is Jackson who draws on the imagination of his audience, his

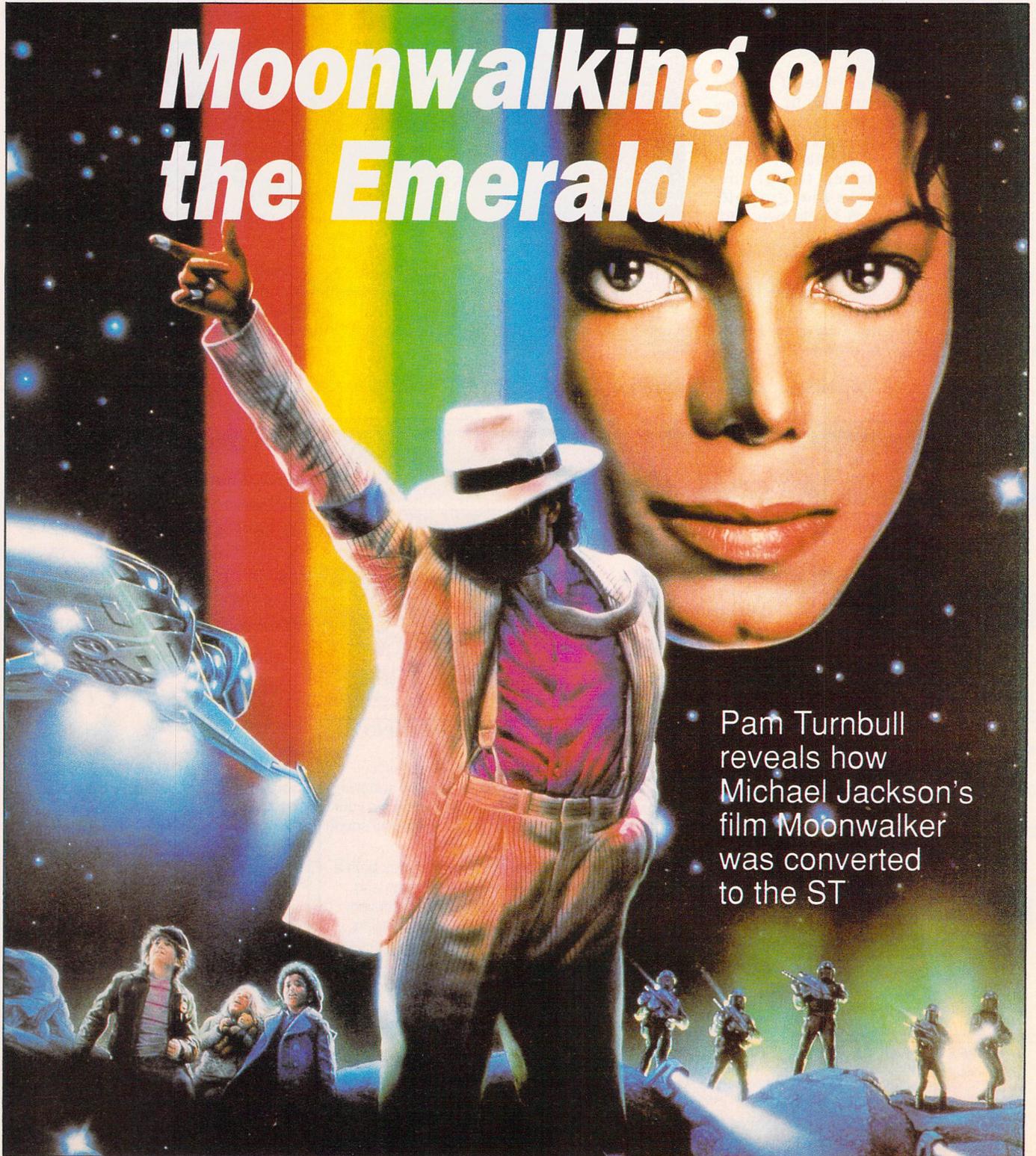
music, movement and the atmosphere to make it work.

The first step for US Gold was to commission game plans from three software houses. Most impressive was the one from Emerald Software in Waterford and it is there that the work began in earnest.

With Vigilante already under its belt, the 20-strong programming team turned its attention to Moonwalker. The initial problem was how to portray

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Moonwalking on the Emerald Isle



Pam Turnbull reveals how Michael Jackson's film Moonwalker was converted to the ST

Avoid your ardent fans - find the bunny suit

◀ From Page 103

Michael Jackson.

Digitising the footsteps in the spotlight from the original video using a £99 hardware digitiser on the ST, as well as moonwalking itself, used a mountain of discs and a 4Mb ST. Using Emerald's in-house graphics package and utilities, the data was condensed and adapted to provide the opening sequence.

Michael Jackson's style of movement is difficult to emulate in a computer game. As the process was meant to end in a playable and enjoyable game, and not just a simulated video, the decision was taken to cut the dancing sequences to one graphic linking screen between levels two and three.

The video opens with a concert - hard to emulate and not very interesting computer game-wise. So these four levels were decided on - an aerial view chase from over-eager fans, another aerial view of a game of hide and seek,



with you on both sides, Club 30, and the robot scene. A Jackson-type figure is only seen in the club level. This works well, leaving his music to represent him.

Michael cannot die, so rather than having lives he possesses a collection of gold/platinum discs instead. Also as there is only one Michael, so there can only be a one-player mode. Some deci-

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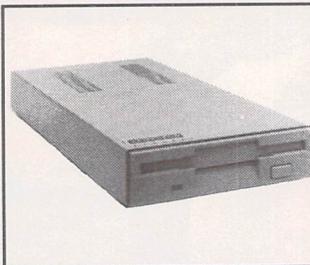
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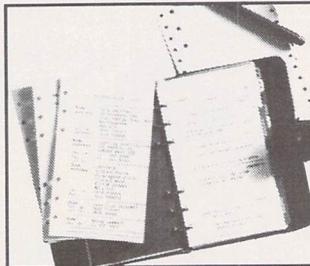
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Club 30 - gangster style shoot-'em-up

sions were hard to make: Should the game have sound effects as well as the music? Should the sound be sampled, digitised or written for a particular machine? Much depends on the limitations of space, time and the machine's capabilities.

