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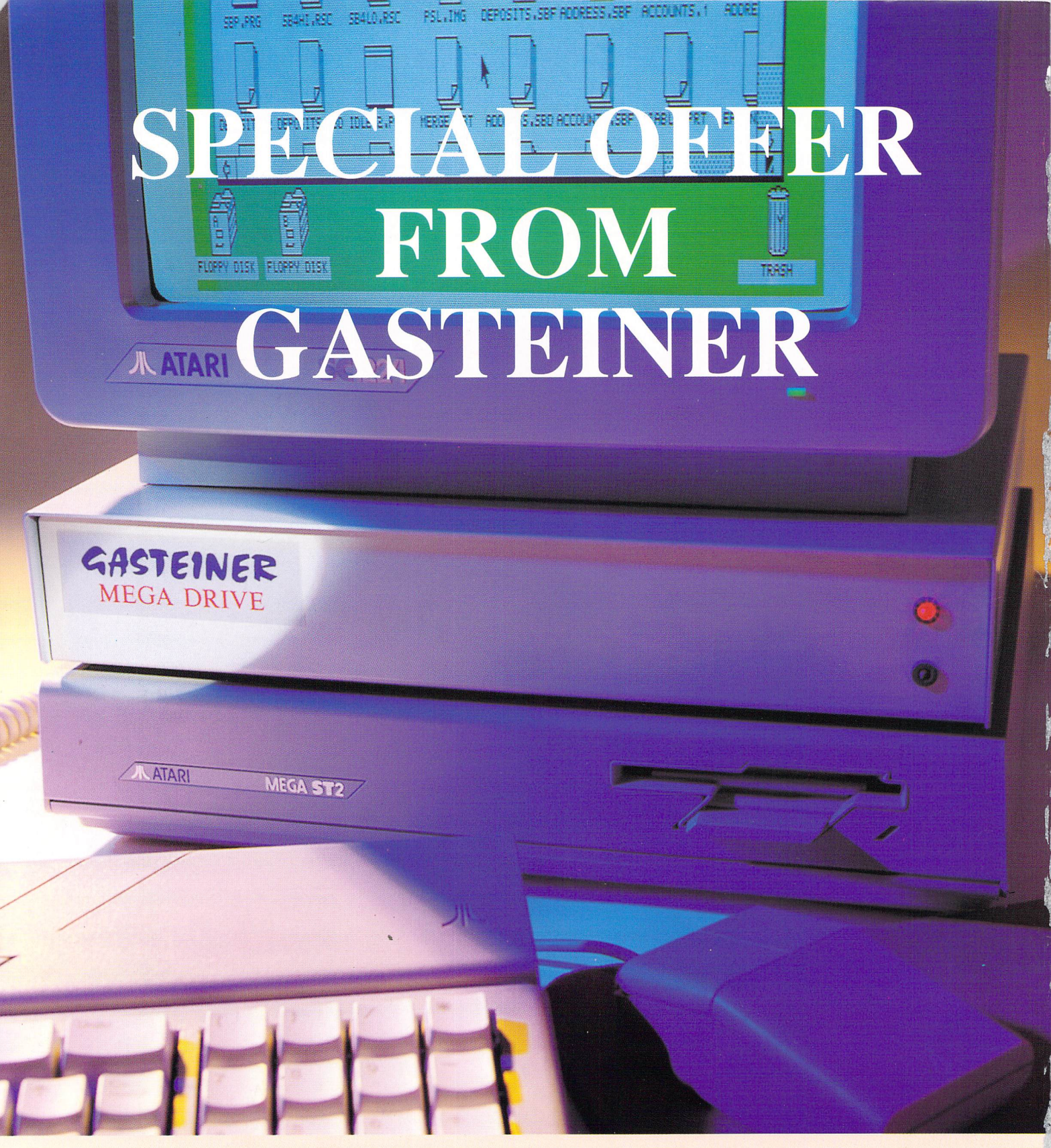

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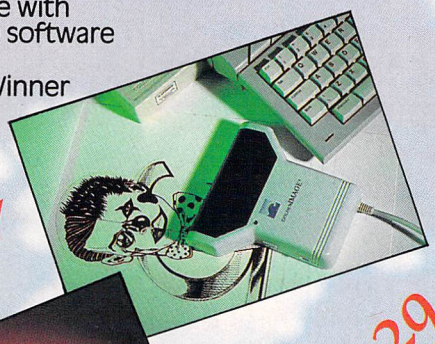

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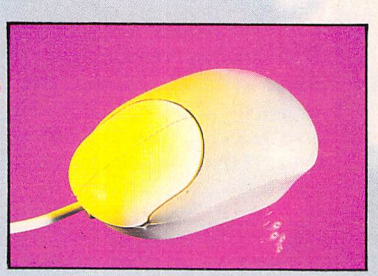

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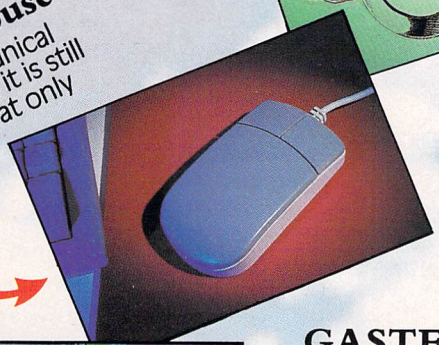

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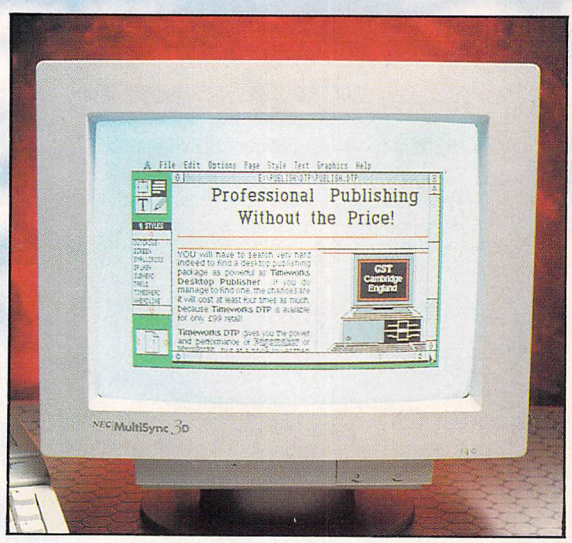

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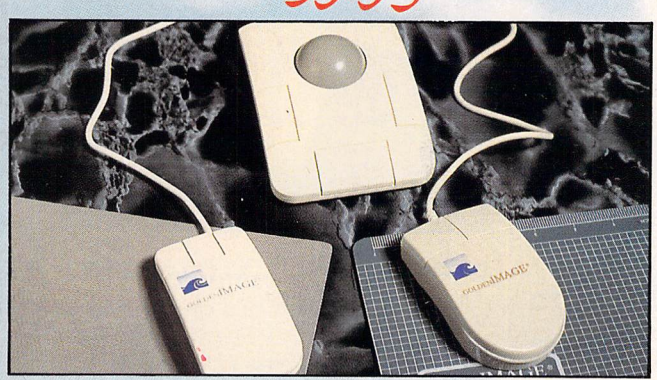

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COVER STORY

Screaming down the motorway, gliding along the rails, soaring through the sky – if you travel, you'll want to read this. Turn to page 18 to find out why...

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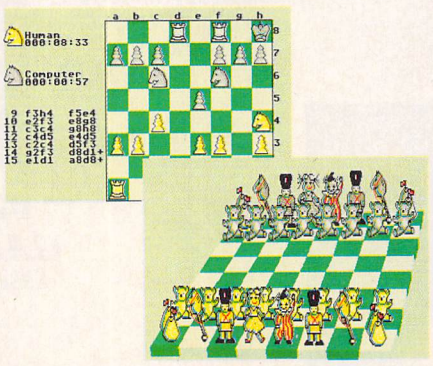

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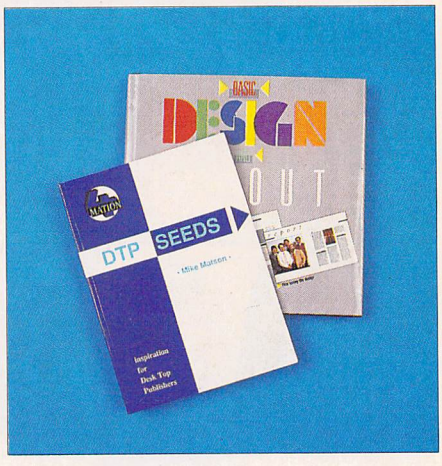

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Here's your chance to share in a £2,000 treasure trove of Hi-Soft goodies – with free show tickets for the runners-up

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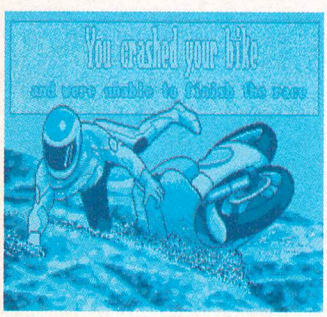
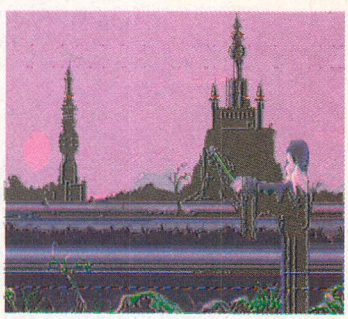
PLAY TEST

Here they are; the latest, the greatest, and let's face it, some of the not so great – but at least we let you know! For all the news, tips and reviews look inside...





Death Trap, Team Suzuki, Crime Wave, Wrath of the Demon, Horror Zombies from the Crypt, A Prehistoric Tale, and Warlock the Avenger. Plus Trade Secrets, Tip Off, and Gameplay Extra.

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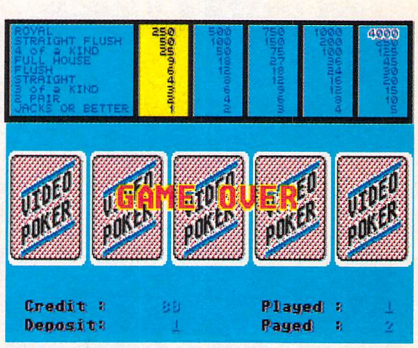
ANI ST. Turn your ST into a cartoon 'maker'



Video Poker. Now you can stay home and play!

ATARI GOES A BUNDLE

ATARI has just announced a line-up of new products to be based on the ST, at the same time releasing financial results for last year showing its profit climbing from $4,017,000 in 1989 to $14,874,000 although over the same period its turnover was slashed.

On the immediate horizon for the UK market is the firm's new educational bundle, Family Curriculum, which is to be based on the 1040STE.

It is set to be Atari's first ST bundle away from games and is being aimed at the whole family rather than only children.

Head of Atari UK Bob Gleadow has just announced a steep rise in the corporation's profits despite a drop in turnover

Bundled with the STE are five different level application modules which range from infant school-type software through GCSE revision to business computing.

Module 1 is for children younger than five years old and is intended to teach them to read and write using the computer with a series of programs concentrating on word recognition, spelling and basic sentence construction.

Junior school-aged children are catered for in Module 2, using the software to improve their maths and spelling skills. They can also play a general knowledge quiz.

GCSE examination revision is a daunting task for teenagers as they approach the end of their school careers and the aim of Module 3 is to assist in this work. Subjects covered include maths, French and geography.

Module 4 is for the more creative computer users and includes the art program Hyperpaint, MusicMaker 2 and, for those wanting to learn Basic programming, ST First Basic.

Examples of the business type of programs users can expect to find are given in Module 5 which is made up of a word processor, database and spreadsheet.

Family Curriculum will cost £399.99 and is on sale from May.

Higher up the range is the new Mega STE which should be on sale in May, with prices starting at £688.85 for the one mega-byte model without an internal hard disk but including a high-resolution monochrome monitor.

The one megabyte Mega STE can have its memory expanded by up to four megabytes but it can also be bought in two, three and four megabyte versions with prices rising up to £1148.85 for the Mega STE4.

Atari has also revealed some details of its future plans. ST Book is a replacement for the much-troubled Stacy – which Atari says has had its battery problem fixed. It will have a one megabyte memory and a liquid crystal display.

The firm showed a prototype of the 83 key STE-based notebook at the CeBit computer show in Hanover.

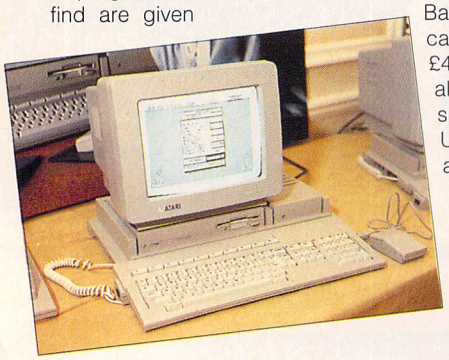
Another portable planned by Atari is ST Pad, a keyboardless machine which is controlled though a pen and a touch-sensitive A4-sized liquid crystal display.

Said UK Atari chairman Bob Gleadow: "Although we're showing the ST Pad and the ST Book, we don't expect to be shipping either this year.

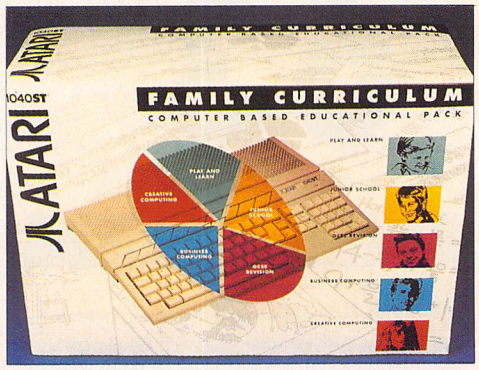
"We are showing them as a demonstration of the fact that our reasearch and development division is back into hyperactivity".

No details are currently available on the pricing of either products but the firm expects them to cost less than the existing Stacy.

Basic PC-based notebooks can be picked up for about £400. The company's TT has also just been put under the spotlight, with version 5.4 of Unix running on the machine at CeBit. It needs at least eight megabytes of memory to run Unix and Atari doesn't yet have a UK release date.



The long-awaited Mega STE was recently shown to the press. It is to go on sale shortly at what industry experts predict will be an attractive price



The first ST bundle not to include any games is Family Curriculum which is expected to be on sale by May. It's based on the 1040STE

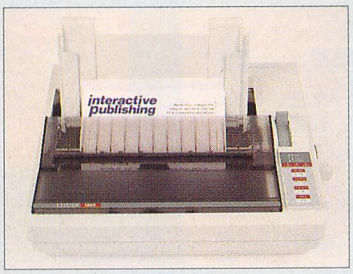
Unix is a more complex operating system than the popular MSDOS found on IBM compatible machines. Other computers can link up to the machine running Unix to take advantage of its extra power.

Other products to be released for the TT include expansion cards to give up to 26 megabytes of memory and a new range of hard disks ranging from 48 to 600 megabytes storage space.

Information about the planned games console Panther remains sketchy. It seems likely that it will be shipped during 1992 and is not ST compatible, although Peter Staddon, Atari's marketing manager, says that it will take advantage of existing software.

Panther will run at 16MHz and rumours suggest that there will be a cable to link the console with the firm's Lynx machine, which has just seen another price fall to take it to £79.99 without a games or power adaptor.

Reports from the States say Atari is developing a high capacity floppy disk drive for Mega STE and TT computers. Atari President Sam Tramiel recently admitted that a 1.44 megabyte replacement drive is on the way, but officials in London have no further details.



Citizen has taken the lead in bringing the cost of 24-pin printers in reach of the average home user

Printer prices plunge

IN a bid to convert users of 9-pin printers to 24-pin models, Citizen (0895 72621) has reduced the price of its entry level 24-pin printer, the 124D, by nearly 11 per cent.

Sales manager Richard Scotto said: "As 9-pin printers improve in quality of print output and continue to drop in price, many price-conscious users are sticking to this technology.

"In a move to convert 9-pin users to the added benefits of 24-pin printing Citizen have dramatically reduced the price of the 124D, offering 24-pin quality to users on limited budgets".

The 124D is an 80-column machine with a print speed of 120 characters per second (cps) in draft and 40cps in its two resident letter quality fonts. The printer's new price is £249.

Higher up in the range is the Swift 24X dot matrix printer. A 24-pin machine, it is based on the firm's Swift 24 model but has an increased print width of 136 columns.

Aimed at accountants, financiers and sales forecasters using presentation and display packages or spreadsheets and who need the extra printing width, it costs £489.

MICE CRAZY

AS DROVES of replacement mice scurry on to the market, manufacturers are being forced into a sales battle.

Contriver (0280 822803) has started offering an incentive for people to buy one of its models. For those who buy the firm's new £29.99 Contriver 5 in 1 mouse are being given a free T-shirt carrying the words "plug in", "switch on" and "boot up".

As its name suggets the 5 in 1 can be hooked up to five different types of computer including the Atari ST and has a resolution of 220 dots per inch. It has microswitch buttons and is guaranteed for a year.

Meanwhile, Naksha (0925 574439) has slashed the price of its Upgrade mouse from £39.99 to £28.95.

Many companies offer a similar product at about this price which is the suspected reason behind the price fall.

Not just a load of hype

A MEDIUM resolution version of the hypermedia program Hype! is now available from Scottish software firm WoolleySoft.

Hype! is a GEM-based system that enables text, graphics and sound to be linked for use in programs such as educational systems, program demonstrations, adventure games and graphics libraries.

Each card is the size of a full screen and can contain text, graphics or a mixture of both. Areas of the screen can be defined as buttons – which when clicked on, bring up a new card or play sampled sound.

Other functions available from the menu include going to the next card, going back a card and printing out a card.

A public domain demonstration version of the program is available from libraries across the country, while those wishing to buy the full version should send £19.95 to: WoolleySoft, Humblesknowe Cottage, Ramoyle, Dunblane, Perthshire, Scotland FK15 0BA.

IN COLOUR

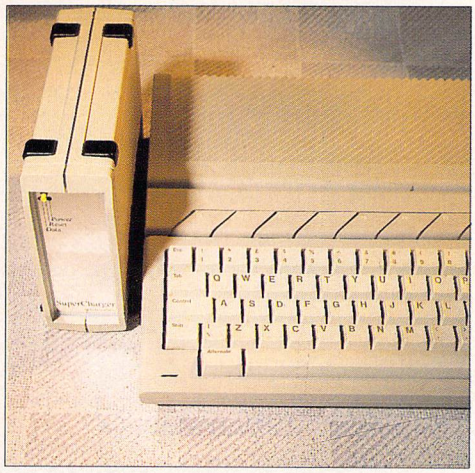
COLOUR animation software aimed at graphics houses, video production companies and TV stations has been launched by Berkshire firm Condor Computer (0734 810066).

Phase 4 is made up of four integratable programs which will run on all STs and the TT and get rid of the need for program control codes, such as those in Antic's Cyber Control.

Prism 24 Paint, Chronos 3D Keyframe Animator, Rosetta 3D Translator/Viewer and Prism Render are mouse or tablet driven and the cost for the set of four programs is £460.

Condor Computer is also set to release an upgrade its PC emulator, Supercharger. The board is probably the most widely used product from the company and will match the speed of other PC emulators, running at 16MHz and having a Norton factor of 1.4.

Industry sources expect the upgrade cost to be £150 and the complete Supercharger bundle, with hard disk drive, to be priced at £469. At the time of going to press Condor Computer was unable to comment on the prices.



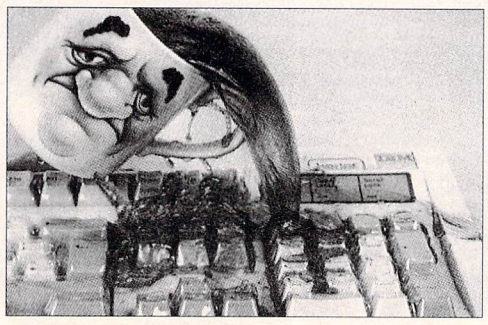
Condor Computer's Supercharger is set to run at 16MHz and have a Norton factor of 1.4

KEYBOARD PROTECTION

EUROPE'S largest manufacturer of keyboard covers has just launched its 500th version, only weeks after it struck a deal from the Ministry of Defence to supply covers for its "portable" computers that were being used on the front line in the Gulf War.

Included in Kador's (0443 740281) growing collection of transparent covers is a set for the entire range of ST computers. In the Gulf the covers protected computers against desert sand but most ST users will keep their keyboards free from the day-to-day dust and grime as well as accidents such as spilt coffee, neither of which are healthy for the computer's operation.

The covers are made out of a clear and flexible PVC which is moulded to fit over each key and once fitted the keyboard can still be used easily. They are fitted to the computers at many top British firms including ATS Tyres, Harrods, British Airways, British Telecom and the Bank of England.



Britain's largest keyboard cover manufacturer has just finished work on its 500th version

ARChive

We brush the dust from the history books to take a look at what happened to the ST in this month...

FOUR YEARS AGO

It was announced that two sound sampling packages were to be released by Microdeal. DigiDrum was under licence from 2 Bit Systems and was a sequencer to replay digitised sounds. The second, ST Replay, was a full hardware and software sound sampler...

THREE YEARS AGO

Precision Software bought the publisher of the Logistix spreadsheet/business graphics package, Grafox. While Grafox continued to sell the PC package, Precision enjoyed huge success with its Superbase range of ST programs... From the HiSoft stable came DevPac 2, a rewrite of its popular 68000 assembler development package...

TWO YEARS AGO

Signa Publishing was appointed UK distributor for Ditek's DynaCADD, a computer aided design and drafting package... A cut-down version of HiSoft's Power Basic was set to be included in a new ST bundle from Atari... Software-based PC emulator pc-ditto became available in a hardware version known simply as pc-ditto II... German software house GFA Data Media was set to enter the UK market...

ONE YEAR AGO

Atari relaunched its technical support programme, aimed mainly at registered developers... HiSoft Forth was another programming language to be released by the Bedfordshire-based firm... From MichTron and distributed in the UK by Microdeal was Fast FAX, a hardware and software system that enabled faxes to be received and sent by the ST... EuroLink was the name of a low-cost modem that is capable of operating at up to 2400 baud and which offers MNP level 4 error correction...

ADDED TOUCH FOR IMAGES

Among the more expensive gear from Copycare are two Epson colour flatbed scanners

COPYCARE Graphics Services based in London (081 679 7307) is to become the sole UK distributor of ST image manipulation software from German firm 3K ComputerBild.

Among the line up of products is Retouche, which Copycare boss Ray Cross claims is set to do for images what desktop publishing did for text.

It is expected on sale during mid-April with a £150 price tag and is the cut-down version of the top end program Retouche Professional, which is due for release at about the same time at £450. You need four megabytes of memory to run it.

Retouche Professional is of such a high quality that it could well signal the end of the virtual Apple Macintosh monopoly in the desktop publishing market, especially for small in-house publications.

The basic Retouche is likely to be of greatest interest to home users, especially if they have a scanner, either flatbed or handheld. Images taken from the scanner can be touched up to give superb results. Whereas other packages, such as Tommy Software's MegaPaint only allow for individual pixels to be edited, the new program gives a choice of 256 grey scales and many types of effect can be added to pictures.

As well as being a tool for touching-up scanned images. Retouche can also be used as a paint package, with several types of drawing instruments available and a choice of pen size. Included with the program is a disk packed with two megabytes of scanned images.

At least one megabyte of memory is needed to run the program and it feeds a monocrome monitor.

A colour version of Retouche Professional was on show at the Hanover CeBit computer show. It's expected to be on sale in the UK by September priced at around £800. At present there are no plans for a colour version of the cut-down Retouche.

The new business will, for the time being, concentrate on the graphics side of the ST market-

Retouche is available in two versions. The cheaper one is aimed at the home user and will enable good effects to be added to scanned images

place, and for those seeking a high-quality scanner it is offering two colour Epson models.

The GT4000 is a 400 dots per inch model and costs £1,719.25 while its even higher specification brother the GT6000 boasting a resolution of 600dpi costs £2,195.25.

Included with both units is GT-Scan 3, a scanning program run as an accessory from within applications such as desktop publishing.

It accepts 12 different file formats and is able to scan directly to the computer's hard disk. This program which is also capable of colour separations, can be bought separately for £150. Copycare soon hopes to start selling what Ray Cross describes as a total solution to those wanting to buy a complete ST publishing set-up.

The firm is set to move to new premises, where classrooms will be ready to teach both home and professional users the ins and outs of the company's software – a service usually only heard of with IBM PC-compatible software such as Lotus 1-2-3.

Copycare will also be offering a scanning service, so occasional users can take advantage of the increased technology without the price.

AT-SPEED SPEEDING UP

PEOPLE wishing to emulate industry standard IBM PCs but not content with a 286 emulation could have to wait more than a year before prices allow the better 386 boards to go on to the marketplace, forecasts the head of a leading emulation company.

This follows confirmation that AT-Speed is to follow in the footsteps of its rival product, ATonce, in undergoing modifications to make it run quicker and reach full 80286 PC specifications.

Compo Software boss Neil O'nions says that although the technology currently exists for a 386 emulator, cost rules out the option at present.

The Compo Software (0480 891819) emulator is to be known as AT-Speed C16.

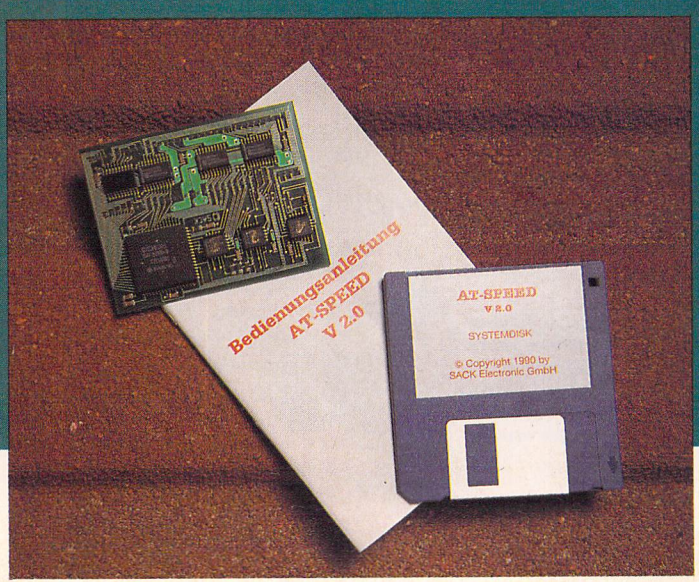
It will run at 16MHz and, unlike the Vortex model, will have a socket to enable an 80287 maths co-processor to be plugged on to it. Maths co-processors increase the computer's calculating speed and while they're not included with the board can be picked up for about £85 from other sources.

Without the maths co-processor on its back the emulator has a Norton factor of 8.2, compared to its older sister's rating of 6.7, while ATonce Plus is only marginally slower at 8.1.

It will continue to support CGA, Tandy 1000, Hercules, Olivetti, EGA monochrome and VGA monochrome graphics emulations.

Industry sources expect AT-Speed C16 to cost £249, which will include DRDOS version 5.

Compo Software said users of earlier boards will be able to upgrade.



AT-Speed is the second PC emulator to be fitted with a faster engine. It now runs at 16MHz and has a socket for a maths co-processor

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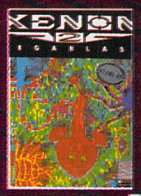

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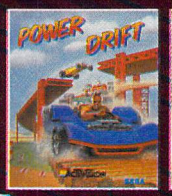

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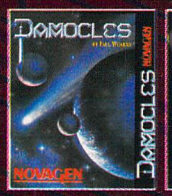

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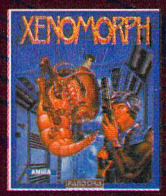

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MORE MUSIC FOR THE 1040 STE

A NEW bundle from ST distributor Silica Systems (081 309 1111) is being sold by music dealers throughout the UK. The unnamed pack, which is aimed at serious users, will consist of a 1040STE and Steinberg's MIDI sequencer Pro 24 III. Although a monitor is not included one can be bought from the firm for as little as £99.

The music program offers score editing, multi-track/channel recording, remote MIDI control, automatic timing correction, controller napping, MIDI filtering and 24 recording tracks.

While serious users are most likely to be attracted to the bundle, newcomers can take advantage of Pro 24's Grid Editing facility which displays music as blocks on a graphic display.

Since its birth the ST has been a big hit in the music industry with many top artists using the micro. Among the more famous are Madonna, Dire Straits, Whitesnake and Fleetwood Mac.

The bundle will cost £449.

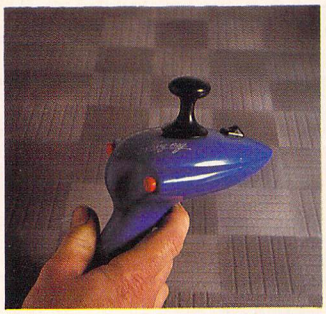
Silica Systems' new music bundle is based on the 1040STE with Steinberg's Pro 24 III

Playing partners

GAMES players can look forward to two new joystick releases for the ST. One is the work of Logic 3 (081 900 0024), a new firm formed by the management of Spectravideo.

Sting-ray is the first of many products planned the firm hopes to launch this year. With an ergonomic design, it's hand-held and can be used by either left or right-handed players.

It looks like a gun from a modern space movie, and is housed in a smart plastic casing. Price for the auto-firing Sting-ray is £15.95 and without auto-firing £14.95.



The first of many joysticksfrom new firm Logic 3 is Sting-ray

Converta can be changed from a hand-held to a table-top joystick

Welsh firm KPK (0495 30296) is behind a novel joystick Converta, which as its name suggests, can be converted between a hand-held firing stick or a desk top joystick.

It can sit on a desk like any other model but if the base is folded, a ball shape is produced to hold in the hand.

A limited number have already been made available and following feedback from their users KPK is planning to make some slight changes to its design.

Converta costs £9.99.

DIARY DATES

14 to 16 April
European Computer Trade Show
Organiser: Blenheim Database (081 868 4466
Venue: Business Design Centre, London
● ***A trade-only event where many of the releases planned for the summer will be shown.***

21 April
All Formats Computer Fair
Organiser: Bruce Everiss (0926 640137)
Venue: National Motorcycle Museum, Solihull
● ***For those that can't get to the Capital a collection of user groups and public domain libraries.***

23 to 26 April
Which Computer? Show
Organiser: Reed Exhibitions (081 948 9800)
Venue: National Exhibition Centre, Birmingham
● ***Only a few items of interest for the ST but a professional show with many of the latest business hardware and software releases***

26 to 28 April
MIDI Music Show
Organiser: Westminster Exhibitions (081 549 3444)
Venue: Novotel Hotel, Hammersmith
● ***An opportunity to catch up with the latest developments in music gadgets and software***

10 to 12 May
Computer Shopper Show
Organiser: Blenheim Database (081 868 4466)
Venue: Alexandra Palace
● ***Prices of leading hardware and software packages are slashed for the three-day event.***

12 to 14 July
4th International 16-Bit Computer Show
Organiser: Westminster Exhibitions (081 549 3444)
Venue: Novotel Hotel, Hammersmith
● ***Scores of exhibitors from Europe and North America meet under one roof.***

5 to 8 September
Computer Entertainment Show
Organiser: EMAP (071 404 4844)
Venue: Earl's Court 2
● ***If you're interested in games then a visit to Earl's Court is a must.***

OVERSEAS EVENTS

16 to 18 August
Atari Messe
Organiser: Atari Germany (010 49 61 42 2090)
Venue: Dusseldorf Fairground
● ***A chance to catch up with what's happening in Germany, where the ST is seldom used for games playing.***

● **If your company is organising a show relevant to the Atari ST and it's not listed let us know so we can include the information in diary.**

SQUEAL FROM DIGITA

DIGITA International customers have been getting an earful of sqeaks and squeals since we accidentally published its fax number in last month's news pages. For those not fluent in fax tones Digita's number is 0395 270273.

Do you know something we don't?

Although 'USER has scores of contacts in the ST world we need you. If you have some hot news ring John Butters on the newsdesk now on 0625 878888.

All information supplied will be treated in the strictest of confidence and if it's really good your wallet will be heavier.

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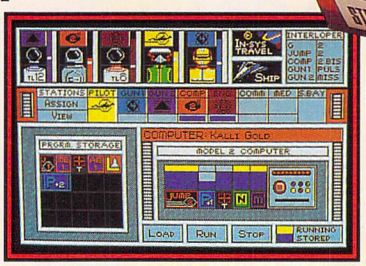
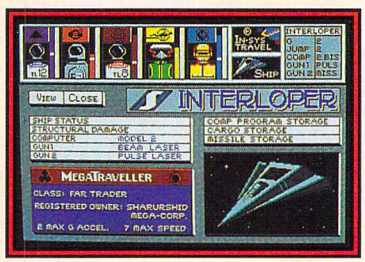


.....Now with the help of corrupt Imperium officials the Zhodani and the Outward Coalition are planning a fifth. Smuggling arms to traitorous groups within Imperium borders the Zhodani are planning to strike from within.

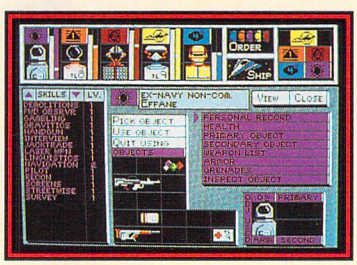
VERSATILITY

The most sophisticated character generation system ever devised: five military classes, more than 70 talents and abilities. Allows player to control character development through 5 services: Army, Navy, Marines, Merchants and Scouts.



IMAGINATION

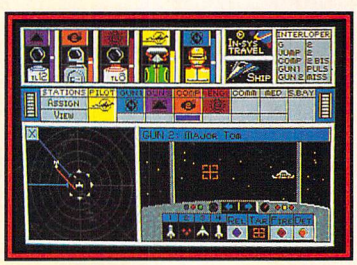
Flexible gaming system supports any playing strategy and allows multiple solutions to problems and obstacles.



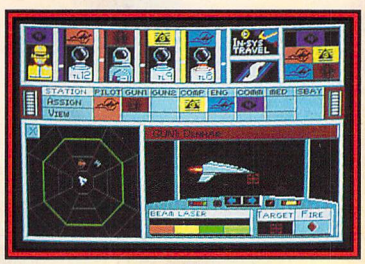
FIREPOWER

Realistic, combat sequences let you control each of your characters individually, while still giving general combat orders to the other members of your party. Utilise more than 30 weapons and skills in this advanced combat system.

72 varied skills to learn and use including medical, piloting, communications, laser weapons, bribery, demolitions and handgun.



"MegaTraveller 1, a game that truly warrants the highest level of praise, the attention to detail makes it exceptional!"

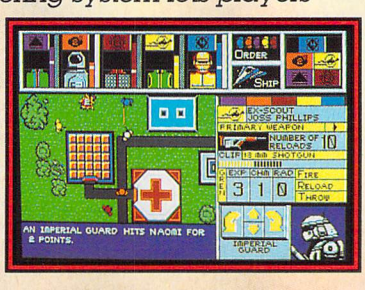


COURAGE

28 planets and satellites to explore in 8 systems filled with exciting puzzles, dangerous subplots and interesting characters to encounter.

RESOURCEFULNESS

Saving the universe costs money: a detailed bartering system lets players earn Imperial credits through interplanetary trading, with 30 types of cargo.



SCREEN SHOTS TAKEN FROM IBM PC VERSION

Supports Ad Lib Music Card and Real Sound for state-of-the-art musical score, digitized speech and realistic sound effects.

EMPIRE
STRATEGY

"MegaTraveller 1 is one of the finest role-playing computer games in at least the last three or four years."
"MegaTraveller 1 is one of the best science fiction role-playing games ever for the computer."

QUOTES TAKEN FROM DRAGON MAGAZINE U.S. & QUEST BUSTERS MAGAZINE U.S.

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Presenting PROTEXT 5.0

Five years to the month after Protext version 1 was launched Arnor are pleased to present version 5, an enormous leap forward in both ease of use and performance.

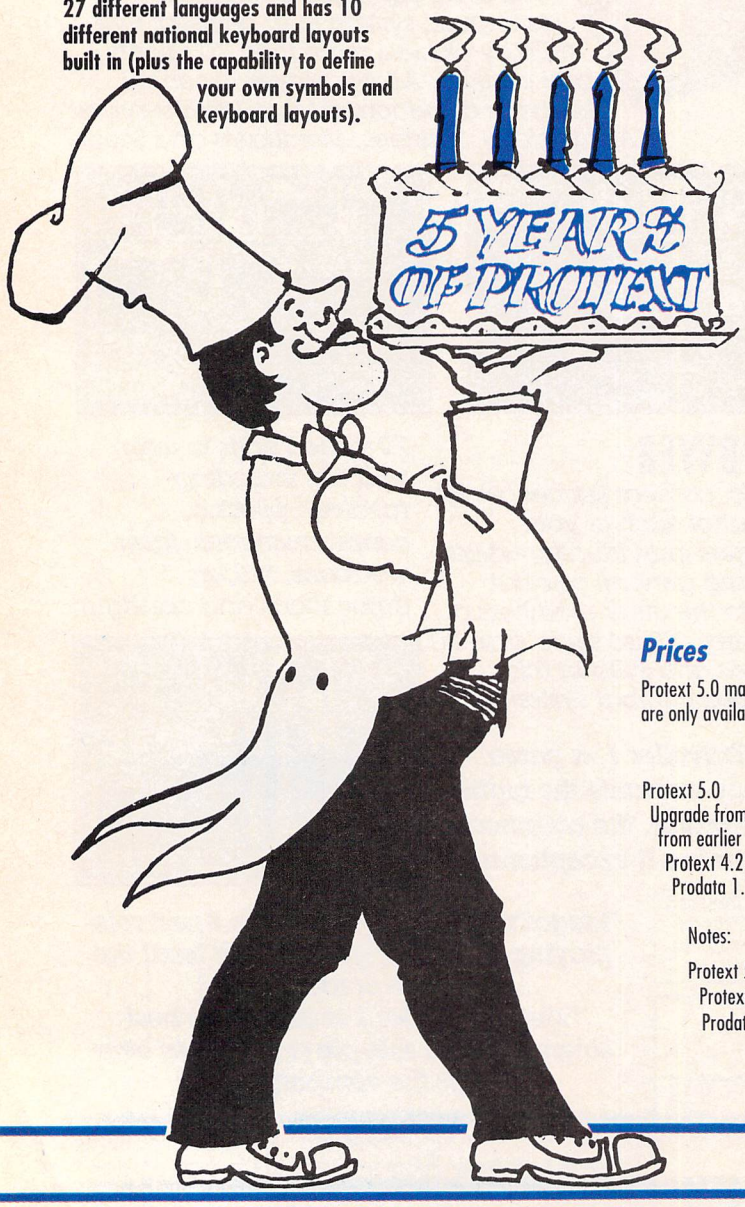
Protext 5.0 introduces a completely integrated system of pull down menus and dialogue boxes. The menus are among the many operations that may now be carried out with either the mouse or the keyboard. Protext really does give you the best of both worlds.

Protext 5.0 handles printer fonts flexibly and accurately. You can make full use of any number of proportional printer fonts, mix them freely within any line, centre them in headers, use automatically formatted footnotes. And Protext correctly formats your text as you type it, no matter how many font changes you use, showing you line and page breaks exactly as they will be printed.

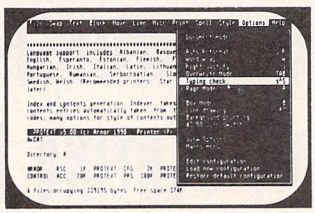
Protext 5.0 is still the fastest word processor around. Even though we have made all these major improvements we have taken great care to ensure that text editing is as fast as ever. The menus work smoothly and quickly even with high resolution displays. But of course, you can use Protext's efficient set of commands and keys just as before and 5.0 remains compatible with all earlier versions from 1.0 onwards.

Protext 5.0 is a worthy successor to version 4, which was described as "the best word processor at any price", "the best text processor on the Amiga" and "the most powerful word processor on the Atari ST" (AUI, ST/Amiga Format, ST User).

Protext 5.0 heralds a new era of multi-lingual European software, in time for 1992 and the opening up of Eastern Europe. Protext may be used in at least 27 different languages and has 10 different national keyboard layouts built in (plus the capability to define your own symbols and keyboard layouts).



The Features



☆ **New fast & easy to use pull down menu system** with dialogue boxes and alerts; file selector; mouse dragging to set blocks. Menus complement existing commands and keyboard shortcuts, do not replace them. Menus may be used with mouse or keyboard. Amiga version follows Intuition guidelines.

☆ **Enhanced printing capabilities** supports multiple proportional fonts; mixing of different font sizes on the same line; proportional formatting whilst editing; side margin, headers and footers independent of main text font. Tabs, decimal tabs and centre tabs. Extensive range of printer drivers supplied.

☆ **Multiple file editing** - up to 36 files may be open; split screen editing.

☆ **Graphics mode support** on PC allows use in virtually any text or graphics mode including 132 column or 75 line VGA modes; user defined characters and on-screen bold, italics and underlining now on all versions; use of 13 different accents on any character.

☆ **Language support includes** Albanian, Basque, Czech, Danish, Dutch, English, Esperanto, Estonian, Flemish, Finnish, French, German, Hungarian, Irish, Italian, Latin, Lithuanian, Norwegian, Polish, Portuguese, Rumanian, Serbocroatian, Slovak, Spanish, Slovene, Swedish, Welsh. (Note: some printers do not support all languages).

☆ **Index and contents** generation. Indexer takes marked words or phrases; contents entries automatically taken from titles wrapped in control codes; many options for style of contents output.

☆ **Spelling checker** features completely new 110,000+ word Collins dictionary with very fast phonetic lookup. Anagrams and find word pattern. Foreign language dictionaries (German, Swedish available now, others to follow).

☆ **Many other enhancements** including multi-line footnotes and endnotes; automatic timed save; add column or row of figures; indent tabs; find word at cursor; 40 column mode support; sentence operations; inter- paragraph space; much improved expression evaluator; self incrementing variables; Roman numerals; newspaper-style column printing; file sorting utility with special options for names and addresses; revised manual plus new tutorial guide.

☆ **And don't forget Protext still includes** background printing; box manipulation; macro recording; exec files; headers and footers; find and replace; mail merging; undelete; file conversion utility; configuration program; auto reformatting; on screen help; time and date; typewriter mode; line drawing; disc utilities.

Prices

Protext 5.0 may be purchased from any good computer shop or directly from Arnor. Upgrades from earlier versions are only available from Arnor and the original discs should be returned with your order.

	PC	Amiga	ST/TT	Archimedes
Protext 5.0	£149.95	£149.95	£149.95	£149.95
Upgrade from v4.2	£60	£60	£60	N/A
from earlier versions	£75	£75	£75	N/A
Protext 4.2	£99.95	£99.95	£99.95	N/A
Prodata 1.1	£79.95	£79.95	£79.95	due 1991 Q1

Notes:

Protext 5.0 requires at least 640K of memory on all machines
Protext 4.2 requires at least 512K of memory on all machines
Prodata requires 1MB of memory on the Amiga

ARNOR

Arnor Ltd (STU), 611 Lincoln Road, Peterborough, PE1 3HA. Tel: 0733 68909 (24 hr), Fax: 0733 67299

WORLD NEWS

The newsdesk phone lines have once again been busy with reports being filed from far away. We have all the news from the Frankfurt Music Fair

VECTOR GRAPHICS BLOCKBUSTER

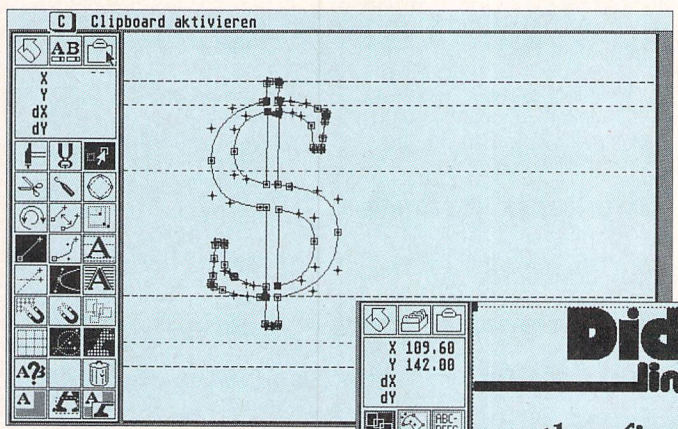
SEVERAL German software houses have already acquired cult status among ST users in Britain – DMC, purveyors of the Calamus DTP package and its various associated programs such as Outline Art and PKS Write, Application Systems, famous for Signum, Script, and STAD, or even Tommy Software and its Megapaint II.

This year these giants of the ST software scene seem set to be joined by a third name, 3K-ComputerBild.

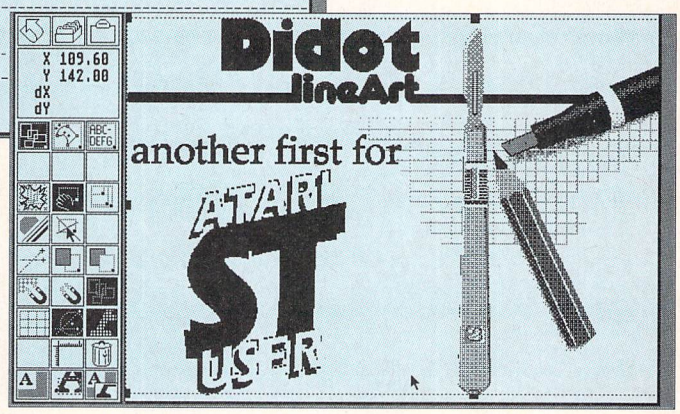
Its latest offering is Didot LineArt, a vector-oriented drawing program with a built-in font editor. Vector drawing has become increasingly popular recently as keyboard and mouse artists have come to recognise its advantages over the more traditional pixel format – graphics take up far less disk storage space, can be scaled up without loss of definition and will always make the most of any printer's output resolution.

However, there have been very few vector drawing tools available for the ST and those that have been – HyperDraw, EasyDraw, Outline Art – all had distinct drawbacks in serious use.

Outline Art is probably the most powerful but it is severely handicapped by its inability to work with any formats other than Calamus vector graphics files, its less than intuitive user interface, its lack of support for PostScript graphics or fonts and inability to print from within the program.



Vector drawings, Calamus fonts and a vectorised pixel graphics – here a scan of the ST User logo – can be freely combined in Didot LineArt illustrations



Didot LineArt can do what even Calamus' own font editor can't: load protected Compugraphic fonts for further manipulation and creation of graphics objects

Didot LineArt overcomes all these restrictions, making it the ideal illustration companion not only for Calamus but just about all other desktop publishing software.

It is the first vector drawing program to read and write all the major file formats: GEM metafiles (with the extender .GEM), Calamus vector graphics (.CVG) and even PostScript – although PostScript graphics can only be written.

It can also be used as a font editor for Calamus and PostScript Type 1 fonts, understanding both types of kerning information. Another first scored by Didot is its ability to load pixel graphics in either Degas or .IMG format and "autotrace" these, that is, automatically convert them into editable vector files.

The current version of the autotracer does not support Bezier curves but a more advanced version is said to be in the pipeline.

Didot LineArt can be installed as a desk accessory, making it available from within Calamus, Fleet Street Publisher or any other program for that matter. Its text editing and print dialogs – as well as the icons – are deceptively similar to Calamus and Outline Art but Didot is so much easier and versatile to use.

As with Retouche, its sister program, there is also a professional version with extensive DTP functions and 8-bit colour.

The basic version of Didot LineArt will be available in the UK before too long priced at around £300.

Distributor of all 3k-computer products, including Didot LineArt will be Copycare Graphics Services who can be called on 081 679 7307.

Here the vectorised ST User logo has been offset against the scanned pixel version. Most autotraced images require a good deal of further editing

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SPECIALS

NEW!! PROTEXT version 5
Still a very fast, non-GEM wp package, but now benefits from pull-down menus and better mouse control (although all current key press commands are still available), holds up to 36 documents in memory, newspaper style columns, new Collins dictionary, new file selector. Still the best wp for using your printers fonts and effects, rather than waiting for "graphic font" print outs.
1 mb required.
RRP £149.95 OUR PRICE £99.95

NEW!! PROTEXT version 4.3
For 512k machines, now benefits from the pull-down menus and some other features of version 5
still only £64.95

PRODATA
Arnor's database has excellent data layout facilities, including a wide range of printer effects, 10 indexes per data file, and uses many of Protext's editing commands
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FRANKFURT MUSIC FAIR

AS THE ST is Germany's favourite computer it will come as no surprise to learn that, once again, it outnumbered all the others at this year's Frankfurt Music Fair held from March 2 to 6, 1991 at the Frankfurt Messe.

The discovery of a catalogue of music software produced by Atari Germany was among the biggest surprises at the show. About half the programs listed are readily available in the UK and even more surprising is that half the other programs are available in English versions. Wouldn't it be useful if Atari UK could do the same thing?

C-Lab continues to update Notator. Version 3.1 will have a Graphic Arranger which will enable you to drag patterns around the Arrange window to produce a complete song. This won't be available until autumn at the earliest.

The Polyframe Universal Editor/Librarians are virtually complete. You buy a central module and add individual (and cheap!) synth editors to suit your set-up. It will allow you to store sounds from different synths in the same library. Sound Technology is on 0462 480000.

Steinberg's Cubase is up to version 2.01 and supports the new 16MHz Mega STE.

Steinberg's universal sample editor, Avalon, has reached version 2. It lets you create a Software Synthesiser on screen and has a Timestretch function which can change the length of a sample without altering the pitch.

All the fun of the Fair – balloons, too!

There is also a new Synthworks editor for the Korg Wavestation and an update to the Korg M series Synthworks so it can be used with all M and T instruments. More from Evenlode Soundworks (0993 898484).

Digigram, distributed by GFA (0734 794941), had several new programs including editors for Roland's U-220, U-20 and U-110 synths and the Proteus. ProScore has been updated to version 2 – worth checking out if you have version 1.

Sonata is a training program which can be configured by a teacher to suit individual students. It can test you on rhythms, notes, chords and intervals.

AMG (073088 383) has recently taken on distribution of EMC software. EMC produces voice editors/librarians for the Proteus, Kawai K4 and K1, Roland U220/20, D5/10/20/11 and D50/550, Ensoniq VFX, the Korg M series and Yamaha's SY/TG55. The editors are priced at around £55.

Geerdes has new voice editors for the Roland D-70, the Waldorf MicroWave and Korg Wavestation plus a new range of songs on disk in MIDI file and Notator format. The current catalogue of MusicWare contains more than 700 titles. For more details contact Newtronic (081 699 2919).

Hybrid Arts software fell from the public eye when the UK distributing arm closed its doors. But the American company continues to develop and promote its wares and has an outlet in Germany.

If you use Hybrid Arts' software, then the German division (010 49 69 789 2054) is quite happy to deal with you directly. There is a SMPTE Track Gold update, for example, which costs about £25.

German company Frohlich (01049 6421 12656) was showing Freestyle, an accompaniment generation program. You enter a sequence of chords and it produces a five-part accompaniment consisting of drums, bass, piano, guitar and brass.

It has 32 rhythm styles and can be controlled in real-time through a MIDI keyboard. Frohlich is looking for a UK distributor but it can be bought directly for DM298.

Another accompaniment generator was being shown by Dutch firm Zadok (010 31 31703 200209). Arranger ST (DM399) can handle up to 16 MIDI channels and record accompaniment patterns directly from a keyboard with built-in patterns.

Zadok's UniMan (DM498) is a universal editor/librarian which has received favourable reviews in the foreign music press. It has had plenty of time to get its act together as the product was previewed two years ago. Zadok is currently setting up UK distribution and we'll give more information when it's available.

If you have a Roland S-550, S-330, S-50 or W-30 sampler you could well be interested in the DM650 Sound Tools from Intersound (010 39 471 884646) which is based in Italy.

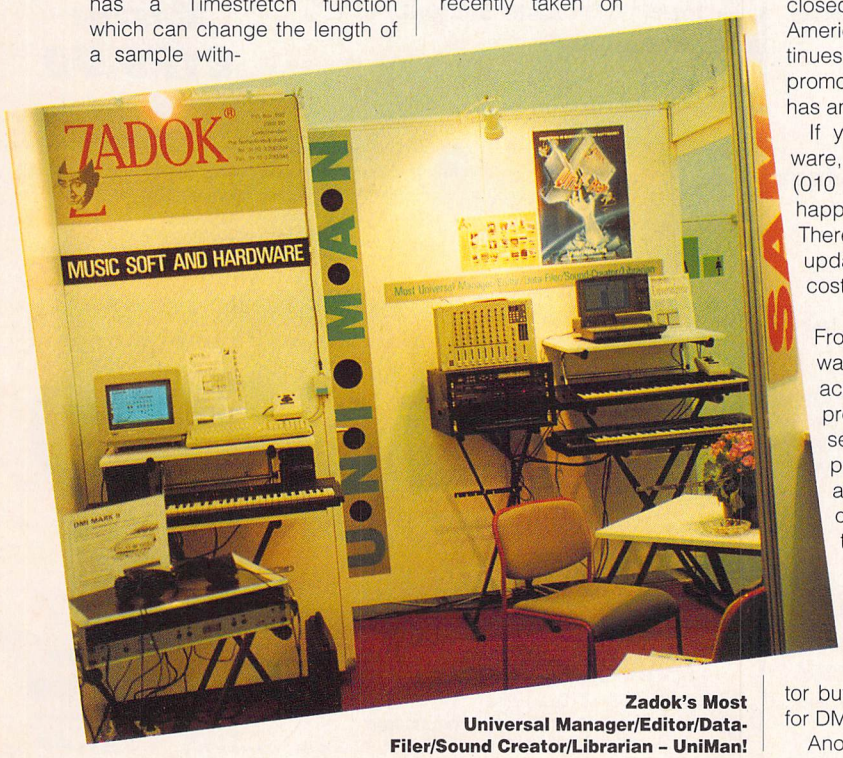
It can read samples direct from Roland disks and Avalon files and has a sample check routine which lists any identical samples in the library. It can handle 15,000 samples on a 1040ST and runs in English.

On the hardware front we saw the follow-up to Yamaha's SY77, the SY99. It has master keyboard facilities plus the ability to load new waveforms from disk. It won't be available till after August.

Sequenzen for zale on some of the German software stands

The new Roland JD-800 (£1,699) is a digital synth but with knobs and sliders just like old analogue synths. Editing has never been so easy.

With an eye on the computer/sequencer market and the beginner especially, watch out for Roland's SB-55 (£435) and SC-55 (£485) which are basically plug-in and go modules. They follow Roland's GS MIDI-spec which is a supaset of the General MIDI mentioned in the last issue of *Atari ST User*. Confused? Check out this month's Music and MIDI column. Life's going to get very interesting in the coming months.



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We can offer fully compatible PSU's for ST's at this price in exchange for the damaged PSU. Our engineers can fit any STFM memory upgrades for £20. We can also fit SIMM's, TOS, Blitter chips, PSU's for just £10. Phone for details.

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The philips 15" FST Tv includes: remote control, Scart input, 60 tuner presets, sleep timer and Fastext. All displays include Scart cable. Deduct £10 from Monitors only, if bought with computer. The Philips 8833 comes with full 12 months on site warranty.

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Please have your machine open & in front of you when you check the configuration of your machine with our staff. See service centre for fitting charges. All upgrades carried out by our service centre carry a 90 days parts and labour guarantee. Please add £1.50 P&P for upgrades.

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TRAVELLING TALES

John Butters has been out and about proving that you can take your ST up to 30,000 feet, beat that BR boredom, and get it to advise you on the quickest route to Land's End

Whether you're battling with traffic on the M6 or sitting in a second class seat on the 7.03am InterCity to King's Cross, you'll know that journeys can be like a preview of hell.

Most of us cannot afford to waste time sitting helplessly in traffic jams or train carriages. And with the introduction of a single Europe next year travel can only become more of a time waster.

So what can you do to overcome the boredom? In a train you could chat to the cigar-smoking hippy opposite on her way down to Hyde Park for the latest peace demonstration. Or perhaps you could play spot the diesel locomotive. No, perhaps not.

So you're still left with finding something constructive to do. If you're really lucky, and you actually have a seat, how about braving the stares from the tourists and digging out a portable computer from your briefcase?

Providing you've flashed your flexible friend at the right computer store, you'll be able to do quite a lot of work on the small machine. Then you can transfer data to an office or home ST when you return.

Alternatively, by connecting one of these handy portables to a modem you can access on-line services such as electronic mailboxes.

Almost all of the types of software available for the ST are also available for the portables and organisers.

There's word processors for you to catch up with letter writing, spreadsheets for financial calculations and databases to store the telephone numbers of your business contacts and friends. And they can be used practically anywhere – in a car, on the plane or for taking notes anywhere from a boardroom meeting to a school classroom.

Despite reports in sections of the computer press last year, British Rail does allow personal computers to be used on its network. Most airlines also allow small computers to be used on flights, although for your

own safety they can't be used during certain periods of the journey, such as taxiing, take-off and landing. During the rest of the flight however, they won't interfere with the VHF radio in the cockpit.

So having decided that you want one of these baby micros, you now have to choose which you're going to buy. If you want to link the portable to an ST, you'll need either one of three personal organiser-type machines or one of two personal computers.

One of the most familiar of the bunch to ST users is likely to be Atari's Stacy, a portable which can be bought as either a two or four megabyte machine which is fully-ST compatible.

The Stacy looks very much like one of the machines that receive large advertisements in broadsheet newspapers and which can only be afforded by the chairmen of multinational corporations. Its price tag helps to maintain this image

This is the only computer relevant to ST users that will accept floppy disks. This means there is no need for cables to be connected and software to be fired up once you meet up again with your beloved ST. While on

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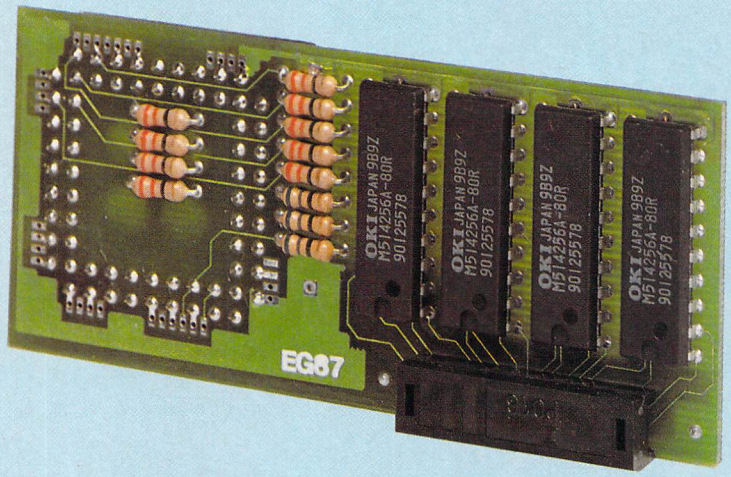
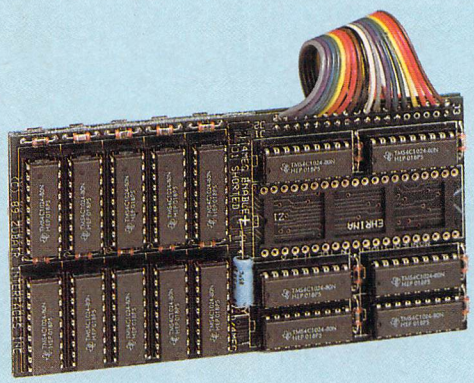


1/2 megabyte plug in board Atari ST User September 1990
"Features–Excellent Ease Of Use–Good"



Z-Ram 4MB expansion board Atari ST User July 1990
"Features–Excellent Ease Of Use–Good "

Easy To Install

Upgrading the memory of your Atari ST has never been easier using Third Coast's range of memory upgrade boards. We have plug in upgrade boards to take your machine upto a realistic 4 Megabytes so you get no more out of memory headaches. Third Coast's range of memory expansion boards take around 1/2 an hour to install and come supplied with full fitting instructions for all revisions of Atari's. If you should get into any difficulty fitting any of our memory upgrade boards are technical staff will give you any assistance you need over the telephone. Third Coast's memory upgrade boards are fitted by plugging a socket over the MMU chip and the Video shifter chip and require no soldering whatsoever.

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If you have a 520STM, 520STFM or even a 520STFM with surface mount MMU chip we have the solution to take your machine upto 1 megabyte with the expansion policy to 4 megabytes as described above. Third Coast also offer expansion to 2.5 and 4 megabytes for 520ST owners. For 1040ST and Mega 1 owners we have an expansion board to take your machine upto 2 megabytes, 2.5 megabytes and 4 megabytes. For Mega 2 owners we offer a plug in board to take your machine to 4 megabytes.

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All memory expansion boards carry a full 12 months warranty and free 12 months telephone support.

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All Third Coast ram upgrades come supplied with a ram checker which checks every chip on the upgrade so you know if you have fitted the upgrade correctley. Also included is a ram disk, print spooler and several other useful public domain utilities.

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For those Atari owners who have a machine with 1/2MB drive and memory we offer a 1MB internal drive and a 1/2MB soldering upgrade kit for the special price of £99.99

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1040ST–2MB Board Requires Minor Soldering	£169.99
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All Third Coast's ram upgrade boards fit under the RFI shielding so that you get no interferance on your screen.

For more information on any of Third Coast's products please return the form below to the address listed at the top of the page.

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Please Make Cheques/Postal Orders Paybable To Third Coast Technologies Ltd. We Also Accept Access And Visa Over The Telephone.

The Stacy is Atari's only laptop computer and is based on the ST. It's highly priced and has suffered from a serious power problem which is now said to have been cured

the move you'll only be able to use the Stacy's high-resolution monitor, but a plug at the back enables a low-res colour screen to be used once you get back to base. Most of the ST's business software, such as word processors and spreadsheets, is compatible with the Stacy.

Atari's ST portable has suffered from an unfortunate problem for a machine of this kind – a short battery life. Each charge gave a ludicrously short 20 minutes of operation.

It seems, however, that the problem has been cured. Atari says it has just received a batch of new Stacys which have had the problem sorted out.

Under a new Atari policy, the company is unwilling to send out review materials and models, so we haven't yet been able to check this out. Prices for the Stacy start at £1,725 and climb to a dizzying £2,070.

The Z88 can be used for almost any type of popular computing work including programming, word processing, databases and spreadsheets

BUDGET BUY

Cambridge Computer's Z88 is the second portable computer which will link up to your ST and has a far more respectable asking price.

Its shallow case is A4-sized, enabling it to slip into briefcases with ease. And its QWERTY keyboard and 80-character per line display on the eight-line liquid crystal display (LCD) make use easy.

It comes with 32K of memory – easily expanded by plugging memory cartridges into slots on the front of the computer – and is packed with useful features.

One of its most useful resident programs is PipeDream, which trebles up as word processor, spreadsheet and database. Files can be saved into RAM for transferring to the ST.

The Z88 can be powered from either four AA-sized alkaline batteries – which will give 20 hours operation – or an external power adaptor when you're near a power point.

An in-depth review of the Z88 appeared on page 97 of last month's issue of 'USER.

The machine costs £199 and is available from Cambridge Computer (0294 222100). Software and cables to link the Z88 to the ST are available from the Music Suite (0239 711032) for £34.95.

One of the oldest and most successful organisers is Psion's Organiser II. Its main use as a standard machine is for storage of useful information in its database and calculations but additional software can be added

ORGANISING THE DAY

It seems that only a couple of years ago walking into a pub with a Filofax under your arm was trendy and conjured up a yuppie image of financial success.

Their popularity was short-lived. Now the prices of genuine Filofaxes have been slashed and the firm's profits have fallen dramatically as former devotees turn to cheaper diaries or only slightly more expensive computer organisers.

Psion was one of the first companies to have a great success with such a machine. Simply called Organiser II, it's hand-held and is available in four models with different prices and specifications. It sports an A to Z keyboard, and a less than breathtakingly modern casing design.

Built-in features include calculator, database, diary, alarm, and a facility for making notes. A useful feature is the ability to give the time in 400 cities in 150 countries, along with the telephone dialling codes for each.

It caters more for the needs of those wanting to use the organiser as a database and for calculations rather than for word processing.

The only possible problem is with the diary, which only includes dates up to the year 2000 which is only eight years from now.

Organiser II is used by people in many types of industry, and special accessories are available for specialist jobs. In addition to these packages, there are dictionaries and language translators, which will be especially useful next year.

It's powered by a single nine volt battery which is said to last for more than three months with average use.

To transport data to and from the ST you'll have to buy an additional lead and software from Widget Software (0438 815444). It is called Transfile ST CL and costs £49.95. A Psion Comms Link is also required.

Prices for Psion's Organiser IIs range between £79.95 for the Model CM with a two-line LCD and £189.95 for the LZ64 with a larger memory and four-line display. Contact Psion on 071 262 5580.

YOUR PORTFOLIO

Anyone wanting to stick to the Atari badge, yet not particularly keen on parting with a couple of thousand pounds will have to look at the Portfolio.

Again, it's hand-held and might just about slip into a large pocket, and so does merit the pocket organiser label. Several programs are built in, including a word processor and spreadsheet. An understanding of the PC operating system MSDOS is helpful to get the best results from the computer.

The QWERTY keyboard is a little small for proper touch typing, but for people used to such keyboards is easier to handle than the other machines in this category. The LCD screen is larger than those of both the Psion Organiser II and Microwriter AgendA, and is reasonably clear.

Unfortunately there isn't any equipment on sale enabling the Portfolio to communicate with the ST, although Atari believes a couple of German firms are close to releasing some.

While we await the cables in this country, those who are competent with a soldering iron and with a little technical knowledge could make their own up quite easily.

The Portfolio costs £199.99.

ON THE AGENDA

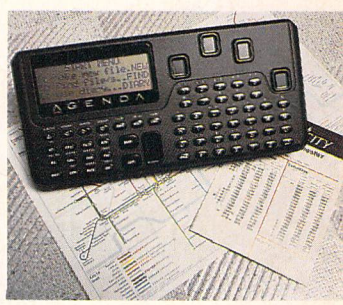
The final electronic organiser is Microwriter's AgendA, which is the most attractive but suffers from the keys being positioned very close together.

It has an A to Z keyboard as well as microwriter keys – which take a fair while to get used to but will, if learnt, be a reasonably quick method of typing. A small leaflet supplied with the AgendA advises how to become familiar with it within 30 minutes.

The Portfolio is powerful and quite easy to use, especially if you have an understanding of MSDOS. Although no commercial equipment is yet available to get the data across to the ST, it's on its way

Programs include a diary and filing system and the machine can also be used quite well for basic word processing. An action list enables notes to be made to plan out important jobs that need to be done on a specific day and an alarm reminds you of appointments.

Like all its competitors, it has an LCD screen. The AgendA is powered by a rechargeable battery and the charger is supplied in the £195 pack. Parting with an additional £40 will provide everything you need to link up the AgendA to the ST.



AgendA users speak highly of its performance and ease of use but the task of learning its microwriter keys is daunting for newcomers

It won the 1990 Design Award and is a nice micro but until you're accustomed to it, it's the least user-friendly of the travel companions.

RUNNING FROM A PC

There are many more personal organisers and portables, coming from practically every computer giant in the world. But while many are useful machines most are too highly priced or are simply unable to be connected to the ST.

However some pretty good IBM PC-compatible notebook computers cost as little as £400. With a proper-sized LCD screen they have a full-sized keyboard and will accept PC formatted 3.5-inch disks which can also be read by the ST.

While they are not ideal ST sisters, any software running on the Atari computer that's compatible with the same package running on the PC can be loaded and saved on the

ST PREVENTS FLIGHT CHAOS

We've looked at how you can continue to compute with your ST while you're away from your normal surroundings.

But there are places where STs are being used to control travel, such as at one of Europe's busiest international airports.

The attitude to the ST in Germany is totally different from that in other countries. Few Germans use their machines for playing games, and while the British air traffic control system at West Drayton with its ageing IBM machines struggles to cope, Frankfurt Main airport has an unexpanded 520ST controlling the sky.

The machine isn't actually used for directing descending and climbing aircraft at the airport but serves as a link in the network between major European airports, sending and receiving information about delays, cancellations and flight restrictions.

Is this the reason for the very few delayed flights out of Germany? Perhaps the French and Spanish are using Amigas!

portable to run on the ST. For example, if word processing was your main aim Arnor's Protext program will happily save files that can be accessed by both computers.

FINDING A ROUTE

OK, so there's a selection of small machines that can be hooked up to the ST but they can't do much to help somebody driving a car.

If you have to crawl up and down the UK's road network don't despair, your ST can help. Whether you drive once a year to your holiday destination or make frequent business trips from Stockport to London, a piece of software called Autoroute can help.

It's designed to select which roads to use. The program is controlled through GEM-based drop-down menus and can be easily installed on to a hard disk for faster operation, although the first of its three floppy disks must be in drive A on loading.

After entering information you're given three printouts of the quickest, most economic and shortest routes to your destination – and although at first it might seem they'll be the same, it's very rare that any selections match.

The program gives estimates of the time it takes to reach various stages of a journey using different types of road transport, ranging from a Citroen 2CV through GTi-type sports cars to heavy goods vehicles.

The speed you'll be travelling at on each type of road can be taken into account, as can stops at places en route.

Distances can be given in either kilometres or miles and preferences can be given for certain types of road. For example, the program could be told to avoid motorways and stick to A roads whenever possible.

The routes found can either be listed as directions or shown as a map and if you have a printer connected you can get a hard copy of the directions.

Autoroute isn't entirely without its problems. Entering a journey from the Interactive Publishing headquarters in Adlington to Atari's headquarters in Slough brings up a route which not many would use.

The difficulties begin when it presumes that you're setting off from Adlington in Lancashire rather than Cheshire, and it then takes the driver straight down the M1 to the M25 and then to the M4, when a much quicker route would be to travel down the newly-opened M40 which hasn't yet been added to the database.

Being much easier to handle than a map, most drivers could find a use for this program from time to time and although not without its foibles, it could be invaluable to companies which have drivers out and about frequently. But make sure you have the right destination keyed in first! Autoroute is available from NextBase (0784 460077) for £69.95.

ON-LINE SERVICES

How many times have you had trouble with inefficient travel agents? Exactly. It's very tempting to miss out the travel agent and go straight to the airline, railway station or car hire firm to book your travel arrangements.

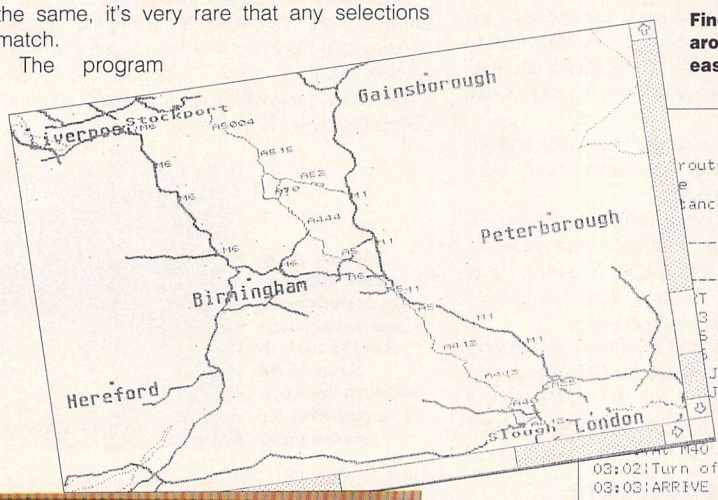
But there's a much easier way. By connecting a modem to your telephone and ST you'll be able to check the timetables of trains and planes and book tickets. British Telecom's Prestel service is one of the largest and is used by most travel agents.

Prestel and others also give up-to-the-minute weather reports, forecasts and road conditions.

This luxury might be too hard on the wallet for the occasional traveller but even they're not left without a wealth of information. Connecting a teletext adaptor to your ST will supply you with all the pages from the Ceefax and Oracle services, including many relevant to travel.

Microtext (0705 595694) sells a teletext adaptor for £148.93 which will work with colour and monochrome monitors.

● *Our grateful thanks to Grimshaws Ltd of Prestwich for the loan of the Vauxhall Carlton GSi, Manchester Airport Hilton Hotel and the Manchester Helicopter Centre for their generous help in the preparation of this feature.*

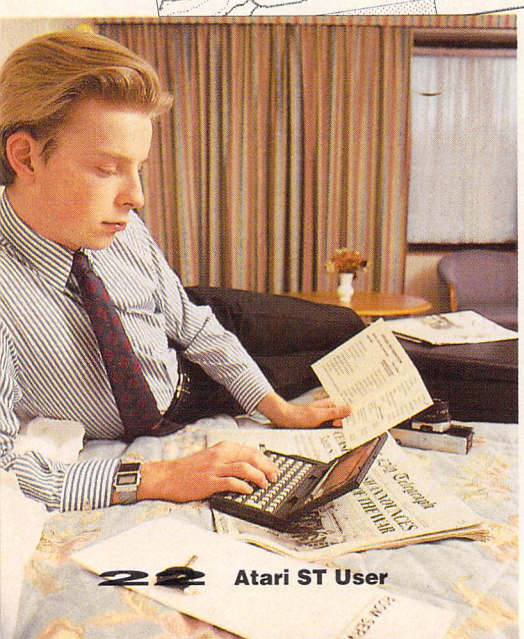


Finding your way around is made much easier with Autoroute

```
                    Autoroute V1.5

route from Stockport to Slough
e     :3 hrs 3 min
tance :199 miles

                                  |  Road  |   For   |Dir| Towards
T Stockport                       |A5145   |1/2 mile |W  | (Chorlton Cum Hardy
3 J12 go onto                     |M63     |2 miles  |W  | (M63 J11)
5 J1 M63 J10                      |M56     |9 miles  |W  | *Check access*
6 J8 turn off onto                |A556    |4 miles  |S  | *Check access*
J19 turn left onto                |M6      |100 miles|E  | Stafford
J19 M6 turn off onto              |M1      |62 miles |S  | *Check access*
J21 M1 J6a                        |M25     |14 miles |W  | (Kings Langley)
J16  turn off onto                |M40     |1 mile   |E  | (M40 J1)
M40 J1 turn off onto              |A412    |6 miles  |S  | Slough
03:02:Turn off onto               |A4      |1/2 mile |W  | Maidenhead
03:03:ARRIVE Slough               |        |         |   |
```



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Airport security across the globe was stepped up tremendously just before the start of the Gulf War as the threat of terrorist action increased. Many chose not to travel at all because of the increased danger.

Television and newspaper reports of the army and armed policeman patrolling terminal buildings and tight restrictions on luggage are not exaggerated. Taking electrical items on board airliners became very risky, even more so when the flight involved international travel.

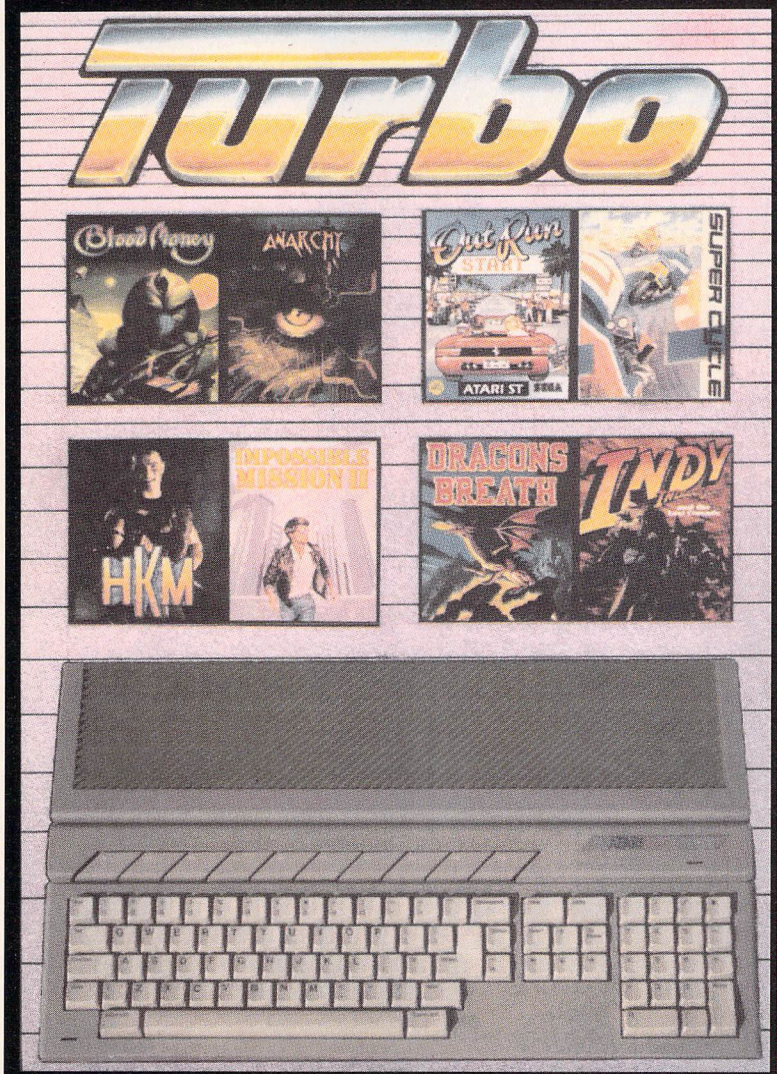
Germany has some of the tightest restrictions, and a spokesman for Luton-based Britannia Airways said that he had received reports of 16,000 personal stereos confiscated at Frankfurt Main airport.

Frankfurt might be stricter than other airports because it has the giant Rhein Main United States Air Force base as a neighbour, nevertheless, those flying to the Atari show in Dusseldorf later this year should be mindful of the German restrictions.

Most airlines recommend that the number of electrical items carried by passengers is kept to a minimum and that they are taken as cabin baggage.

If you intend to take a computer it's best to check with your carrier before leaving for the airport whether the equipment will be allowed on board – computers are expensive things to have confiscated and it's doubtful that any insurance company will pay for its loss.

ATARI ST
"E" & "FM"



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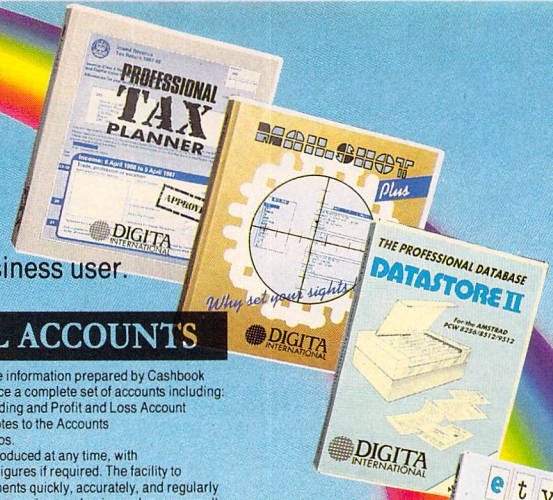

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ANI ST

Configuration: All STs. low res
Filename: ANIST.PRG

Ani ST is one of those deliciously sensible programs, which performs a dreary task eminently suited to the mind-numbing servitude of the computer.

Ever admired Tom and Jerry? You know, the one where Tom gets hit full in the face with a frying pan and ends up resembling that kitchen implement? Or the Road Runner, especially when he plummets thousands of feet to the canyon floor but only after realising that in fact, he is no longer standing on terra firma?

Brilliant cartooning – must be the work of a genius. Well, it is, but only the first and last drawings. That's right. Some guy – the one who gets paid most, you understand – sits down for a while and draws the first and last pictures of a hilarious sequence.

He might draw say, the frying pan as Jerry is about to swing it at Tom, and another with Tom reeling around with a face shaped liked the inside of a frying pan. And that's it, the work of the great cartoonist is over.

Then another guy known as the 'tweener' – for reasons which will become clear in a moment – sits down and draws all of the frames between – and there's the origin of the name – the opening picture and the last, punchline, frame.

The work of a tweener is indescribably boring as you can imagine. Never an original drawing, just filling in between some other cartoonist's work.

OK, so that's how the career ladder ascends in the world of animation. If you want to be a master cartoonist, you gotta put in some hard grovelling and grafting first. Fortunately, this isn't the case in the real world.

Let's say that you've admired all of the animated movies and shorts, and want to try your hand at some home animation. You've got a nice opening idea, but simply can't be bothered with the enormous quantity of work involved in drawing it out.

And that's where your ST steps in, accompanied by a bit of software which once cost an arm and a leg when it was distributed commercially, but which is sitting right there on the blue plastic square thing you got taped to your favourite read.

Ani ST, formerly Aegis Animator, first appeared way, way back before the ST hit the scene in a big way. Available for that most odious of silicon, the Commodore Amiga, Aegis Animator retailed for a healthy sum and provided access to easy animation for enormous numbers of Amiga owners everywhere.

Jim Kent, the program's author didn't especially like the results produced by his baby when running on the Commodore machine and so decided to convert it to the ST. This he did and the result, with one minor change, you see before you.

Using a selection of geometric objects such as polygons, lines and so on, you plot the first and last in a sequence and using the amazing tweening abilities of Ani ST, the frames between are generated by your ST.

OK, OK eager beaver, how to get at the software follows in just a moment, but first let's complete the history lesson. Software house Aegis took on the distribution of the program and all was well – for a time.

Jim decided that he didn't like the way the program was being handled by Aegis and decided to reclaim the rights. And so a program with a price tag of £80 is now freely available to everyone who wants it, free, gratis and for nuthin'.

Not only that, but before releasing his program into the public domain, the nice Mr Kent fixed a bug the program had with everyone's favourite OS 'extension' GDOS – what a good guy, huh?

And the name? Changed because Aegis Animator belongs, presumably, to Aegis.

Right, right we're getting to it. Double-click the SIDE_2 folder, double-click the ANI_ST folder and double-click ANIST.PRG.

There's no GEM menu bar or anything as unsophisticated as that. Instead, Jim supplies a little palette of options from which you can start creating, load existing animation sequences, view them and so on.

Click the floppy disk icon in the palette, a custom file selector window appears (this guy believes in doing things his own way, OK?), click on .SCR to search for files using that mask and a list of those found appears.

Select FRAGS, or FLEUR or LITTLESEA and click the file selector close box. Back on the main palette, click the large movie camera icon (it's below and to the right of the disk icon), sit back and watch the show.

As well as tweening, Ani ST provides access to a whole host of other graphics-orientated features and functions which you'll learn about by reading and playing.

Oh, and if you need further instructions, and you will, a comprehensive manual appears in RunTime. Just follow the menus.

ZX81 EMULATOR

Configuration: All STs, medium and high res
Filename: ZX81.PRG

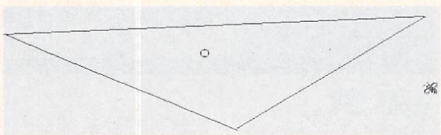
The ZX81 was the first monster selling, affordable home computer to make it into ordinary households. The emulator presented here includes more than 30 ZX81 originals: 3D Labyrinth, Cosmic Invaders, an assembler, disassembler and more.

Double-click the SIDE_2 folder, double-click the ZX81EMU folder and drag the ZX81EMU.ARC file to a freshly formatted disk together with the ARCX.TTP program which you'll find on side one of the Disk.

Unarchive the file then double-click ZX81.PRG. After a few moments, you'll see a square white screen and the K cursor. The emulator has a picture of the ZX81 keyboard. Press Help to display the keyboard.

You can now program in Sinclair BASIC or load one of the supplied programs. To load, hold down the Alternate key to gain access to the keyword above the ZX81's J key and the word LOAD will appear on-screen.

Hold down the Shift key, press P twice then Return. The standard ST file selector appears. Select any of the programs with the .81 extension, then follow the instructions given on-screen. Have fun!



STCAD

Configuration: All STs
Filename: ST_CAD.PRG

The display provided by the ST in medium or high resolution modes is perfect for CAD applications. Computer Aided Design is software which enables you to produce complex blueprints, plans and drawings of items without having to do manual calculations.

If, for example, you want to design a garden shed, the only way to determine whether the project is viable is to produce a scale drawing of the shed. Enter ST CAD.

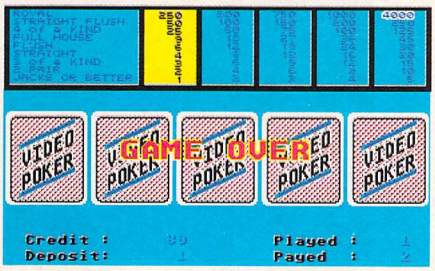
To use ST CAD double click on the SIDE_2 folder, double click ST_CAD then double click ST_CAD.PRG. You'll be presented with a blank screen. But before you do that, you must read RunTime.

Double click RUNTIME.PRG to run the it, then follow the menus to ST_CAD's manual.

VIDEO POKER

Configuration: All STs, low res
Filename: VIDPOKER.PRG

Coin-op arcades, don'tcha just love 'em? A fat guy wearing a sweaty vest grubbing through wads of fivers in a bullet-proof plexiglass booth, a bottle-blonde making desultory sweeping motions with a hairless brush in the corner, and the only machine you want to play on is surrounded by a gang of hostiles – you really wanna go there right?



Well, now you can, and you can do it without leaving the safety of your own barricaded sitting room, by firing up Video Poker.

This little gem is a faithful rendition of a Las Vegas poker playing machine. Faithful right down to having no stupid mouse controls to deposit coins and the like, it's all down to one finger taps at the keyboard.

Double click the SIDE_2 folder, then double click VIDPOKER.PRG – making sure that you're currently in low resolution on a colour monitor or TV. You're subjected to a 15 second advert about the wonders of the shareware concept, then it's coin in the slot time but be careful, this baby is really addictive.

Press M for money if you run out, C to deposit a coin and F to deposit five coins, space bar deals the cards, you can hold by pressing 1 to 5 (for cards 1 to 5...), then space bar again to make a second deal. Great fun for potential Gamblers Anonymous recruits everywhere!

THE KILLING GAME SHOW

Configuration: All STs, low res
Filename: KILLING.TOS

This is the one bloodthirsty arcade freaks have been waiting for. Psygnosis' latest release is an A to Z of bloodshed, a hymn to the wickedly insane. The object? Kill, kill everything, leave nothing standing.

This is a complete playable demo of one level of the game. Ensure that you're in low resolution, double click KILLING.TOS, press the fire button and RAMPAGE!