Atari 520ST owners will miss the superb linking screens unless they have a double sided disc, but this shouldn't interfere with the gameplay. Lack of memory will probably mean little sampled sound, too.

As the game nears completion, it is being sent back to Jackson's lawyers at each stage for approval. This can be a time-consuming and frustrating exercise, and one familiar to any company involved with franchising, whether it is an arcade, film or book conversion. Were there any problems? US Gold's Mike Wilding says not.

Mike Murphy, Emerald's project manager, has found Moonwalker a large task. Four to five months were spent developing a demonstration for the CES Show, only to find that it was not used due to hardware restrictions at the show.

Did he find the project restrictive? Yes, more so than when working on original product, as you have to satisfy your standards, the franchise restrictions and an eager publisher.

As project manager for US Gold, what does Mike Wilding think of the program and of the team that has produced it. The brief was to provide a challenging, enjoyable game which required the player to think. And for him the entire project was one of the best he has worked on.

Immensely proud of Moonwalker, US Gold and Emerald are discussing the fine tuning and juggling with economies, space and time and then it must all go back to Jackson's lawyers.

So what is the result of all the

planning and work? Walking past the studio you are spied by some ardent fans. Pressed for time, you don't want to be mobbed. The solution - a disguise and the acquisition of a few use-



ful artifacts microphone, camera, key and a Statue of Liberty.

The animated linking screens are superb, accentuating the humour and outlining the plot for the following sections.

Running from over-eager fans is tiring, and you will find that you are obliged to walk for some time to recover your breath and energy. Escape is provided by pieces of bunny suit, and after each article is collected the Michael Jackson portrait on the right of the screen dons it. Captured or outlasting your six minutes sends you back to the beginning - but with the artifacts you have picked up.

The idea behind the levels is that everyone should be able to complete the first one, but each level is different and becomes progressively harder. Though more tweeking, balancing and polish have to be added, the second level is very addictive.

Now ensconced on a motor cycle, you must destroy caches of drugs hidden around the city as well as collecting orbs. Simple? Well maybe if you didn't have to run over marauding rangers, and avoid deadly cars and elusive Biff brothers on trikes. As in the first level, there is an aerial view with a map to the bottom left showing your position, that of your pursuers and of the objects you have to collect.

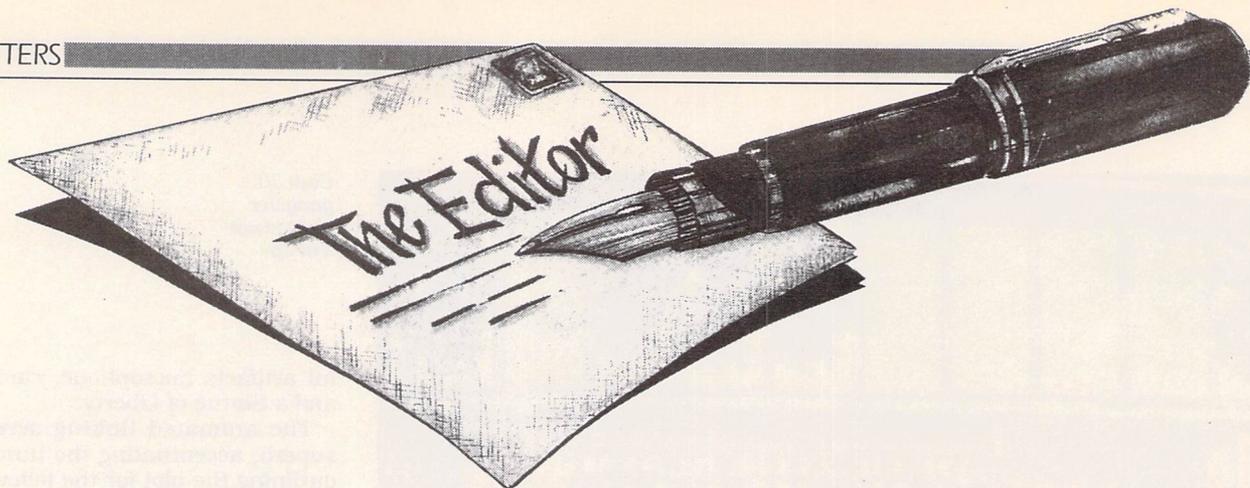
Michaelsville is split into five sections divided by barriers only passable by jumping them in a car. Got no car? Collect 10 orbs and your bike transforms into one. One problem, you have only 10 seconds before your bike reverts to its true form.

A change of pace comes with the next section - Club 30. A group of young children have been kidnapped and as you are lured into the empty club the mood switches as you/Michael now in a white 1920s suit and hat, claim your sub-machine gun, collect your ammunition and dodge the bullets from the gangsters above.

You shoot as you glimpse their shapes, but beware of small shadows - these are the children and a drain on your energy. At present accompanied by the music a Jackson fan would expect, this section is a nice change of both style and pace. Tense, atmospheric and beautifully worked.

Succeed and walk into the strangest cellar I have seen, and again the transformer aspect appears. Walking to centre stage you change into a robot for seemingly a straightforward shoot-'em-up.

Next month we should be able to bring you a full review of the game - watch this space!



Bargains can prove expensive

I RECENTLY bought a second-hand Atari 1040STFM. Having got it home it refused to work, so I called the man who had sold it to me. He came round, opened it up, pressed around a bit and lo and behold it started working. "It's been bumped in transit", he said, "you'll be all right now". But no such luck.