DISK MANAGER

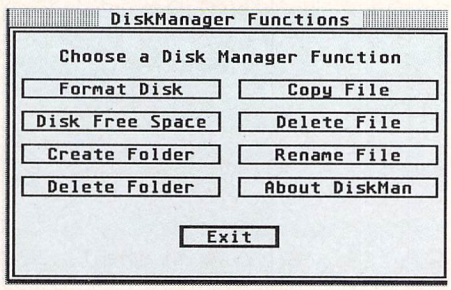
Configuration: All STs
Filename: DISKMAN.ACC

The ST is invariably compared to Apple's financially remote 68000-based machine, the Macintosh. The comparison is well founded, both machines have a sophisticated WIMP front-end, a mouse, quality display and so on, but in almost every 'which is best?' discussion the ST comes out second – why is that?

Well it certainly isn't because the ST is inherently inferior. Although the Mac's Desktop is better than the ST's – you don't make a second copy of a file when you move it from the root directory to a folder for example – the ST wipes the floor with the Mac Plus in terms of speed and display resolution.

'Plus emulators running on the ST have a 30 per cent larger screen and typically run 25 per cent faster than the Mac. The reason for the second placing then is the software available for the two machines.

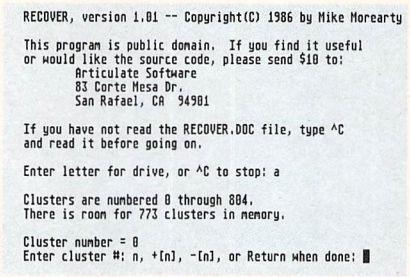
The Mac was at first shunned by business users, but acquired an enormous following among American propeller heads and techies. As a consequence, the machine is incredibly well supported with quality utilities. Aggressive marketing meant that the Mac suddenly caught on with the corporate buyer too, and so all of the best software from the PC world was updated and converted.



Disk Manager can help here though. One useful bit of Mac software is DiskTop, a Desk accessory available from within other programs which enables you to create and delete folders, copy, move, delete and rename files and generally gain access to system level functions from within an application.

Disk Manager does all this and more. You can create folders, manipulate files, format disks all from your word processor, spreadsheet or database.

Just boot up with the DiskMan accessory in the root directory of your boot disk, summon the program from the menu bar and Bob's your Aunt's live-in lover!



RECOVER

Configuration: All STs
Filename: RECOVER.TOS

Everyone's done it at one time or another. It can be embarrassing, particularly if it's just a little one and difficult to find, and you can end up with disastrous results.

That's right, STers, accidently deleting files is horrendous! However, with this wee utility you have a fighting chance of recovering that deletion and winning back against the Trash can, particularly if the file you trashed was text-based.

ST disks are divided up into clusters, and Recover makes use of this feature by reading them one after another and displaying their contents on-screen. This means that you can examine the entire disk for bits of information you recognise.

The information can then be stored in a buffer and saved to a new disk file, effectively retrieving your deletion.

The program is run by double clicking, but it's advisable to read the informative documentation for it provided in RunTime to get the most from the facilities on offer.

SCREENSAVER

Configuration: All STs
Filename: SCNSAVE.PRG

If, like most computer users, you're prone to being called away from your machine to answer the telephone, feed the cat, or settle trivial discussions such as whether you should take a second mortgage or buy a new house, you'll constantly be leaving your ST with its screen glowing.

The inside surface of a monitor or TV screen is coated with phosphor. The picture is created by a charged beam which whizzes back and forth over the phosphor, making it glow.

Fine. But problems occur if the screen displays the same picture for long periods of time. The same spots of phosphor gradually become burnt out, so that when you switch off the machine or to a different display, you can still see faint traces of the old one.

Fortunately, there's a solution. Drag the program SCNSAVE.PRG to the auto folder of your boot disk. Reboot. Now when you don't move the mouse or keys for a while the display is switched off. Simply move the mouse or hit a key and service is resumed!

Now open up the definitive lexicon of programming from those in the know: professional ST programmers. It's all here – in the world's first dedicated electronic ST programming magazine

RUNTIME 11

Create 3D graphics you'd swear were the real thing with our informative graphics series written by University lecturer Andrew Tyler. From first principles to extended programming practices, you'll be guided through graphic construction.

And to complement his series, RunTime features a variety of programs and code fragments which help to illustrate the concepts detailed in the magazine.

A couple of months ago we gave you HiSoft's DevPac so you could easily follow the examples provided by our guru of graphics. This month, we've included another batch of his program snippets so that you don't even have to type the stuff in! It's all here, on the CoverDisk, just waiting to be assembled and run.

GFA RESOURCE PROGRAMMING

Another instalment in our amazingly popular programming series detailing the vagaries of GFA resources and how to get the best from them.

Our expert,John Peters takes you by the hand on a guided tour of the requirements and prerequisites so that all those interested in the subject can follow and learn.

This month,John shows you how to create a useful control palette to manipulate colours when working in low resolution.

ABSTRACT DATA TYPES

Completing his two part article, Paul Overaa expands on his ADT queue theme initiated last month, reassessing the five available access routines and suggesting that to make use of such a construct it's a benefit for a programmer to use it without knowing anything of the internal arrangements.

Join Paul in his philosophical musings in RunTime.

STOS PROGRAMMING

Phil Lawson almost acquiesces to your numerous requests for the sprite designer and other goodies while attempting to continue his explorations into the STOS language. On offer: Solutions to the problems of meeting baddies, walking through acid pools, dying because of a lack of time and much, much more.

FIRST STEPS IN BASIC

It's back! Unfortunatly , due to a slight technical hitch last month we were unable to bring you the latest gripping instalment of this introduction to BASIC. However, we've righted the wrongs and solved the unsolvable to reinstate the beginner's friend, Peter Phillips, to his rightful place.

CODE CLINIC

The hardy perennial with the evergreen outlook. Code Clinic is on hand every month to solve your coding problems. If your name is Robert Johnston, Nico Verwer or Chris Becker, whaddaya waiting for? Your problems have been solved...

YOUR DISK NEEDS YOU

Here at *Atari ST User*, we're always on the look-out for new programming talent. ST owners the world over love to program their machines and we want to publish the fruits of those programming efforts – many of which rival commercial offerings.

If you've written a program which you think would be interesting to other readers, send it to us. Sure, it's easy to be discouraged, "they'll never publish this..." and you'd be right! We can't publish programs we don't receive, OK? Whatever language you've used, BASIC or assembler, Pascal or C, send it to us. We'll evaluate its potential and if it's good enough for the disk, we'll pay you handsomely to boot!

If you're going to send a program, here's what to do:

- **Check that it works and that it's as bug-free as you can get it. May sound obvious, but you know your own code. An inexperienced user might press one wrong key and send the whole thing scampering away for cover.**
- **Make sure that it's ALL your own work. Don't rip off code from anyone else, then send it with your own name.**
- **Include full instructions.**
- **Include your name and address.**
- **If you want the disk back, include a stamped addressed envelope.**
- **Include a signed declaration bearing these words "I agree to indemnify Interactive Publishing against all possible litigation arising from the use of my software". If you're under 18, get your parent or guardian to sign it too. If you've already sent a disk in and haven't included a declaration, we'll send a form out to you before we use your program. And once you've sent a disk to us, be patient.**

We get lots of submissions and we give each and every one careful consideration. Don't worry too much though if you have sent in something, with an SAE, and haven't heard anything since. Some things just take time and can't be hurried...

GETTING STARTED

RunTime is a disk-based magazine program with articles providing programming help, hints for games writers and much, much more.

The magazine appears on side one of the Disk as RUNTIME.PRG and all you need to do to read it is to double-click on it. You'll see a screen with the *Atari ST User* logo on the left and a list of menu options on the right.

These menus contain the titles of all the programs, articles, games and utilities on the CoverDisk. Click on a menu option and the article will be loaded and displayed on the screen. If your monitor isn't very clear you can print out the article and study it at your leisure.

At the foot of the screen you will find several icons. Here's what the main ones do when you click on them with the mouse...

This is the icon which enables you to return to the opening Main menu. Click this if you want to stop reading the current feature.

Use this icon if there is a particular page of the feature which interests you and which you wish to have on paper.

If you need to print the entire feature, tutorial and so on, this is the icon you need. Click here to send the complete feature to your printer.

Often, as you're reading a feature there'll be an associated picture to help illustrate a point. Click on this icon to see the picture.

Everyone, even learned programmers, needs help occasionally. If you find that some friendly advice is needed click the cross.

USING USERDISK AND RUNNING RUNTIME

Follow these instructions for absolutely trouble-free CoverDisk use

Here it is, all you've ever wanted to know about using the CoverDisk and getting the most from it.

● Insert the CoverDisk in drive A: of your machine. This is the internal drive on most STs, although some of the very old machines have an external drive.

● Turn your ST off for about 10 seconds. This will clear any programs which may be in the memory. Turn your machine back on to boot up with the CoverDisk.

A Desktop with two disk drive icons and a single open window will appear. If you're using a colour monitor or TV, your ST will boot in medium resolution.

● Move the mouse cursor over the RUNTIME.PRG icon and double click on it to start the program. RunTime will run in medium res on a colour monitor or high res on a mono monitor. It will NOT run in low resolution.

● When the RunTime program is up and running, you'll see the opening menu screen. From here you can access all the different sections of the magazine.

● The main menu has four buttons. Click on each of these once – not a double click. The three top buttons will take you to other sections of the magazine, such as the programming articles or program documentation.

The button marked QUIT TO DESKTOP will exit the RunTime program and return to the normal ST Desktop.

● Selecting any button will load the text file from the disk into the user-friendly text reading screen. Again, click on the button once, and wait for the file to load.

Selecting the MAIN MENU button will take you back to the RunTime start-up screen.

● When you've read the file, or printed it out, you can go back to the menu to select another file.

NOTES FOR HARD DRIVES

If you've read all you want to, go back to the main menu and select QUIT TO DESKTOP to exit RunTime and return to the ST Desktop to continue exploring the Disk.

If you have a hard drive and boot up from the CoverDisk, your Desktop won't have any icons for your hard drive partitions. It's better if you boot the hard drive in the normal way, then put the CoverDisk in the floppy drive.

Once this is done, open a window on drive A: by double clicking on it. Use the window slider bars to find the RUNTIME icon then follow the instructions above for using the program.

It is possible to copy the entire RunTime program to the hard disk to speed up the time it takes for text to load. If you do this, remember to copy all of these three files: RUNTIME.PRG, DM.RSC and MENU.INF.

You must also copy the whole of the TEXT folder to the hard drive. This folder contains all the text files for RunTime – both the folder and the files it contains must be copied.

These three files and the TEXT folder must be copied to the same place, ideally the root directory of the C: drive. RunTime looks in the same directory for its RSC and INF files and the TEXT folder. If these cannot be found, the program won't run.

HOW TO DEARCHIVE FILES USING ARCX.TTP

ARCX.TTP is a dearchiving utility which we include so that you can make use of any archived programs and text files which we've included on the Disk.

Why do we archive some files? So that we can cram as much as possible onto the Disk, that's why! The archiving program ARC is a tried and tested utility which has been around for a number of years, and which enables many users to make the most of the limited Disk space available to them.

ARCX.TTP, the utility used to extract files from archives, is not however, for the faint of heart. Beginners can be particularly intimidated by the program's user interface but as with any aspect of computing, if you take a deep breath and follow the instructions, all will be well. Here's how to use ARCX.TTP...

The .TTP name extender of ARCX.TTP stands for TOS Takes Parameters, and means that the ST's operating system, TOS, requires you to type in some parameters such as location and name of file before the .TTP program can do its stuff.

ARCX requires the exact location and name of the file you want to dearchive before it will work correctly. If incorrect or incomplete information is typed in, then you're simply returned to the Desktop.

Let's say for example, that you've formatted a disk in your B: drive ready to receive the archived file from our CoverDisk. Your A: drive contains the CoverDisk with the archived file and the ARCX.TTP program.

Drag the archived file, let's say it's called TESTFILE.ARC – archived files always have the extender .ARC – onto your newly-formatted B: disk. You do this to ensure that there will be enough space for the files which will be extracted from the archive. Then double-click ARCX.TTP.

A dialog appears bearing a dotted line for you to type in the location and name of the archived file you want to dearc. Now type in this:

b:testfile.arc

and click OK. The screen will clear while ARCX.TTP searches the B: drive for the file TESTFILE.ARC. Note that ARCX.TTP isn't case sensitive, you can use upper or lower case characters.

If the file is found, a line of text appears at the top of the screen with the first file in the archive, say FILEONE.TXT, and a message offering you 'yes/no/ quit/all'. The line looks like this:

FILEONE.TXT (Yes/No/Quit/All)

Pressing the first letter of each option – only one, obviously! – will result in the action being performed, so that if you decide to dearchive FILEONE.TXT, pressing Y will result in the message 'EXTRACTING' appearing on-screen and the file being dearchived. Simple, right? But only if you know how...

Always remember when using ARCX.TTP that you must type in the exact location including drive designator – ie a: or b: or c: and filename with extender for the archive file to be dearchived. Here's another example.

If the archive file named TESTTWO.ARC had been on the C: drive in a folder called TEXTS inside another folder called OLD, then the parameter line would look something like this

c:\old\texts\testtwo.arc

meaning please dearchive the file 'testtwo.arc' which is on the C: drive inside the folder 'texts' which is inside the folder 'old'.

It's all very simple, right?

THE FINAL WORD

We really do want to make the CoverDisk as simple to use as possible. We still want to pack as many programs onto the Disk as we can, which is why some programs occasionally have to be archived to save space.

These instructions should help to make using the Disk and reading RunTime quite straightforward. But if you still find you have any difficulty, or if you feel that some of the instructions should be expressed differently, or if you want something else to be included, please tell us.

This set of instructions will appear in every issue of 'USER from now on – to help people new to the magazine, and to the ST. So don't forget – if you have any suggestions, let us know.

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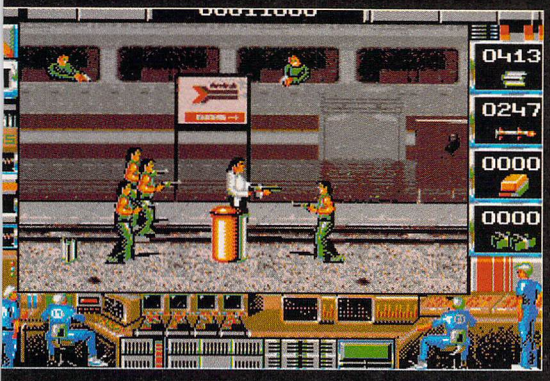
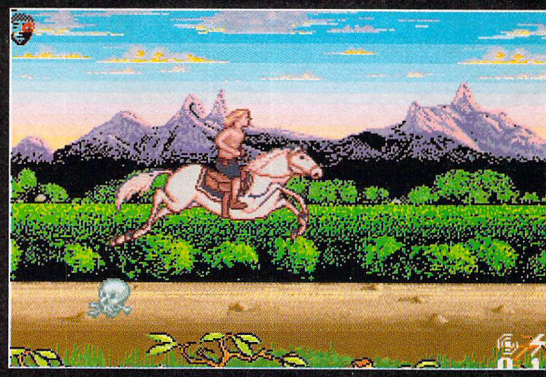
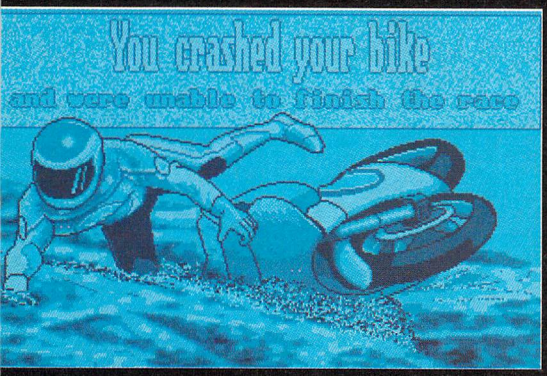
Commodore

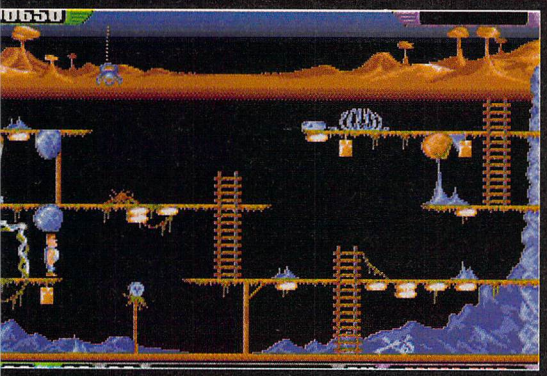
THERE'S A LITTLE BIT OF COMMODORE IN ALL OF US

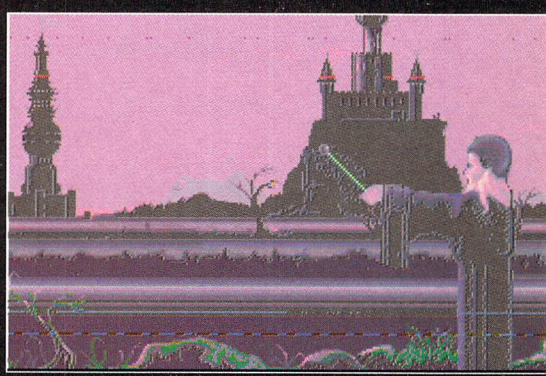


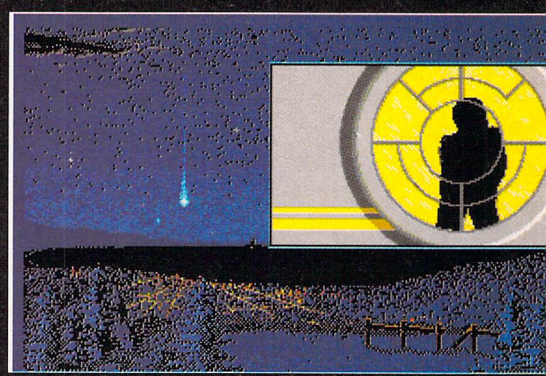
PLAY TEST











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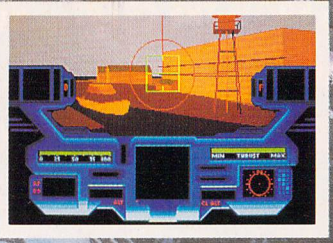

Screen Shots: Atari ST version

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Image Works, Irwin House, 118 Southwark St, London SE1 0SW Tel: 071-928 1454 Fax: 071-583 3494

1 POP UP

Those masters of original ideas, Infogrames, are at it again with their latest ST release, Pop Up. Having already brought you weird and wonderful games such as Alpha Waves and The Light Corridor, Pop Up sees you controlling a little energy ball that you make bounce from one era to another.

From the Big Bang at the start to the future, passing through Prehistory and the Middle Ages to modern day, you must bring a touch of civilization to every age.

There are loads of levels as well as a screen editor to make your own – what more could you ask for? Pop Up is in Infogrames' Cartoon Collection and will set you back £24.95

2 NORTH AND SOUTH

Another brilliant French game is set to return to an ST screen near you soon. North and South won great critical acclaim when it was first released a couple of years ago by Infogrames. Now it is to be re-released at the incredibly nice price of £7.99 by Digital Integration on its Action 16 budget label.

Following a storyline from the cult French comic book Les Tuniques Bleues, you become a Yankee or a Confederate trying to encircle your enemy and launch surprise attacks. You can take control of forts, rob trains and lead your army into battle.

North and South has to be one of the best games with a two-player option around. Play it with a friend and you'll be instantly hooked. One not to miss.

3 BETRAYAL

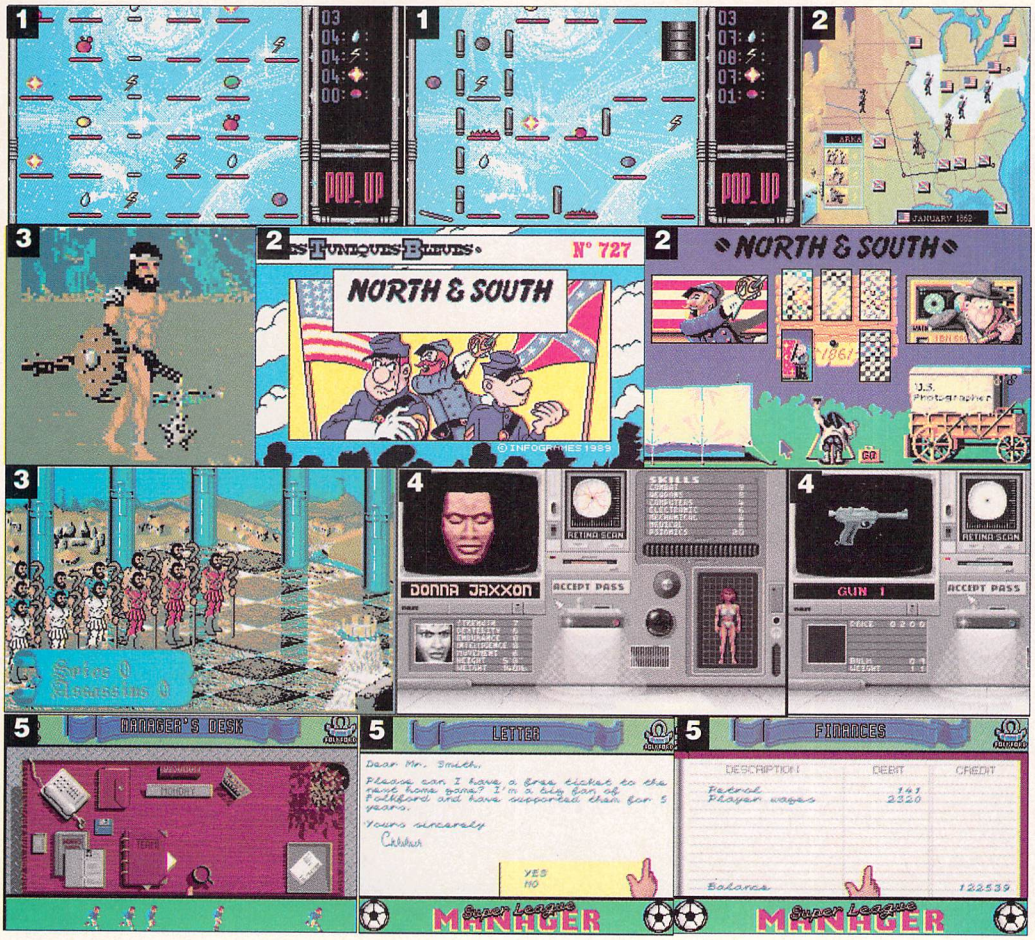
If you already think that the only way to win is to cheat, then Betrayal is for you. Soon to be released by those Masters of Strategy Rainbird – who also did the excellent UMS II – the game gives you the chance to take on the role of one of four knights.

Up to four people can play, or the spare players can be computer controlled, all trying to get thier hands on the throne of England.

To do this you must gain a majority of your courtiers in both of the the courts of the land – the King's Court and the Bishop's Court. Do this by all means fair and foul.

You can bribe, threaten and assassinate your way to success, but be warned – it won't be easy.

It will be out soon at £29.99, so if loyalty isn't your strong point, check it out.



4 MOONFALL

On a mission deep into space on the Earth's first starship – the Dedalus I – in order to colonise new planets, you have been captured by the evil Roboform masters.

Having eased yourself into a position of trust, you have now been given a trading licence and a space vessel, so off you go to trade goods with the other races.

The idea is to make enough money to be able to buy the world the Roboforms inhabit, and thus become Supreme Leader. Then of course, you can secure your freedom.This is the rather complicated plot to the new game from Hewson.

Available shortly at a price of £24.99, Moonfall looks quite like Mercenary, so if you were a fan of that game give Moonfall a whirl.

CORPORATION MISSION DISK

Hot on the heels of the truly excellent Corporation, Derby's Core Design has released the Mission Disk, which features another 16 dangerous levels of the fear-filled factory to explore.

Having been so impressed at the way you handled the original mission, your bosses at ZODIAC decide that you're the chap or chapette for the job again and whisk you off to another factory in another country.

There's still an option to play your own unique character, featuring a digitised photo of yourself which you can send to Core along with a couple of quid to get a character disk back featuring your good self.

But don't forget that you must have the original Corporation in order to use the Mission Disk.

5 SUPERLEAGUE MANAGER

Audiogenic is about to release a new soccer management game on to the market. Ever since Football Manager on the 8-bits, this sort of game has continued to be a winner – few software companies go wrong when releasing their version.

In Audiogenic's offering you take control of Folkford Utd – a sad fourth division outfit with hardly any hope of success at all – and try to push them to great heights.

Pick your team, talk to other league managers on the phone when you want to complete a transfer, and choose your formation. It's all here, all the trials and joys of managing your own team to success.

The game is full of nice little touches, for example, clicking on

the cup on your desk makes the coffee gradually disappear. And you can water the pot plant by clicking on it.

HYDRA

The world is in a state of anarchy, and when that special package simply has to get there, there's only one courier firm capable of completing the job.

As Hydra's top courier you have been charged with getting said top secret package across to the other side of the world. Stand by to be mobbed from all sides by international terrorist organisations intent on getting their hands on the secrets.

The game has been programmed by Tengen of Hard Drivin' fame, and will be distributed by Domark. It's likely to cost around £25.

Release dates are sketchy but it could be available by the time you read this. Don't hold your breath though.

SKULL AND CROSSBONES

Also making progress at the Tengen offices is a new two-player pirate game with the highly unoriginal name of Skull and Crossbones.

In this tale of derring do you control a pirate who plunders his way across the seven seas in search of fabulous treasures and beautiful wenches.

Take part in an adventure into the unknown, board ships in a fight to obtain plenty of food and drink, make sure you fight it out with Arch Magus and all his merry men. And most important of all, try to avoid the deadly stare of Medusa.

Skull and Crossbones will also be handled by Domark and is scheduled for the same release as Hydra. So expect it when you see it.

AWESOME

Scouser software company Psygnosis has a busy schedule planned for the ST over the next couple of months. First off the starting blocks is Awesome, and what an apt title that could turn out to be.

Billed as the game to take you beyond The Final Frontier, it has been programmed by the team who brought you Beast and Beast II and features a combination of classic shoot-'em-up and trading.

Graphics are what we now expect from Psygnosis – truly excellent – and some of the aliens take up the whole screen. We've no idea of the price yet, but the release date shouldn't be too far away.

6 BACK TO THE FUTURE 3

Zooming back to our computer screens courtesy of Mirrorsoft come Marty McFly and the ever so wacky Doc in the game of the box-office hit, Back to the Future III. Now the film may not have been as good as everyone hoped for, but don't be put off by that. Featuring several stages, all linked up to certain scenes in the film, Back to the Future III sees you – playing Marty – and the Doc trying desperately to get back to 1990 from the Wild West where the Doc has accidentally time-warped you.

The levels include stages which have to be completed on horseback and other sub-game levels such as a shooting gallery.

Programmed by Probe who have just finished Viz for Virgin, expect this one to be available any time now at the virtually standard price of just under £25.

7 PREDATOR 2

Remember the original Predator that came out on the ST some years ago? Now, with the arrival of the movie sequel, Mirrorsoft has snapped up the rights for the game of the film.

It features five levels of blasting action in which you make your way shooting terrorists and preventing the Predator, who has come back from killing innocent bystanders from wreaking any more havoc.

You can pick up weapons and ammo, and every now and then you'll see the shimmer of the Predator's cloaked form. A quick blast with your gun will make him roar with pain.

As with BTTF3, the game will be available at any time now. Expect it to be somewhere around £24.95 mark.

8 DOMINION

A hot little number set to roll out of the duplicators shortly is Dominion from Pandora. It was programmed by Interceptor, and work has been underway for well over a year. At first glance it looks like the old Aliens game, but start playing and you'll realise that this is more fun.

The basic idea is that the Earth has been set upon by a dominant race and will only be freed if you pass a test on behalf of the entire human race. Fail and humanity will be wiped out.

The final version will come with a cassette tape of music which sounds a bit like Jean-Michel Jarre (dead good!) and an illustrated on-screen book .

Definitely one to watch out for later in the year.

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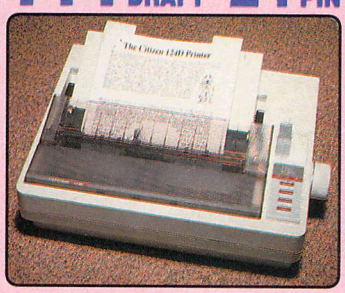

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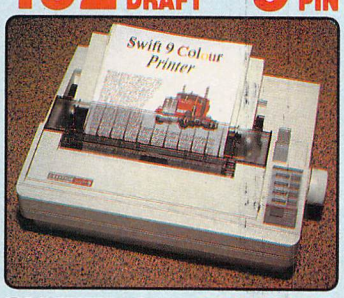

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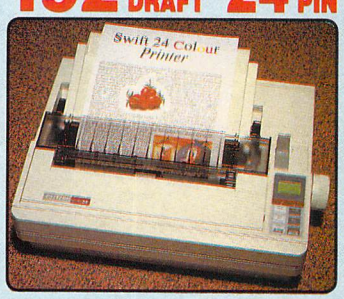

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- *8K Buffer*
- *Epson, IBM & NEC P6+ Emulation*
- *Advanced Paper Parking*
- *FREE Starter Kit*
- *FREE Colour Kit*

FREE! COLOUR KIT

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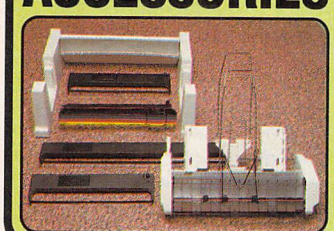

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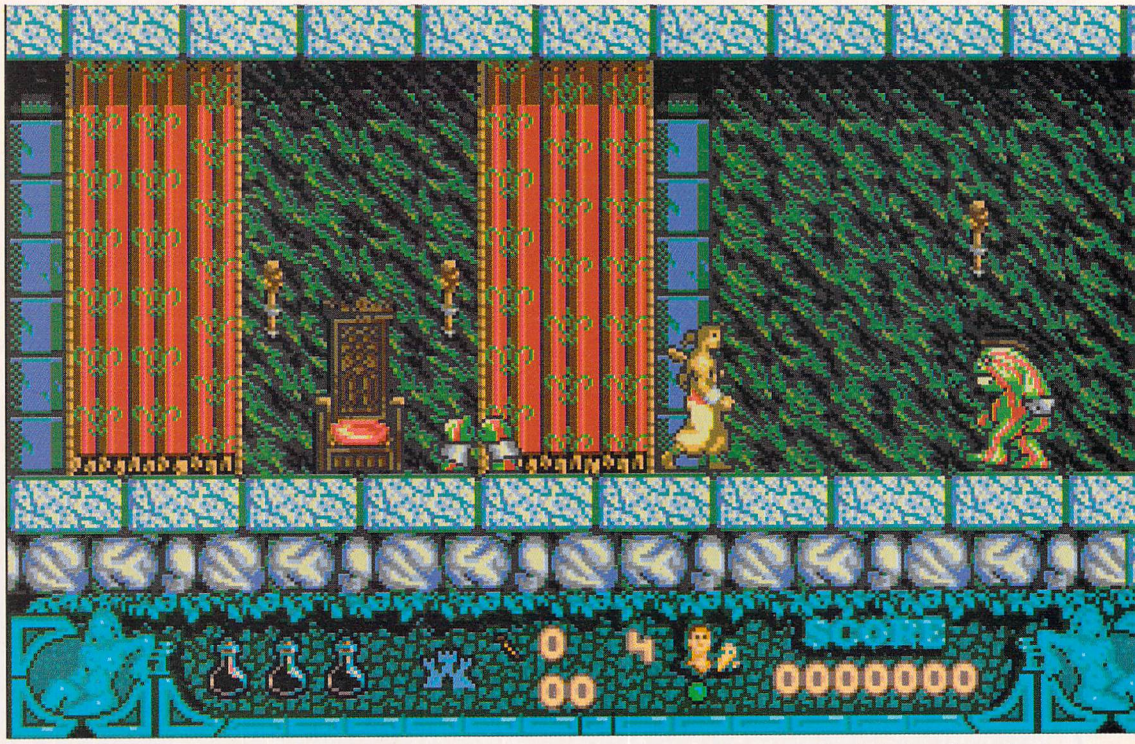
Death Trap is quite a breath of fresh air. The graphics are reasonably colourful and the sprites animated well. Sound has been restricted to the usual creatures moaning and weapons clashing and crunching against the flesh of your enemies. The outstanding quality of Death Trap is its immense playability. The inclusion of spells gives it that little something that most people love – the chance to fry the enemy with a 20 foot lightning bolt. This platform game contains puzzles, spells, weapons and more. It's definitely one for your collection.



Abi starts his quest at the beginning of level one. Straight away he's attacked by one of Shankriya's evil creations

DEATH TRAP

ANCO £24.95

Shankriya, a magician of great power, has become the undisputed ruler of the land after stealing some ancient, magic scrolls.

He used them to to such good effect that the previous ruler fled, leaving the country in Shankriya's evil hands.

To safeguard the secrets of his power, Shankriya hid the magic scrolls in a series of labyrinths and populated them with vicious creatures of his own creation.

Nobody entering them lived to tell the tale, and over the years they acquired the name of Death Trap.

As time went by and the evil Shankriya's rule grew more tyrannical, courageous young men tried to retrieve the scrolls and paid for failure with their lives. So now it is up to you, playing Abi, a brave and athletic young man who has volunteered to take up the challenge of the infamous Death Trap.

Trained in martial arts by the best fighters in the country, and schooled in the ancient craft of magic by wise and aged wizards, the hopes of the frightened population are focused on you.

You enter the Death Trap armed with nothing more than a small dagger. At first you're confronted by creatures that can be killed quite easily.

Destruction of some of these monsters is rewarded by potions which can be used for varying purposes.

Red ones are collected to acquire magical weapons, green ones are needed to obtain magic spells, and blue potions give you healing powers.

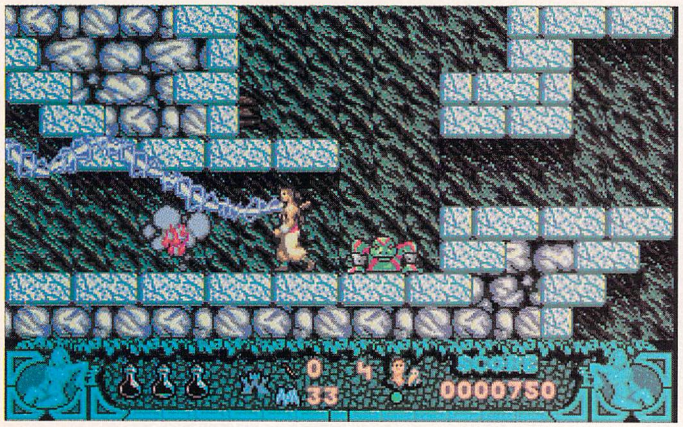
Magical weapons are very destructive and must be used frequently if you're to succeed.

Magic is limited to the usual invisibility and shield spells, and the healing potions can be used on yourself or a friend should one be summoned.

The spells and weapons are selected from a menu which is produced by pressing the space bar. Another icon shows the potion required to acquire the minimum necessary strength to wield a weapon, cast a spell or effect a cure. Each transaction can be made via the joystick.

Scattered around the labyrinths are chests which usually contain potions or extra weapons. Sometimes, however, you may be in for

GRAPHICS	87%
SOUND	84%
GAMEPLAY	87%
OVERALL	86%

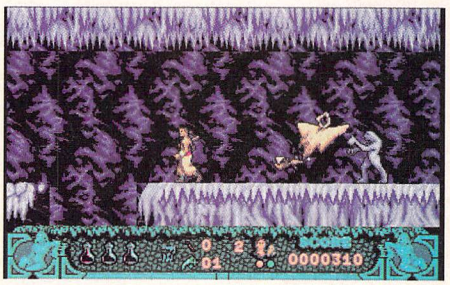


After acquiring some red potions, you concoct a lightning spell and use it to devastating effect

One of the many puzzles that have been dotted around the dungeon. This lever controls a door to the west

Examine the chest and you could find something useful to help you in your quest

Collecting the potions allows you to make magic spells and powerful weapons



These creatures are here to stop you making progress through the game's many levels

a nasty surprise; there may be an enemy hiding there or possibly a trap. The chests are opened by standing in front of them and pressing Fire.

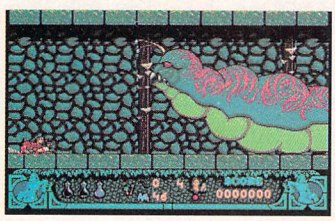
The labyrinth has been divided up into five levels: Castle, Catacombs, Ice, Living Hell and Rotten. At the end of each is a powerful guardian. However, each has a weak spot. Find it and you will triumph.

You start with four lives and three credits. When you lose a life you continue from the point at which you died. After all four lives have been lost, you can use a credit, and after using a credit, the game continues from the last level reached.

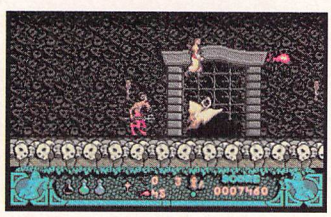
If all your credits have been used, it's back to level one.

Several creatures inhabit the dungeon, each with its own behaviour pattern. The pattern and strength changes depending on your current level, and you should study their action closely.

Some of the creatures are more powerful than others because they've adapted to survive in the treacherous conditions.

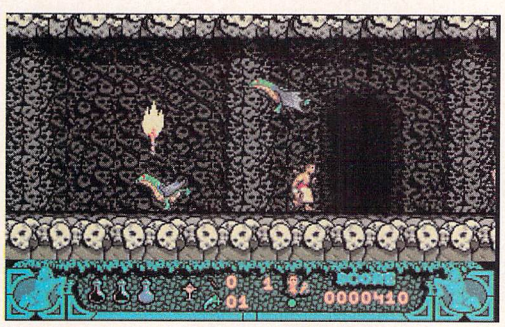


One of the ferocious end-of-level guardians. This giant slug can fire a sticky substance that totally disables you for a few seconds

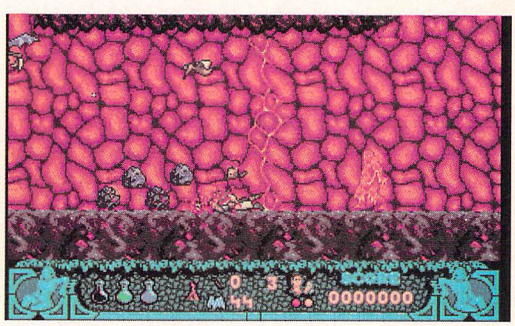


The catacombs have been filled with many traps and monsters to foil your attempt to free the people

The ice level is cold and slippery. Your best form of attack is to use the fireball spell



These creatures can cause considerable damage if they make contact with you



After casting the Summon Friend spell, you're given a bit of help by a mystical bird

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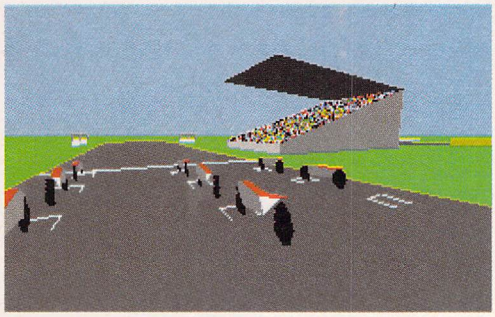
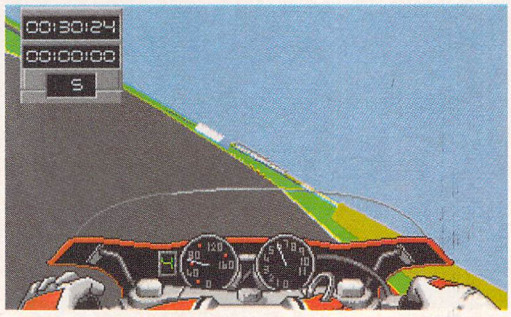


The opposition has quicker acceleration from the grid, but if you manage to stay on the track you should find yourself gaining ground



Some corners are incredibly tight. Optimise your progress by applying the brake and hitting the throttle at just the right time

TEAM SUZUKI

GREMLIN £24.99

Gremlin is currently blitzing the home computer market with a series of high quality racing games.

Lotus Esprit Turbo Challenge and Toyota Rally are roaring up the charts, and now Team Suzuki looks set to join them. It will surely have the same ferocity and impact as its predecessors on the top 20 chart positions.

Team Suzuki caters for both novice racers and the more experienced speed freaks among you. You have the opportunity to take a seat on a powerful 125cc motorbike, but 250cc and 500cc models are available for the more dangerous, courageous and skilful competitors.

When you're confident enough to tackle the larger bikes, the chance to compete in a gruelling Grand Prix of 16 international circuits will present itself.

The first obstacle is qualifying. Get to grips with the importance of achieving the fastest lap in the qualifying rounds and hopefully you'll succeed in gaining pole position when you're waiting on the grid to begin the actual race.

As the atmosphere intensifies the realisation of how vital the first race of a season is suddenly dominates your thinking. You turn the ignition key to spark the engine into life.

The power throbs and vibrates through the beast and your body. Push the revs high in preparation for a quick burst of acceleration when the light turns to green.

The lights are red... still red... then instinctively you release the clutch lever – perfectly timed, just as the green light shimmers its way through the heatwave from the engines of the other competitors' motorbikes.

The twisting track demands all your prowess on a high-performance motorbike, while the straights give you a sense of immense exhilaration. Five laps later and the race is over.

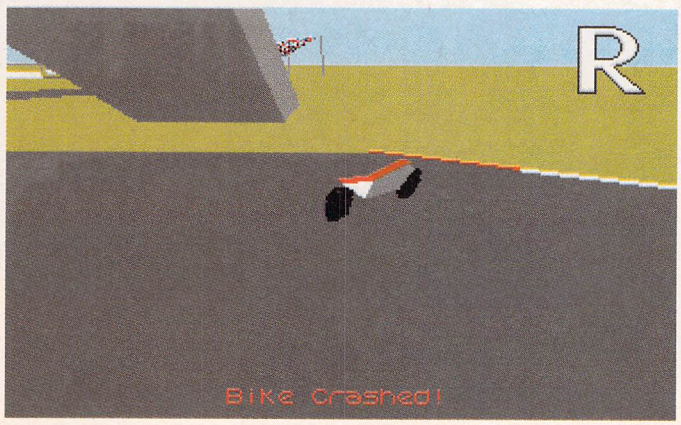
Completing a race requires careful use of the mouse or joystick. Too much movement from your control system could send you careering off into the barriers.

Hit one and the damage counter at the top of the screen makes grim reading. Reach 100 per cent damage and for you the race is over. Finish successfully and the relief really will be overwhelming!

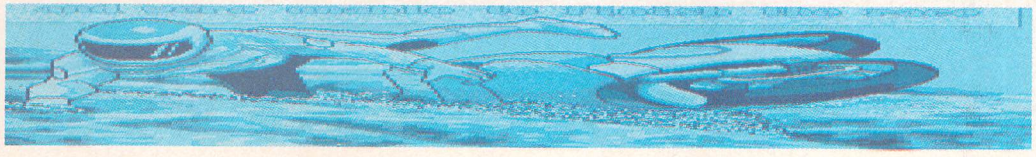
Team Suzuki has been officially approved by the real life Grand Prix team, which has put a lot of time and effort into assisting Gremlin with this game.