The machine developed loading problems which got steadily worse. I tried several times, unsuccessfully, to contact the man and it began to dawn on me why he had insisted that I paid cash for it.

I took it to a local shop which repaired it quickly and charged £34.50. But when I got the ST home again it still refused to load anything. This repair process was repeated three more times.

Eventually, the repair shop returned my ST still not working, and my money was refunded. I was told "We've given up on this one, here's your money back, we'll call it quits". They also told me that my machine is not a 1040STFM but a 520STFM which has been very poorly upgraded.

The moral of this story is check very carefully before buying a second-hand computer, or, like me, you may end up with a white elephant - **P. Cope, Sutton in Ashfield, Nottinghamshire.**

Assessment questioned

IN your June issue you assessed a backgammon game, giving it good marks and including the information that it had 10 skill levels. Having just taken up backgammon I bought the game assuming it would give me some tough contests and improve my level of play.

On playing I found that even on its highest level the standard of play was fairly low and I could beat it consistently, as can my wife.

I feel that your review was misleading and it has led to me spending £20

on a game that I would not otherwise have bought. - **D.H. Cole, York.**

● Once more we must reiterate that any review is subjective, and as such is one person's informed opinion on any specific product. So although our reviewer may have liked a product, and found parts of it difficult, these criteria will not apply to every user.

We gave the game to a second reviewer and the ST won more often than it lost on level 10. Either you are very good at backgammon or we are very poor. Has anyone else tried this game. If so, can you beat it?

Records for recording

AS part of my work in a recording studio I am required to store a wide variety of information regarding effects and processors. This is most effectively achieved in diagrammatic form. The equipment used varies widely for each session, as clients have their own favourite gear.

My intention is to compile a file of templates which can be arranged and printed for each session. The templates would take the form of line drawings of the front panels with faders and pots represented by lines and circles, and other software parameters represented by grids.

Easy and accurate calibration of the faders and pots is essential, otherwise the object of providing a total recall for re-mixing would be defeated.

A good cut and paste facility with a capacity for enlarging and reducing images as they were arranged into pages would be useful. Hence, I require a good technical drawing program with good compilation facilities for finished drawings.

I would be grateful if you could advise me which program, in your opinion, would serve me best. - **Richard Sullivan, London.**

● There are many CAD packages for the ST, ranging from GFA Draft Plus priced at £139.95 to Campus CAD costing £395 at the top end of the market. Both impressed reviewers in the June 1988 issue of Atari ST User.

Anyone for networks?

I REFER to your reply to a letter on Page 104 of the August issue of Atari ST User on networking STs, which I don't totally agree with. If it was as simple as your answer implies everyone would be doing it. TOS will certainly not cope with the networking itself.

Yes, STs can be connected via the Midi port but there is no software available to allow the STs in the chain to have access to one hard disc and still run Gem - the actual point of the question by your reader.

The software would need one ST as a network slave which would run the hard disc. The other machines would also have to have a program which installs itself in the Rwabs - disc handler - routine and sends all requests for hard disc access to the network slave via the Midi ports. The network slave would have to queue requests for the hard drive.

The reason that no one has implemented the above is that there probably isn't a large enough market for this - how many ST owners have more than one ST? - **Andrew Bennett, Harrogate, North Yorkshire.**

● The point we made is that if you write software yourself you could fairly easily make your programs read and write data to and from the Midi port instead of the disc drive. One ST could be set aside as a slave just for monitoring Midi signals and reading and writing to the disc as and when requested by the other micros.

Seeking the perfect answer

THE Knight of the Round Table searched the land of England for many years in pursuit of the Holy Grail, the most perfect object in Christendom. Atari ST User seems to have things a little easier: It finds perfection every month.

If you have a scale of 1 to 10, it seems fairly obvious that most things are going to fall around the 5 - perfect-

Star Game for a Star Letter

Each month we select a letter of the month and the sender receives the program which our reviewers have rated Atari ST User Star game. This month a reader who wishes to remain anonymous will receive Rick Dangerous, which is reviewed on Page 37. Letters on every subject of interest to ST users are welcome. Send them to the Editor, Atari ST User, Europa House, Adlington Park, Adlington, Macclesfield SK10 4NP.

I HAVE bought three issues of your excellent magazine and the Mailbag page of them all had at least one letter concerned with the morality of certain games.

I can see both sides of the argument, but one thing I have noticed is that all the comments made so far have all been made by my elders and betters – that is adults.

I think it is about time I put the record straight by presenting my own – young, innocent child's – view of the situation. I am a 13-year-old boy, not a grown-up, parent or adult.

Firstly, I would like to begin with the issue of sex. Adults seem obsessed with it and the notion that, when we (and by we, I mean children like myself) see a picture of a blonde wearing swimwear our minds will be tainted for life.

This is not true. I have seen sexy posters for films and software of this sort of thing, and I must say, I can't remember many of them.

Many young children – people aged up to mid-teens – have very little money to spend on software, and demand good value for money. I was very disappointed a few years ago when I bought a game that was not very good. Children don't want to waste money on a second rate game just because it has a picture of a nude lady in it.

I know for a fact that many children look straight to the screen-shots of a

Not all that innocent

game first, by-passing all the packaging and sales hype. The graphics of a game are the major selling point, as is gameplay.

We don't like forking out for a slow game with nothing to it. Recommendations from friends and magazines also play an important part in a game's sale.

If I wanted to see pictures of naked ladies I wouldn't spend £20 on a computer game. I'd go to the newsagent and buy a magazine full of them for a fraction of the cost.

Please don't think that in this day and age we know nothing about sex. The pupils in my form at school have all seen pornographic magazines. Some pupils even bring them in occasionally.