This included supplying the programmers with film footage taken from grand prix motorbikes competing in championships.

The amount of research that has gone into producing the computer game has been remarkable, and the Suzuki team must be commended for their input and co-operation. It's just a shame that the result isn't a little more spectacular.



Crashing into another motorbike will slow you down considerably. More significantly, it also increases your damage level



Although Team Suzuki is very smooth and the feeling of speed is conveyed quite well, there is, somehow a lack of excitement. Perhaps the very primitive backdrops and bare trackside are to blame and maybe the rather plainly detailed opposing bikes prevent you from feeling that you're up against something worthy. Team Suzuki is by no means a poor game, but it lacks its counterparts' atmosphere, and so fails to overly impress.

GRAPHICS	78%
SOUND	69%
GAMEPLAY	77%
OVERALL	77%

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The sequences between the playable sections are excellently executed and succeed in evoking great interest from the player. But the action that involves you taking the role of Lucas McCabe is somewhat repetitive. The graphics become boring and you feel restricted because of the small playing area. One aspect of Crime Wave that does liven up the proceedings is the extremely effective sound. Explosions blast convincingly from your monitor as limbs and blood spatter the ground. Crime Wave has a certain amount of addictiveness but not quite enough to provide complete value for money.

CRIME WAVE

US GOLD £24.99

Your attackers confront you in large numbers. It's a difficult task you have ahead

Access Software is responsible for the development of Crime Wave. That same team recently completed Mean Streets, an arcade adventure-type game that was highly acclaimed by the press.

Crime Wave is very much different in terms of gameplay, but has a few polished touches that will lead some of you to identify it with Mean Streets.

This is pure shoot-em-up with a level of violence that should carry a government health warning!

With a deadly array of firearms at your disposal, you'd think the task of freeing the US President's daughter, Brittany, from a group of fanatical kidnappers would be a simple hit, rescue and run affair.

Unfortunately, you're considerably outnumbered, which means that no matter how many hundreds of bazooka and machine-gun rounds you may have, you can't fell everybody at once. Not even you, Lucas McCabe – crime-fighter extraordinaire – can do that!

The action takes place in a variety of locations like warehouses, subway stations, city streets, and so on, all of which are horizontally scrolling.

The man behind the kidnapping is King Pin – obviously a lot of thought went into devising his name! – a truly sinister figure. Find him and you should also find Brittany.

The similarities with Mean Streets are most evident in the animation sequences, where the characters' graphics resemble the suspects in the previous detective game. Each time a level begins, you're treated to a stunning visual display that really captures the imagination and boosts the game's atmosphere.

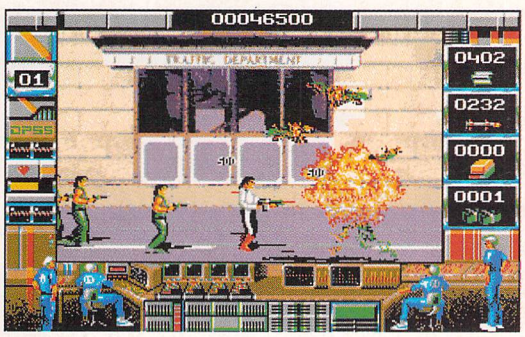
These include scenes that McCabe wouldn't know about but miraculously you do, such as Brittany wrestling to free herself from her bonds. Also, you can see King Pin's henchmen and their movements.

The hero is controlled via the joystick. Press fire for a rapid burst from your machine-gun and double click to launch a bazooka round.

Crouching and jumping are necessary to avoid incoming bullets, otherwise your energy bar becomes severely depleted. Extra weapons and ammunition can be found scattered about the playing area.

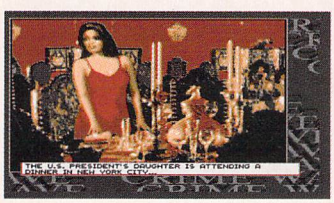
So what is the reward for the task of rescuing the President's daughter? Is it her hand in marriage? Is it perhaps a bountiful bank account? Or could it be a richly furnished beach-house, nestled near the sunny sands of Acapulco?

You'll have to battle through hordes and hordes of trained killers to find out!

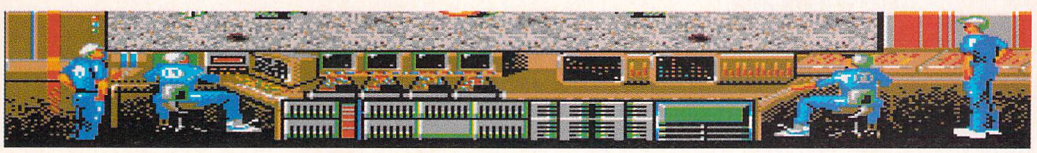


This game should have an 18 Certificate. There's more gore here than in the most gruesome of horror films!

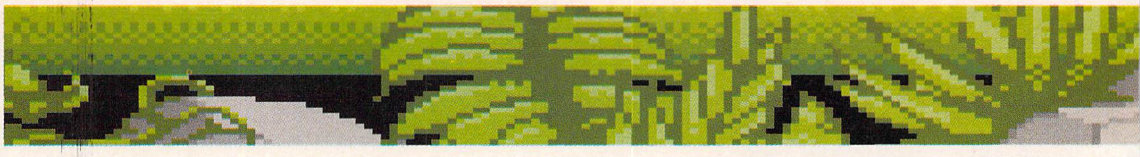
You've also fought your way through to the exit that gives you access to the next, more dangerous level



Call McCabe! Get him on the hot-line!



GRAPHICS	75%
SOUND	79%
GAMEPLAY	71%
OVERALL	75%

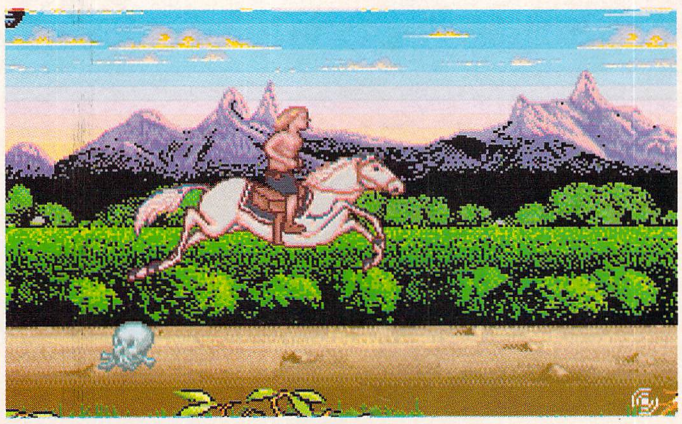


WRATH OF THE DEMON

READYSOFT / EMPIRE
£29.99

This is by the team that programmed Dragon's Lair, so as you would expect, the graphics are much better than anything else you'll see on the ST games scene. Sound is good too, with a combination of racy and mysterious tunes played at the appropriate moments. Unlike Dragon's Lair, Wrath of the Demon has the extra element of good playability. Granted, some levels are a bit tedious, but there are enough thrills to keep you coming back for more. The Save option proves extremely useful. You'll have to use it to explore the full depths of the game.

GRAPHICS	92%
SOUND	86%
GAMEPLAY	88%
OVERALL	90%



You race to fight the evil. Hurdle over the corpses of peasants murdered mercilessly by the demon

Inside the demon's castle. Skeletons are just one of the many types of vile creatures you will encounter

You will have probably seen meaner looking dragons in your time, but don't be fooled. This one could do some nasty damage!

There was once a peaceful land ruled by a king who was very understanding towards his people, and in return, the people respected their ruler.

Some considered it to be a perfect world, while others were just content to feel safe and secure within their land's borders, desiring no more from the kingdom.

Then – doesn't it always happen? – an almighty demon turned up and all hell broke loose. The people were afraid. The demon demanded decadence, and summoned all his powers to kill off the kingdom.

The skies blackened and rain drove into the ground, as though trying to force its way through the soil and on into Hell itself.

The land was raped, trees left bare and smoking. Animals made heart-wrenching cries as they keeled over and died, while the people fled or suffered the demon's wrath.

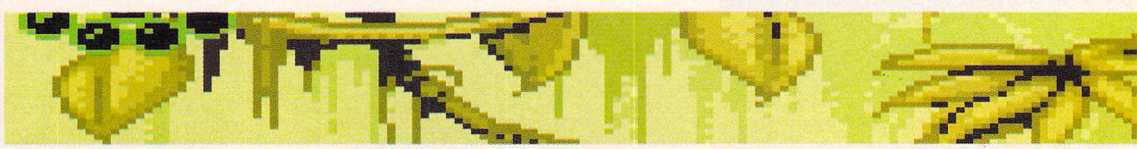
The king saw the suffering and terror, and knew it had to be stopped. So messengers were ordered to find the boldest knights in the land to track down and repel the demon. Not a single one returned.

It's only when you discover the savaged body of one of the king's messengers that a decision is made and hope springs again in the dulled hearts and souls of the king and his surviving countrymen. For you know what is asked... no, is demanded from you.

It is you who must volunteer to attempt to banish the demon from the kingdom and rescue the princess, who is being held captive. Not to mention a fairy who foresaw the demon's arrival.

There will be innumerable traps and pitfalls to overcome. Indescribable creatures from the dark forces will do their utmost to prevent you from succeeding. You must possess great will and courage.

Do not fail – you can't afford to. The fate of the kingdom is in your hands. Race swiftly on horseback through the barren wastes, gathering helpful potions along the way. Although speed is of the essence, you mustn't get careless. Be wary of the demon's



minions who will attack at every opportunity. Duck and weave away from them while hurdling large objects that litter the ground.

Too many hits will cause your circle of energy displayed at the top of the screen to unwind. Lose all your energy and you will have failed in your exorcising task.

Combat-armed goblins swing and slash their battleaxes and swords in your direction. Jump over their missiles and then spring up to deal them a deadly blow.

Other monsters of a zombie, mythological, and reptilian nature will lunge for you. Agility and aggression are all you have.

Caves and castles provide the scenarios for later exploration. Collect all keys and spells. Use Invulnerability potions to run past dragons, and energy potions to revive your strength.

Lightning bolts can explode monsters in a flash and ball of flame. Use them wisely, for the journey you have embarked upon is long and treacherous.

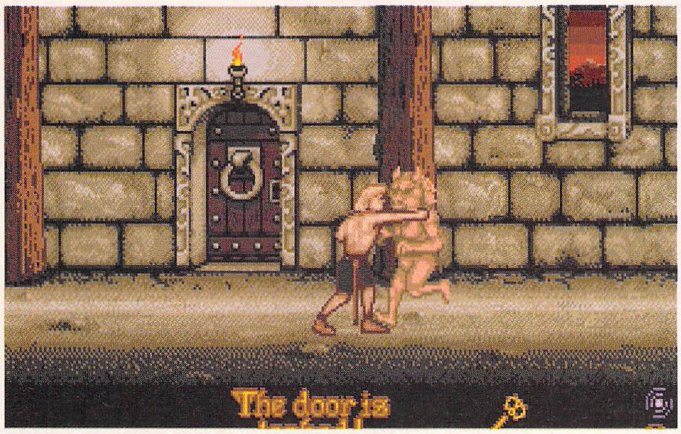
Should you complete your arduous quest you will be generously rewarded. The king has already promised you riches beyond belief, and the chance to marry the beautiful princess is enough to satisfy any man.

But you mustn't underestimate the power of the dark side – you never know what you will be fighting next – or when the demon will decide to tackle you himself. Beware the demon!

All in all, Wrath of the Demon is a brilliant game. The graphics are well drawn and animated, the scenarios are challenging without being too difficult, and the sound adds to the general atmosphere.

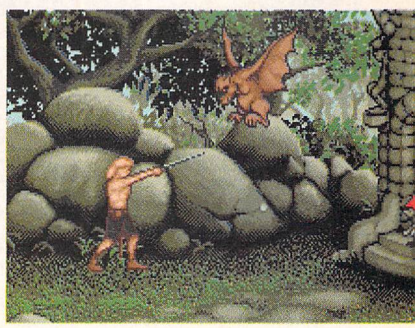
Although some of the levels could perhaps be a bit more exciting, this doesn't really detract from the game as a whole because there are plenty of difficult levels to keep you coming back for more.

It's far better than Dragons' Lair, and even though the asking price is slightly higher than average, it's worth every penny. Add it to your collection, or miss out on one of the best!



Attacked by another monster. Is he trying to break your toes?

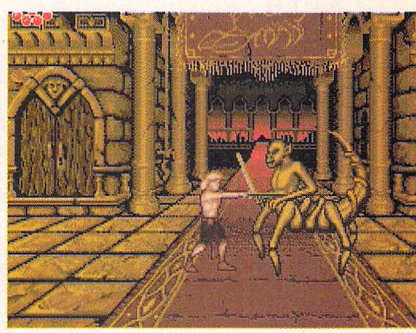
Don't fail in your task. If you do, the kingdom will be subjected to the evil ways of the demon forever



The demon's tower is guarded by a bat which will do its best to prevent you from entering. And watch out for the deadly dwarf

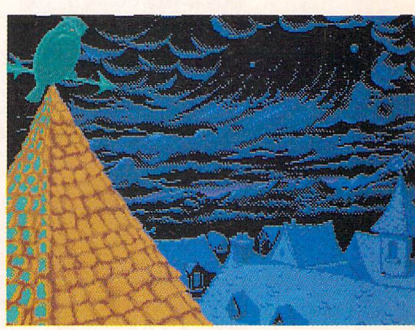
The swamp is home to a bulky monster. You must fly towards it and hack at its body and head if you want to return it to the murky depths

Why does it always rain when you take an outing? Be careful you don't get frazzled by the lightning!



You stumble across a temple. As you venture inside you discover a mutated scorpion which attacks you relentlessly

Below: The demon's castle contains a dragon which isn't too pleased at having its beauty sleep disturbed. Now you'll have to kill it



This is your town. The thick, black clouds above tell a different story about what it was like before the arrival of the demon

Evesham Micros

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***Express Courier* Delivery £5.00 Extra**

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All goods subject to availability, E. & O.E.

3½" EXTERNAL FLOPPY DRIVES

"... a very smart looking drive indeed ... a slim and quiet device ... it is very keenly priced too."
- ST WORLD, September 1989

- **Very quiet**
- **Slimline design**
- **Cooling Vents**
- **Sleek, high quality metal casing**
- **Suits any Atari ST**
- **Quality Citizen Drive Mechanism**
- **On / Off switch on rear of drive**
- **Full 720K Formatted Capacity**
- **Long reach connection cable**

INCLUDES ITS OWN EXTERNAL PLUG-IN PSU
Beware of other makes of drive that take their power from the joystick port !

SUPER LOW PRICE !

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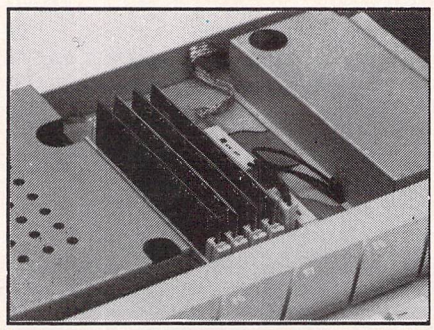
including VAT and delivery - *Why pay more?*

5¼" External 40/80 Track Floppy Drive also available for only £99.00

SOLDERLESS MEMORY UPGRADES FOR ST's



- ✔ **Fits any STF, STFM or MEGA series machine in minutes!**
- ✔ **Uses SIMMS RAM Modules for Effortless Upgradeability**
- ✔ **Probably the neatest ST RAM Upgrade available!**

RAM Upgrade with board unpopulated	£59.95
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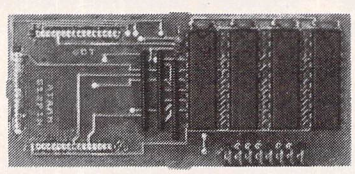
Upgrade the memory of your ST quickly and easily with our new, fully software compatible RAM upgrade board. Designed for pre-STE machines, the unit accepts SIMMS slot-in memory modules, making RAM fitting simplicity itself. No electronics knowledge needed! Available with or without RAM modules. Allows upgrade in stages of 1Mb, 2 / 2.5Mb and 4Mb, as and when necessary. Straightforward installation - full, comprehensive instructions provided.

N.B. Due to the large variance in design of the Atari ST, there is a small minority of boards in existence which may require a little soldering.

PLUG-IN, SOLDERLESS RAM UPGRADES FOR ANY ATARI 520 ST



With our compact plug-in RAM Upgrades, you can expand the memory of Your ST to as much as 2.5MB, quickly and cheaply !

- ○ 2 versions allow upgrade to 1Mb, or 2 / 2.5Mb
- ○ Simple, fast and effective RAM upgrade path
- ○ Suits any 520 or 1040 ST model
- ○ Requires no soldering or technical know-how

512K VERSION : UPGRADES ANY 520 ST TO 1MB RAM	**ONLY £69.95**
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ATARI ST RAM UPGRADES

520 STE 1Mb RAM upgrade (2x256k SIMMS)	£40.00
520/1040 STE 2Mb RAM upgrade (2x1Mb SIMMS)	£119.00
520/1040 STE 4Mb RAM upgrade (4x1Mb SIMMS)	£235.00
520STFM 1Mb RAM Upgrade kit, requires soldering	£ 59.00
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Mega ST2 4Mb RAM Upgrade, fitted by ourselves	£ 149.00

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Atari Megafile 30Mb Hard Disk	£ 439.00
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Our fully equipped service department is ready to handle almost any Atari ST repair.

We can offer fixed price repairs on any ST computer. Our price include return postage and covers any fault occurring in normal use, including drive problems. We reserve the right to refuse any machine that we consider to have been damaged other than in normal use, eg. substandard repair work, lightning and physical damage - these are quoted for separately. **ST FIXED RATE REPAIR .. £ 65.00**

If in doubt, please contact us on 0386-446441

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Only £119.95 INCLUDING FREE 'CALIFORNIA GAMES' MULTIPLAYER GAMECARD

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Evesham Micros

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ST Company of the Year 1990 ● 2 to 1 Majority Winner

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VIDI-ST
Widely regarded as the best in its category, VIDI-ST video digitiser enables you to -

- Have perfect freeze frame from any video, in up to 16 shades
- Grab real time 3-D images
- Capture & restore action sequences
- Realise Desktop Video, plus much more

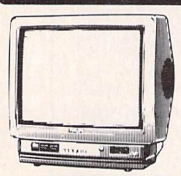
VIDI-ST is compatible with all video standards, eg.colour, B/W, VHS, Beta, PAL, NTSC etc.

VIDI-CHROME ST
Colour frame grabbing upgrade, enabling production of Red, Green and Blue elements when using a black/white camera. (Colour camera/video recorder users - see below).

VIDI-RGB
Automatically separates Red, Green and Blue colour signal components from video recorder or camera, enabling the user to easily produce colour pictures.

Vidi ST ..... £ 89.00
VIDI Chrome ..... £ 16.95
VIDI RGB ..... £ 59.00

PHILIPS 15" TV/MONITOR



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

£269.00 including VAT, delivery & ST cable

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Monitor Switch Box - switch between colour / mono monitors without unplugging. *Low Price !* ..... £ 13.95
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£179.00 Certified 'FORMAT GOLD' Refer to the Jan.1991 issue of ST FORMAT

***NEW!* ZY-FI Amplified Stereo Speakers** suits STE models. Powerful built-in amplifier; 3-way speakers. Realise the STE's true sound abilities ! .. £ 39.95
PC-Speed Hardware PC emulator which fits neatly inside the ST. Fast operation, fully compatible ..... £ 99.95
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Incorporating new technology NEC SCSI hard disk mechanisms, these units combine excellent performance with quality and high capacity.

NEW!

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- ☆ Features ICD Hard Disk Interface and .Software
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- ☆ *PRICE INCLUDES ALL CABLES AND DEDICATED POWER SUPPLY. WE STRONGLY RECOMMEND AGAINST USE OF HARD DISKS ON THE ST WITHOUT AN INDEPENDENT POWER SOURCE.*

40MB VERSION ONLY ..... £ 399.00
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ATARI 'KICK OFF' WITH THIS DEAL FROM Evesham Micros !

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TOTAL RRP OF EXTRAS: OVER £74.00 !

ALL OUR ST prices include mouse, user guide, etc. PLUS 5 Double Sided disks full of specially selected Public Domain software including paint program, two wordprocessors, games, graphics & sound demos, desk accessories and utilities.

EVESHAM MICROS PRICE PROMISE - WE WILL *BEAT* ANY GENUINE ATARI ST PACKAGE OFFER ON A LIKE-FOR-LIKE BASIS

NEW LOW PRICES ● NEW LOW PRICES ● NEW LOW PRICES

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Includes an Atari 520 STE with 1Mb Drive, joystick, plus a high quality selection of software including :

Indiana Jones & Last Crusade	Blood Money
Impossible Mission 2	Super Cycle
Human Killing machine	Out Run
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ONLY £299.99 WITH 1MB RAM FITTED
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1040 STE 'EXTRAS PACK'

Superb starter package, consisting of a 1040 STE with an excellent selection of starter software. The package includes :

Kuma Wordprocessor	FirST BASIC
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SPECIAL OFFER !!!
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PROFESSIONAL QUALITY 24-PIN COLOUR PRINTING NOW AVAILABLE - AT AN AFFORDABLE PRICE !

Combining the advantages of advanced COLOUR output with the *superior* quality of Olivetti Professional 24-pin printing, the *new* DM124C represents excellent value for money! Consistent high quality is assured every time, with no ink excesses or pale lines at any speed. Peace Of Mind for trouble-free use is *Guaranteed*, with Olivetti's 12 Months On-Site Warranty cover !

200 cps output in draft, 50 cps in Letter Quality mode ● 7 Colour output; Graphics resolution 360 x 180dpi ● Tractor & Single Sheet Feed as standard ● **Complete with cable and 12 MONTHS ON-SITE WARRANTY**

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All STAR printers include 12 months On-Site Maintenance

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Get the latest faster version for just **£159.00**

For a limited time, we are offering the Star LC-10 Mk.II at the same price of an LC-10!

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Star LC 200 9-Pin Colour, 4 fonts, 180/45cps	£ 209.00
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TRADE SECRETS

GTGA CORPORATION

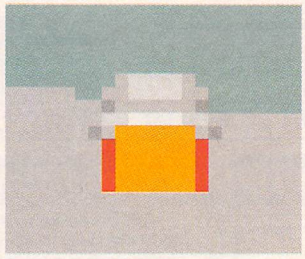
GENERAL HINTS

- *The best character to use is the Droid. Androids automatically have the backpack computer and the vision-enhancing visor.*
- *The bomb should only be used to escape from the prison cell (see the prison section).*
- *Keep a close eye on your energy level at all times. It can decrease without you realising it.*
- *You may want to use the backpack computer to help you follow the maps, but remember that this drains your energy all the time it's turned off.*
- *Use the terminals and power packs as described in the manual to recharge your energy. Your physical strength is replenished by drinking the fluid held in the refills. This cannot be drunk directly from the refill, which must be used to recharge your drink dispenser.*
- *Keep away from the walls when walking down a corridor. Walking too close to them causes doors to open, which could attract unwanted attention.*
- *Try to approach doors as squarely as possible. If you walk up to one at a sharp angle it's easy to become disorientated and lose track of your position.*
- *To pause the game, examine your gun.*
- *Before leaving the elevator at the beginning of the game examine the contents of your pockets and ensure that all location-specific items are correctly positioned.*
- *If placed correctly, bombs can jam some doors shut.*

REPAIR SPIDERS

These robot spiders run around the ceiling looking for damaged lights to repair. They're among the very first creatures that you'll encounter. If you shoot them, they fall off the ceiling and explode.

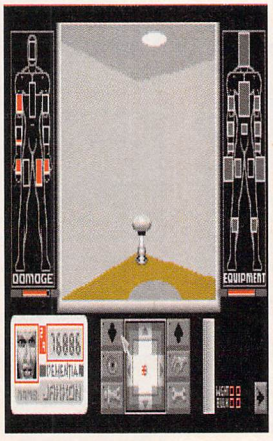
They are, in fact, the cause of the many explosions you hear while on the top level of the building. When they attack, they climb up the player's armour and stab at the face with sharp metal instruments. If you bought good armour, you'll probably be immune to their vicious attacks.

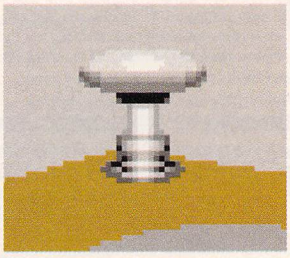


THE CRAB

One of the first discoveries you'll make is that the crab is an illusion, merely a hologram. As such it can do you absolutely no harm whatsoever!

You will notice that it always appears next to an alcove, which houses the hologram projector. Shoot the projector and the hologram disappears



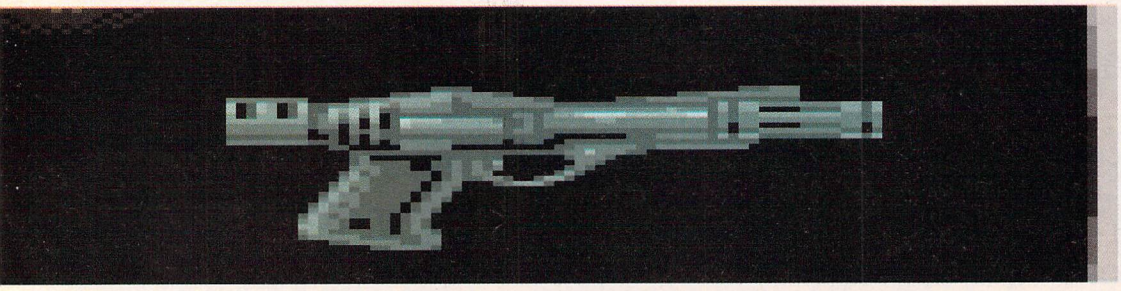


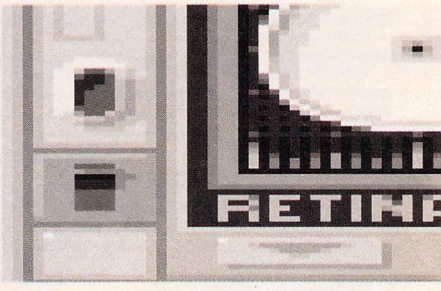
BLOBS

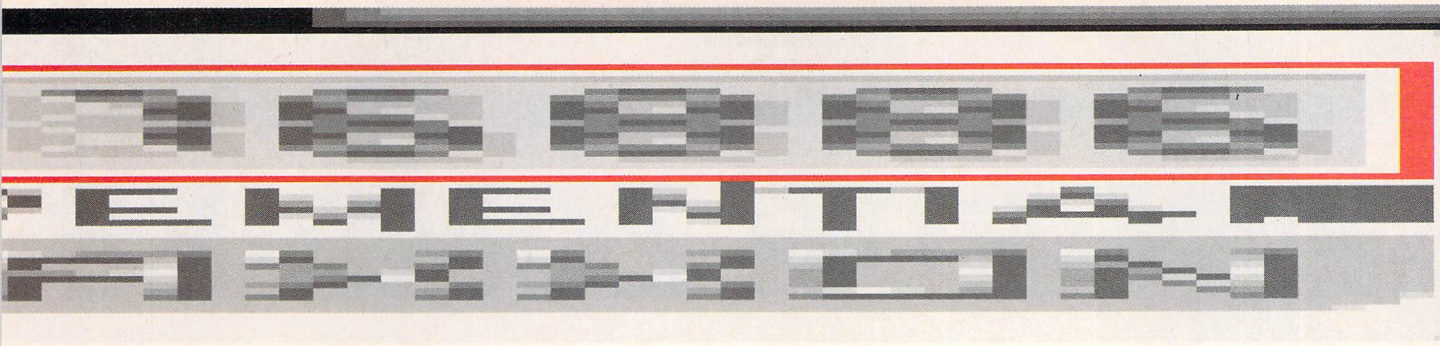
The blob was designed to keep the office environment clean. This large uni-cellular creature should have quietly scoured rooms and corridors consuming dirt and dust as it went, then found a dark corner in which to rest in between patrols.

Unfortunately, when tested in UCC's offices they joined together to form more complex organisms which try to consume anything and everything.

Because of their habit of seeping through floors and ceilings, they have proved impossible to eradicate. Don't let them melt your toes!





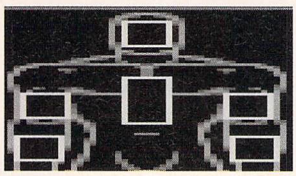


THE GUARDS

The human guards are paid a handsome bonus for every intruder they can apprehend. This is why they become hysterical and attack like madmen when they spot you.

In order to prevent any information a guard may have about UCC from falling into the wrong hands, all human employees have a small explosive device fitted to their central nervous system.

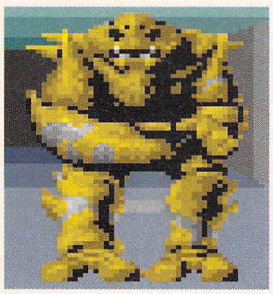
If a guard is seriously injured, he will spontaneously combust. Shoot the guards!



THE ALIENS

These creatures are not from outer space but are not native to Earth, hence the name. Beware of the aliens!

You'll know when one is near you by its loud and ferocious roar. These creatures move fast and are more likely to use doors than anything else that you will encounter. Keep away from them!

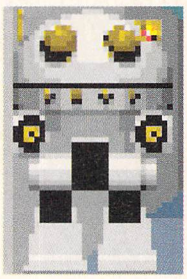


THE SENTRIES

The largest robots in the building are sentries. These machines guard corridors, junctions and important rooms. Try to shoot them before they shoot you – a rule that applies on every level!

ROBOTS

Some feeble looking droids will be found patrolling certain levels of the building. If you keep out of their way they will ignore you. But if you happen to stand in their path or trigger an alarm, they will attack by poking you with their little metal hands and squeal for help.



GETTING OUT OF PRISON

Sooner or later you're bound to end up here. If you're overcome by exhaustion or injured to the point of blacking out, the guards will throw you into a cell while they approach their superiors and find out what to do.

They do this in such a hurry that they won't even go through your possessions. The only way out of the sealed room is to blow the walls down with your bomb.

Walk to the South-West corner of the room, manipulate the bomb and type in the number 30.

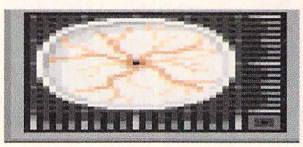
Click on your watch and at a convenient time – 30 seconds past – click on the red button on the bomb. You now know exactly how long you have to get out of range.

Go as quickly as you can to the opposite end of the room and turn around so that you can see the bomb. Watch the seconds tick by on your watch until the bomb detonates.

The explosion will destroy a few walls, some furniture, a couple of cameras and possibly a couple of monsters. Now use the backpack computer map and your compass to find the nearest elevator.

This is not very easy since the scene in front of you no longer matches the map stored in your computer. When you're in the elevator, check your damage and energy levels and do whatever you can with the equipment you have to improve your condition.

The security level of your pass will only allow you to leave the prison level and go to levels you have already seen.

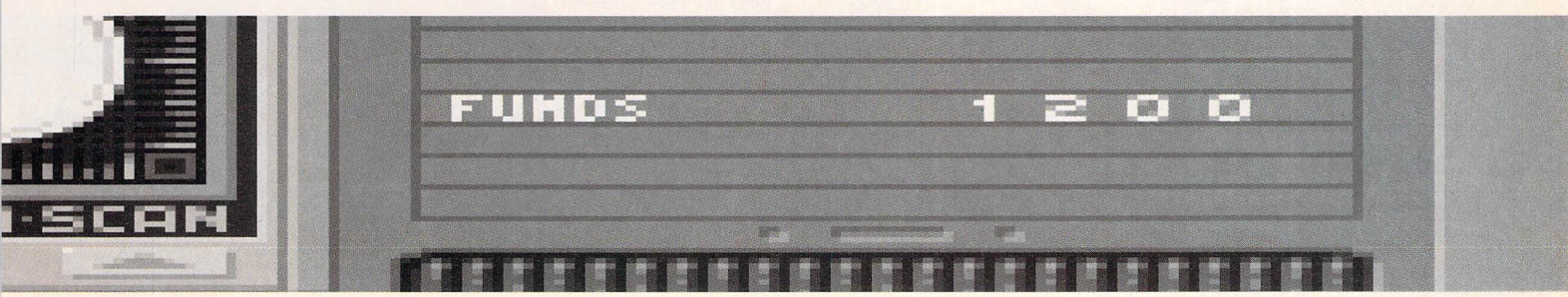


PROTOTYPE NK

The most efficient of the robot guards in the building has not been officially named but was nicknamed for its endearing habit of malfunctioning and slaughtering everything and everyone in its vicinity.

They have been designed with experimental self-healing circuitry. The upshot of this is that when they have been sufficiently injured they will shut down for emergency repairs.

Don't think that you're safe when this happens – they could recover at any moment.



HORROR ZOMBIES

MILLENNIUM - £24.99

The graphics are superb and the sound, although annoying after a while, is atmospheric and very fitting for a horror-type game. If you're a fan of gory films Horror Zombies from the Crypt is for you – and even if you hate the sight of blood, it will probably still have some appeal. The only problem though, is that you'll have to stop hiding behind the cushion in order to hold the joystick!

Count Valdemar pulled his coat around himself to shelter against the beating rain. Lightning cracked across the sky, illuminating the eerie shape of Gory Manor in the distance.

Far away, a wolf could be heard howling its midnight song. When he approached the rusty front gates, a strange aura could be felt – he had an overwhelming sense of impending evil.

After kicking the gate from its hinges, the Count made his way to the huge door.

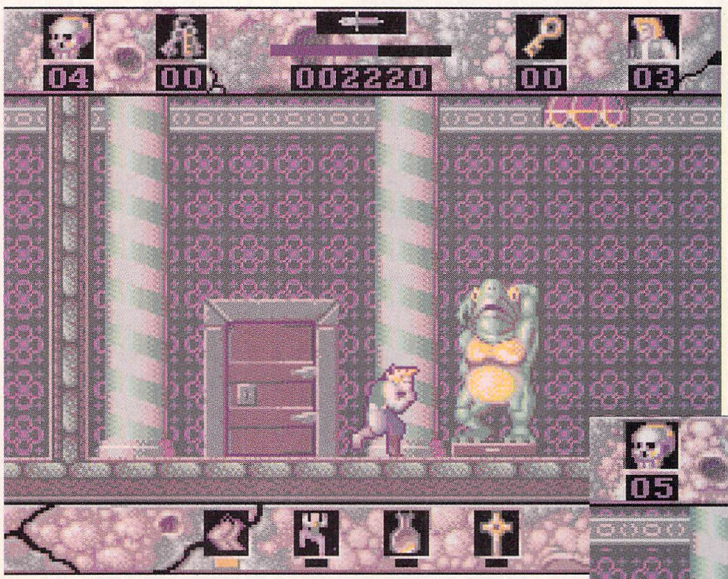
He met with the grim darkness of a once-great castle. His quest began here, but what would he encounter before he returned to the world outside? More seriously, would he ever return?

Horror Zombies from the Crypt begins in true cinematic fashion by panning across a theatre full of people settling down to watch the adventure that's about to commence.

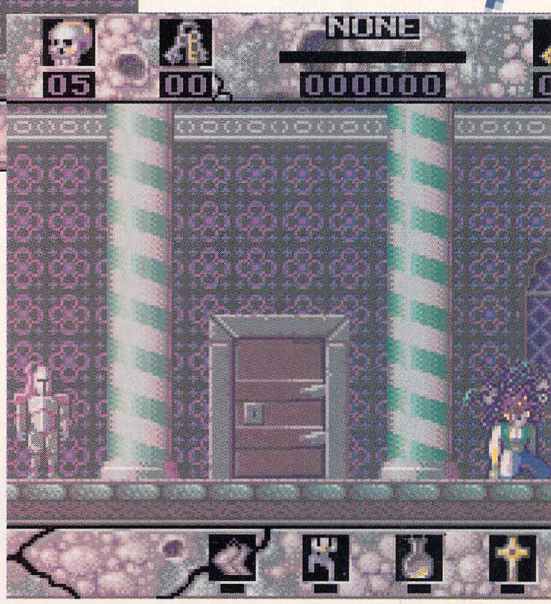
Five skulls are hidden inside Gory Manor, the only remnants of previous residents, and it's your job as Count Fredrick Valdemar to locate the skulls and lay them to rest. Fail, and the bones will be left as toys for the ghouls to play with. Doesn't sound too bad does it? Horror Zombies is an arcade-adventure containing six levels in which you have to outwit the spooks that roam around the manor.

The nasties you'll encounter range from werewolves through vampires and skeletons to man-eating plants. You may also encounter a zombie or two.

The first level is simple enough. To begin with you must make sure that you avoid all the monsters that you come across – contact with them is deadly. And collect everything you see, even if it's



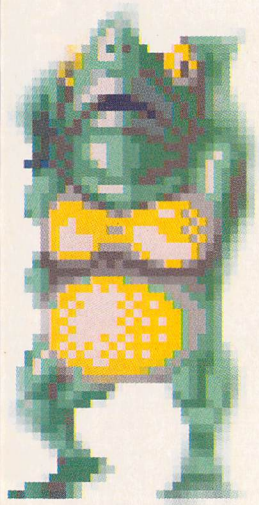
Having found a pair of boots, Frederick is able to creep past certain lurking nasties



Yuck! As the Count loses another of his lives his head explodes in a shower of red. Pieces of brain are thrown across the screen and Frederick ends his life by collapsing to the floor

GRAPHICS	80%
SOUND	73%
GAMEPLAY	87%
OVERALL	86%

FROM THE CRYPT



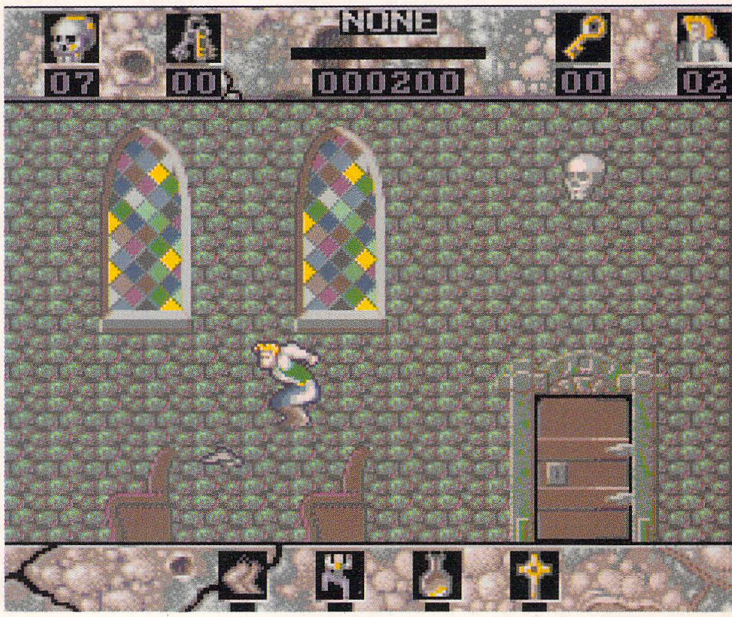
only a rusty key in a corner.

You will also come across a knife and a dagger. The dagger can be thrown with ease, but the knife is too cumbersome to be hurled quickly.

On completion of a level you are rewarded with a password that enables you to start on the later levels without having to play through previously completed ones. A hint book is also supplied which provides a few small tips that may be useful for adventurers experiencing the odd teething troubles.

Codes for levels three and four have also been included, enabling you to view the tougher stages if you think you're up to it.

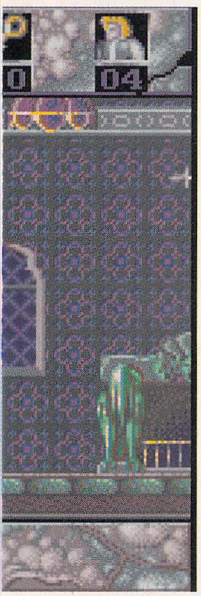
Millennium's latest releases have been excellent – James Pond being one that springs to mind. Horror Zombies from the Crypt follows in its footsteps and is an excellent product.

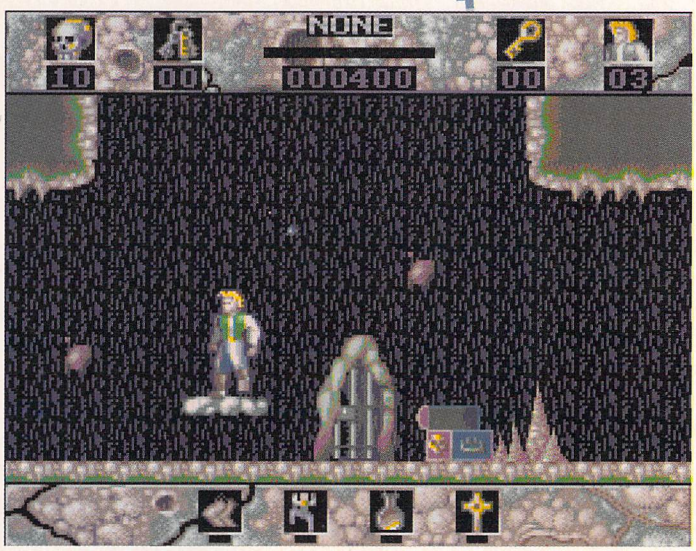


With the eerie, atmospheric music blasting out of the speakers Horror Zombies manages to create a feeling of fearful apprehension. Something awful is going to happen...

Vampires only appear when you come close to their haunts, and as they drift towards you you must either avoid them or have a sore neck for the rest of eternity

The hunchback patrols the ledge above you, and is proving to be no problem at the moment. But things change when he lobs boulders at you. Dodge them, Frederick!





The keys were easy to find, and so was the chest where you must use them. But what's inside it? There's only one way to find out. Thankfully, a means of getting to the higher levels is the only thing that is revealed

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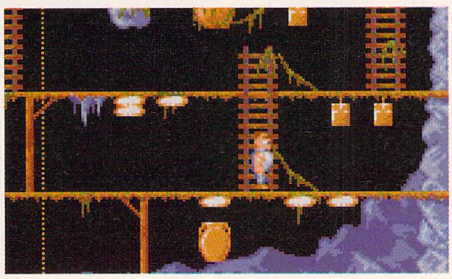
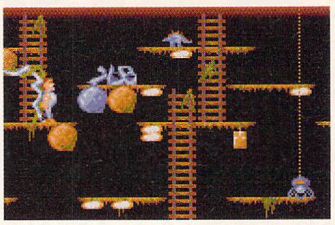
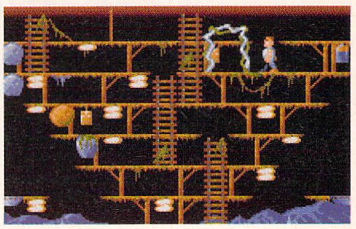


All of the levels follow the same basic pattern. Run around the platforms collecting the eggs

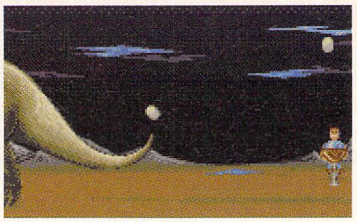


Yet again it's time to collect all the eggs and avoid the nasty little dinos!

As you progress, the levels become increasingly more complicated, with more eggs to get and even trickier platforms to negotiate



On some of the levels you can collect small battery icons that allow you to collect all of the eggs on the screen



One of the bonus games involves you catching the eggs that fly off the large dinosaurs' backs

A PREHISTORIC TALE

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At first sight A Prehistoric Tale looks distinctly dodgy, with poor graphics and sound, but you'll soon find the pleasure of the game lies in the playing. Those who remember the Chuckie Egg epics may have already noticed the similar task of collecting eggs and running up and down ladders. You wouldn't be far wrong in saying that both Henhouse Harry and Cronos Warchild have a lot in common. This is no bad thing, as this gem of a platform game has all the addictive qualities of Harry. If you love staying awake for hours playing away you should go and buy this. If there is any query it has to be the price, as these days you wouldn't pay £25 for Chuckie Egg.

GRAPHICS	46%
SOUND	48%
GAMEPLAY	80%
OVERALL	76%

Don't let anybody tell you that time travelling is easy because, as any time traveller will tell you, it's just not true.

After crashing through the space-time continuum, this time traveller regains consciousness, shakes his head and moans as a tremendous headache pounds away at his temples.

His mind clears and he begins to concentrate on his new surroundings. He is supposed to have been warped back to the Jurassic era – some 150 million years ago – because the Biological Regeneration Association want him to work here for a while.

It appears that the teleport has at least worked correctly this time, as he is now confronted by a rather large specimen of extinct reptile. He does the sensible thing of course, and runs away.

Taking control of Cronos Warchild, mercenary, party animal and occasional time traveller, you travel back in time in order to transport dinosaur eggs from an area stricken by earthquakes to more peaceful surroundings.

If you fail, the dinosaurs will die out before they've bothered to make sure that mammals have evolved. What all this complicated scientific stuff boils down to is that mankind will never exist. So you'd better hurry up!

Eighty levels of egg-collecting mayhem lie ahead of you, but you must beware of the big daddy dinosaurs who won't be too happy at having their unhatched eggs whisked away (geddit?) by a time travelling egg-poacher!

Only three eggs can be carried at once, and when your basket is full you carry them off to the transporter where they are safe.

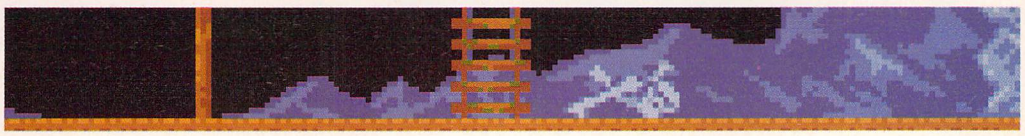
If you manage to pick up an egg battery you'll be able to carry an unlimited number of eggs around with you.

Each level is patrolled by a number of little mini-dinos which have hatched from eggs lying around the screen. These can be caged by jumping over them, which will keep them out of the way for a while.

Eggs are collected by standing over them, and simultaneously pressing fire and pulling down on the joystick. This control method is also used for transporting to the other levels and for releasing mice.

Mice have to be released every so often during a particularly bad attack of prehistoric meanies. Mouse icons can be found dangling under platforms and once released will scare off all of the local beasties because the one thing they are afraid of is mice.

After every 10 levels you have to play one of three different sub-games which again are all joystick-controlled and include things like catching eggs that are dropped from the skies.



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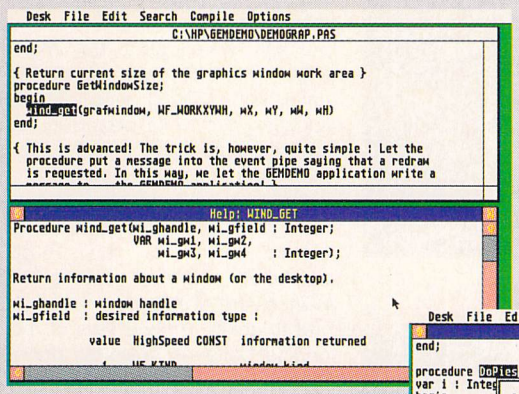
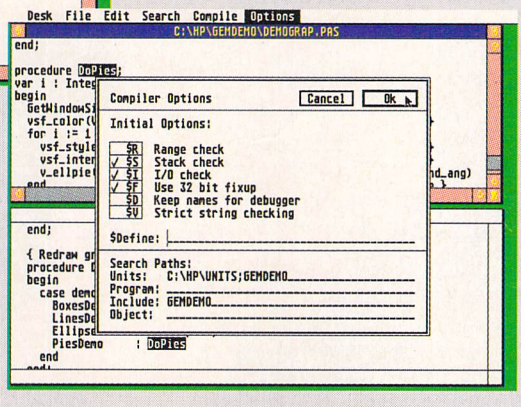
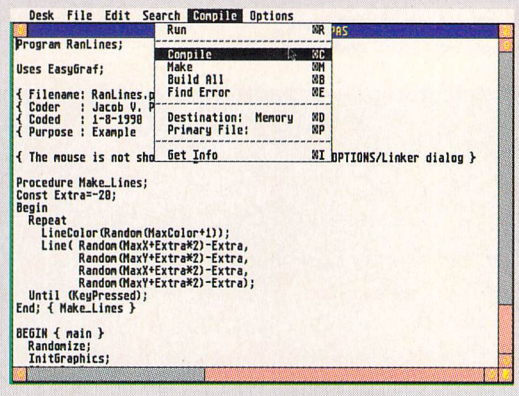


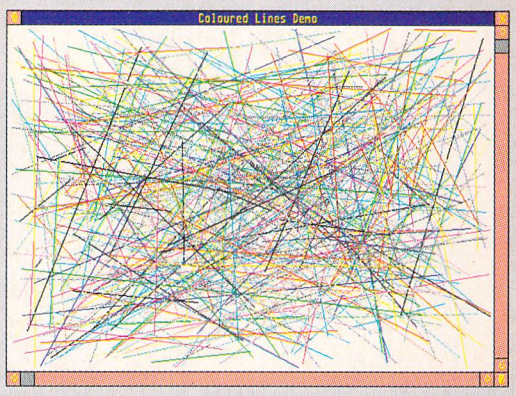
Highlights

- *Fast, single-pass compiler in a fully integrated environment*
- *Compilation speed of more than 20,000 lines per minute (ST)*
- *High level of Turbo Pascal compatibility with full recursion*
- *Compile to memory or compile to disk*
- *Integrated multi-window editor*
- *Interactive error detection for both compile and run-time errors*
- *Context-sensitive help for language syntax and editor usage*
- *Unit concept, such as found in Turbo Pascal 5:*
  - **allows modular development**
  - **gives very fast compilation**
  - **many standard units supplied (GEM/VDI, TOS, BIOS/XBIOS, PRINTER, UTILities, GRAPH)**
  - **build your units into one resident library - library maker supplied**
- *Stand-alone compiler also supplied*
- *Versatile Make facility for easy project management*



- *Source code control using conditional compilation*
- *Supports ShortInt, LongInt, Single (4 byte IEEE format), Double (8 byte IEEE format), Extended (a special fast 10 byte format) as well as Integer and Real*
- *Full source include facility to a depth of 7*
- *Inline procedures*
- *Multi-path search facility for include & object files & units*
- *Special unit to ease porting from Personal Pascal*
- *Link with DRI-format assembly language code (as produced by DevpacST 2 etc)*
- *Turbo Pascal compatible dynamic length strings, shift operators, hex numbers, untyped parameters, generic pointers, file handling etc.*
- *Numerous examples*





The integrated development environment is a joy to use, making programming easy and fun!

All these features make HighSpeed Pascal a truly powerful and easy-to-use system which runs on any Atari computer, from the humble 520ST with 1 drive up to the new Atari TT.

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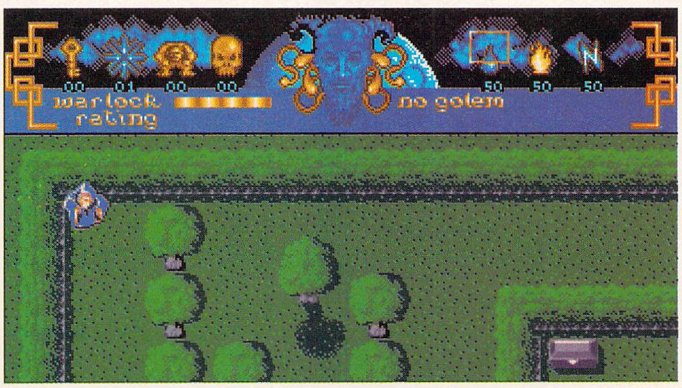
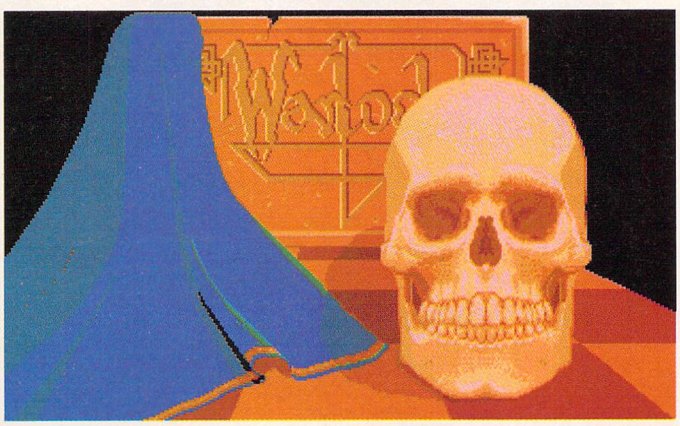
WARLOCK THE AVENGER

MILLENNIUM: £24.99

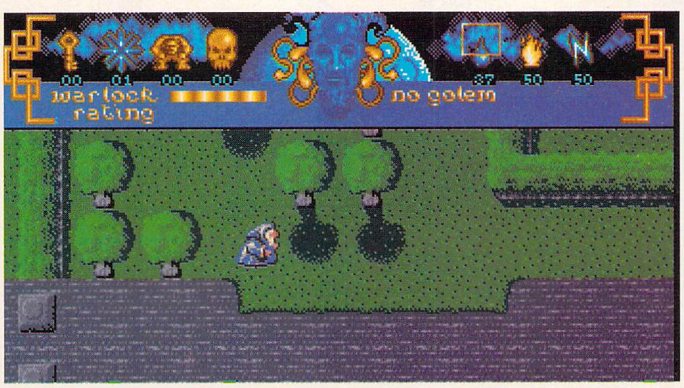
Warlock is a real treat for anybody who used to own an 8-bit computer. If you miss the playability of those simple games you used to buy on cassette you should think seriously about adding this to your collection. The graphics and sound may not be great, but none of the atmosphere or playability of Druid has been lost in the translation to 16-bit format. It's still difficult to get really far in the game, but each time you play you'll progress further. Warlock should get the acclaim it deserves.



Start on the easy section – you won't be attacked by too many creatures at first



The skull marks the spot. If you're not careful this is how you you'll end up



The maze is viewed from above so you can see what's coming around the corner

Long ago, in the dank, dark days of the 8-bit computer, there was an arcade game known as Gauntlet. It became so popular it spawned many clones and rip-offs.

Some were good but more were awful. One of the better ones, called Druid, was a huge success due to its playability. In fact, in some ways it was better than the game which inspired it.

Now, several years on, Millennium has decided to update the classic Druid for the 16-bit machines and has renamed it Warlock the Avenger.

It is going to have fans of the original battering down the doors of the local computer shops in an effort to get their hands on the game they once loved – but lost when they sold their Speccy to buy a packet of crisps when they were peckish.

As with Gauntlet – and the countless other clones – the idea is to move around a maze, which you view from above, collecting the various spells and goodies

The nasties can be blown up using one of your spells. How long it takes to kill it depends on the strength of your spells

GRAPHICS	70%
SOUND	62%
GAMEPLAY	83%
OVERALL	80%

while avoiding the hundreds of nasties that home in on your every move.

The evil creatures deplete your energy every time you come into contact with them, so shoot as many as possible as they close in on your position.

Your energy is measured by a bar which gradually shrinks in size until you spin off, dead. As you only have one life you had better not come into contact with nasties too often.

On certain levels chests containing spells are lying around. One such spell enables you to create what is known in the trade as a golem.

This is basically another creature which can fight by your side and take off some of the pressure by attracting the unwanted attentions of the evil hordes.

This golem can be controlled either by the computer or a friend, thus giving the game some two-player appeal. However, the golem can only appear every now and then, so the second player's joystick remains redundant for much of the quest.

Two different versions of Warlock can be played. After booting up positioning the Warlock's magic wand determines whether you battle it out in the small or large castles. Your choice affects the number of enemy creatures that attack you and also how many levels you must complete to win the game. Of all the objects lying around the dungeons to be collected, keys are one of the most vital. If you find one in a chest grab it immediately, because chances are you'll need it to open something before too long.

It's usually worth getting hold of a key even if it means that it takes priority over other spells and powers.

It is also a good idea to make a map as you move through the mazes – you can get lost quite easily on some of the more complicated levels.

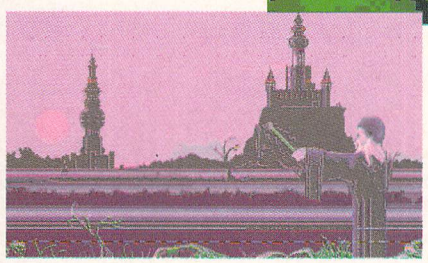
Take level seven, the Labyrinth, which is designed specifically to get you confused and well and truly lost. Without a map here you'll find yourself wandering around in circles for ages trying to get out.

It is possible on some levels to move through secret doors. They are quite difficult to spot but can usually be pinpointed by keeping an eye on some of the creatures as they move about through the levels.

If you notice one travelling through a wall then you will have found a secret door which you too can use.

The creatures come in all sorts shapes and sizes and some are more difficult to kill than others

Your spells can be unleashed like a volley of sparks, obliterating all that gets in their path



From this screen you can decide which of the games you wish to go into. It all depends on how lucky you feel

The different levels incorporate increasing levels of difficulty. Some mazes are so complicated they need to be mapped

The monsters change from level to level but all continually sap your energy while you're in contact with them

While scouting around the levels you should look out for chests. These contains spells and keys which prove very useful

Golems can be created to help you out if you get stuck by distracting your enemies

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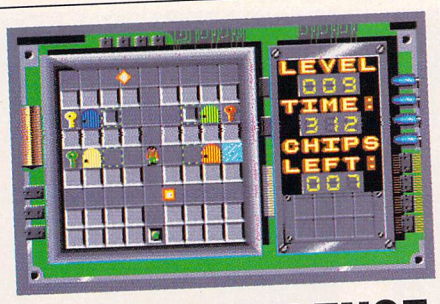

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One way passages, sliding floors, exploding bombs and mutant meanies are just some of the hazards you'll encounter on your way through 144 levels of complex mazes. If you've played the demo you'll already be hooked so why not treat yourself to Chips Challenge – you may not complete it but you have a great time trying!

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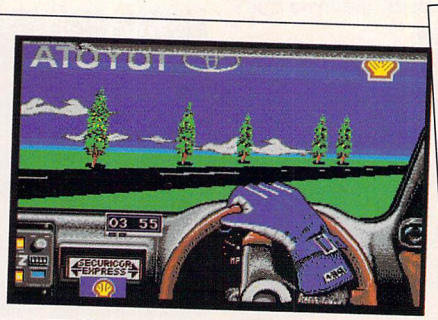

TOYOTA RALLY

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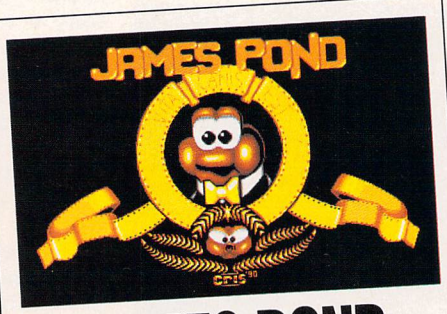

JAMES POND

James Pond, licensed to Gill! There's never been a game quite like this before!

Assuming the role of James Pond (presumably played by Prawn Connery!) you must take on the evil Doctor Maybe and stop his wicked plans to pollute the world. With 12 missions to complete this is a game which will keep even the best gameplayers occupied for weeks.

"A completely original idea and these days that makes a refreshing change".

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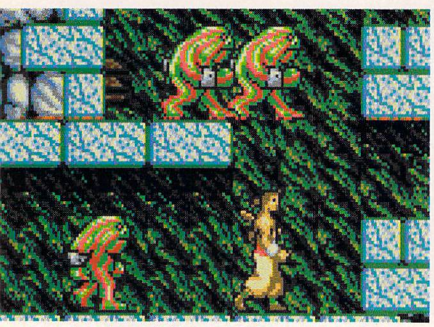
TIP OFF

STUCK AT A CRITICAL PART OF YOUR FAVOURITE GAME? TEARING YOUR HAIR OUT YET? HERE ARE SOME HINTS TO HELP YOU FINISH IT OFF ONCE AND FOR ALL.....

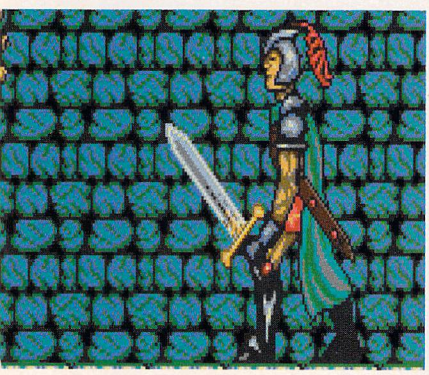
DEATH TRAP – Anco

Is the evil wizard Shankriya becoming a bit of a handful? Could you use some help from a higher power? Well, this tip from our very own Dotty should give you a little extra breathing space.

Play the game until you get a high score and instead of typing in your name, type in GIRLS. Now when you play pressing the F6, F7 and F8 keys will gradually fill up your potion pots.



Death Trap. GIRLS can help you



Death Trap. Thanks Dotty!

DRAGON BREED – Activision

This shoot-em-up is quite difficult once you reach the later levels, so this cheat from Steve McNally of Collingburn Court, Lancashire should come in handy.

When you're loading one of the end-of-level guardians, hold down both mouse buttons, HELP and UNDO. The border should flash purple and the collision detection has now been disabled. Cheers Steve.

HORROR ZOMBIES FROM THE CRYPT – Millenium

A great game from Millenium, but still quite hard to get into. Each of the six levels are accessible at the beginning of the game if you have the correct code.

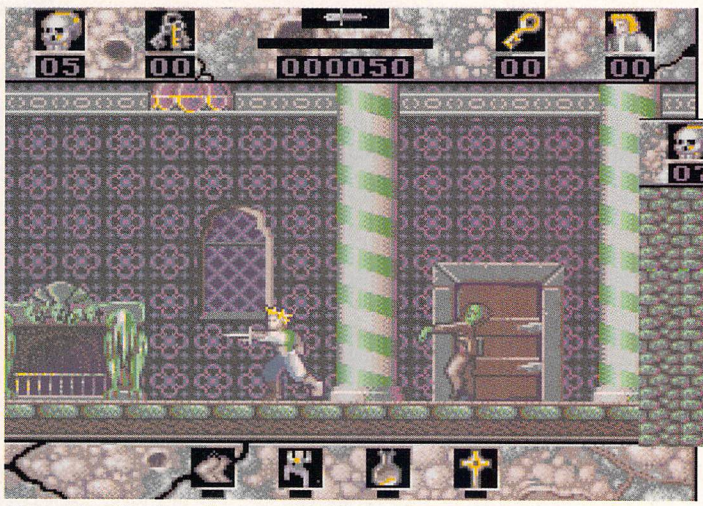
The codes for the first five levels are printed below, but you're on your own on level six.

Level 2 – Wolfman

Level 3 – Hammer

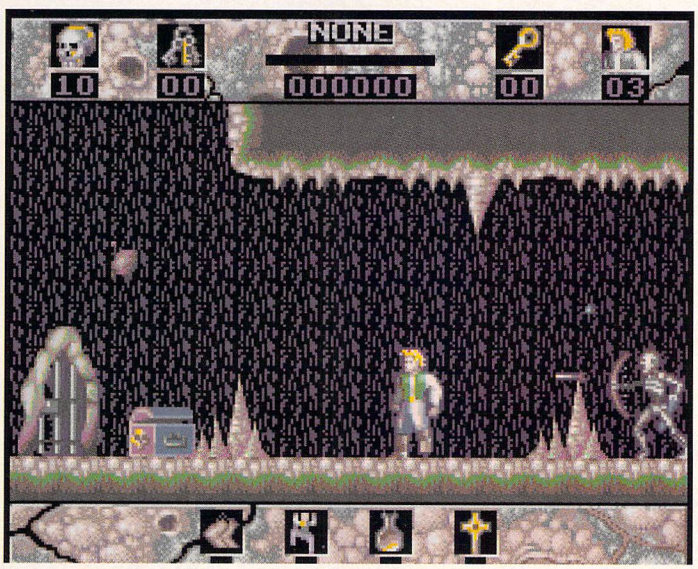
Level 4 – Lugosi

Level 5 – Nosferatu



Horror Zombies from the Crypt. It will soon have you hooked

What will you do on level six?



Horror Zombies from the Crypt. Help is at hand for he first five levels...

SATAN – Dinamic

After many days of battling through this game, I managed to come up with a handy cheat. At any time in the game hold down ALTERNATE, 1 and D. You will receive infinite lives for game one.

For infinite lives and energy for game two hold down ALTERNATE, 1 and M. Neat eh! Thanks to Mr. F. Weeks of Torquay, Devon for that one.

BLOODMONEY – Psygnosis

On the option screen press F4 then S. The screen should stay blank. Now type in PONDULIX FOR PM with spaces. The border should change colour with every correct letter.

Play the game with these extra keys: HELP – cheat on/off, 1 – money for player one, 2 – money for player two, 4 – takes player one to the shop, 5 – takes player two to the shop and DELETE, which takes you to the next level.

DRAGONS LAIR II – Empire

Although graphically excellent, Empire's latest release lacked a great deal in playability. For all you people out there having problems, wait until the first scene has loaded and when Daphne's mother-in-law is about to hit you with the rolling pin type in MORDROC.

You can now sit back to watch Dirk complete the game on his own.

GIMME, GIMME, GIMME!

Send us your tips and we'll give you absolutely nothing! Well, maybe if it's an absolutely stupendous tippet we might hand out a game or something.

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PLAYTEST EXTRA...

SECOND POST

Here are the games which arrived just that little bit too late to be reviewed this month. They're definitely worth a mention though, so read on...

MASTERBLAZER – *Rainbow Arts*

The sequel to the blockbuster Ballblazer has eventually made it on to the ST. It has a futuristic sporting theme, which finds you facing an opponent on a patterned pitch, launching scorching balls at a set of goals.

Of course there are other considerations, like your counterpart's defensive tactics, and consequently it isn't a case of catch and blast. Already well received on the Amiga, we hope to bring you a full review shortly. Keep scanning these pages!

INSECTS IN SPACE – *Hewson*

Insects In Space is bound to cause a fuss among some of the, shall we say, less permissive games players. Displaying an almost totally naked female on the front cover is guaranteed to bring the sexism debate up again.

However, the game doesn't appear to be all that explicit. Essentially, it's a Defender clone with marginally better graphics. Stick men are replaced by babies, aliens have been substituted by half-starved bees, and the zippy spaceship you flew has been transformed into a rather luscious lady named Saint Helen. Interesting!

ELVIRA – *Accolade*

The Mistress of the Dark has made it on to the smaller screen in a conversion of the film she starred in. Briefly, the plot goes like this: Elvira's aunt Emelda has returned from the dead to give poor Elvira a hard time.

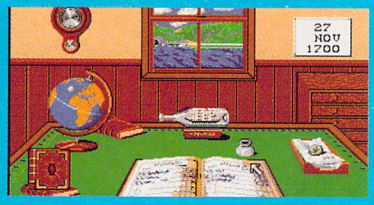
In the hope of a pleasant reward – we'll leave you to guess what that might be – you have decided to aid Elvira in her mission to dispel Emelda to that other plane where she rightfully belongs.

Concoct various potions and defend yourself from the bad guys who are out to get you, and you may have a chance. This icon-driven arcade adventure will be reviewed very shortly. It could become a classic!

MERCHANT COLONY – *Impressions*

Impressions' latest product is another strategy simulation, following closely on the heels of its previously similar title, Feudal Lords.

Described as a "simulation of geopolitics in the eighteenth and nineteenth centuries" and boasting extensive research, Merchant Colony looks as though it could be quite different from anything else you've ever played.



Trading, warfare, and the development of society are integral to the gameplay (sounds serious doesn't it?). We hope to provide you with a full review as soon as possible.

USER RECOMMENDED

Vast numbers of quality budget titles have recently appeared on the ST games scene, so to cut the confusion we've decided to brief you on the best ones.

R-TYPE – *The Hit Squad*

The game that four years ago set new standards for shoot-em-ups, is now available at a bargain price. Although its formula has been thoroughly tried since then, R-Type maintains the appeal it possessed, aeons ago!

You take control of a spacecraft to defeat an advancing alien force that is launching an attack against earth. Enhance your firepower as you progress, and mankind may survive after all.

CONTINENTAL CIRCUS –*16-Blitz Plus*

The story goes that this game was meant to be called Circuit and not Circus but due to a misunderstanding it was developed under the Circus title and that name stuck.

Snuggle into the cockpit of a Formula One car and career around a track that demands every ounce of concentration you can offer. Slip through the gears, and press hard on the accelerator. Have you got what it takes?

WIZBALL – *The Hit Squad*

There were mixed reactions when Wizball appeared. Some thought it uninspiring and boring, others voted it barrels of fun. Well, we like it so we're giving it a credit in this column!

The idea is to return the colour to Wizworld after a rather inconsiderate force has taken it away. To achieve this you visit three different lands and retrieve particular colours by disposing of certain bubbles with your gun.

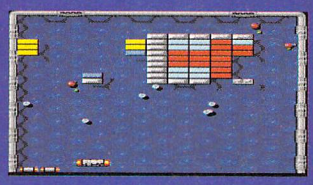
Combine the correct number of colour droplets and all will be gaudy and garish once more.

ARKANOID 2: REVENGE OF DOH – *The Hit Squad*

Hitting a ball against a brick wall with a bat may not sound like the most interesting of activities. But Arkanoid 2 combines a number of special features that create an absolutely compelling and highly enjoyable piece of software.

Lasers to shoot the bricks away are available, not forgetting the multiple ball opportunity, double-sized bat, deadly swooping aliens, and much more.

Let the rebounding ball fall past you, though, and it's game over. The more complex levels will be beyond your reach unless you perfect your gaming tactics and destroy every brick in the early levels.



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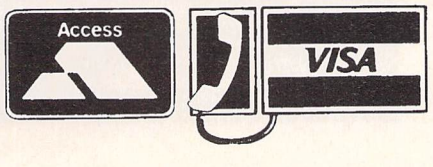
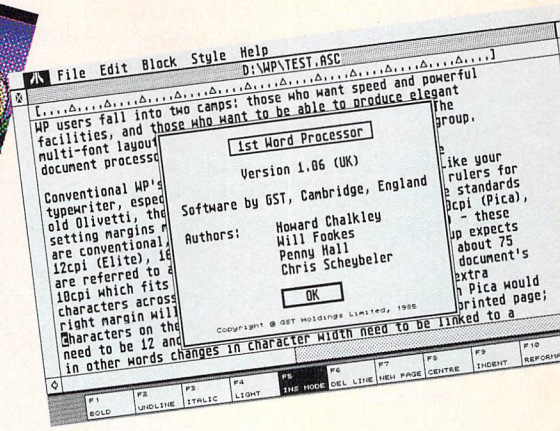




When the game's up!

So you've played everything game from Dungeon Master to Team Suzuki, but have you tried using your ST for anything else? Simon Lawson has a few useful suggestions

With the ever-increasing number of ST owners out there, it seems a shame that so many of their machines are used solely for playing games. The ST is powerful and flexible with literally hundreds of other possible uses.

Originally designed as a low-cost alternative to the financially remote Apple Macintosh, the ST has one of the best operating systems of any 16-bit computer.

The clear, simple GEM interface makes the majority of ST programs easy to use. The system of windows, icons and menus remains the same for any program, which reduces the time it takes to learn how to use a new program.

The ST has a wealth of so-called serious programs available for it, so why not take advantage of them? You never know, you could even make your fortune with it!

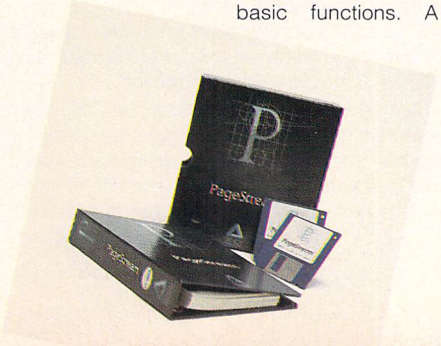
The range of applications can be broken down into a series of broad categories. Let's look at them individually.

WORD PROCESSING

The most popular use for an ST after playing games must be word processing. Writing a letter in longhand can be a frustrating business, especially if you make a mistake and have to start again.

Many people's handwriting is not particularly neat, and scruffy letters can make a poor impression just when you're trying to sway things in your favour. Your ST, combined with any one of the many word processing programs available and a printer, can help take the hassle out of writing. Words can be edited, repositioned on the page and deleted with simple keystrokes.

Any changes you make on-screen show up on the finished printed version, and there are no untidy corrections to spoil your presentation. You can send the same letter to several people, just changing the name and address each time. Documents like CVs can be saved to disk and updated and printed as you need them.The more sophisticated programs add features like spelling checkers to basic functions. A computer spelling checker does the same thing as a paper dictionary, but it can correct the spelling of words while they are in the computer's memory.



The more expensive WP programs add a whole host of other features designed to improve the presentation of your documents. Simple graphics, different fonts and text effects like underlined words and words in heavy type are offered by sophisticated programs.

DESKTOP PUBLISHING

Desktop publishing, or DTP, is an extension of the ideas behind word processing. Once your article has been written, a DTP program allows you to add pictures to your text and create attractive page layouts to make the most of your work.

Programs like the low-cost Timeworks DTP package have brought cheap page layout software to the ST. Providing detailed control over things like the number of columns on a

page, the size and style of the typeface used, and allowing text and graphics to be combined in any number of ways, DTP opens up new possibilities to the average computer user.

The DTP capabilities of the ST have led to a rise in the number of home-produced magazines. Fanzines produced by small groups of enthusiasts have appeared covering everything from trains to football clubs.

Advertising leaflets and posters can also be produced easily, and many churches now use the ST for producing parish magazines.

DTP on the ST has advanced considerably in the last two years. Programs like Calamus and PageStream rival those available on the Apple Macintosh and PC, but at a fraction of the cost.

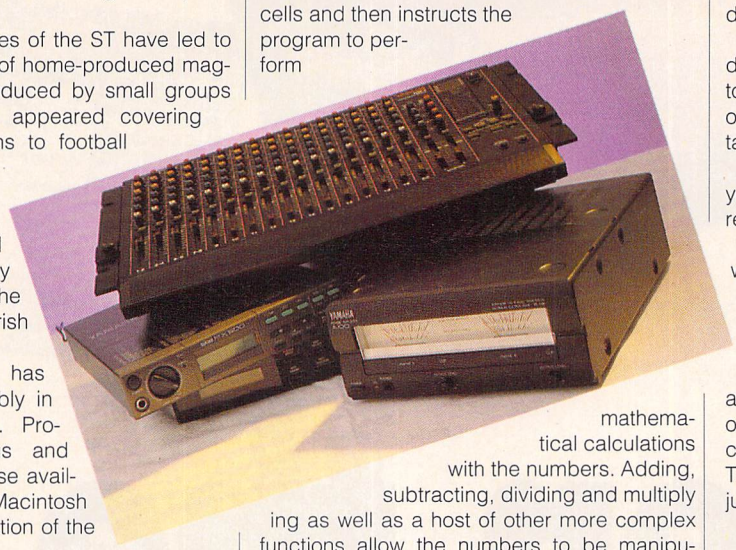
The ST is now being used as a professional DTP tool. Calamus offers a range of features that the average ST user would never use, like text rotation by any number of degrees.

SPREADSHEETS

Can you afford to buy a new piece of software, perhaps a new car, or even a new house? A spreadsheet can help you to keep track of expenses, and let you know the answer. Of course, it's up to you whether you heed the voice of reason!

A spreadsheet is a computerised financial calculator. It acts like a sheet of electronic paper divided up by rows and columns into small cells.

The user enters numbers in these cells and then instructs the program to perform mathematical calculations with the numbers. Adding, subtracting, dividing and multiplying as well as a host of other more complex functions allow the numbers to be manipulated and answers calculated.



After a spreadsheet has been set up, numbers can be changed at will and the program will recalculate the totals for you.

In this way a spreadsheet can be used for financial calculations, and those 'what if...' problems – what if I buy a new car, can I still afford to pay the mortgage?

By changing some of the figures, you can predict the effect of buying the car on your other finances.

Spreadsheets are invaluable for anyone who works with a lot of numbers, either at home or for business. They can also be used for record keeping.

An example of this would be for storing the catch returns for, say, an angling club. The program could then be used to compare different years to find out if the fishing is improving.

Many spreadsheets are also able to generate graphs. Pie charts, bar and line graphs all help to present information clearly and draw comparisons between different sets of figures. Storing and sorting large amounts of data quickly is something computers were designed to do very well. The early mainframes had only a tenth of the power of an ST and they handled the records of large companies.

No matter what sort of data you hold, whether it's the membership records of your stamp collecting club or an index of the books you own, a database will make the process simpler and easier.

The database works on the basic principle of creating a blank record card and then filling copies of the card with information.

The advantage of a computer database over one held on paper cards is the ability of the computer to sort the cards into any specified order and using any piece of information.

This means, for example, that cards could be sorted by name or by address. The cards can then be resorted into a different order with only a few clicks of the mouse.

This flexibility enables the same sets of data to be used in many different ways.

One of the main features of a computer database program is that it allows information to be displayed selectively, so for instance, only the records of people who lived in a certain town would be displayed.

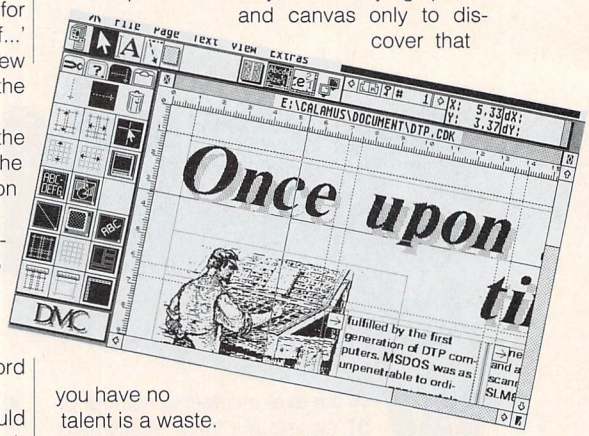
This means you only get the information you want, and don't have to sort through extra records.

Databases are often used in conjunction with word processors to do a mail merge, in which a standard letter is created in the word processor, with blank lines left for information like name and address.

When the letter is printed, the name and address is filled in from the information held on the database, creating 'personalised' copies of the same letter for different people. This is the technique used to generate all the junk mail that floods through your door.

GRAPHICS

At some time or other everyone wishes they were the new Rembrandt, Constable or Monet. The sad fact is that painting is an expensive hobby, and buying paints and canvas only to discover that you have no talent is a waste.



So why not try yourself out on the ST? With an art package you can practise until you either get it right.

With its extensive palette of 512 colours (4096 on an STE) the ST is the ideal tool for the aspiring artist. Painting programs provide a number of different tools to allow your natural talent to be expressed.

Programs like Deluxe Paint and Degas Elite lead the way in the number of features they offer. The ability to draw squares, circles, boxes and lines are now standard in every program.

More complex functions like Bezier curves and graduated fills are now appearing in the more expensive programs. Deluxe Paint also offers the unique ability to create animations from a series of pictures, or AnimBrushes.

There are programs like Spectrum 512 and Quantum Paint Gold that extend the number of colours that can be used on-screen. They are more difficult to use and are really only for the more advanced artist.

Many art pack-

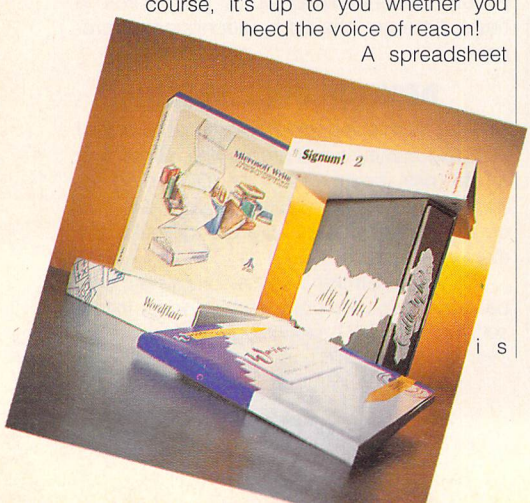
MAKING MONEY

Why not make a bit of spare cash with your ST? Other people have... some of them have founded whole publishing empires – but that's another story.

Here are a few ideas to get you started. but before you do set yourself up in business, make sure you know how the law applies to your activities, and that you know what you're doing!

We've given them difficulty ratings, from 1 (easiest) to 10 (probably impossible):

- **Start your own magazine or fanzine. One day you could become a mega media owner.**
- **Write a best seller. Look out Barbara Cartland and Jeffrey Archer.**
- **Open a PD library. But be prepared for lots of hard work.**
- **Paint an electronic masterpiece. Then sell it to the Tate.**
- **Write a computer game. Sell it to a leading games house and sit back and watch the royalties roll in.**
- **Write a brilliant pop song, start your own music movement, and become an international celebrity.**
- **Write a screenplay for a long-running, incredibly popular Australian soap opera. Again, sit back and watch the money roll in.**
- **Become secretary of your local bird watching group, organise their records on your database, and make them pay you for your time!**
- **Learn to program an ST so that it can do all the housework and mow the lawn, completely unassisted. Very big money in this one.**
- **Think of something yourself.**



ages now have their own special way of saving pictures. PD programs like PicSwitch allow picture files to be converted easily between different formats.

The public domain is also a good source of ready-drawn artwork that you can use to enhance your own creations.

Programming your computer can be a very rewarding pastime. All new STs are supplied with a version of the BASIC programming language, which is perfect for beginners.

When you become a little more experienced, you may consider moving up to a more powerful language. The ST has a bewildering array available for every type of user.

The most obvious choice is a more powerful version of BASIC like HiSoft BASIC 2, which allows fast, powerful programs that take advantage of the ST's GEM interface to be created. A special version of BASIC called STOS is designed for writing games.

PROGRAMMING

The C language is used on a wide variety of computers, and is fast and powerful. It encourages good programming practices, and programs created with C can run on a variety of machines with little modification. The drawback to C is that it can be hard for the beginner to understand.

No matter which language you choose to use on the ST, a good book on programming can be a great help to the beginner. Most large bookshops carry a range.

Alternatively, you can follow the detailed articles in the 'USER RunTime disk magazine every month for ways to get the most out of programming your ST.

MIDI AND MUSIC

The music and sound software available for the ST falls into three distinct parts. MIDI software exploits part of the ST's hardware to control other instruments, samplers allow the manipulation of real sounds, and sound player programs use the ST's sound chip to play sounds.

One of the best aspects of the ST's design is the inclusion of built-in MIDI ports. This has lead to the development of hundreds of software packages which exploit this facility.

MIDI, the Musical Instrument Digital Interface is the name for one way electronic instruments like keyboards and drum machines can communicate with each other.

The addition of an ST with the correct software means that MIDI instruments can be controlled via the computer.

Music written using a music writing package can be played on a MIDI instrument, even if you don't know how to play that particular instrument.

The reverse is also true – so if you can play an instrument, the ST can transcribe the notes into written music for you.

Software also exists to allow sounds to be transferred from an instrument's memory to the ST and back again. In this way, your computer is used for creating and editing sampled sounds.

There's a wealth of sound sampling hardware available for the ST. A sampler takes the input from a microphone or stereo and converts it to a form the ST can understand. These sounds can then be manipulated and played back.

Sound sampling is often used to get special sound effects for games. The STE has built-in hardware for playing sampled sounds without slowing down the rest of the machine.

The ST's built-in sound chip is not all that special. It only has three 'voices' so it can only make three sounds at once and those it creates tend to be very mechanical.

Programs like Quartet make the best of it by using sampled sounds together with ST-generated sounds.

GET CRACKING

The ST is a fast and versatile machine. Using it for games is great when you first get it, but eventually most owners want more from their machine.

Careful choice of software to suit your needs and interests will enhance your enjoyment of your machine. Experiment with public domain software first to find out what you need, then check the reviews in 'USER.

Build up your software library gradually, and pretty soon you'll be able to do more with your ST than you would ever have imagined possible here are a few ideas for you. Have fun!

TAKING THE CHEAPEST ROUTE

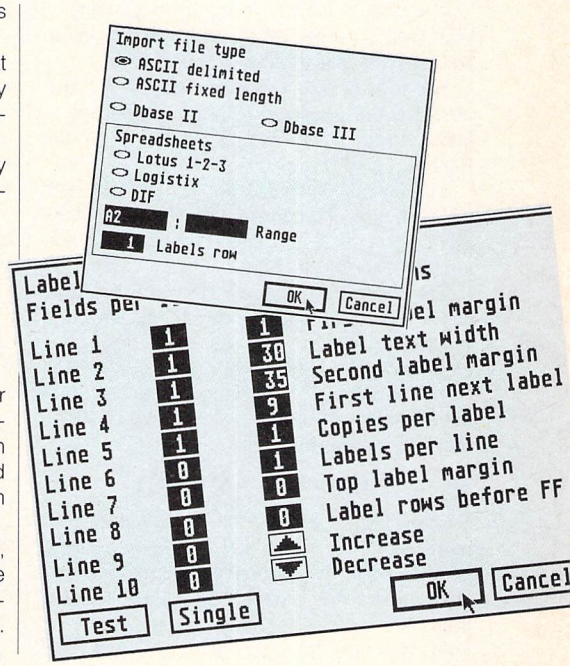
Starting to use your ST for something other than games needn't be an expensive business. Although commercial programs can cost anything from £25 upwards, there are alternatives.

The many ST public domain libraries offer a wide range of inexpensive software from as little as £1.50 a disk. All the popular types of programs such word processors, spreadsheets and databases can be found very cheaply in the public domain. Even the more specialised programs like MIDI and DTP can be found in PD libraries.

The public domain is also a good place to find language programs. BASIC, machine code and C are all available. One advantage of buying PD software first is you can try out a type of program first before buying a commercial version. A PD program will let you see if the expense of a better, commercial version is justified.