We learnt about sex in lessons in the first year, although most of us knew about the "birds and the bees" beforehand.

I don't think Fiona Reynolds' suggestion of putting an age limit on software would make an ounce of difference either. At school we've all seen at least five 15 certificate films in the last couple of months.

In fact during the last week in term

we saw three 15 films shown to us by our teachers, who, unlike Ms Reynolds, at least made no comments, and just let us laugh among ourselves.

Anyway, enough about sex. Let's move on to the second issue, anti-Russian propaganda. When I saw the adverts for games about Russians I thought about the type of game they were (beat-'em-up, shoot-'em-up, adventure and so on) and as they were similar to ones I already had, I passed them by. Not once did I think any anti-Russian thoughts.

Finally, my view is that if a game has appealing graphics, effective sound, fast gameplay, and something to think about in it, then it is a perfect game, no matter what self-appointed guardians think. My maxim is: "If I like it, nobody's views are going to change my opinion".

I hope that my letter has pointed out to you that we may be children but we still have brains, and were born with the ability to make decisions.

There will be a time in our life when we have to make bigger, more important decisions and I think that the best time to start practising is now, even if it is just buying software. – **An Innocent Child, Newquay** (Name and address supplied).

● Thank you for a most interesting and original viewpoint.

ly acceptable, but nothing special – mark. To receive zero (no redeeming merit whatsoever, all concerned with this should be reduced to fertiliser) should be such a rare occurrence that it stands out like Nelson's column, painted pink. Strangely enough, I can't actually remember Atari ST User ever giving anything zero.

At the other end of the scale, there is that magic figure 10. Logically, this should be just as rare an occurrence. Unfortunately, 10 is a very common score for games – nine 10s in the past two issues, the only one of which I have any sympathy for being the Value for Money given to Jeff Minter's *Andes Attack*.

This makes the score untrustworthy and pretty much worthless to someone trying to find out what to fritter his limited resources on.

We all know that software keeps

improving, so that the stunning wire-frame graphics of *Starglider* become rather pedestrian when compared to the full 3D of *Starglider II*, so leave yourselves some leeway. A score of eight should denote a highly recommended game, nine should be an absolute must and 10 is only for something that is so good that you go out and buy a computer just to play it, and still feel like you got a bargain.

The scoring system you have at the moment makes no sense. Wouldn't it seem a little silly to give a game like Palace's *Barbarian* a 10 for graphics, then claim that those of *Barbarian II* were better? Especially if you only gave the sequel a nine.

What you need to do is to more strictly define what is meant by each score, and try to ensure that both reviewers and readers know what those definitions are. That way if a game ever gets

a 10, everyone will know that it's time to mortgage the cat, sell various body parts to dubious medical institutions and run to the local software shop. At the moment, the only reaction is: "What another one?" – **Pip, Blackheath, London**.

● Your argument doesn't hold water. A game can only be compared to its current competitors as who knows what will be released next year or the year after? Has the limit of the ST been reached by current games software, or will the frontiers be pushed back even further?

A score of 10 means that a game is one of the best of its type on the market at the time it was released. *Barbarian* featured the best graphics of any game when it was released, so

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◀ From Page 107

deserved a 10 – you couldn't buy anything better.

Programmers and graphic artists are continually improving their skills, and new drawing and animation techniques are being developed all the time. Barbarian II's graphics are better because the game was released a year or more after the original and the programmers and graphic artists were more experienced.

Switched on problems

I HAVE just been looking through my back issues of your magazine and in the June issue I noticed Dave Aldis asked for help with a game problem. I think it may be caused by the joystick autofire function set on, or by having faulty micro switches. These seem to wear out at a very fast rate. The messages are interpreted by the computer as mouse button clicks or keyboard presses and these confuse Tos.

Reset the joystick to manual-fire, turn off the computer to clear the backlog of messages and then reload the game. Once inside the game, turn autofire back on – but remember to turn it off again afterwards. – **Gareth Bradley, Wimborne, Dorset.**

● We have experienced the same problems with our Quickjoy joysticks. It is important to ensure that the autofire switch is in the off position when not playing a game, and that includes during the loading procedure.

Make the most of a dump

I HAVE come across a problem while printing screens using the ST's built-in screen dump. My machine only prints about three quarters of the picture on screen. It also squashes it.

The printer I use is a Micro Peripherals MP135, which I must admit may not be one of the best on sale, but it meets my needs.

After reading the review of Blowup and the mention of Flexidump, I was wondering if either of these programs would solve my problem, or is it the type of printer I have which is causing it? The pictures you showed were produced using Blowup and they did not appear to be squashed at all.

I have one more question. Is the MP135 Epson-compatible? I have an idea that it might be, as it printed a squashed picture when I used Kid-publisher and you stated that it prints to any Epson-compatible dot matrix print-

Finding the right balance

FURTHER to N. Mills' letter in your July issue, and to others you have published over the past year, I too am dismayed at the amount of games coverage. I am not interested in the majority of the topics covered, but appreciate that others are, however, I do feel that the games coverage could be considerably reduced.

My main software interests are business applications and DTP which get a fairly small amount of space. I would like reports on specific programs to compare briefly the reported program with others of the same application. For example, a report on 1st Word Plus to have an end paragraph or so comparing it to Word Up, Word Writer and so on. This would help a potential buyer make a decision. – **G.D. King, Alicante, Spain.**

● James Grant and many others disagree about the games coverage. Serious reviews are allocated more space than games, so the magazine is slightly biased towards the serious user.

er. I think that the idea of a cover disc is great. – **Steven Webb, Peterborough.**

● It sounds as though you simply need to set the printer installation parameters using the ST's control panel desk accessory. The pixels/line defaults to 1280, which makes our Epson-compatible printers exhibit the same problem as yours. Setting it to 960 cures this.