Listed below are some of the better PD versions of programs. This list is by no means complete, and a careful look through the catalogue of your local PD library will almost certainly turn up other useful programs:

Word processors *- First Word, ST Writer*
Databases *- DBman One*
Spreadsheets *- Sheet, Opus*
DTP - EZText
Graphics *- Artifex, Public Painter*
Programming *- Snozobon C, Tiny BASIC*
MIDI *- Henry Cosh Sequencer*



EXTRA STUFF MAKES LIFE EASIER

Although even a basic 520 ST is fine for serious work, the better your hardware set-up, the more flexible your options.

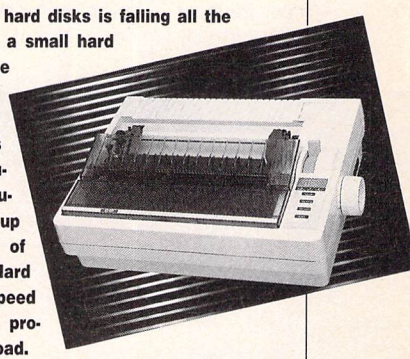
The first, and most obvious, restraint on your ST's abilities is memory size. One megabyte of memory should be considered a minimum for serious work , although the more you have, the better.

Many programs will run in 512K but offer more features and improved speed if you have more memory.

Upgrading the memory of an STE that uses SIMMs (Single In-line Memory Modules) is as easy as plugging in the extra chips.

Older ST models need special upgrade boards, which are slightly more complicated to fit. Most require only a minimum of soldering which your dealer will do for you. An extra half megabyte of memory should cost about £70.

The second area where more is better is disk storage space. An external floppy drive will make life a lot easier, but a hard disk is even better. A second floppy drive costs about £65, but remember you need to buy disks for it as well.



The price of hard disks is falling all the time, and even a small hard drive is a wise investment. Sampled sound files, graphics and DTP documents in particular, can take up large amounts of disk space. Hard drives also speed up the time programs take to load.

The price of a hard drive depends on size and speed, so shop around for the best bargains.

For word processing and DTP, a printer is a must. With advances in technology, even a 9-pin dot matrix printer bought new for less than £150 can produce a good quality output. 24-pin printers offer better quality for around £220. Other types of printer like the inkjet and laser are becoming cheaper.

ART BREAK

Accomplished computer graphics artist Mo Warden picks up her graphics tablet, pushes us gently to one side and takes over the Art-Work! pages

It's me again – Mo! I've managed to talk the 'USER team into letting me have two art pages every month. So now we can get down to the business of working with all those art packages on the ST, and getting the best out of them.

The idea is for you to continue sending in your work for publication and also for you to write in with your queries and problems.

Not too technical please, I'm not a hardware expert, neither do I know all there is to know about every single package on the market .

But if you're having trouble, I'll try to help with subjects like general drawing, animation, 3D, perspective and composition – answering with examples if I can.

Send me drawings, designs and screens, with a bit of explanation about you, your age – although if you're over 21, only if it's in any way relevant! – how you put your picture together and which software you used. Send me screenshots of half a dozen stages if you can and up to 500 words.

WORTHY REWARD

There will be a prize for the best submission each month, and I'll be featuring aspiring young designers who are looking for work. Software houses please note: I'll be keeping their details on file for contacts!

If I don't get the submissions, I'll just have to do the pictures myself. And if that doesn't prompt you, nothing will...

Meanwhile, I'll gradually cover some of the common questions I'm asked. One of the most frequent is about the packages I use. Well, currently I'm using Deluxe Paint most for general drawing and animation and Neochrome for my graphics tablet.

For 3D objects such as in Damocles, I use an assembler. A simple one is sufficient. I'm not required to code at all – although I can, a bit. I leave all the clever stuff to the programmer I'm working with.

For scrolling backdrops and special jobs I dig out utilities which have been specially written for use in-house.

I'm also often asked by aspiring artists how to get a foothold. Well, if you really want to know, write to me and I'll cover it in a letters column. If you don't ask, you don't get...

In the meantime, I'm impressed by the quality of entries we've received for the graphics competition.

I ought to say before I go on that quite a few were of copyright subjects – Turtles, alternative game loaders etc – and we simply can't print them. Shame, they were so good. Obviously a lot of you spent a long time on it. But don't give up, do try again.

HELP YOURSELF!

So don't forget, if you're having a problem with some aspect of an art package, or you want to know the best way to do something, or you just want to show the world your brilliant artistic talents (or not!) – sent it in!

Mo Warden has been working as a computer graphics artist with games house Novagen for three years. Her work includes Hellbent, Hyperforce, Minter's Colourspace, Damocles and Backlash.

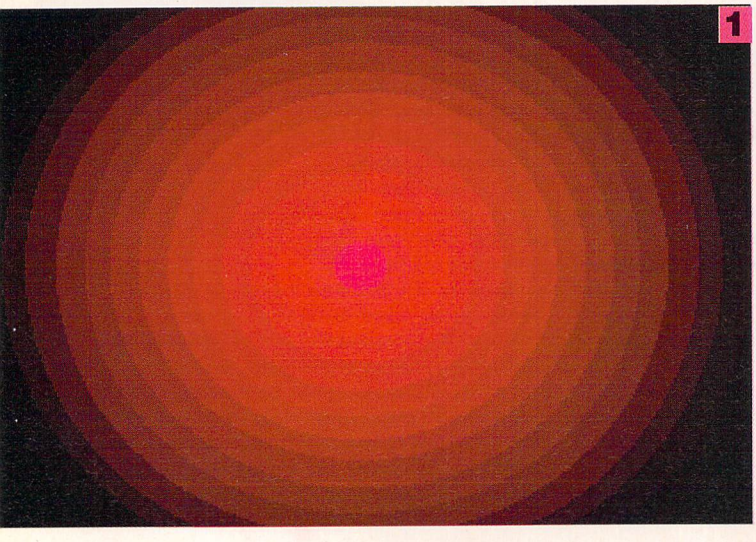
MASKING HINTS

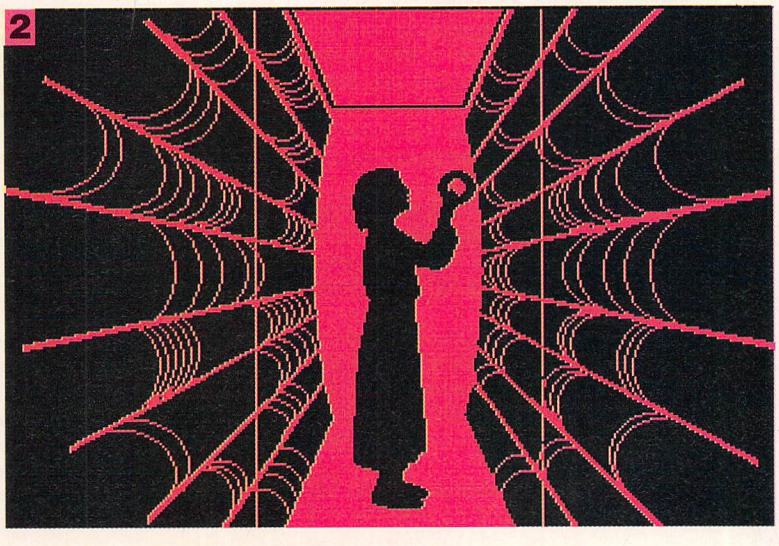
1 I've put together a quick screen to demonstrate masking, using my STE so there are 16 shades of red. I started by filling the screen with concentric solid circles, largest first, brightening into the centre.

2 Next I went to a separate buffer, in DPaint, and drew the silhouette, using only one colour – the lightest red.

3 I inverted this, changing the light red to a middle shade, black to light red, middle red to black, and cut it as a brush. I carried this to the background screen and printed it over the top.

4 Then I stencilled all the colours except the bright red and used Screen Clear. Finally I smoothed and smeared it with the FX tools. I call it Red Tape.





BIMBO MEETS MACHO THING!

Here's a very interesting submission from Saurav Sarkar of Wanstead. He needs a break so if anyone needs a graphic designer, write to us and we'll give you his address.

The attention to detail in the picture is excellent and the composition and choice of palette is good too. The ability of the artist is obvious. He wins £25 for this fantasy masterpiece. Over to Saurav for a commentary...

"This picture, which I call 'Is She Really Going Out With Him?', was created with Degas Elite. First, I composed a pencil sketch within a screen-sized frame on paper, to show where the picture components should be in relation to each other, what they should look like and what colours are likely to be needed.

"Loading up Degas, I chose a provisional palette, which I would fine tune later for the best effect as the picture developed.

"Using a combination of freehand draw and magnification tools, I copy the foreground figures on to the screen. I use light grey on black for this initial stage because it's easier on the eyes.

"Next I fill large areas in appropriate colours, and under magnification I paint in smaller areas such as facial features, and cover the grey outlines to eliminate the cartoon look. Now I add highlights and shading.

"I find it useful to have at least three shades of colour for an area. I start by filling with the middle tone. White or near-white can be used to highlight most areas.

"I refine details further, and try to give areas a texture. The ribbed/mesh look of the girl's outfit is achieved with short dashes or lines, and the coarse texture of the alien's muscles and trousers with a stippling effect.

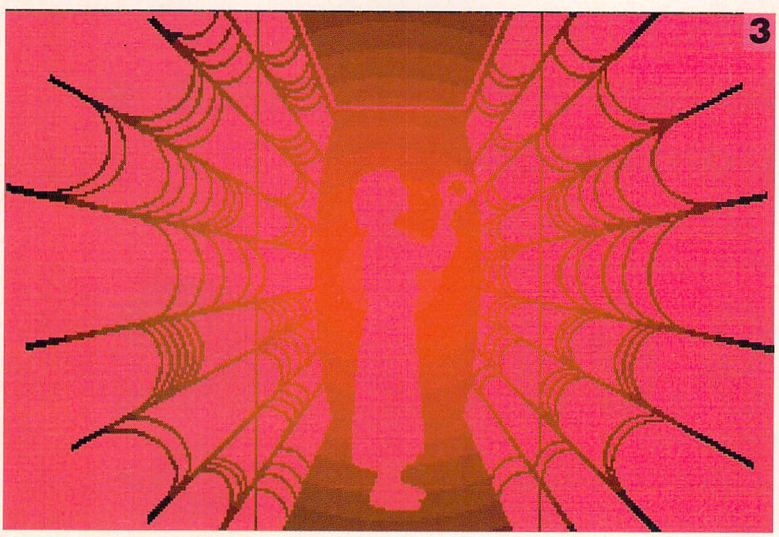
"A reflection of the girl's head in his gun makes it look shiny. Then I anti-alias edges by hand, placing pixels of intermediate colour where two areas of contrast meet.

"Finally, I save this picture while I draw the background, then cut and paste them over the top and smoothe them in.

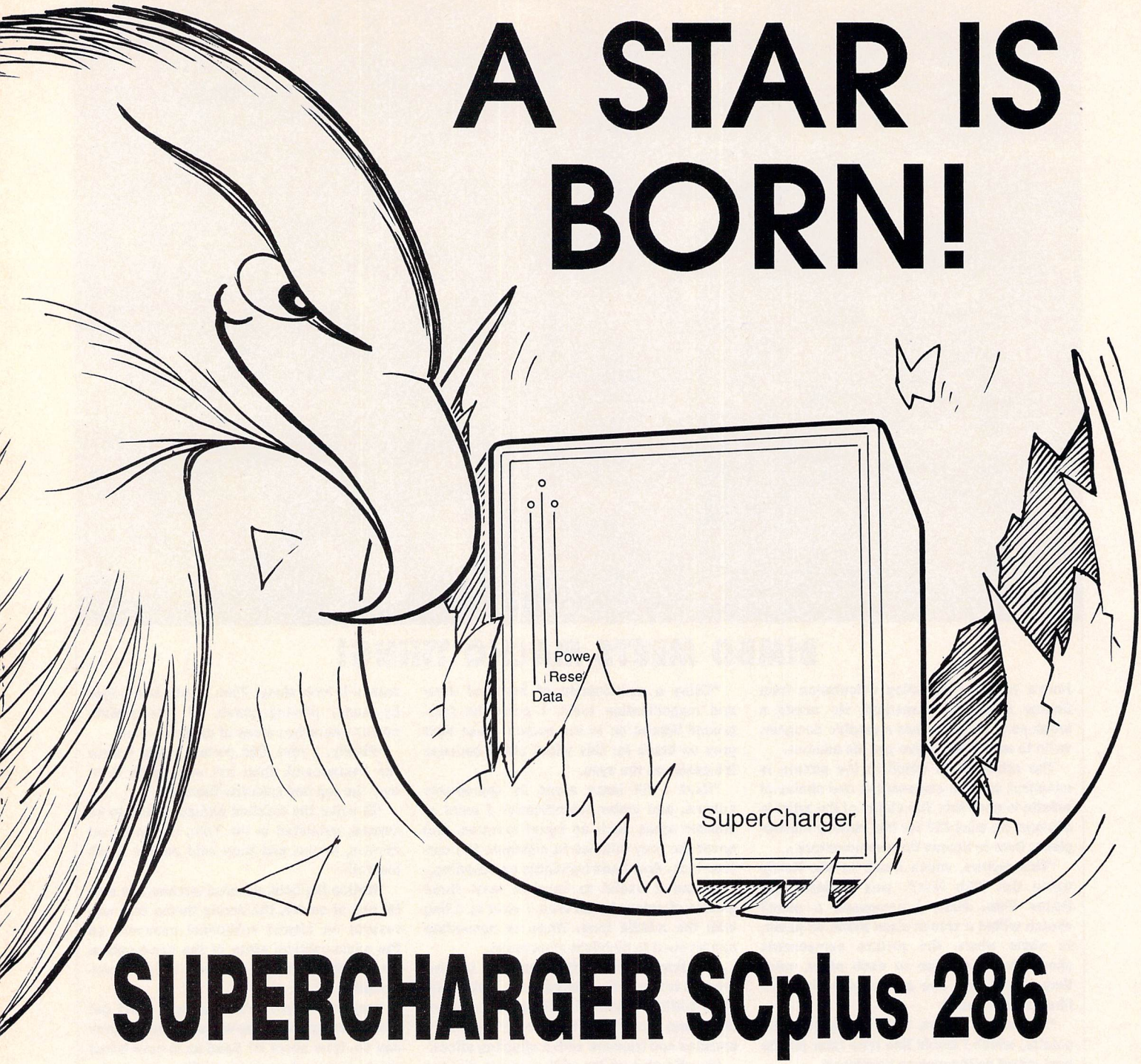
"Et voila: the finished picture, ready to be framed, exhibited in the Tate, stolen by art thieves, forged and then sold on the Black Market!

"Notice the bold, assured strokes, the subtle use of colour, the daring theme that represents an almost subliminal comment on the socio-political state of the neo-bombastic anachronisms of modern Twiglet consumption..."

Yes, yes Saurav, it's very good, don't get carried away! Well, you've seen what Saurav can do. How about it? Send us in your latest masterpiece – it could be worth something!



A STAR IS BORN!



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SMOOTH OPERATOR

Martin Eaton finds a way to balance the books that's fine for small businesses

Sage Cash Trader is a very simple book-keeping system aimed at the corner shop/small trader market. It comprises one disk and a manual, both of which are very professionally presented and packaged.

The manual is well written, dealing comprehensively with installation and explaining each menu option in turn.

Sage Cash Trader started life as an MSDOS package, and has only recently been ported to the ST. Unfortunately, many of the better features of the original version, like the pop-up calculator and pop-up account/customer codes, are not now included, although Sagesoft says they may be incorporated in future releases.

Once installed, it's quite easy to set up. Up to 50 sales accounts – for which you supply the headings such as Cash Sales or Credit Sales – and 50 purchase accounts are catered for.

The program enables you to keep track of all supplier invoices and produce a statement of account at any time. Bank balances are kept up to date provided an opening cash and bank balance is entered, and all cheque payments – debits and credits – and cash receipts are entered on a routine basis.

The program will handle a maximum of 32,000 transactions and with the number of supplier accounts at 50 – which is not the maximum possible – about 3Mb of storage is required. This is more than enough for most people.

All transactions are kept on file until the end of the month, when a list of transactions – the Sales and Purchase daybook – is produced. VAT is catered for automatically.

One handy feature is the ability to enter a VAT-exclusive figure for which the system calculates the VAT, or an inclusive figure can be entered and the system extracts the VAT.

A slight problem turned up: if the supplier invoice has a rounding error the program won't let you override its calculated amount – the transaction has to be amended before posting.

The time saved on tedious monthly VAT accounting, more than compensates for this problem. Once the monthly reports have been produced, the system must be "re-configured". This is an unfortunate term really – it's a shame that Month End Routine wasn't used here, because that is exactly what is meant.

Sage Cash Trader is a Balance Brought Forward system. This means that open invoices carried forward to the next period are lumped into one total for each supplier account and then brought forward as the opening balance for that account in the new period – after the system is re-configured.

As a result you can't do away with the old shoebox, or similar, system. Unpaid invoices still need to be monitored so that payments are made on time and duplicate payments are avoided.

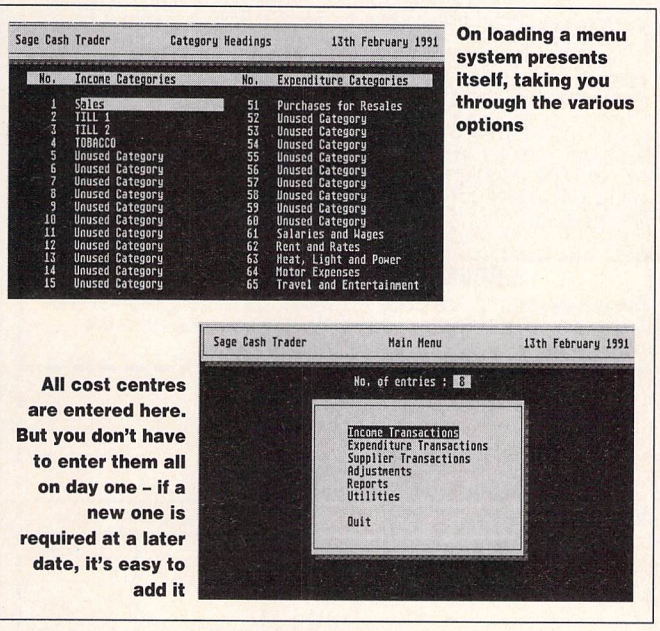
VAT is calculated using a table of user-definable codes. Ten are available catering for VAT and non-VAT items, exempt items and, of course, the various export schemes. The program can cope should the number of VAT rates or the VAT percentage change.

REPORTING IT

Reports are quite comprehensive. In most cases a report can be analysed into cost centres reporting on a range of dates, beginning and ending at user-specified transaction numbers.

Report types include VAT Account Summary and full analysis, Daybook – providing a full audit trail, and hopefully reducing your accountant's bill – Outstanding accounts, and of course, a Profit and Loss, which is in the form of a quick ratio report, all of which may be sent to the screen or printer.

In all, Sage Cash Trader is a comprehensive, easy-to-use system that should enable you to spend a lot less time looking after your business and produce much better results than any manual method.



On loading a menu system presents itself, taking you through the various options

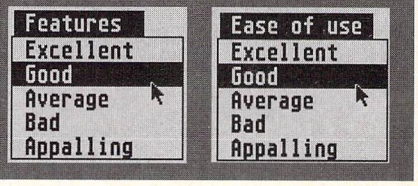
All cost centres are entered here. But you don't have to enter them all on day one – if a new one is required at a later date, it's easy to add it

Product: Sage Cash Trader V1.10
Supplier: Sagesoft Limited, NEI House, Regent Centre, Gosforth NE3 3DS
Telephone: 091 213 1555
Price: £113.85
Configuration: All STs. Printer and hard disk recommended

THE BOTTOM LINE

FEATURES: A powerful and flexible program with very good documentation.

EASE OF USE: Relatively simple. Should be a time-saver.



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STU5

JOIN THE ATARI ST USER TREASURE TRAIL

Ah ha! So, ye thinks ye'll be getting them dirty paws on me treasure eh? Well, ye'll have to be workin' the clues out for yeself first!

Last month we published the first four clues in our Treasure Trail competition. Now here are the rest.

If you can work them out you'll be in the running for some fabulous prizes.

The first three correct entries out of the hat will share a £2,000 treasure trove of goodies provided by sponsors HiSoft, renowned for its compilers, development systems, software utilities, flight simulators and more.

And it's going to be fun! The three winners will receive free tickets to the Computer Show, being held at Alexandra Palace from May 10th to 12 th.

There they will find more clues to solve in order to find the hidden prizes.

There are 25 great HiSoft packages in this brilliant prize, including HiSoft BASIC, Pro-Flight, WordFlair, DevPac ST, HighSpeed Pascal, Tempus 2, Turbo ST, HiSoft KnifeST and Spectre GCR. Just think of what you could do with that lot. Unbelievable!

But if you miss out on the big prizes, there are more free tickets to the show for 20 runners' up. So it's well worth having a go!

HOW TO PLAY

You bought last month's issue of 'USER and solved those clues didn't you? Well, now you can finish it off. Take the initial letters of your answers to the first four clues and add the initials of your answers to these in the coupon.

The eight letters form an anagram of a famous British landmark. Crack the code and send in your entry. Then sit tight, think positive and wait for the good news!

THE ATARI ST USER COMPETITION

HiSoft
High Quality Software

CAN YOU CRACK IT?

- To Wiltshire and a religious site of the early Bronze Age which gives England its most outstanding stone circle.
- A trip North West to the Welsh borders. The greatest king to rule Mercia in the eighth century was responsible for this impressive earthwork. His name was Offa, but what term describes his structure?
- North to the Isle of Man. Where do we find the largest water wheel ever built in Britain?
- And now East to Yorkshire where many ancient buildings are found. What are Fountains, Rievaulx and Bolton?

The anagram is _ _ _ _ _ _ _ _

Name: _____

Address: _____

_____ **Postcode:** _____

Send it in now to: Treasure Trail Contest, Atari ST User, Europa House, Adlington Park, Macclesfield SK10 4NP. The closing date for entries is April 20.

THIRD COAST TECHNOLOGIES

Unit 8, Bradley Hall Trading Estate,
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Atari Hard Drives Specialists

Third Coast Hard Drives

Third Coast have been well established now for years in the Atari Hard Drive market. Third Coast have been the leading Atari Hard Drive manufacturer over the last eighteen months and we offer full technical support Monday to Friday 9-5 unlike some competitors. We offer a product which has been on the market for years which has been tried and tested and sold worldwide.
The idea of a hard drive without power supply is not new. Indeed! a prototype was built some time ago by Third Coast Technologies. The reason the drive was not released onto the market, was because overloading, of the power supply causes voltage fluctuations, which leads to unreliable data transfer.

Expandability

With Third Coast's range of Atari hard drives you have the ability to expand by adding a second drive or even a 155mb tape backup device.
The drives also have DMA in & out and also SCSI in & out.

Software

All Third Coast's Atari hard drives include a free set of software utilities which includes a word processor, database, spreadsheet and loads of other handy utilities. Also included are excellent ICD Hard Disk utilities which include formating, partitioning, auto-booting and a great deal more hard disk related software.

Features

All Third Coast's hard drives come supplied with a battery backed up clock as standard. The drive is also fully autobooting and has automatic headparking so there is no need to run a program to park the heads. High speed programable caching software is also included with the drive. The unit has an internal 65 watt switching power supply which is capable of powering two hard disk drives.

STE Compatible

Third Coast's Atari drives are fully compatible with all Atari STE machines. Using the drive on the Atari STE machine will not cause problems such as data transfer errors unlike some competitors drives.

155MB Tape Backup

As well as supplying a large range of hard drives we also sell a 155MB tape backup device which can be used with all Atari hard drives. The unit will backup 20megs of data in under 2 minutes. It uses industry standard CT600N cassettes.

For more information call
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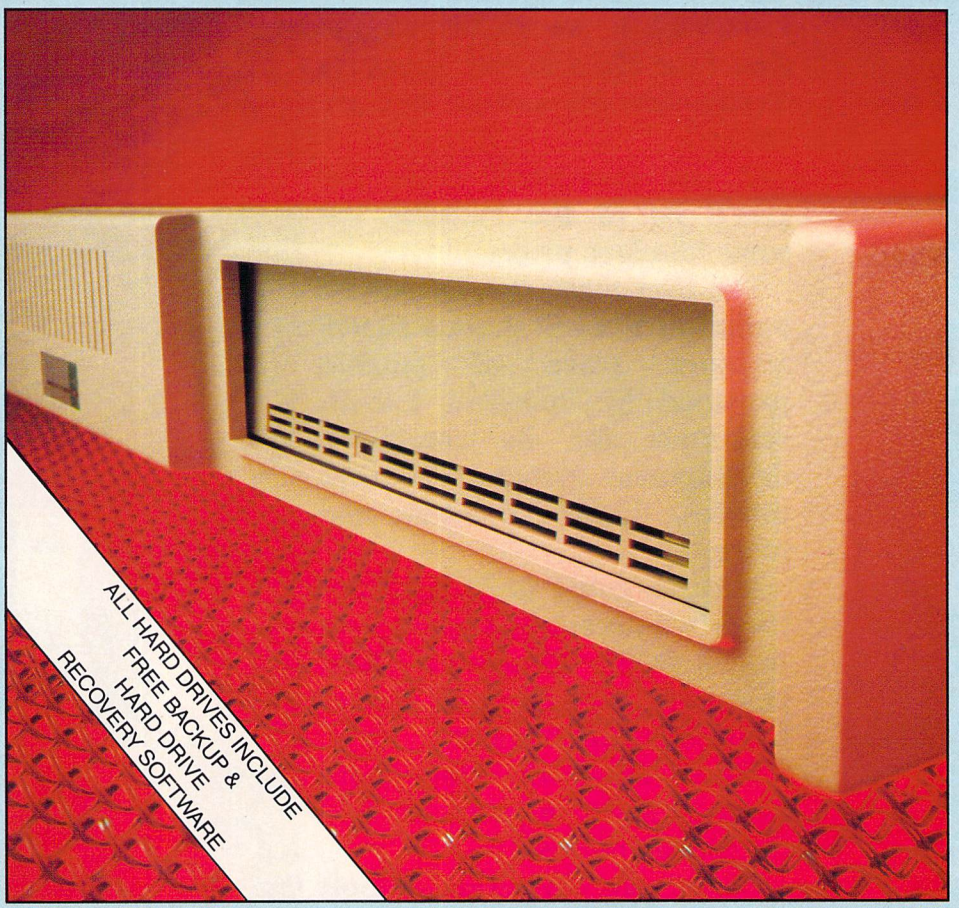

DIY Kits

Third Coast also provide kits so you can take advantage of any bare hard drive mechanism you may have. We offer complete cased kits for SCSI drives and also ST506 drives both of which include all cables, software and manuals to get you started.

DIY Kit Pricing

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Drive upgrades available for SH204/5, Mega file 20/30/60 and Supra drives call for prices and details.

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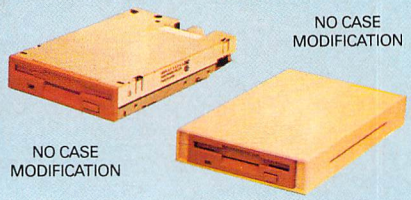
All floppy drives include free software utilities



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1MB internal 80 track £49.99 1MB internal 84 track £69.99
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Add £5 if you wish to receive a virus protector

All floppy drives include a free extended formater, copier, Ram checker, virus killer, sector editor and drive speed tester!

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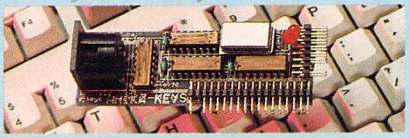

Z-Keys is the IBM-PC/IT keyboard interface requires no soldering and no software. Does not tie up any extra ports. Both mouse, ST keyboard and PC keyboard active at the same time. Complete with installation manual. Order today only £35

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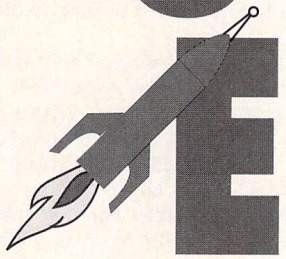
INTERACTIVE

ESCAPE

Computer cracking up? Disks doing back flips? Printer out of puff? 'USER's very own Silicon Service Supremo is at your disposal.



RECOMMENDATIONS

Q Do you know of any software that will allow music to be written and printed? This is particularly for my children, who enjoy playing music and would like to use the ST (a 520STFM machine with a single half a megabyte disk drive) to compose and print their own music. We have no MIDI facility and are not looking for anything too flash.

Can you recommend any games which are suitable for 5 to 10 year olds? Many of the games I have bought are either too complex for children (some for me too!) or require too much dexterity with the joystick. Treasure Island has been great. Any more suggestions?

Do you know where I can purchase a station or workspace for my ST? Most cater for separate keyboard machines. Preferably one that can take two monitors and a second drive, or have I got to build it myself?

Steve Amos, Ilkley, West Yorkshire

A There are lots of very good music packages for the ST, due in part to the fact that the machine has a built-in MIDI port. Unfortunately, for the likes of you (those who just want to dabble and print scores, not actually perform...) they tend to be expensive and come with a lot of extra abilities that you just won't and don't need.

The best place to look, then, is the public domain. The latest Goodman's catalogue (Goodman Enterprises, 16 Conrad Close, Meir Hay Estate, Longton, Stoke-on-Trent, Staffordshire ST3 1SW) features dozens of music programs, many for MIDI.

But at least one – disk GD470 – is a composer program that will enable you to compose your own tunes and play them using the ST's internal sound chip. It also features key transposition and more.

On the commercial front, the cheapest score generator I can find is Dr T Copyist Apprentice from MCMXCIX (071 724 4104). At £79.95 including VAT, Dr T supports files generated by a number of programs and allows up to five pages per score.

Games, huh? Are you sure that just because these games seem complicated to you they really are too complex for your children to cope with? I suspect not. Children seem to find computer games a breeze and can adapt to the extremes of concentration and manual dexterity easily.

But if they really are finding things just the tiniest bit difficult, again, the best place to look is in the public domain. Why? Because commercial offerings need to incorporate new tricks and turns in order to sustain the market.

If a software house continues to provide the same simple games, it's not going to stay in business for very long. Public domain programmers, however, have no such considerations. They can write what they like and if that doesn't please the great unwashed – you and me – then who cares?

As a consequence, there are dozens of renditions of the old favourites such as Space Invaders, Kong, Dig Dug, adventures and so on. Have a look at our public domain pages for a selection of suitable suppliers. Most provide catalogues for free or for a nominal sum, and you can show these to the kids and let them choose their own games.

Workstation suppliers tend to have one-track, IBM-orientated minds, because the largest section of the public interested in workstations are business buyers. And business buyers generally favour IBM PC and their many compatibles.

Actually, it shouldn't be too difficult to adapt one of these if you really are intent on buying a workstation. But why not just get an old kitchen table or an incredibly cheap flat-pack desk from MFI? A few extra bits of chipboard to support a printer, monitor and so on and you'll have a workstation at a fraction of the price. You'll also be to create the exact space needed to take your set-up.

GHOSTS IN THE MACHINE?

Q I own an Atari 520STFM and for some time now the keys on the left-hand side of my keyboard have not responded. The ones affected are: Esc, F1, F2, F3, F4, 1, 2, 3, q, w, e, a, s, d, \, z, x. All the others function perfectly. I suspect that the problem is caused by some software and may well have resulted from the use (or misuse!) of either of two packages.

I have recently purchased Degas Elite. Could I have created blank fonts for these keys without realising it? The other possible source of the problem could be Protext version 3.5 which is another recent acquisition.

Is there a method which you could explain to me whereby the value of the keys could be reset? If you feel software is not the cause, I would very much welcome your suggestions, since without the use of these keys many of the games and applications I have are utterly unusable.

D J Barnes, Southend-on-Sea, Essex

A The problem does not lie with software. It is possible to remap the keyboard but as soon as the ST is switched off, these new key assignments would be lost, thereby discounting the theory that you have permanently changed something with Degas Elite or Protext V3.50.

No. The keyboard's fault lies in a good old hardware problem. For some reason, part of the keyboard matrix can't be seen by the processor. Pop it along to the nearest repair outfit or send it, together with a description of the problem to Silica

...anything can happen in the next half hour...

Shop (071 580 4000) who, for a nominal fee, will examine and repair it.

GET IT RIGHT!

Q I have owned an Atari 520ST for about three years. Some time ago I replaced my internal single-sided half a megabyte floppy disk drive with a double-sided model, and had no problems with it until a couple of months ago.

It is a problem that I am sure many readers have – that is, loading errors on certain software. At first I suspected the product, but after checking it on other computers I am now sure that it is the non-alignment of the heads.

Is there any software to check this (similar to the azimuth angle alignment of tape heads), or am I reduced to sending the machine away to be looked at for a problem I am not even sure exists? I clean the heads at regular intervals, but this does not improve the situation.

A Davidson, Derby, Derbyshire

A Why didn't you simply return it to whoever sold it to you for a repair or replacement? Was it out of warranty when the problems started to occur? If the device still has a warranty of some kind I suggest you bung it back to the dealer from whence it came.

In fact the problem probably doesn't lie with the alignment of the heads but rather with the speed at which the disk spins. Unfortunately, although a floppy is supposed to spin at 300 revolutions per minute, many fall far short of this figure.

Sometime, somewhere I've seen a dinky little utility which checks the rotation speeds of floppy drives but I can't remember what the program was called or whether it was commercial or public domain. If anyone knows of it, write in and I'll pass on the information.

Unfortunately, even if you discover exactly where the problem lies, you won't be able to repair it without specialist tools and knowledge, but at least you'll go along to a repair shop armed with a little knowledge – which is half the battle when trying to negotiate a decent price for work!

TV HEADACHE

Q I've been computing with my Atari 520STFM for a couple of years and have always used the machine with a television set because it was cheap and already around!

As I've only played games and have not been very interested in programming or anything like that, it didn't matter that I was just using a television set, but now I've bought a mono monitor, an SM124.

Quite recently I decided that I must start to do something else with my machine other than just playing silly games on it. So I got a word processor (First Word), a database (Superbase Personal) and various programming languages. Then I thought I would buy a monitor to take advantage of all this software too.

Here's my problem. I like to use the mono monitor for the word processing and that, but I still like to play games with my ST and so like to use the television. But I found that I couldn't keep the mono monitor plugged in if I wanted to use the TV!

When I did, all I got on the TV was some squiggly lines and not much else. I'm really fed up with plugging and unplugging the television all the time.

Is there any way I can have the two displays connected at the same time and switch between them? I'd be really happy if you could give me this information.

Adam Sweeting, Slappworth, Halston

A It's a drag, I agree. Swapping cables backwards and forwards every time you want to switch from low and medium resolution to high resolution by plugging and unplugging cables is bad for the ST and a pain for you. But take heart, there is a way around the problem.

The ST's monitor port features a mono monitor detect line which, when the mono monitor is plugged into the port, tells the ST that the mono monitor is being used, blanking out TV transmissions in the process – even if the mono monitor is switched off!

What you need to do is to fool the ST into thinking there's nothing on the mono detect line even when the monitor is attached, and fortunately, that isn't a very difficult thing to achieve. Here's how to do it.

Get hold of a double throw double pole switch (available from any electrical suppliers). Connect two of the pins on one side of the switch to pins 4 of the ST and 4 of the monitor and the corresponding two pins on the other side to pins 1 of the ST and 1 of the monitor.

All you have to do is to throw the switch and, hey presto! Instant line detect negation!

For more details and step-by-step instructions on how to create a monitor switchbox, take a look at our DIY feature in this issue.

PRO MIDI

Q I have a demo of a nice patch editor librarian for the Kawai K1 synthesiser and the ST by a firm called Pro MIDI Software. It was programmed by Graeme Gordon and David Cummins. Unfortunately, no one seems to know anything about Pro MIDI Software.

In an old magazine I came across mention of some other equipment under that name sold by Performance MIDI Systems, Box 864, Grand Forks, British Columbia, Canada VOH 1HO.

I wrote to them on July 11 but have had no reply. I wonder if you know whether there is such a Canadian firm as Pro MIDI and if so, I should be much obliged if you could kindly print an address.

L A Hollings, Brighton

A After many hours spent searching, I managed to find this in an ancient copy of Analog magazine: Performance MIDI (note the missing word 'Systems' from the company's name. It may mean that in fact, it's a different company...), 585 Shipbuilder's Creek, Webster, New York.

Whether there's anyone residing at that address and if there is, whether they're still in business is anyone's guess, but I suppose you've only a got a stamp to lose!

POWER DRIVE?

Q I have quite a few questions to ask, but I hope you will answer them as I feel I may not be the only one who would like to ask and know some of these things. At the Computer Entertainment Show, I bought an external floppy disk drive for £55.

This drive takes its power from the mouse port. Will this damage my mouse port or not? One good thing about it is I can now plug my mouse in more easily, although I hope I have not spent £55 on something which can only be a mouse port extender.

When I loaded up the the CoverDisk on issue 55 I was very pleased to see that there was a demo of Torvak the Warrior on it. I then noticed that it said that the demo would not work on 1987 ROMs. That's OK, I thought, I bought my ST in 1988, as a Christmas present.

I loaded up a TOS teller to find out what was going on and to my double surprise I found that I had a 1987 TOS ROM! I then telephoned a friend to find out what kind of TOSser he was. To my triple surprise he told me that his was a 1987 TOS ROM too!

What I am trying to say is, were we both conned when we bought our STs or not? If so, how are we supposed to find out what TOS the computer is before buying it?

I am about to embark on learning machine code. I haven't got a programming program. I thought that if someone out there had an old copy of DevPac that they didn't want then

they could send it to me. I am only a schoolboy and after buying the disk drive mentioned above, I am stone broke.

Lastly, I would like to say how excellent and awesome your magazine is. I have just subscribed for 12 months – another reason why I'm broke.

John Skinner, Pinner, Middx

A Opinion is divided on the subject of drawing current from the mouse port. The SuperCharger PC emulator, although excellent, was heavily criticised for powering itself from a mouse port extension and the device was soon provided with its own power supply.

The reason for selling you a drive which is powered from the mouse port is that it helps to keep prices to a minimum.

I would say that on the whole, taking this with that, sorting the wheat from the cha...(yes, yes, get on with it – Ed), it is not a good idea to draw current from the mouse port, but I'm yet to hear of anyone damaging their machine as a result of this dubious practice...

You haven't been conned with a 1987 TOS when you bought the machine in 1988. Stocks lie around on dealer's shelves for months before being off-loaded to the public and this situation happens all the time.

You could, I suppose, take along a little utility to examine the TOS version, but many – probably most – dealers won't be happy about you poking around with a machine in their shops.

No need to worry about getting a copy of DevPac now is there? 'USER gave away a free copy on last month's disk. Aren't we good to you?

RANDOM NUMBERS

Q I wonder if you could answer the following question from my son? Please help with a query on a programming command on the Atari ST. This is the random number statement which occurs in 1st BASIC. I've been told to use X%=RND*5+1 but it doesn't work. Could you please advise me on the correct statement?

Michael Crow, Dunstable

A No problem at all. Here's what you need: X=INT(RND*5+1). Although RND is supposed to generate a random number, in fact, if you wrote a simple loop around the RND statement, you'd find that the numbers follow a definite pattern.

In order to try to introduce a random element into the equation, the RND statement is seeded with the *5+1 bit of the line above.

And in the latter, the integer value of the outcome of the equation RND*5+1 is assigned to X. You can then use X in any way you desire.

STEP UP?

Q Having bought an Atari STFM late last year, I am extremely disappointed that I could have bought an Atari STE a month later for the same price. I also found out that the STFM Discovery Pack is now £299, so I could have bought that instead of the Power Pack which I paid £399 for!

I am going to upgrade to an STE anyway but before I do, there are a few questions I would like to ask about the machine.

- Is the STE only compatible with software which says it is for use with the ST/STE, or is the machine compatible with software that only says it can be used on an ordinary ST?
- Will there ever be software which uses the enhanced facilities such as the blitter chip, stereo sound and 4096 colours as the Amiga does?
- What is better, the Amiga or the Atari STE? I know that you said to stop this kind of discussion, but I am very interested.

Darren Grynberg, Ilford, Essex

A It's a hard life and there are always a few stragglers that get caught at the tail end of one special offer just as another, much better one, is coming in – and any other platitudes I can think of...

The STE is compatible with lots of software which was available before it was, but games and other programs which rely on bypassing the standard calls of the operating system in order to gain an extra turn of speed, more colour and other extras will usually not work.

There's lots of software which makes use of the extra facilities provided by the STE. Which is better – the Amiga or the STE? Definitely the Amiga. Ha! That got you...

TROUBLESOME TRIO

Q I have a 1040STFM. I find that on booting up, I have to leave the joystick disconnected or the keyboard response is fouled up. Is this usual?

The DC Formatter 3.01 looks as though it would enable me to print STOS BASIC programs via a PC until such time as I can afford my own printer. If this is true, would you let me know the appropriate address to contact?

Is there a RAMdisk utility I could use from within STOS BASIC programs?

Alan Sears, Lower Earley, Reading

A Such a boot up problem isn't usual. The thing is that your joystick has an autofire button which is sending so much information to your 1040STFM it simply can't keep up.

The joystick effectively locks out response for the keyboard. There'll be a switch on the joystick somewhere which you should try on a different setting until all is well.

If money is tight, don't bother to buy the DC or any other PC formatter. Simply format a floppy on the PC you have access to, bung it into the ST, copy your BASIC file to it, then take the unwholesome conglomeration back to the PC for printing.

All DC Formatter does is to enable you to format floppies which can be read on both the PC and the ST. The PC disk has one extra byte written to it to enable the PC to determine what kind of disk it's looking at. The ST doesn't need this information because it usually deals only with 3.5 inch devices.

RAMdisk utilities? Lots, I should think. Have a look through our public domain pages to find a suitable PD supplier, then ask for a selection on floppy. The only difficulty will be in choosing between them...

All points bulletins to *Interactive Rescue*, Atari ST User, Europa House, Adlington Park, Macclesfield SK10 4NP

DRIVE DILEMMA!

Q I am writing for advice on a problem that I have with my Atari 520STFM and 0.5Mb disk drive. I purchased an ST about a year and a half ago which worked fine for a couple of months then went wrong.

The only manifestation of this was that the game Dungeon Master would not work. I returned the machine to Dixons who replaced my machine with a brand new one (after ascertaining that the drive was not faulty).

A few months ago, just as the machine's guarantee had expired, the same fault reappeared. Again Dungeon Master would not work, but also Populous would not work and Virus was a bit dubious.

It seems that the problem is bound up in the protection methods of these programs. The problem cannot be the drive itself but could it be the controller?

A D C Smith, Wimbledon, London

A I am reluctant to agree with you that the problem lies with the protection methods employed by some software houses.

If the drive cannot read the extra track or two required by the protection mechanism then this will be apparent at once.

So just what is the problem? Do you store disks close to some radiation source such as the television, telephone or a large and prized collection of magnets? If so, then the disks could be corrupted.

Do you use the Atari mono monitor and you have you recently repositioned it? The SM124/125 is a notorious source of radiation emissions and can quite seriously affect the operation of disk drives. I realise that you don't use the monitor with games, but you may have it switched on at the same time.

Ensure that the mono monitor is at least six inches away from the disk drive. Is your ST in a position where it's likely to knocked?

It may have suffered a bump which has knocked the drive out of alignment. It would still work with non-extra track protected games but fail with Dungeon Master and the like.

To determine whether this latter reason is the source of the problem, take your ST along to a service centre such as Silica Shop. You'll find addresses and in the advertising section of this and other magazines.

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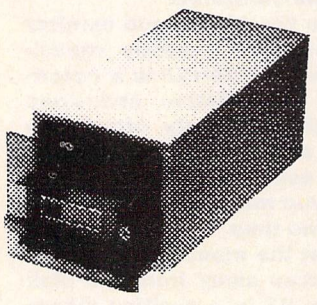

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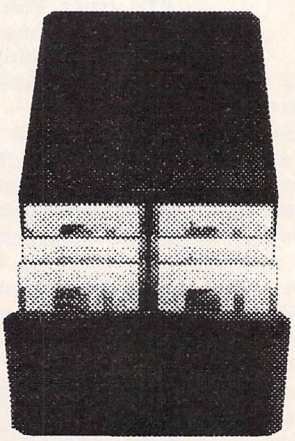

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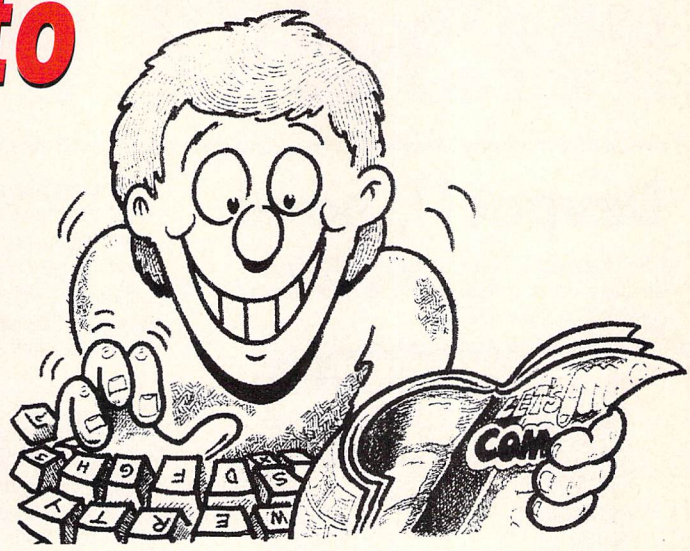

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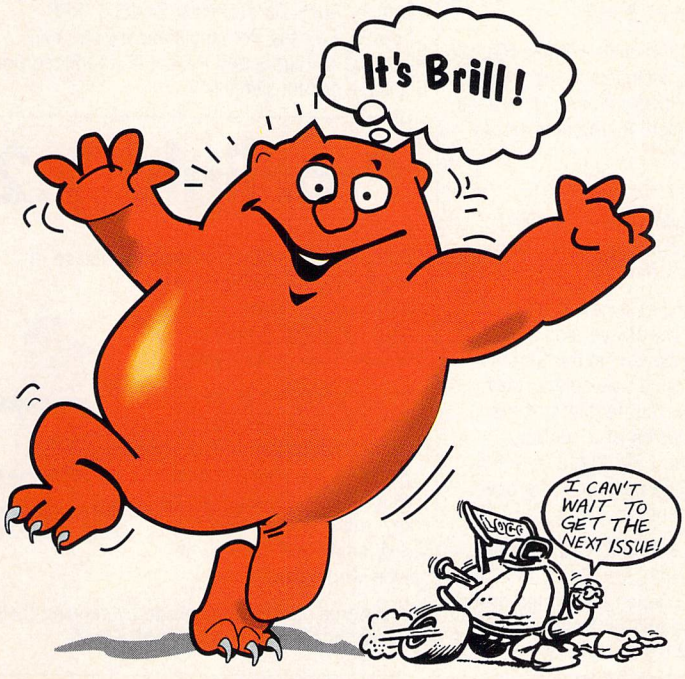

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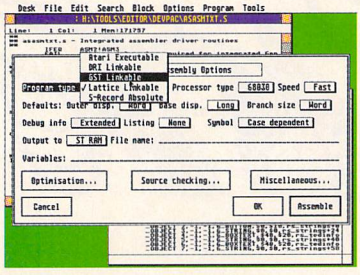
All the latest news and product information.

DevpacTT, now!

HiSoft Devpac TT, the complete assembly language development system for your Atari TT computer, is now available.



Comprising a multi-window editor, a 680x0 macro assembler, a fast linker and a powerful symbolic debugger, Devpac TT provides you with all you need to program efficiently and quickly on the TT. Features include:

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- Fully TT compatible debugger with support for 68030/68882 and the TT screen modes
- The debugger contains all the features you would expect: multi-windows, conditional breakpoints, full expression evaluator etc.
- Utilities include a Ramdisk, S-record splitter and debug information splitter.

Devpac TT comes complete with a 300-page, ring-bound manual. Also included is the official Motorola 680x0 family Programmer's Reference Guide which gives complete instruction details for the 68030/68882 etc.

HighSpeed Pascal

We have recently discovered a brand-new, and rather exciting, version of Pascal for the Atari ST and TT computers.

HighSpeed Pascal comes from Denmark, is extremely fast and friendly to use and is very closely compatible to the immensely popular Turbo Pascal on the PC, even including the graphics unit from the PC.

Compilation speed is roughly 20,000 lines per minute with excellent code generation for the ST and the new TT.

HiSoft has been appointed the exclusive distributor of HighSpeed Pascal in the UK, USA, France, Australia and New Zealand. RRP £89.95. Exisitng Personal Pascal users can upgrade to HighSpeed Pascal at a reduced price - please call for details.

ProFlight 1.2

We are pleased to announce the release of version 1.2 of ProFlight, our immensely popular Tornado flight simulator, loved by reviewers and users alike.

This new version of our Tornado flight simulator includes improved colour graphics, the ability to save your cockpit set-up, a pause key, more control over the view angle and more ... it even works on the TT!

Registered users can upgrade by sending their master disk back, together with £2.50.

Wordflair News

We are pleased to announce the immediate availability of the UK version of Wordflair, the integrated document processor.

With its powerful combination of text, graphics and calculation regions together with its integrated database, Wordflair is ideal for newsletters, product brochures, form letters, mail shots etc.

Wordflair provides all of the features you need for efficient word processing ... and much more. Wordflair lets you combine text, graphics, and images, with its easy-to-use page layout tools. in addition, you can dynamically link calculations and data throughout your document, giving tremendous flexibility and power.

Many of you will of heard of a new version of Wordflair - Wordflair 2. The US version of this package has just been released in the States and we will have the UK version available in May 1991. Some of the important features of this new release are the inclusion of a spelling checker, a thesaurus and FSM GDOS, which is based on outline fonts, giving much improved display and printing of fonts.

The RRP of Wordflair 2 will be £99.95, initially, and the upgrade price from Wordflair 1 will be £39.95. If you use the coupon below and order before 1 May 1991, you can obtain Wordflair 1 for the special price of £59.95. So why not experience Wordflair now and then upgrade without it costing you a penny more?

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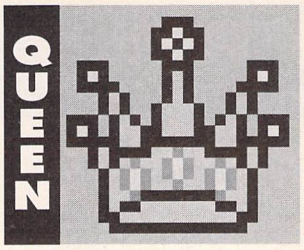

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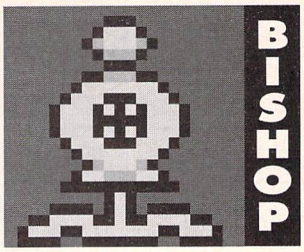


Grandmaster John Butters finds himself in checkmate as he puts the latest chess program through its moves

The traditional game of chess has been brought to the computer screen by many programs. The newest of the bunch is Chess Champion 2175 from Oxford Soundworks. This new version is the older sibling of the highly-acclaimed Chess Player and is also set to be a good match for the competition.

This powerful version of the game is supplied on a single disk and can be installed onto a hard disk and backed-up without any trouble at all.

It auto-boots to display a prompt for a password to be entered. With the manual at hand the Xth word in paragraph Y on page Z has to be looked up and then punched into keyboard.

Once through the security check the screen fills with a two dimensional view of a chess board. This can be easily changed to 3D by clicking on the appropriate option in one of the GEM-based drop-down menus.

Some keyboard shortcuts are available for the more commonly-used moves, but the easiest playing method is using the mouse, so the keyboard is seldom called upon.

The 3D graphics are impressive but the more usual overhead mode gives a much clearer view of the battle. As well as being able to view the board from many different angles, there's a choice of pieces for the 3D game, ranging from the traditional chess pieces to the Playground characters. The colours of both the chess pieces and the board can also be altered.

Using the mouse, the pointer is moved over the piece to be moved, the mouse button is clicked once before moving the pointer to the new position. Providing the move is legal, clicking the mouse button again will release the piece in the required position.

Movement can be made faster by selecting Fast Moves from the menu, but this feature takes a long time to get used to. Alternatively, to use the keyboard, common board co-ordinates are entered. For example, A2A3 would move a white pawn one space forward.

Games are normally played between a player and the computer, but two people can play, with the computer fulfilling the role of referee. If you play against the ST you'll begin by playing with the white pieces.

Following the normal rules of chess, you take turns with the computer to make moves. If a piece is taken, the computer whips it from the board automatically.

The usual features of the computerized version of the game can all be found. Move Now forces the ST to play the best move it has found so far, Take Back reverses a move and Replay shows all the positions since the start.

Chess Champion attempts to predict your move before it has been made and uses the extra time to plan what it's next move will be. If the going gets too tough you can ask the ST for a suggested move.

There is an initial 300,000 byte library of opening moves and any strong moves played will be added to it, making the computer a tougher opponent in future matches.

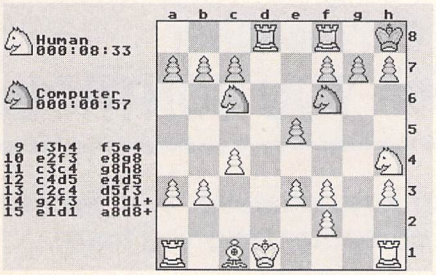
Chess players will realise that it can take a long time to finish a game, and so the save game facility is likely to be a valuable feature of the package. If you want to nip out to the shops, you can save the game.

The program automatically registers a win, with a box in the corner of the screen advising 'checkmate'. Chess Champion presumes the user already knows the game's rules and so there's no assistance for newcomers in the rather thin manual.

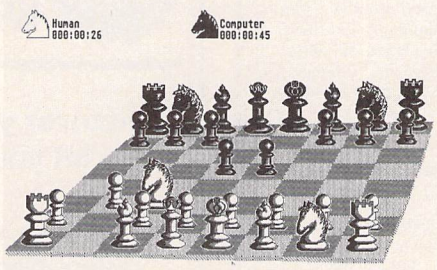
All sorts of information can be dug out of the program, including a measure of your playing strength which is obtained by performing 24 moves from pre-set situations. A table in the manual enables you to compare your score with that of other players.

Beginners with an understanding of the game can brush up on their techniques. There are 10 easy levels to practise on.

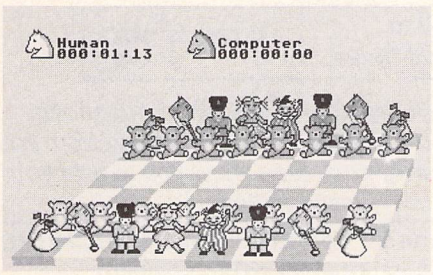
For those searching for a high quality game, look no further. Chess Champion has excellent graphics, is easy to use and above all it plays a superb game.



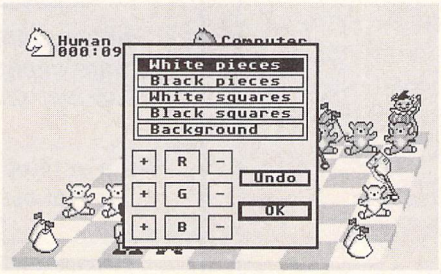
The graphics in the Overhead mode are less sophisticated than the 3D ones, but they are clear and practical for a long game. The ST lifts pieces from the board as they are taken



Chess Champion can be played on a high resolution mono monitor just as well as on a low resolution colour screen



The 3D graphics are impressive and a good selection of pieces is available. The board above features the Playground boys and girls



Drop-down menus and dialog boxes are used throughout the program. When played on a colour monitor the pieces, board and background colours can be adjusted

Product: **Chess Champion 2175**
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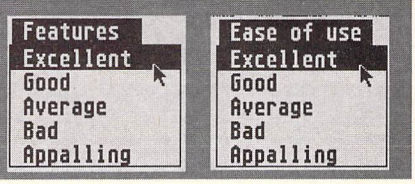

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NEWS

● While the recession takes its toll of firms up and down the country, public domain libraries are booming – well, those supporting the ST anyway. One librarian was even preparing to employ an extra set of hands, although he reported that some of his friends in the Amiga world were having a pretty difficult time.

● DMS ST PD Library has recently opened for business and already has a collection of more than 250 disks, each costing 99 pence. For a list of programs send a stamped self-addressed envelope to Nick Lee at 66 Abbey Road, Strood, Kent ME2 3QB.

● Michael's Big Adventure, a Talespin adventure game written by Tom Zunder for his eight-year-old son, is now available in the public domain.

MBA, copied onto one expanded format disk costs £3, on two normal double-sided disks £4, and on three single-sided floppies it's £5. Contact Tom Zunder at 23 Rosedale Way, Bramley, Rotherham S66 0LE.

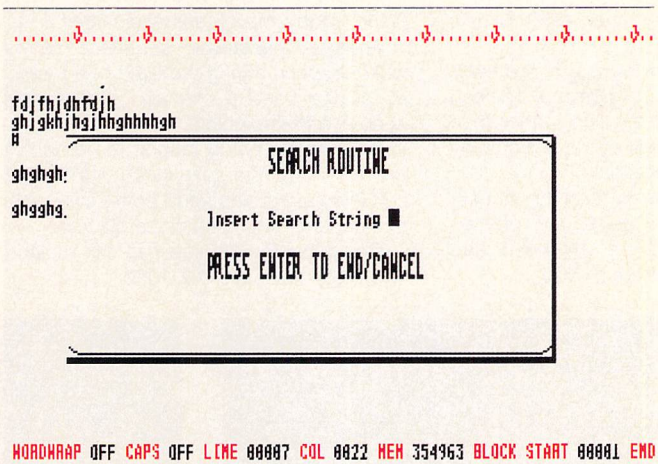
● While an increasing number of public domain libraries are putting a small cover charge on their catalogues, MT Software is dropping its requests for a stamped self-addressed envelope. To obtain a catalogue just give them a call on 0983 756056.

● Welsh library Sphinx Software has Neochrome Master among its latest programs. An update of the Neochrome program, its features include 512 colours on-screen at once (3,200 on the STE), blitter support, rotation to any angle, improved animation, multiple screens, keystroke commands and improved brush stokes.

Sphinx Software librarian Nial Grimes claims that the program "now rivals even Deluxe Paint – for the price of a disk". Sphinx Software is at Erw Fynydd, Carmel, Llanelli, SA14 7SG.

PUBLIC SECTOR

John Butters hunts down the latest PD releases and serves up the best of the bunch



Not quite as good as ST Writer, but Fastword is perfect for notes and letters

Wordy work

Despite the ample choice of word processors offered by software houses, the 'USER editorial department still opts to use a public domain program – an indication of the quality of the software available for free.

The latest PD word processor is called Fastword, and although it's a very basic example of this type of software, it serves the needs of someone writing occasional notes or letters.

Only very simple features have been written into the software. For example, loading and saving of files, search and replace, tabulation, justification and printing have been included.

But there's no word counter, spelling checker, different fonts or any of the other features used by frequent word processor users. So if you're after these features, you'll still have to look for a commercial package.

Fastword, despite its name, is a little slow and, like many products, its operation takes a bit of getting used to. The program is controlled entirely through the keyboard, either through a single keystroke or Alt-key combinations.

Both colour users and those watching in black and white can use Fastword. But despite being a good piece of public domain software, it doesn't match the performance of ST Writer Elite.

MT Software is one of only a handful of its current distributors. Ask for disk WP11.

Eastern escape

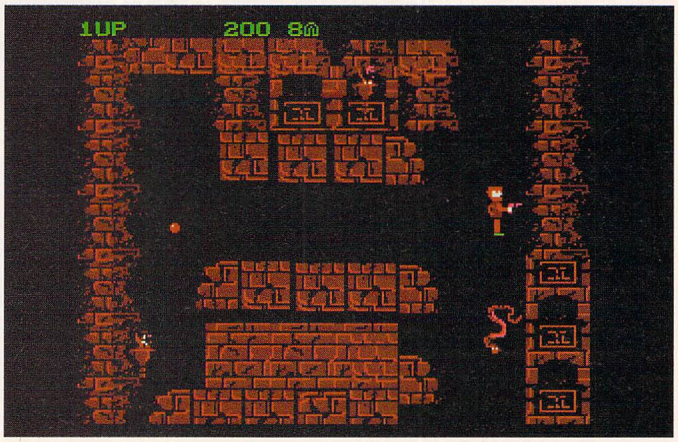
Escape From The Tomb of Ra is one of several new games written by Ken Reader for the public domain. It's set in Egypt, and involves you in an escape bid from the tomb.

There are complications. Snakes, spiders and falling rocks among others make your life a misery as you try to flee from Ra, and you're also in trouble if you touch the side walls.

Luckily you've been fitted out with one of the very latest, top of the range bow and arrows. So nothing can stand in your way, can it? If it does, you lose one of 10 lives and you carry on from where you were when you died.

It's been programmed using Palace Software's Shoot-'em-up Construction Kit and has been drawn quite well, although a few brighter colours wouldn't have done any harm.

Escape From The Tomb of Ra is available on MT Software's G120 disk.



One of several games from Ken Reader is Escape From The Tomb of Ra, a shoot-em-up with an Egyptian setting

Solar power

Increasing our knowledge of the universe is the aim of Solar System Geography 2, which is a follow-up to the older shareware program Solar System Geography, reviewed in our December 1990 issue's astronomy feature.

This new program uses five animated pages to explain the relationship between the earth, moon and the sun, rather than giving a wider coverage of the universe as found in the parent program.

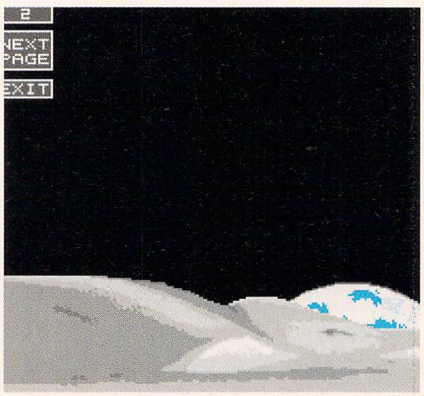
Clicking on different parts of the screen, using the mouse to guide the pointer, determines what will be explained and which of the graphics are moved.

One screen shows the moon seen from the earth on each day of the year and explains why its appearance changes with the rotation, while another shows the effect of the moon's movement on the tides.

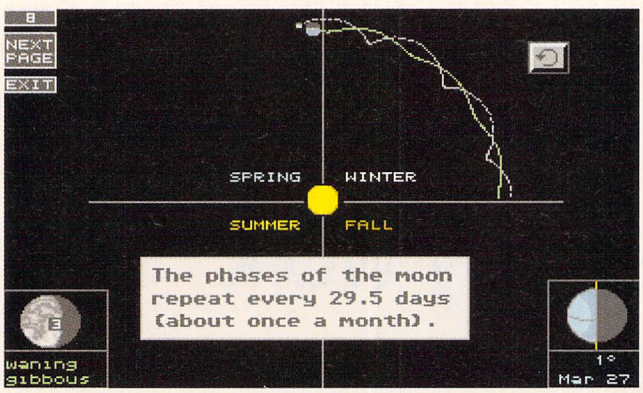
Another spectacular sequence shows what happens during the flight of a rocket, as all the various bits and pieces split away at different points.

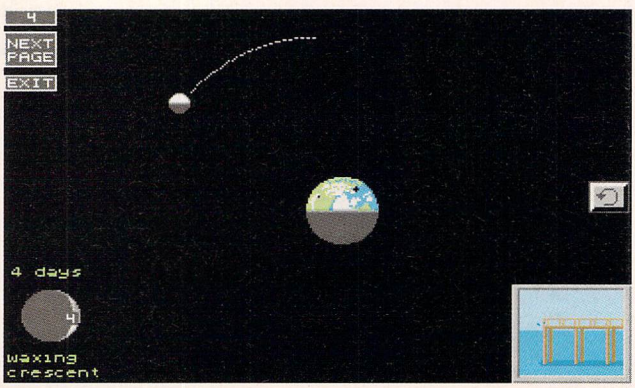
Whatever is being taught, the graphics are stunning, the text clear, informative and interesting, and you'll come away with a better understanding of the planets.

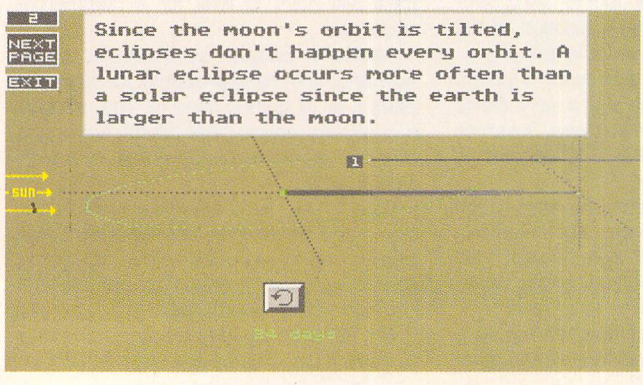
Goodman Enterprises has this colour-only program on disk GD1062.

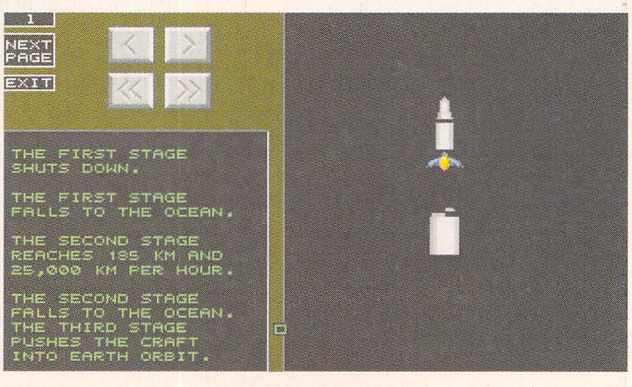


Solar System Geography 2 explains the relationship between the earth, moon and sun in a series of five animated screens. The graphics are superb and the text informative









Green cross code

Remember that old arcade favourite which had you guiding a defenceless frog across a busy motorway? Thought so. Frogger's popularity saw it converted for just about every 8-bit micro, and later on for their 16-bit brothers like the ST.

Hedge Hog is written in STOS and based on that coin-op hit but, as you've probably already guessed, our green croaking friends have given way to defenceless hedgehogs.

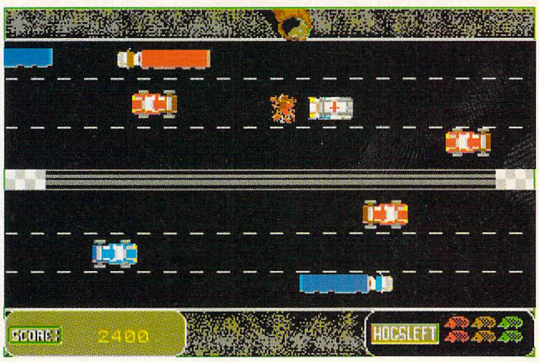
You have to guide six of the spiny creatures across the road, dodging lorries, cars and racing cars. As you progress, your score, which is shown in the bottom left-hand corner of the screen, increases.

If you fail you'll hear an appropriate squelching noise and the hedgehog will turn into a red splat. An ambulance speeds to the scene but despite driving through six sets of red lights it's too late.

The hedgehogs are controlled by joystick and the game runs only on a colour monitor.

Coming from the MT Software stable, this one was on disk number G125.

Hedge Hog is based on Frogger. Try to get the hedgehogs over the busy motorway



Fail and the hedgehog gets flattened and an ambulance is called. But it's not fast enough – the poor hedgehog is already dead

Assistant chef

Move the microwave to make room for the ST in the kitchen. Assistant Chef is a database filled with useful recipes that can either be displayed on-screen or printed out as a hard copy.

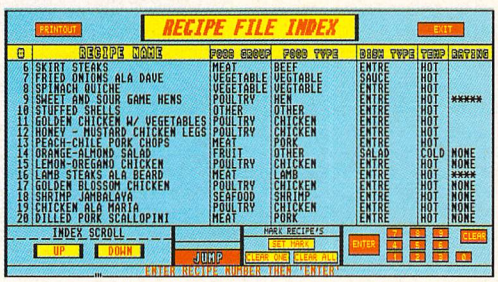
From the main menu the mouse guides the pointer – which is disguised as a fork – on to a menu selection. Forty-two recipes are loaded into the program initially but others can be added or resident ones edited at any time.

An index gives a brief description of each recipe including the group of food (poultry for example), type of food (chicken), the type of dish (such as salad), and the temperature (hot or cold). The types of dishes are mixed. Some are for breakfast, some for salads and others are for main course meals, and they range between meat and vegetable selections.

The recipe number you want to look at is entered from either the index or main menu. The computer then lists the ingredients needed and instructions on how to make the dish.

Unfortunately the program can only be used with a colour monitor but it's both clear and colourful.

To obtain your latest kitchen accessory, contact Goodman Enterprises and ask for disk GD176.



Forty-two recipes are loaded into Assistant Chef and additional ones can be added

Fire away

Another colourful and graphically superb shoot-em-up has been released by Budgie Licenceware.

Written by Chris Jeffery, Exodus has you steering a fighter over the surface of a space station, avoiding enemy fire and destroying both ground installations and hostile spacecraft. At the same time you have to try not to crash your craft and ensure you don't run out of fuel.

With none of the marketing waffle associated with commercial games it seems that this is an unprovoked attack – but who cares? Basically, the usual shoot-em-up policy stands – if it moves shoot it. If it doesn't, shoot it anyway.

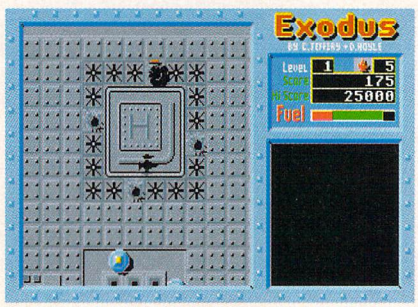
To the right of the play area a radar screen helps you seek out undestroyed buildings. Above this, snippets of relevant information tell you how much fuel remains in your tank, your score and the day's high score, and the number of ships you have left.

Once all the targets have been blown to bits you'll travel in hyperspace mode to the next space station. Getting bonus points for unused fuel, the destructive mission continues – but this time things are a little more troublesome.

You can make five lethal mistakes before the familiar "Game over man, game over" comes from the monitor's speaker.

There's nothing in this game that hasn't been seen many times before, but what separates it from the rest is that you don't have to part with 25 big ones.

Working in colour only with a joystick, Exodus is available on disk BU41 from most official Budgie distributors.



Many quality games are available from Budgie Licenceware. Exodus is a shoot-em-up with pretty graphics and good playability

WHERE TO GET IT...

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- **Elmsoft, PO Box 17, Loughton, Essex IG10 2EE**
- **Floppyshop, 45 Provost Graham Avenue, Hazlehead, Aberdeen AB1 8HB**
- **Goodman Enterprises, 16 Conrad Close, Meir Hay Estate, Longton, Stoke-on-Trent, Staffordshire ST3 1SW**
- **MT Software, Greensward House, The Broadway, Totland, Isle of Wight PO39 0BX**
- **NBS, 132 Gunville Road, Newport, Isle of Wight PO30 5LH.**
- **Page 6, PO Box 54, Stafford ST16 1DR**
- **Public Dominator, PO Box 801, Bishop's Stortford, Hertfordshire CM23 3TZ**
- **SoftVille, Unit 5, Elettra Avenue, Stratfield Park, Waterlooville, Hampshire PO7 7XN**
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HIDE AND SEEK

John Groom fires up HighSpeed Pascal to find out what the polytechnics are raving about

Pascal was developed in the early seventies by Niklaus Wirth to encourage good programming. And if for no other reason it's been adopted by universities and polytechnics around the country with considerable success over the past 20 years.

So to find what's in it for the ST user I racked up the latest version, HighSpeed Pascal, which is distributed by HiSoft and produced by D-House in Denmark.

The package comprises two double-sided disks, the first containing the compiler, help file and various demonstrations. On the second disk are the command line version of the compiler, various units, and an example of how to develop a Desktop accessory.

Installation is simple, it's just a case of making a back-up of the disks or copying the files to your hard disk. On loading the program you enter the HighSpeed Integrated Development Environment, or HIDE as it's known.

Opening a file from disk or creating a new one brings up the multi-file editor which is capable of holding up to six files at once. You can cut and paste between files using the mouse or keyboard.

The current editor isn't so hot. For example, deleting a line involves marking the line using the mouse and pressing DEL – fine for deleting large blocks of text but a tad tiresome for wiping a single line. Generally, the mouse should only appear when it makes things easier or faster.

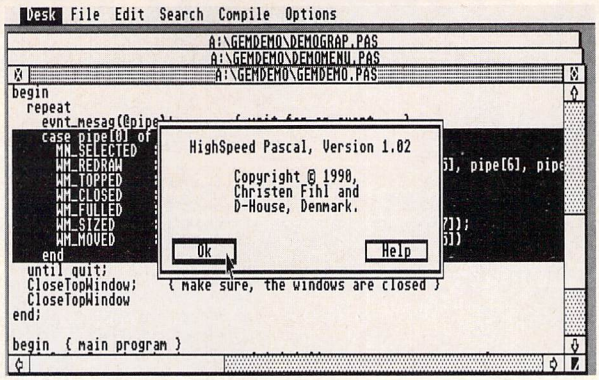
A display of the current cursor position is missing and another annoying feature is that TABS are implemented using spaces and not the TAB – ASCII value nine – character.

HiSoft knows about these naughties and promises a better, faster editor with future versions. If you don't like the editor, you can always use your favourite editor and the compiler's command line version.

Compiling your programs is just a case of pressing ALT-C. Pressing ALT-R will run your program, or compile and run it if it hasn't been compiled already .

Compilation is extremely fast. You hardly get to see the compiler info dialog before you're returned to the editor. HiSoft claims a speed of more than 20,000 lines per minute. That's really moving! The destination of the output program can either be to memory or disk.

HighSpeed is compatible with Turbo Pascal, the industry standard Pascal package on the PC. Various Turbo Pascal files were tested and they ran with little or no modification. Obviously, PC specific functions won't work.



Version 1.1 should be available as you read this. Notice that you can have more than one file loaded at once and cut and paste between them

The package is also compatible with ST-Pascal – known as Personal Pascal in Britain – which is also distributed by HiSoft. The differences between the compilers are described in the manual.

MOD UNITS

HighSpeed incorporates the idea of units, Turbo's method of increasing program modularity. A unit is a collection of compiled procedures and functions and by using them compilation time is reduced because they need only be linked with your program.

You can create your own units to access the operating system. The OS units available are DOS (OS and disk-related functions), BIOS (both BIOS & XBIOS), GEMVDI (GEM drawing primitives), GEMAES (controls windows, dialogs and event handling) and PRINTER (provides access to the printer). You can also include in-line assembly.

One of the best features of HighSpeed is the help facility. It's context sensitive, so pressing HELP almost anywhere in the program brings up the relevant advice immediately.

One thing which HighSpeed lacks is the ability to debug programs. Turbo Pascal has excellent facilities in this area including single-stepping, putting watches on variables and setting breakpoints. HiSoft has promised that similar features will be added to future versions.

The good manual includes sections on Pascal syntax, the supplied units and a detailed section on GEM. There are no tutorial sections, and novice users are advised not to attempt to learn Pascal or GEM from the manual. It does provide a list of books on Pascal and GEM though.

HighSpeed Pascal is a powerful, fast version of Pascal and with Turbo Pascal compatibility it must be a winner. It's let down a little by the editor and lack of debugging facilities, but HiSoft has promised these features are being looked at and will be included in future versions.

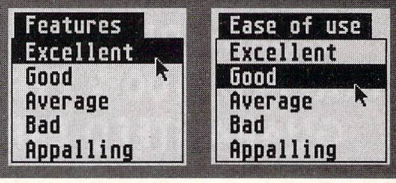
When these problems have been sorted out, Turbo Pascal had better watch out as there maybe a new contender for the title of best Pascal compiler – on any computer.

Product: **HighSpeed Pascal V1.02**
Price: **£89.95**
Supplier: **HiSoft, The Old School, Greenfield, Bedford MK45 5DE**
Telephone: **0525 718181**
Configuration: **ST/TT. Mono and colour. 1Mb ram and double-sided disk drive or hard disk useful but not essential.**

THE BOTTOM LINE

FEATURES: **Good fast compiler. Compatible with Turbo Pascal and Personal Pascal. Shame about the editor and lack of debugging facilities.**

EASE OF USE: **Multi-file GEM-based editor. Scrolling is a little slow. Good manual. Excellent help facility.**



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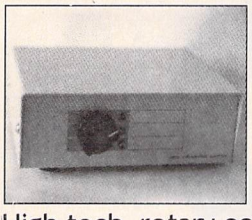

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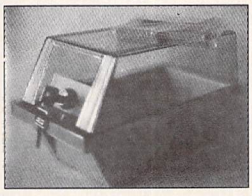

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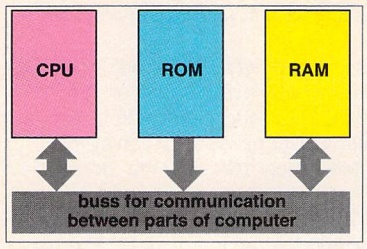
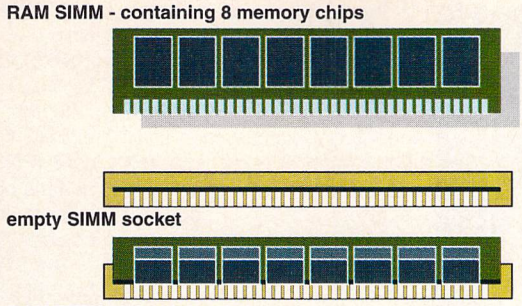
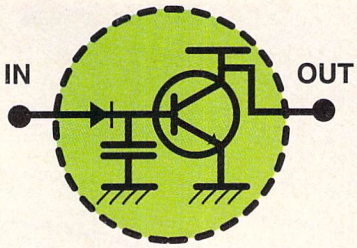
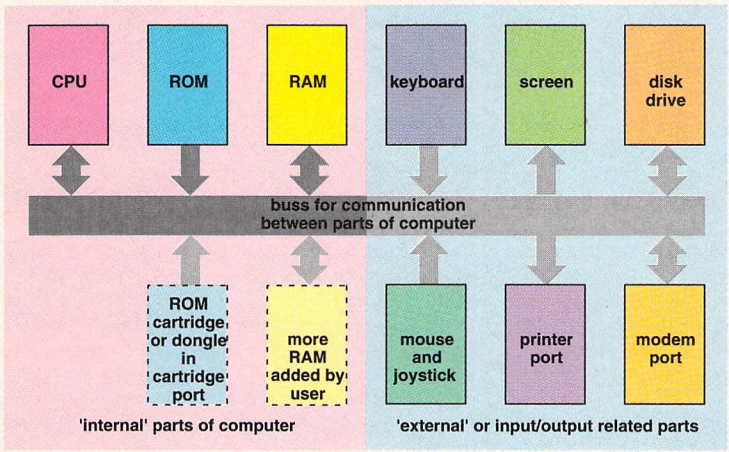


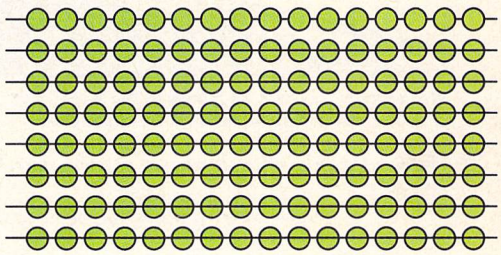




'CELL' CAPABLE OF
HOLDING ONE 'BIT', AS ON OR OFF



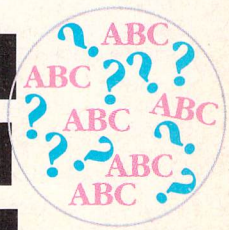
8 BITS WORTH OF MEMORY,
EQUALS ONE BYTE.



16 BYTES OF MEMORY

1024 BYTES OF MEMORY

ABSOLUTE BEGINNERS



We tackled the basic bits last month. Now let's find out what else is needed to provide a working computer...

Let's recap. We've talked about the basic building blocks necessary to construct a computer. There's the brain which, as you now know, is the central processing unit (CPU), there's some scratchpad memory called the RAM or Random Access Memory and there's a permanent store of system instructions known as the ROM (Read-Only Memory).

The ROM holds the commands which tell the computer to display the Desktop, how to control certain internal and external devices such as disk drives, and tells the ST what to do with commands issued by a user via the mouse and keyboard. These three items are at the heart of almost all computers in one form or another, but they do not, by themselves, a computer make.

For a working and usable machine, you need a backing storage system of some form, input devices to communicate ideas and instructions and output in the form of hard copy from a printer or a display screen. We'll talk about these items in a moment, but first, let's have a further look at RAM.

The first home machine had just 1K to store user's programs – you can imagine how far that got the average programmer! In fact, with a little ingenuity and some clever programming tricks, it was possible to pack some pretty healthy software into 1K, and many programmers learned techniques which have stood them in good stead when programming modern machines.

There were Draughts which played a mean game, a tiny text editor, decent scientific calculators and so on. OK, by the ST's standards, it was all pretty tame, but 10 years ago, it was the white-hot edge of technology!

Your ST is equipped with at least a half megabyte (512K) of RAM. 1040s have one meg and Megas anything from 1 to 4 megs.

Not exactly the best keyboard in the world, but if you're not writing a novel, it'll probably do

Fine. But even with that amount, many users still lust for more.

CAD and graphics programs, desktop publishing packages and sampling and video digitising software all make heavy demands on RAM Fortunately, several third party RAM upgrades are available and most don't even require soldering. You simply plug them in and go.

There are two types of RAM commonly available at the moment. Standard RAM chips which you plug into sockets on the ST's main circuit board – motherboard – or those which you solder directly to the motherboard if your machine doesn't have sockets.

Early STMs had their memory chips soldered directly on to the motherboard and upgrading was difficult.

When the STFM was introduced, many users were delighted to discover that there were socketed RAM chips on the board with a further set of empty sockets ready to take more memory – the boards were interchangeable with 1040s, hence the empty sockets.

To upgrade, all you had to do was open the machine and plug in more RAM chips.

That happy situation didn't last long, however, and the boards were soon shipped in all kinds of weird and wonderful guises. The only upgrade solution involved delicate soldering.

The other form of RAM available is the SIMM – Single In-line Memory Module – which is a little circuit board with several RAM chips attached. SIMMs are a relatively modern invention and didn't appear in STs until the advent of the STE.

A LITTLE BODGING

Computers fitted with SIMMs are very easy to upgrade. Open the case and bung in more or bigger SIMMs. For example, taking out the four existing 256K bit SIMMs which provide 1Mb, and replacing them with 1 megabit SIMMs will give you 4Mb of RAM.

In the last 18 months or so many ingenious manufacturers have constructed RAM upgrade boards which will attach to any ST with out the need for soldering, but you still have to bend this, unplug that and generally bodge to install them.

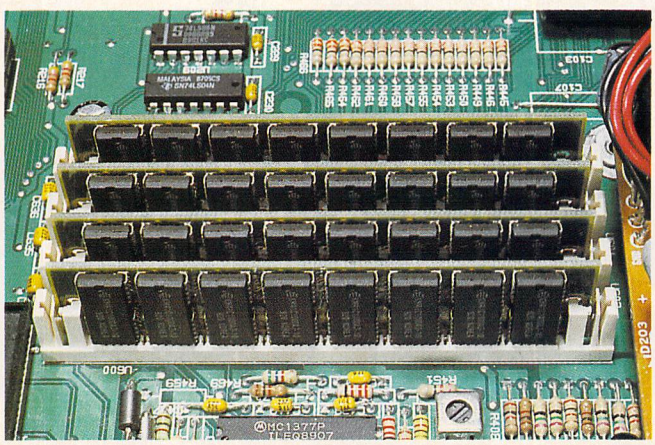
As a beginner, you probably won't need to worry about upgrades for a long time. It may sound obvious, but you only need to upgrade if the programs or hardware you want to use require it.

If desktop publishing is your thing and the only program which will meet your needs is Calamus, then sure, you'll need at least 1Mb. The best advice is to wait until you start to develop specialist interests such as video digitising or sound sampling and then to identify your exact requirements.

RAM isn't cheap and although the upgrade is much easier nowadays with the plug-in boards, installation is still not really a task that the beginner should attempt.

Right. Back to the building blocks. The keyboard is the most obvious input device. With it, you can program the ST, write letters, hack information into databases and so on. But it's not really very useful for controlling the ST's pictorially-based user interface.

You can select icons, files, drives and the like by using the keyboard, but it's a tedious process. It is useful should your mouse stop working though, so here's how to do it. Hold down the alternate key and press the arrow keys to move in the required direction.



RAM upgrades are much easier to do if your ST is fitted with SIMMs

If you need to press a mouse button, hold down the Alternate key and press either Insert for the left key or Clr/Home for the right key.

Although the keyboard supplied with the Mega STs is very good, that with the one-piece' machines is appalling when used for any length of time. It's flat, dull, and lifeless.

To make the keyboard a little more responsive, a product known as Springz appeared a few years ago. Users were instructed to prise off the ST's key tops, put a little spring over the key peg, then replace the key top. Springz were useless.

If your ST is used for a lot of word processing, it is possible to fit the machine with a replacement keyboard – marketed by a German company – but again, the installation process isn't really intended for beginners. Look at our ads if you're interested in replacement keyboards.

Mice make the whole process easy. The device contains two resistors which, when moved by a rolling ball located inside, provide an exact x,y location reading for the ST.

In that way, the machine can determine exactly where to display the pointer on – screen or, if you're clicking the mouse button and the pointer is over an icon, to display that icon in inverse video (reverse the normal colours).

The ST's mouse is a little clunky, but it isn't bad (have you tried an Amiga mouse?) There are, however, plenty of replacements should your pocket and interest extend to it. The Naksha is a high-resolution device which is well worth a second look.

Finally in the input/output stakes, there's the display or monitor. Your ST will work perfectly well with a domestic television, but use it for long periods with anything other than games, and your eyes will be pretty tired!

The ST has three display modes – low resolution colour, medium resolution colour and high resolution monochrome. The first two can be displayed on a TV, the latter only works when you have a mono monitor such as Atari's SM124 .

If you only have access to one or the other however, it is possible to use a colour emulator or mono emulator which enables the TV to display high resolution or the mono monitor to display low and medium resolution.