Blow-up and Flexidump are excellent utilities for producing different sized screen dumps. They will also cure the problem.

Preferential professional treatment

I WOULD like to reply to Darrell Howard's letter in your August issue of Atari ST User in which he complained about the unfair treatment he was receiving from the dealer where he bought his machine. At this point I totally agree with him, but I disagree when he says that because he is a professional user he expects to have better service.

Whether we are professional users like Mr Howard or just hobbyists like myself we deserve the same service. To set up and run an Atari system is not

cheap for anyone, so it is only fair that all users are treated equally. – **Jurgen Mitchell, Wakefield, West Yorkshire.**

Pleasing all of the people

I FEEL I must complain about a letter in July's issue of Atari ST User, where a reader grumbles about too much games coverage in the magazine.

I agree that the ST does have a whole host of other applications, but it supports a lot of leisure software, so a magazine such as Atari ST User must cover all aspects of ST computing – including games. This is what makes the magazine stand out. I think you give a fine balance between all the types of uses of the ST. It is fair to all. Well done.

I have a few queries about STOS. Is it possible to grab a palette from the Sprite Editor to incorporate in my game? At present I have to jot down on a piece of paper all the RGB numbers for the colours and then enter them in a PALETTE statement at the start of my game. This process is frustrating and time consuming.

Why not introduce a STOS ideas column to help us programmers glean new concepts and thoughts? Simple words, phrases or themes would be enough – perhaps an alphabetical list spread over several months just to get us thinking along fresh lines. – **James Grant, Sherbourne, Dorset.**

● Thank you for your comments. This month we have started a new STOS series providing hints and tips. It also aims to solve readers' problems, so we have passed yours on to Phil Lawson who will cover it in his series.

Breakdown in the Fastlane

WHEN I saw there was a racing car simulation on the September Cover Disc I was keen to get it up and running as soon as possible, but no matter how hard I tried it just wouldn't work.

FASTLANE was copied to a blank disc and then SCREENS.ARC was de-archived as outlined in the instructions. After double clicking on DEMO.PRG all I got was a blank screen. – **Dave Richmond, Liverpool.**

● A few readers have experienced problems with Fastlane, but they are easily solved. The game will not run from within a folder. You should copy the game files stored inside the fastlane folder to the root directory of a blank disc, you should not copy the folder itself, just the contents.

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STU/11

Scanning new horizons

Roland Waddilove tries out the enhanced Daatascan software

BACK last May I tried out Kempston's Daatascan hand scanner and software and was favourably impressed. Since then programmer Colin Harvey has been working on new software with a host of powerful editing features. This is now being bundled with the scanner.

The software is not an upgrade, it is completely different. There are two onscreen windows, a large one on the right and a smaller one on the left - the Page window. This acts like a large sheet of paper and when images are scanned a small, scaled down version is placed here.

Unlike the original software, you can now specify the size of the area to be scanned by drawing a rubberbanded box in the Page window. You can also position it wherever you like.

Once the image is in the Page window, which acts like a large scratchpad, you can cut or copy whole images or small sections and paste them elsewhere.

They can be inverted to give a negative effect, rotated by 90, 180 or 270 degrees, doubled in size or reduced by a variable rescale facility. Each of these functions work on sections of

the Page window, defined by a rubberbanded box.

To see the image full size you point in the Page window and hold down the left-hand mouse button. Whatever is under the mouse is redrawn full size in the right-hand window. If the scanned image is larger than the window you simply move the mouse over the image and the right-hand window is constantly updated at high speed.

You can draw in the right-hand full size window by pointing with the mouse and clicking the button. For greater accuracy, zoom in - with several degrees of magnification - and work on a small section.

The print output has been greatly

improved and now provides good quality output.

This new package contains powerful software with some advanced editing facilities making it easy and enjoyable to use. If you need scanned images for artwork or DTP purposes then Daatascan nicely fits the bill.

FACT FILE

Product: Daatascan
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Latest

FLEET Street Publisher from Mirrorsoft has always enjoyed a reputation as the professional's choice for ST-based desktop publishing applications. Most postscript typesetting bureaux seem to prefer Fleet Street's good array of typographical controls giving virtually every layout facility required.

However, time never stands still in the software industry, and recent competition from such products as Calamus and PageStream has shown up Fleet Street's lack of such features as drawing tools, text flow around graphics, group operations, multiple paged documents and other advanced facilities.

Fortunately for FSP devotees, Mirrorsoft has not been sitting on its proverbial laurels over the past year. Due for imminent release is Fleet Street Publisher version 3.0, a major update on the package including all of the above features, plus a great many more.

I've worked closely with a beta test copy of the new version for a couple of months, and it certainly lives up to expectations. As we go to press it's too early to bring you a full review, but here is a preview of some of the new facilities.

There is now a full range of drawing tools, giving the ability to create boxes, circles, ellipses and other polygons - all of which may be empty or filled with either a predefined tone or fill pattern, or your own pattern. Line operations are not forgotten either, with various styles - including user-defined - thicknesses and end types available.

Full grouping facilities are now provided, both temporary and permanent. A temporary group allows you quickly to select a number of separate items on the page and move or resize them collectively, but as soon as you move away from the group the contents

revert to separate items. A permanent, or clipped, group lets you combine such items indefinitely, so they continue to behave as a group until you unclip them.

You can now flow text around a graphic item, or just leave blank space on the page. A graphic item does not automatically generate text flow, as you may want to superimpose text and graphics, but you can create a flow area known as a repel text shape. This may either be a regular rectangle surrounding the picture, or a complex polygon which follows the image's contours.

Normally the picture and the repel text area would then be clipped together and manipulated as a single item, although individual control is available if required. It is pleasant to see that the text flow is handled in real-time - meaning that if you alter any text it will automatically re-flow around the drawing as you type.

Full import facilities are available from a wide range of other products - including text and style information from 1st Word Plus, Protex and Word-Perfect, and also pictures from Degas, Neochrome, Art Director, Tiny View

Andre Willey previews version 3.0 of the Mirrorsoft DTP package, Fleet Street Publisher

and IMG files. More modules will be available shortly, supplied as user-installable overlay programs which will then appear in Fleet Street's import/export menu area.

There is also an import module for .GEM metafiles, such as those created by GemDraw or EasyDraw - which store vector graphic images as a set of lines and shapes. These are imported into FSP as a clipped group of drawn items. You can unclip them at a later stage and edit the separate items.

The original Fleet Street Publisher was very much a single-page layout

The Face, Point size and Leading dialogue box

FACE, POINTSIZE & LEADING

3 Times Italic	↑
4 Times Bold Italic	↑
5 Helvetica	↓
6 Helvetica Bold	↓

Face: 3
Times Italic

Point size: 12 | Ok

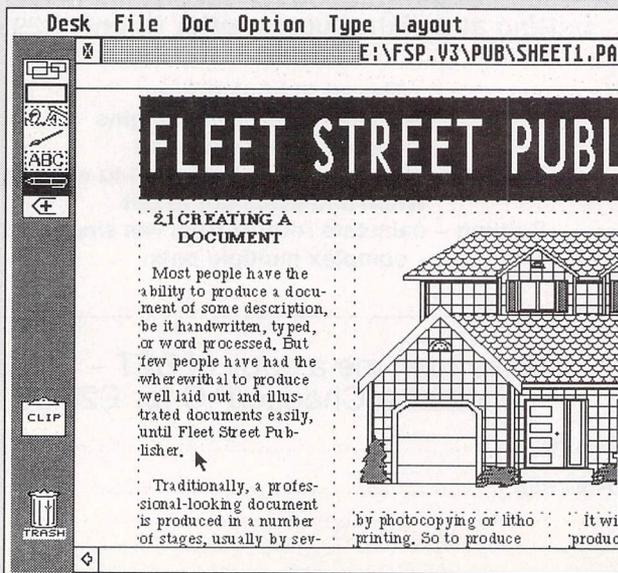
Set width: | Cancel

Leading above base: 75 % ↕

Leading below base: 25 % ↕

Paragraph leading: 8 POINTS ↕

The comprehensive Face, Pointsize and Leading menu enables a wide variety of styles to be used



edition

GO TO

:__145__

Master pages can be set up and you can jump to any page you like using the Go To menu

DRAW BLOCK

X Co-ordinate: 458...

Y Co-ordinate: 15...

Measure: 40...

Height: 100...

Line Weight: 5...

Line Style:

Pattern/Tone:

The Block menu and options available

OUTPUT

X Co-ordinate: ___...___

Y Co-ordinate: ___...___

Measure: ___6...___

Height: ___8.38___

Left Offset: ___...___

Top Offset: ___...___

No. Copies: ___2___

Pages: ___1___ to: ___130___

The printer output drivers have been updated

system, but version 3.0 allows multi-page documents with accompanying master pages for layout information. Although more than one page can be held in memory for viewing and editing, each page is stored as a separate file on disc, thus allowing even a 520ST user to create and work with lengthy documents. This method also provides a greater degree of data storage security than most systems. However, my beta-test copy hasn't crashed during the whole time I have been using it.

Time savers

Your master page layouts contain any items which are required on every page, with separate masters available for left and right hand pages. They also control the linking of text blocks, both within a page and on to the following pages. These links may be altered within the pages of a document, but the default layout for a new page will always come from the master.

You can even remaster either some or all of your document at will, perhaps to alter an existing headline or footer, or to create different column layouts for different sections of a magazine.

Movement between pages or linked columns is very simple and may be via the Go To menu or by using keyboard shortcuts such as Control and the

cursor keys to move to the first, last, next or previous page in a sequence.

All major menu operations now have keyboard shortcuts in addition to the already powerful macro system, which has itself been enhanced to allow for search and replace with macro keys giving the ability to globally alter almost any typographical attribute.

There are so many other new features that I can't possibly cover them all in detail, but some of the more interesting are automatic sizing of headlines or other text items to fit into a defined space, width tables and a kerned-pair dictionary for each font, including conversion of PostScript/AFM width tables.

Patterns and tones are available for text, both for the foreground and background; adjustable leading for paragraph breaks, and - very useful indeed - vertical justification of text which automatically adds micro-spacing between lines or paragraphs to make the text in a column fit exactly into the height available.

Block alignment and a layering system allows a block to be placed in front of or behind other blocks; transparent, reverse, XOR or simple replace modes are available for all graphics and drawings.

Then there is automatic page numbering, with the ability to place the current page number or a pointer to another page into any text block, creating multiple copies of any block or group, with optional vertical or hori-

zontal offsets and rescaling for each consecutive copy, and output as collated left or right hand pages, plus multiple copy print runs.

Finally, the printer output drivers have been updated. There is still the usual user-configurable support for a wide range of dot matrix machines, but also supplied with the package are drivers for the Atari, PostScript and other laser printers. Additionally, Fleet Street Publisher can now provide instant output to Imagen's UltraScript program, giving PostScript-compatible quality on the Atari laser printer.

Type styles

Most exciting of all is access to the wide range of Compugraphic fonts, even when using a dot matrix printer. Imagine that - full, high quality, PostScript output on a £200 dot matrix printer; the possibilities are endless. Incidentally, the UltraScript driver overlay, with all the relevant screen fonts, will also be made available as a low cost upgrade for FSP 1.1 users assuming they already own a copy of the main UltraScript program itself.

The final price tag of the package is still to be decided, but it will certainly be less than £200. Compared to Calamus at more than £400, and the still bugged and incomplete PageStream, it seems likely that Fleet Street Publisher will continue to hold its own in this increasingly competitive market. Watch these pages for more information and a full review.

Product: Fleet Street Publisher version 3.0
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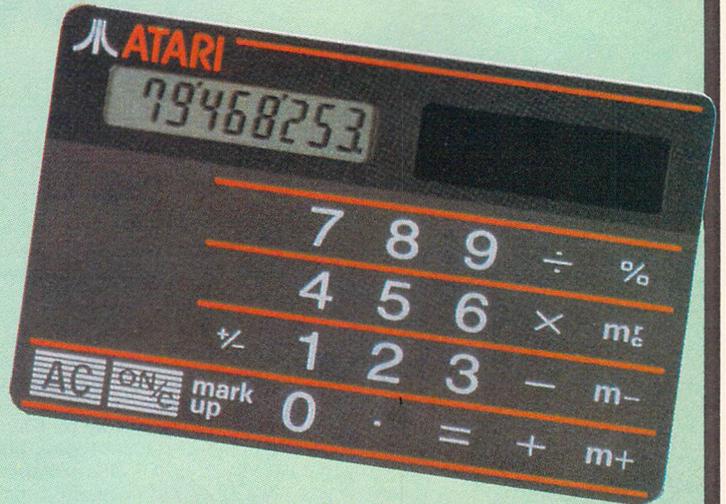
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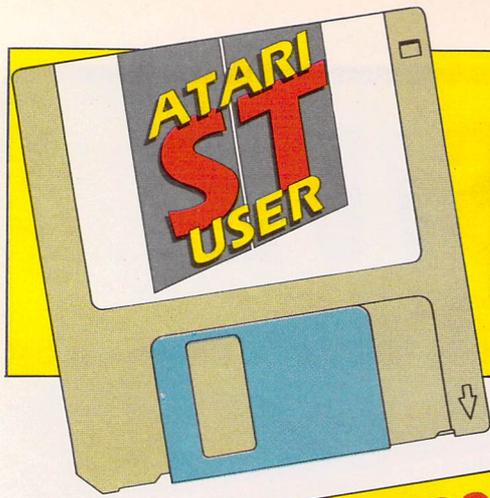
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Day by Day replaces your manual system for diary, business organiser, notepad, planner, reminder and so on.

It's suitable for both business and home applications, including numerous useful functions which serve every requirement.

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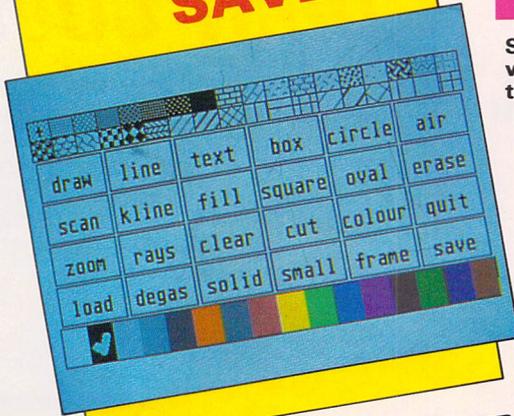
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Stage II is a versatile art package incorporating virtually all the functions you need - without the inflexibility and jumble of other packages.

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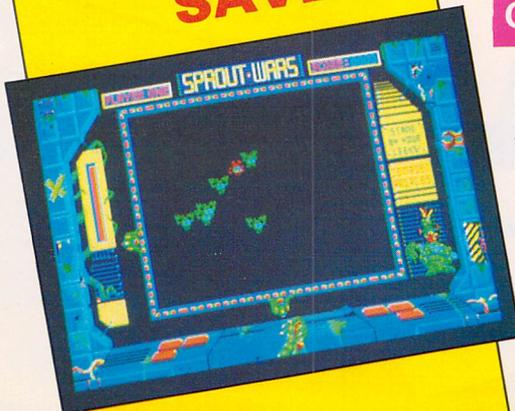
Some of Stage II's features:

- * Normal Draw
- * Line draw
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- * Accepts scanner input
- * Fast fill option
- * Zoom feature
- * Rays
- * Cut and paste
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As Nic Outterside said in Atari ST User. "I have no hesitation in recommending this art package for all primary, middle and secondary school children".

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Gilbert

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Gilbert's spaceship, The Millenium Dustbin, has had certain important parts of its sanitation extraction system removed and spread around the planet Drill. You, Gilbert, have to find the missing toilet pieces before 24 hours have elapsed.

The game plays in the form of an arcade adventure as you journey through the Drillian State of Chaos, the Dry Drillian Desert, underwater and through the sewers, in search of the lavatorial parts.

During play you are presented with a number of coin-op machines which you must play, and beat, to succeed in your mission.

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Breach is a game which demands nerves of steel and sound tactical judgement for you to win.

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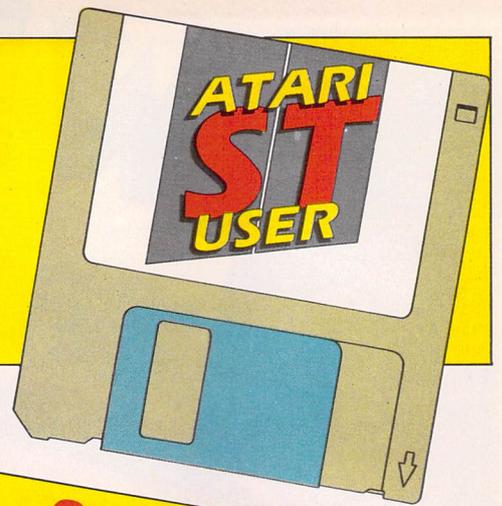
Breach is one of those games you just can't put down. With its addictive gameplay, tactical combat and facility for extra scenarios, it's guaranteed to keep you coming back for more.

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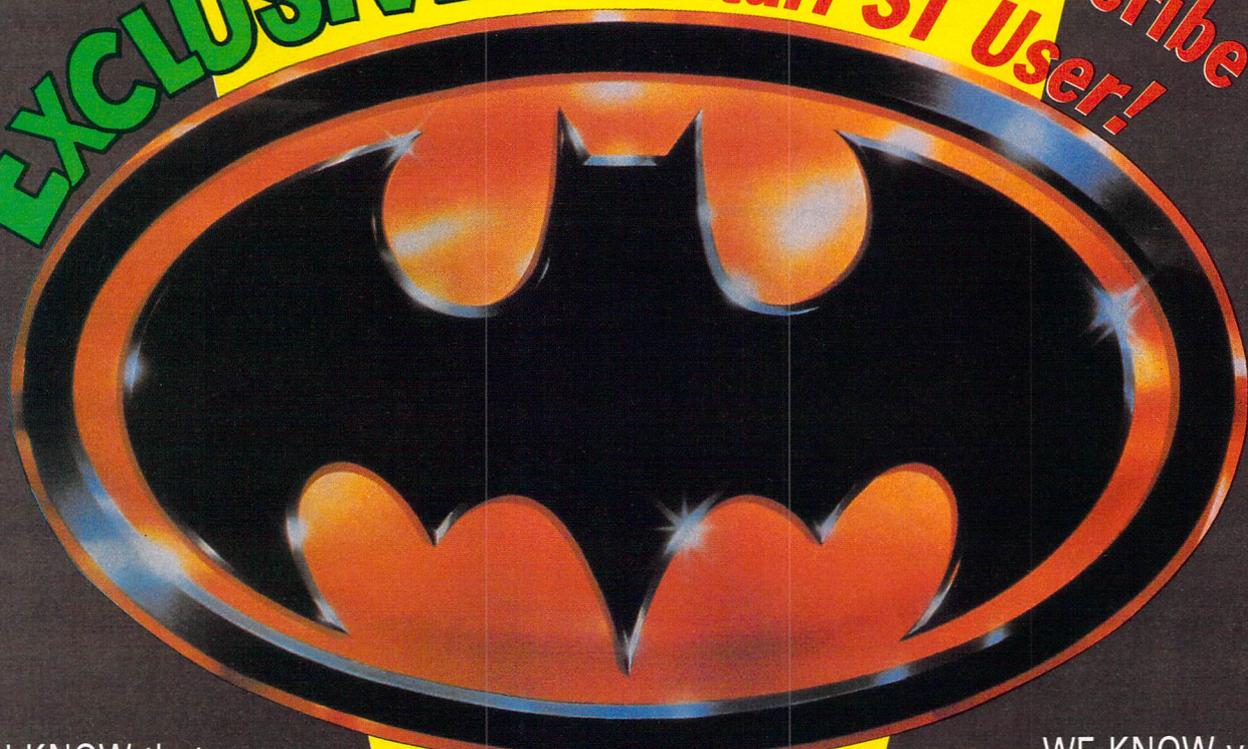
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Fontkit Plus 2 is supplied as a 3-disk set and includes Sig2gem, Copyfont and Fontswitch 2 utilities. A variety of fonts are supplied and additional fonts are available on the Fontpac disks. The package comes with a 160-page ringbound manual.

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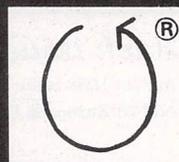
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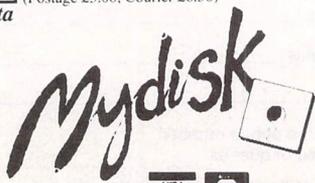
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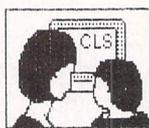
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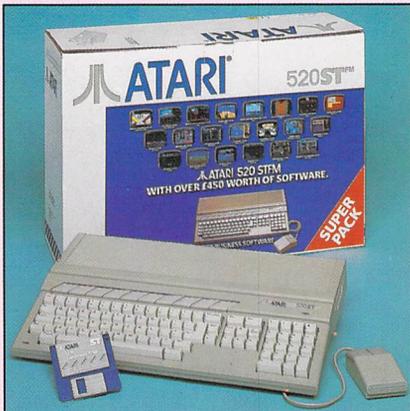
Each issue has files with Synth Editors, New Voices, Original Sequences (Most are in MFS), e.g. Erica Passage (Issue 5), News, Reviews, MIDI tutorials, MUSIC tutorials, MASTERTRAKS PRO sequencer demo (Issue 3) and even a complete Sequencer. (3 Demo Traks- Issue 1) Help with writing code is extensive in the Music Matrix. Series starting from scratch, for the absolute novice, showing you how to write MIDI programs in ST, FAST, GFA, POWER and HISOFT Basics AND a tutorial on writing code for MIDI in 68000 Assembler. (Issue 5).

SYNTH EDITORS	- Roland	D-Series Tone Editor	Issue 2, 5
		MT-32 Editor	Issue 3
	Yamaha	FB-01 Editor	Issue 4
	Korg	M1 50 Vox & Librarian	Issue 5
		M1 50 Combi & Combi Editor	Issue 6
NEW VOICES	- Roland	D-Series (128)	Issue 6
	Yamaha	FB-01 (96,48)	Issue 3, 5
	Korg	M1 - (50)	Issue 5

The Matrix is released Bi-Monthly and is in Dual Drive Format After Issue 6 - S/S for S/S Owners - D/S for D/S Owners.

Single Issue Price is £10. Any 4 Issues may be bought for £35. Subscriptions are very welcome but please send funds in Sterling. The Music Matrix is ONLY available from - The Music Matrix, Jongleur House, 14, Main Street, East Wemyss Fife. KY11 4RU
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Screenshots from Amiga version



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