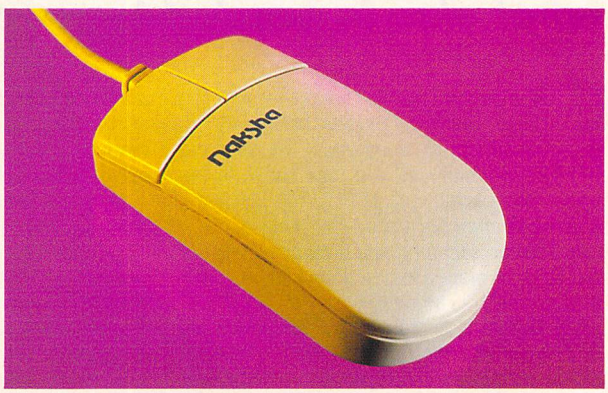
These resolution emulators work with varying degrees of success but are almost useless for games. If you have a mono monitor, stick to mono games from the public domain or bag the family TV when everyone's gone to bed.

If you're tied to a TV as a display, why not have a look at those rather clever combined TV/monitors available from a variety of suppliers? With them you can watch television then, at the flick of a switch, convert the set to a reasonable resolution composite monitor.

Although you still won't be able to use high resolution, this will enable you to work with colour for much longer periods without the resultant eyestrain. They don't cost much more than a normal television, or they can be hired from most TV rental stores.

So, we have brains and storage, an input device to command the ST and an output medium so that it can display the outcome of those commands.

● *All that's left is some big capacity backing storage in the form of floppy and hard drives. We'll be talking about those next month.*



Much better than the standard ST device, the Naksha mouse provides high resolution at low cost

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(2 x 1MB cards) £99.00
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mail

Once again we dodge the abuse, bask in the compliments and try to help the desperate. But there's only limited space here on the mail pages each month. So we would like to apologise to anyone who has written in and not received a reply. We do our best, but if we spent all our time answering letters individually, we wouldn't have time to produce the magazine.

Go on, risk it. Write to:
Atari ST User
Europa House
Adlington Park
Macclesfield SK10 4NP.

POOR BARGAIN

I read with interest the letter from C F Hughes in Yorkshire ('USER, Mar '91) about his difficulties with Bargain Software Ltd. I also had difficulties with this firm.

In March 1990 I ordered four games and a joystick for my Atari 520 STFM. I received three games and the joystick within six weeks but was left one game short.

I waited for it for another two weeks before writing to them demanding the game or my money back. I stated in my letter that they had cashed my cheque about two months previously. I never even got any reply for this letter.

Next I telephoned the number shown in the ad in your magazine – I found it very difficult to get through (nobody answering) but with perseverance I did get through and spoke to a lady who listened and promised to have the game in the post the next day.

I waited for one week and nothing happened. I repeated the above about five times and was told that they did not have this game in stock and asked if I would like to change my order to a game of similar value.

I agreed to order Operation Neptune instead which was in stock at the time and I was promised that it would be despatched that day.

I waited a week but nothing happened. I phoned again and managed after some effort to get through. Anyway, the end result is that I have received the game Operation Neptune.

Tomas O Dubhain, Rostrevor, Co Down

Despite the fact that you appear to have eventually received something from Bargain Software, it seems that the company is no longer trading. This is bad news for the many people who have written recently complaining of the service from this company.

You've been lucky. No doubt some won't see their money again.

Fortunately not all mail-order companies are so unstable. Take a look at ROUND OF APPLAUSE on the next page for some good news.

DUMP THAT DATA

Why on earth do you bother with DataFile? It doesn't really seem to be very useful. Each month it seems to be much the same, and most of the information can be obtained from advertisements in the magazine and reviews anyway.

C. Hodges, Warrington, Cheshire

We have recently arrived at the same view. Most information on DataFile changes only occasionally. Although the page was intended mainly for newcomers, we think that perhaps the information could be presented differently.

As from this issue DataFile is no more, but we'll continue to give information on forthcoming computer exhibitions on the news pages. We will give more information about what firms intend to exhibit.

DISK SWAPPING

I find the mix of articles in 'USER each month very much to my taste, but after a recent experience at Christmas would like to make a suggestion that you include details in your reviews about the number of disk swaps needed to play a game, and suggest that manufacturers list this information on the box.

Recently I bought the Master Mix by US Gold which contains five games, including Turbo Outrun, and also Lotus Esprit Turbo Challenge by Gremlin.

The difference is huge. Turbo Outrun has hardly been out of the box due to its three disks and numerous disk swaps making it almost unplayable. Lotus, on the other hand is on one disk and so is far more playable.

I rang US Gold to see if they could do a swap of what I assume must be my single-sided disks for a double, but to no avail. With the high price of games software I consider this very poor service.

The box does say they will do free of charge disk swaps from double-sided to single-sided as some of the games included in the pack are on double-sided disks.

John Hunter, Beccles, Suffolk

Unfortunately, it's just a fact of life that disks have to be swapped when playing many games. The difficulty is that not all the information can be crammed on to one disk. This applies to both double-sided and single-sided disks.

And to be fair to US Gold, it has made an effort to ensure that everyone will be able to play its games. All STs can read a single-sided disk, but not all can read double-sided ones. So by offering the free double-to-single service, US Gold is providing an essential service.

On the other hand, although it would be convenient for you to have all your games on double-sided disks, presumably it would not be profitable for US Gold to do it. If it spends all its time on changing disks over, it wouldn't leave much time or resources for anything else.

As more and more games players are beginning to use double-sided disk drives, perhaps the games houses will change their policy and put all games on double-sided disks. But for now, it's a matter of being patient!

ROUND OF APPLAUSE

I just thought I'd write to praise a few companies which I have used and found to be very competent. Firstly, there's Evesham Micros – excellent service and speed.

Best Prices come next. Their prices are very good and speed amazing. Then there's Ramara House Software – I ordered two

items at 7 o'clock one evening by telephone and got them the following day – by ordinary mail. Golden Image respond very quickly as well, as do Brighton Computer Supplies. You only hear the doom and gloom of mail-order companies, so there's some good points.

Peter Gunning, The Tryst, Edinburgh

You're right about needing to correct the balance. After all, if every mail-order company was as useless and corrupt as some people seem to suggest, then there wouldn't be any left in business, would there?

Some might be frustratingly slow and inefficient, and one or two may even be out to 'take you', but the majority are honest, businesslike, and provide good service.

LOST PARENT

I have a 520ST with a single-sided drive. I have used GFA Basic and enjoyed programming with it.

My problem is that the parent company has moved and I am not sure where to. I am looking for skeleton programs that I can load and experiment with, for example, modem connections and printer printout.

Any help would be most appreciated. Thank you.

Craig Reilly, Cranston, RI, USA

Your best bet would be to try GFA Data Media, Box 121, Wokingham, Berkshire, RG11 1FA. Good luck! And don't forget to look at the GFA column in RunTime.

ECUADOR CALLING...

Thanks for your article 'Seeing is Believing' ('USER Dec 90). I was tired of mouse cleaning and vagueness and decided to mail-order one Golden Image Optical Mouse, and can now state that to compare an optical mouse with rolling ball mice is the same as comparing word processors with typewriters.

There's no need to say any more about it. It's a whole new concept of mouse and I'm enjoying it, with no problems.

That's the kind of article – new products – I always read in ST mags, and yours is my favourite now for its well balanced content.

Juan Arteaga N., Guayaquil, Ecuador

We're always pleased to be of service! Thanks for letting us know. So how's the weather in Ecuador?

FROM THE FRONTIER

I feel I must write to you to tell you and your readers about the first class service I have received from Frontier Software recently.

Last May I ordered a 1/2 Mb Extra RAM board from them by telephone and was very surprised and pleased to receive it in the post the next day. That evening I fitted it according to the instructions and it worked perfectly.

Last week I received a letter from Frontier offering the chips to upgrade the board to 2Mb at the special price of £99.99. After some thought I telephoned to place my order and again to my surprise and pleasure the new chips arrived together with a set of instructions and 17 little black jumper things needed to complete the conversion. The instructions were easy to follow but I found it a bit difficult to cut the 17 wires without very small snips and the chips were a bit difficult to push into the sockets.

However, I eventually managed it and put the computer back together. When I booted it up however, I was very disappointed to see that the MMU chip could only find 1/2 Mb of memory.

I followed the fault-finding procedure in the instructions but still could not get it to work. The next day I telephoned Frontier and told them of my problem.

They told me to send it back to them and they would sort it out for me. I posted it on the Friday afternoon, not expecting to see it again for some time, but to my surprise the repaired board arrived back on Tuesday morning.

With it was a letter saying that I had broken the leg of one of the chips when installing it and that they had replaced it free of charge.

It is now fitted and working perfectly. If only more companies could give cuxtomers this kind of service.

David Varley, Emerson Valley, Milton Keynes

That's one very satisfied customer! And why not? It would be hard to imagine more efficient service than that. Frontier Software is a very reputable company, and one which obviously cares about giving its customers a high standard of service.

CALLING PITTSBURGH...

In your December 1990 issue of Atari ST User under the World News feature on page 14 there appeared a paragraph under the heading genlocks. No address or telephone number was included for John Russel Innovations other than the city of Pittsburgh.

If you have more details available for contacting this group I would be most grateful.

I would also like to take this opportunity to congratulate you on your magazine. It would be by far the best publication dedicated to the ST I have read.

Keep up the good work, and please don't forget the novice computer user.

James Glazier, Wagga Wagga, Australia

Unfortunately,we don't seem to have an address for John Russel Innovations. If anyone else can help, please let us know, and we'll publish the details here next month.

Thanks for the comments! We try to keep the novice user in mind as well as the more seasoned STers. Our feature in this issue which explains what else an ST can be used for apart from playing games is aimed at encouraging new users.

Take a look at it – there might be something there that you'd forgotten about!

PEEPING AT ADDRESSES

Simon Lawson says that a handwritten address spoils the effect of a printed letter ('USER 61, page 85). So it does, but unless you own a printer which handles envelopes with no bother – like a LaserJet – or you don't mind fiddling around trying to load sticky labels into the printer (don't try loading them from behind on a conventional printer, they will come off the backing and gum up the works) you have a problem, haven't you?

Except of course, you haven't. Mr Lawson failed to mention the quick and easy alternative used by businesses. They use window envelopes, and print the recipient's address about two inches from the top of the page on the left-hand side. Result – you only have to print the address once, and you never end up sending the letter to the wrong address.

I use DL window envelopes from W H Smith. I am sure other stationers sell them.

Dr R M Brown, Wirral, Merseyside

Very good point, and it just goes to show what happens when you get too involved in the latest technology. If you're not careful, it's like having blinkers on – all you see is what's straight ahead, and not what else is around.

Window envelopes are a perfectly valid method of getting around the problem of addressing envelopes without having a top-notch printer to do it. Thanks for the help.

WHAT'S ATARI UP TO?

It was interesting to read in the March issue that Atari is going to portray the ST as a more serious machine and is shortly to release an educational bundle.

So why is it that it did not promote the bundle at the recent BETT (British Education Technology and Training) show? And why is it not attending The Which Computer? Show, an event where firms have the opportunity to show how their machines help in the office? We have heard similar tones from Atari in the past but nothing more has ever happened. What is going on?

P. Walsh, Mildenhall, Suffolk

We were equally puzzled by Atari's absence from the main education event following its decision to try to get the ST recognised in schools.

But we really must give the firm a chance. Recently there have been a few changes in marketing strategy, probably as a result of the appointment of a new, enthusiastic marketing director, Peter Staddon.

Last year's Whistle Stop Tour was the first glimmer of hope for a long while that the company was trying to push its products rather than sit back and wait for business. A large proportion of the train was taken up by third party software and hardware firms showing the ST's serious side.

Remember that 95 per cent of ST owners play games on their machine. This is a large figure and one which Atari has to consider when changing the ST's image. Don't forget, changes don't happen overnight.

ARTFUL IBM

Do you or any of your readers know where I can find a program for the ST which will take IBM graphics files with the .PCX extender and convert them to .IMG or any other ST format?

I am desperate for a program which can do this as I have about 14 disks of clip-art with the .PCX extender and I would dearly like to use it on my ST.

A Cummings, Blandford Forum, Dorset

Well, does anyone know? Write to us and we'll pass the message on.

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WHAT'S A DATABASE?

Everything you wanted to know about databases but were too afraid to ask. Rob Lemon takes the mystery out of DBs, DBMSs and DML

There are four kinds of database: flat file, hierarchical, network (sometimes known as codasyl) and relational. Remember that and you're half way there – the rest is easy!

Flat file is the simplest method and cheapest to implement. Information is stored as records, each containing fields. So, for instance, a record in a telephone directory is the entry for each person, consisting of the fields, surname, initials, street number, street, town and phone number.

In a flat file system all the records are stored in the one file, like your local phone directory, but the clever bit is that you can retrieve information based on any of the fields, unlike your local phone directory. Thus, should you want to find all the people who live in Acacia Avenue, it's easy. Try doing that by hand from the phone book.

SINGLE PARENTS

The restriction with flat file databases is that to find anything you have to search the whole file until you come across the record you want. This is OK for a small database, but in a big one, say 100,000 records, it just takes too long.

So the other methods were evolved. These all depend for their speed on not having to search the whole database in order to find the desired record. Single parents hierarchical databases are organised like TOS folders and files, that is, in a tree structure. Each record type has one parent and can have many or no children.

Retrieving data from a hierarchical database is very fast providing you know where it is, but searching one can be very slow. More parents Network databases were developed by a committee in the late '60s, early '70s. The original idea was to come up with a database that worked only with the Cobol language.

Then it was decided to extend the scope and other representatives from the computer

industry were brought in. These people had their own vested interests, for example IBM wanted to make the new database compatible with their PL/I language, but at the same time didn't want it to compete too strongly with their IMS hierarchical database system.

Years later they finally came up with a specification which was a typical committee compromise.

Network databases are similar to hierarchical databases except that each record can have more than one parent.

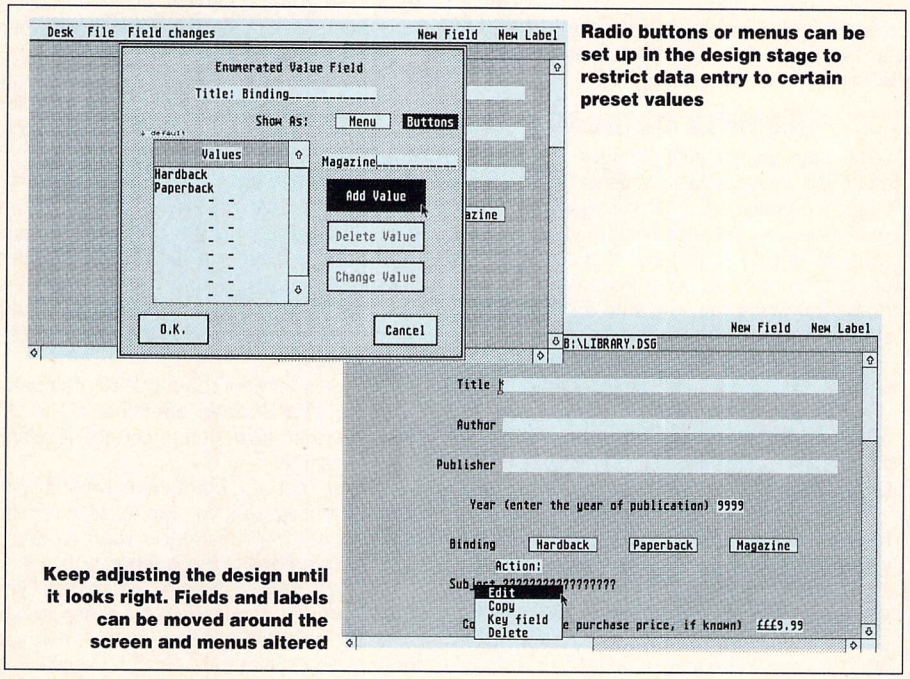
Compared to the simple elegance of a tree structure, a network database is like a mass of tangled creepers. The increased number of inter-connections make it easier to retrieve related data items held in different parts of the database, providing the programmer has a clear picture of the connections. Relational databases are the newest approach to storing data and represent a fundamental change in perception.

Instead of having each data item connected in a fixed way to certain others, the data is stored in tables, with each table containing references to other tables.

LINE ON THE MUTANTS

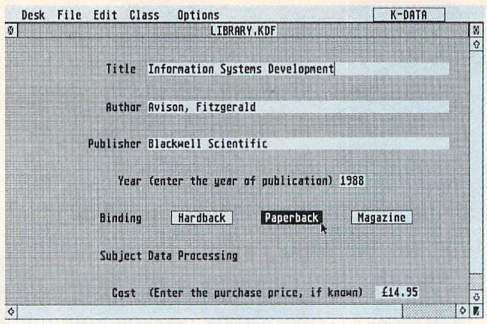
For instance, the table containing the list of all your albums, CDs and tapes can be cross-referenced by performer's name to the list of forthcoming concerts, which can in turn be cross-referenced by town to your name and address list.

In this way, you can find out if there are any Mutant Zombies gigs coming up near where you might be able to get a place to crash for the night. Relational databases operate by

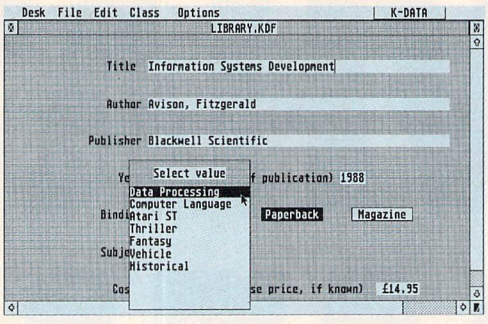


Radio buttons or menus can be set up in the design stage to restrict data entry to certain preset values

Keep adjusting the design until it looks right. Fields and labels can be moved around the screen and menus altered

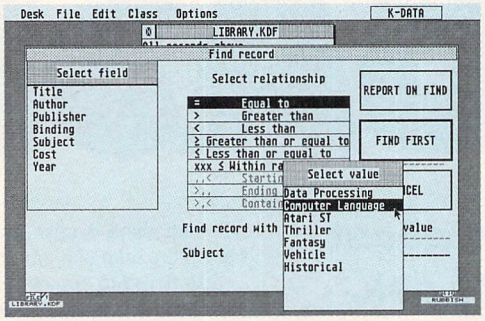


Most fields are typed in. Pressing Return moves you to the next field. Buttons speed things up considerably

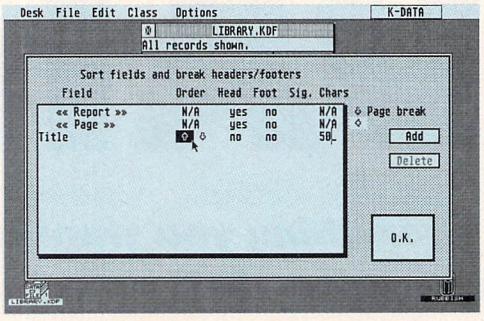


Pop-up menus make data entry much easier and reduce the chance of mistakes being made

The database can be searched on any field, using various comparators and strings



Reports can include headers and footers where required, and the contents can be sorted on a specified field in ascending or descending order



comparing values in tables and looking for a match, much as humans would.

This is slower than the other methods but it's usually felt that the increased flexibility and ease of use make it worth the cost.

Choosing a database system for an ST is quite simple, mainly because at the last count there were only nine of them.

There's only a couple that are fully relational and also programmable, that is, have a built-in data manipulation language (DML). They are Superbase Professional from Precision Software and DBMan from Verasoft, and both are suitable for small to medium-sized businesses.

The only other relational database is Superbase Personal 2. All the rest are variations on the flat file theme. They are perfectly adequate for small business or domestic use and your choice really depends on features like label printing, ease of use, search functions, security and so on.

Strictly speaking, a database is a collection of related data and a database management system (DBMS) is the program for manipulating it, but these days, the term database tends to be used to mean both.

DESIGNER DATABASE

Let's say you've just bought a flat file database so you can catalogue your huge music collection. First you've got to design your database. Dead easy on most systems – you just decide what type of data a field is going to contain, select it from a menu, then drag it to where you want it to appear on the screen.

The choice of data types usually ranges thru text to integer and floating point. Next you add titles for each field, like Company, and also some explanatory text if you think it would make it clearer, like "Enter the Record Company name".

Various features to look for here include the facility to set up default values, the provision of enumerated data types and error checking.

Enumerated data types means being able to build in radio buttons and menus. Your music is probably all on disc, cassette, CD or DAT, so you could set up buttons or a drop-down menu with just these types on it. This makes it much quicker to enter data and stops someone entering LP or Album which could really screw things up later when you come to search the database.

Before diving into the wonderful world of design, it's worth spending a few minutes thinking about how you intend using the data once you've stored it.

If you make up compilation tapes it's useful to know how long each track is, so make sure you set up a Track Time field in which to put this data.

Or say you plan to be able to print out a list of all your Heavy Metal music, then you'll need a classification field, probably enumerated, otherwise you'll have to select every album by Mutant Zombie, Death Nerds of the Apocalypse and Wombats from Hell manually in order to do it.

If you thought designing a database was easy, then entering the data is like falling off a log. It's about as much fun as falling off a log too. You've got to sit down and type in every album title, every artist and band member, every track and so on.

Well, finally you've done it. Now comes the good bit. Say you want to make up a compilation featuring tracks with either Eric Clapton, Mark Knopfler or Jeff Beck on it.

You enter a search pattern by clicking on Find and are then presented with a list of fields. You choose the one called band member, click on =, type in the first name, then click on OR and type in the second name and so on. Up pops a list of all the relevant records which you can print out. Then you can plan your tape.

Databases let you search using comparators (=) and Boolean operators (AND OR NOT), and then allow you to sort the resulting list. Very handy!

You can set up permanent reports with most databases, so if you like to get a regular listing of all your Blues music you can do so by just clicking on the Blues report.

You can choose which information you want to appear in a report, for instance you might just want the title and artist. When you design it you select the fields you want, drag them about the screen, add text and on some databases you can also have the date and time automatically added, plus page numbers, headers and footers. The really wonderful thing about databases is that they give you access to loads of information that you already have, but is normally impossible to get at. May your data processing bring you deep joy and save you hours.

INS AND OUTS

If you already have loads of data in a spreadsheet it seems rather wasteful to have to type it all in again to get it into your database, but help is at hand.

Products like Kuma's K series allow you to import and export data between them. You can pull stuff out of a spreadsheet by using the rows or columns as the field names, with each line being one record.

This works the other way too, so you can move information from your database into your spreadsheet where you can perform all kinds of statistical manipulation on it.

It's also possible to export data from most databases in standard ASCII format. Then you can import it into a word processor, merging it into a document.

This is a very useful facility in a business, but also handy at home, say if you're writing to a friend and want to include a list of all the music you've bought since last you wrote.

Many databases have a facility to produce labels – very handy if you use your database to maintain a mailing list. Even if yours doesn't though, many word processors have label printing facilities, so providing your database can export in ASCII you'll be OK. One of the most impressive facilities is the ability to export data to a graph drawing package. A company might keep a database of its salesmen and want to produce a graph showing their relative performance each month.

You choose one field to be the label, for example the salesman's surname, and another to be the value plotted, say sales.

The chosen fields are exported in a special format, then imported to a graph drawing program where they can be displayed as bar charts, 3D blocks or whatever.

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883 - MX-2 v2.3 a multi-tasking & multi-user enviroment, allows up to 7 concurrent tasks such as compiling, printing, file transfer etc. Designed for use with Gulam (included). Has network drivers to power a remote ST as a terminal. * D *
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879 - PALETTE MASTER, art package offers 512 colours. All usual features such as airbrush, spraycan, text, etc. Docs in 1ST WordK format. Slideshow inc. * C *
880 - COLOURBURST 3000 v0.3, Allows you to add different colours to pics from other packages. Up to 50 palettes per screen. A range of 3375 colours to choose from. PICSWITCH can import screens from most packages. * CX *
520 - CLIP ART, Various Fonts, pics of famous people, old & new, Seasonal logos, images & cartoons.
523 - CLIP ART, Children's whimsical & elaborate font & Christmas card images.
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512 - ZOG arcade blasting
513 - FUZZBALL platform game
328 - On this disk are a formatter, -calendar, clock, dir printer, a Disk Manager with format, copy file, disk free and rename folder options. + MORE.
829 - Various progs for printing labels.
857 - DISKMECH Powerful disk analyser/archiver/ editor, full docs. CPANEL improved control panel.
561 - GENESIS, Fractal landscape generator. FORMAT 10 is a 10 sect/80 track formatter. VKILLER. PCOMMAND is a file utility command driven like MSDOS. + MORE
886 - DIY DEMO, Make clever demos featuring title screen & scrolling message, without any programming skills.
842 - DEC edit clone, Disk engineer v3.01 allows you to do almost anything to a disk.
324 - ADDRESS LOG, Limited address book & label printer, disk catalogger that auto disk directories & can print labels & a label prog for printing all types of labels + MORE.
843 - AUTOGEM autoboots any Gem program when booting. XFORMAT2 an extended formatter. VC Spreadsheet, non-GEM
584 - MOUSE TRICKS, a .ACC, allows user extensive control over mouse movement & menu style. BIGSCREEN simulates a virtual screen in any res,has limitations. FSELECT file selector - plenty of docs. DCSTUFFER 0.9 allows more than 6 DAs. + more.
808 - FRACKTAL is a fractal drawing program from Germany that comes with Mono & colour versions. There is also a Fractal landscape prog and 'loads a' demos.
888 - ANI-ST, Formerly AEGIS ANIMATOR which retailed at £79.95!!! A HIGHLY PROFESSIONAL quality animation system. You draw the initial & final shapes & the ST draws the ones in between. Can use Neo/Degas background pictures. Loads of features, full documentation & examples.
396 - MASTERPAINT, drawing package with some excellent features, works in Mon & Col. LITTLE PAINTER is a drawing program with it's own font editor.
521 - CLIP ART, Various human figures, different cartoons, Titles & more.
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587 - BAT DEMO, MICROMIX II, FUJI BOINK demos *D*
588 - MEGABANG, ROBOMIX, MAGICEYE demos *D*
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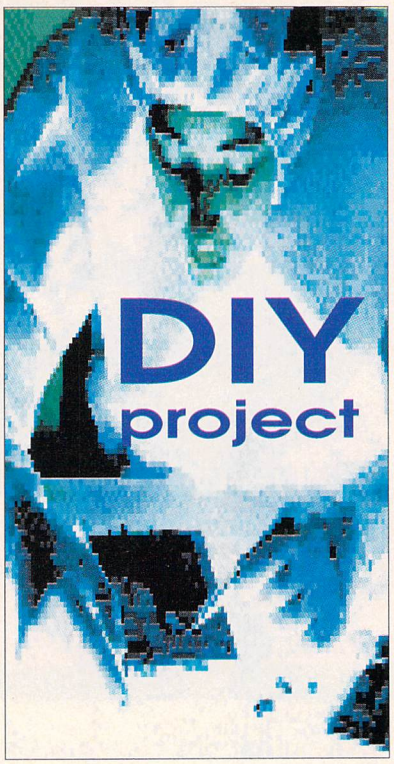
SWITCH TRICKS



Richard Coles answers our plea in Interactive Rescue for help with designing DIY projects...

What's a monitor switchbox? Simple! A monitor switchbox enables two monitors, colour or monochrome, to be attached to your ST and used, one after the other, without having to remove the plugs and wear out the ST's monitor socket to switch between the two.

First prepare the stripboard and box. Stripboard is a kind of printed circuit board which is manufactured for general use. It has strips of copper wire laid into it, rather than the complex patterns of printed circuit boards made for specific jobs.

The stripboard must be cut to a size of 60 x 46mm in an orientation so that you obtain 23 copper strips with 18 holes in each strip.

Next the box must be prepared for inlet and outlet of the cables to the sockets and plug. The box is designed so that cables can be piped in and out of it.

ON YOUR WAY

You will notice that close to where the lid is placed there are two thin plastic plates, one on each side. For ease of construction, the box should be placed with the thin plates uppermost, because they are slightly offset.

The plate on the left can be completely removed for the two socket cables to enter the box, and half of the plate on the right can be removed to allow the plug cable to enter too.

Drill two 6.2mm diameter holes in the centre of the lid for the switch and cut off any plastic between the two with a sharp knife. Two more holes must be drilled for the switch, so align the switch in the hole which was cut previously, then mark and drill two holes slightly larger than 2mm diameter for the screws.

Cut the 15-core cable into three then, using the pin-to-cable colour coding (see Figure 1) solder a piece of 15-core cable to each of the sockets and the plug.

Now solder each socket cable to the stripboard at points 1,2,3,4,5,6,7,8,9,10,11,12,13

PARTS LIST:

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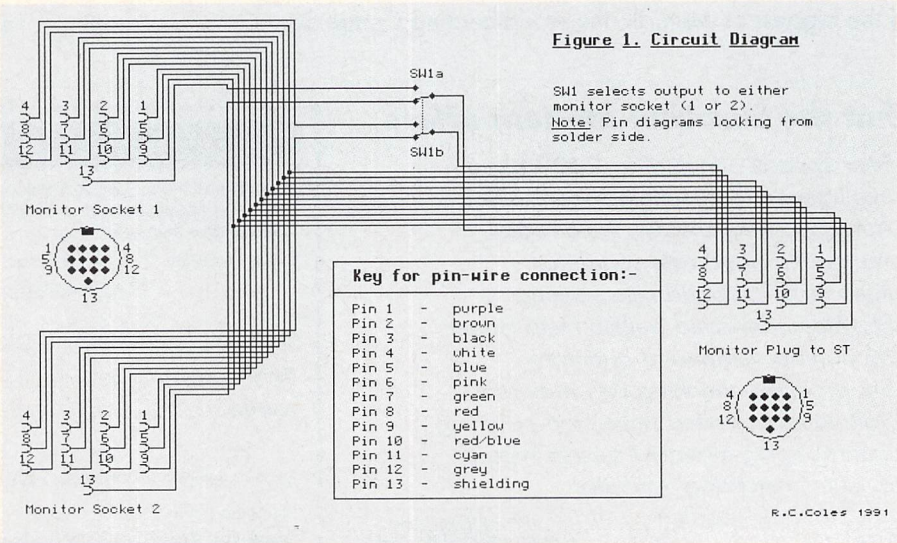
2	Skt 1,2	Atari 13-pin monitor in-line socket	JW 97F
1	SW1	DPDT Chrome slide switch	FF 79L
1	Box	Box for project (Box 321)	FK 73Q
1	Board	Stripboard to make (60x46)mm board	JP 47B
1	Cable	1m of 15 core screened cable	XR 28F
1	Wire	Light-duty connection wire	BL46A2
1	Screws	M2x12mm screws for DPDT switch	BF 40T

Most electronics suppliers stock these parts but for convenience we've given the Maplin Electronics order codes



I: Circuit diagram

on Figure I, making sure that you remembered to put the socket cover on first and that the colour coding is followed for the board-to-cable coding (same as pin to cable).

Cut six wires from the connection wire about 80mm long and solder to the board at the points a,b,c,d,e,f. Solder the plug cable to the board using the same process as for the socket cables.

The board is now complete. All that's left to do is to solder the switch to its respective wires connected to the board.

Place the stripboard in the box with the socket connections on the board uppermost. Lay the socket cables through the gap on the left and the plug cable through the gap on the right.

There is no need for stands for the board because it has a snap-fix design. So using a screwdriver, prise the board down over the plastic snap fit on the top and bottom edges.

Next push the switch through the hole drilled in the lid and screw down the screws on to the switch to fix it into place. Then screw down the lid of the box.

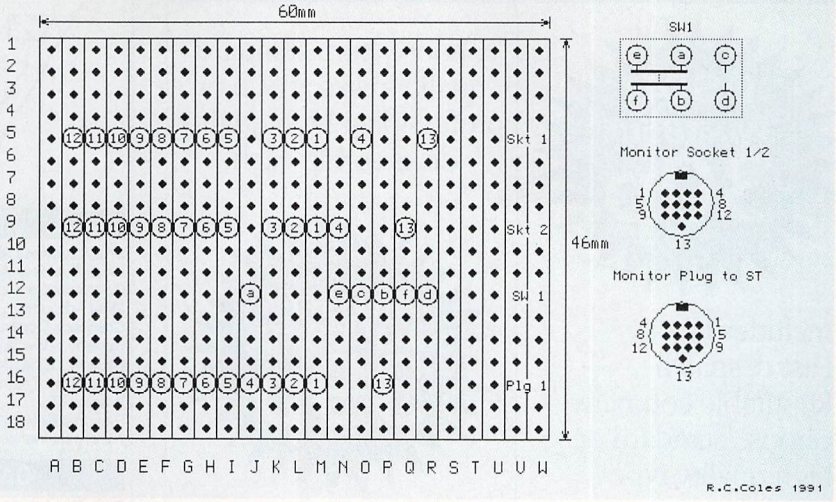
AND THAT'S IT!

Voila! You have a monitor switchbox courtesy of 'USER at a fraction of the price of commercial versions. This one cost about £9 to make.

You shouldn't have any problems with construction if the pin colour coding is followed properly.

There are no complicated components in this project. Just follow the directions very carefully, keep your cool if things don't go to plan immediately, and when you've finished, sit back and pat yourself on the back!

Figure 2. Veroboard Layout



II: The veroboard layout

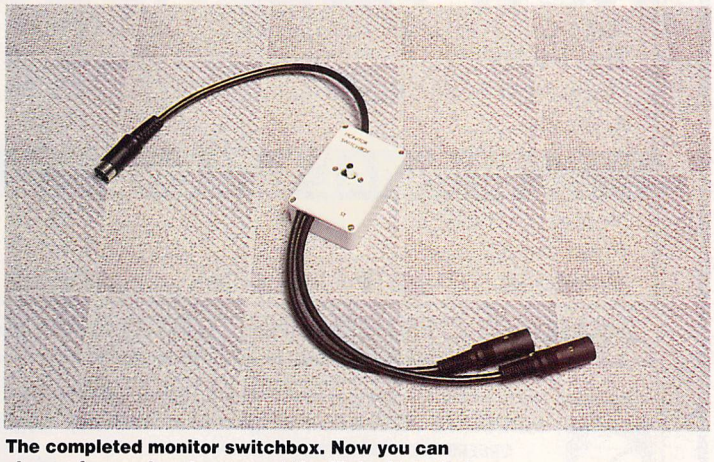
'ERE, I CAN DO THAT! GIZZA JOB...

So you think you can do better, huh? Fancy yourself a budding electronics genius? If that's the case, and you'd like to earn a bit of extra dosh on the side, here's what to do. Send us in a photo of your completed DIY project plus a few stages and include a brief explanation of what it is and how you made it. Then, if we decide to use it, we'll contact you, organise what else we need you to supply and let you know when your fat cheque will be arriving.

We're talking considerable sums of money here - well over £50 for a good, simple but useful project. But of course, we can only pay for work published, so don't be too disappointed if you don't hear from us.

But don't forget - keep it simple, because if we can't explain how to make the project on two pages, we won't be able to use it at all. So get started now!

A steady hand and a calm disposition make for perfect soldering

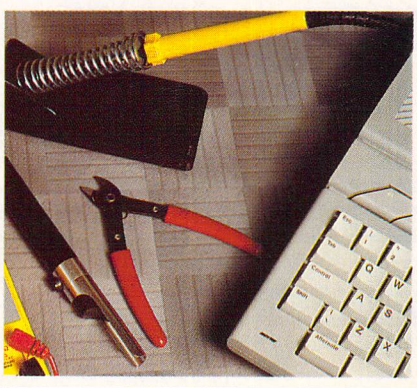


The completed monitor switchbox. Now you can change from colour to mono at the flick of a switch

ZEN AND THE ART OF ST SOLDERING

To work all sorts of electronic DIY wonders, all you need are a soldering iron and solder. The tricky bit is using them properly. Here are a few general tips from the experts (that's us):

- **Take your time. Be careful. Don't rush it. Messy work is usually the result of using too much solder, or melting the connectors by panicking and keeping the iron touching them for too long.**
- **To solder a wire to a connector, remove about 1cm of the plastic coating and twist the wire to get rid of any loose ends. Allow a tiny amount of solder to melt on the tip of the iron. Coat the wire in a smooth layer of solder by touching it with the iron and some solder simultaneously.**
- **Once cooled, cut off the end of the wire, leaving about 0.25cm to fit into the solder pins of the socket or plug. Applying a little heat and a tiny amount of solder will attach a wire to a socket.**



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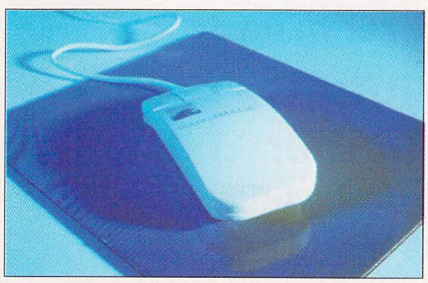

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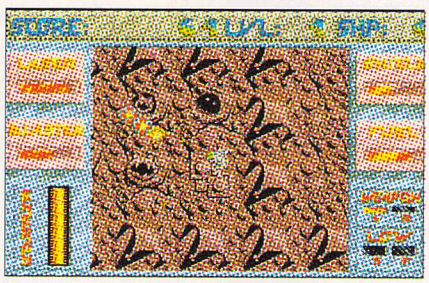

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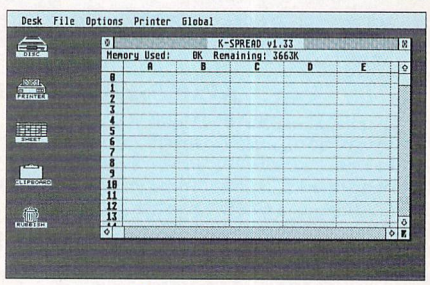

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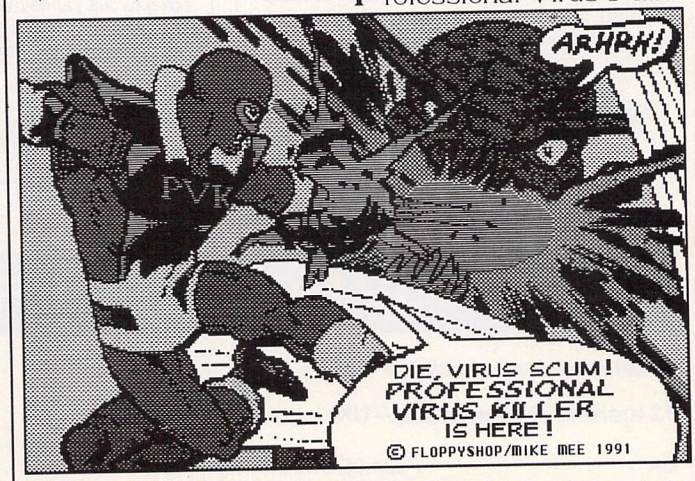

This is the long awaited followup to the highly successful PD program, Super Virus Killer. It is being marketed exclusively by Floppyshop and is the essential purchase for all dedicated ST users. This program will eradicate any boot sector virus and recognises 477 legitimate game and demo boot sectors. PVK is being launched at an introductory price of only £4.95 but be warned, we cannot maintain this silly price for long. Get PVK now, you've simply no protection without it!

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If you're after specific help with your DTP layouts, *DTP Seeds* should prove invaluable. There's very little text – after a simple introduction, almost all the pages are devoted to example layouts.

Although they are produced on an Acorn Archimedes, it's only the finished results that are of interest here. These layouts are equally valid whichever machine has produced them.

The book is divided into 12 chapters, each dealing with a specific document type or design area. There are sections on school and business stationery, graphs, invitations, advertisements, flyers and posters.

No area is skimped, and there are plenty of examples on each page. Both general purpose and specific design tasks are covered.

Matson begins by looking at a simple page layout for a newsletter or report. By varying the position of the headline and by repositioning the columns, he introduces the idea of white space and the effects this can have on the readability of text.

Having brought in a few different ideas, all by illustration with briefly captioned, cameo-sized pages, he goes on to provide a dozen or so examples.

This format is followed, more or less, throughout the rest of the book. There is an awful lot of scope here for borrowing ideas, and Matson positively encourages the reader to do so, at least at first.

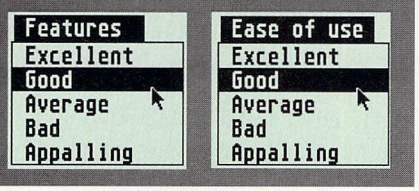
The intention is to provide ideas which can act as seeds for new creativity. By all means take the styles and design elements from these pages, but after a while, the author suggests, you will start to adapt them and add your own ideas.

There are certainly plenty within the pages of *DTP Seeds* to set you off. Designs veer towards conventional High Street material rather than corporate documents. For most of us though, the home and High Street are where our work lies, and this book is certain to provide useful inspiration.

THE BOTTOM LINE

FEATURES: Masses of design ideas which are ideal to get even the rank beginner going. Oddly, the cover of the book itself is pretty uninspired.

EASE OF USE: Although there is no ST-specific material in the examples, most are relevant to any of the top ST DTPs.



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ISBN: None

LAYING IT ON THE LINE

It's sometimes hard to know where to begin for a good page layout. Charles Michael picks up a couple of inspirational DTP guides

If you're serious about your DTP work, it makes sense to study the designs around you. Browse through your favourite magazines and newspapers, cast an eye over the ads and flyers pinned up in the street or flop on to your doormat. Begin to get an idea of what you find attractive and what strikes you as crass.

Alan Swann has a good CV: since leaving art school he's worked on a number of major newspapers, has been an art director in advertising and has lectured at a London art college.

In *Basic Design and Layout* he draws on his experience to illustrate the basic ideas behind design. Although not expressly aimed at DTP, the concepts outlined are equally applicable to manual or electronic page make-up.

Swann takes a systematic approach to his subject. Each double-page spread introduces a new element – shapes, positioning lines, proportions, body text, headlines, and shapes made with text.

At each stage there are plenty of thumbnail illustrations and a checklist of the points you should be considering. There's a good section on choice of typeface, which includes advice on its positioning and sizing for maximum effect.

Once the basic layout is complete, he discusses the use of illustration and photography. This inevitably brings in the subject of colour, which is probably beyond the scope of most ST users. But this is a comparatively small section of the book.

Most of the rest is devoted to samples of all kinds of layout. Everything from company reports to boxes of chocolates to headed notepaper is covered here.

The ideas introduced by each new item are explained in the text, being instructive but not patronising.

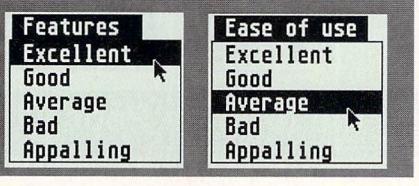
As an intermediate guide to the practice of document design, this is an excellent work. It introduces all kinds of ideas which very soon get into the blood. It's hard not to start placing all your text at odd angles and bleeding illustrations off the page.

If you read the book though from cover to cover you'll see the underlying method in the art, and will have little difficulty in applying it to your own layouts.

THE BOTTOM LINE

FEATURES: This book, which is beautifully laid out and illustrated, offers advice on many different aspects of design. While it's not all of practical use, there's much to be gained by taking in its ideas.

EASE OF USE: It takes a little effort to apply the general advice which is offered here to the specific constraints of a DTP program.



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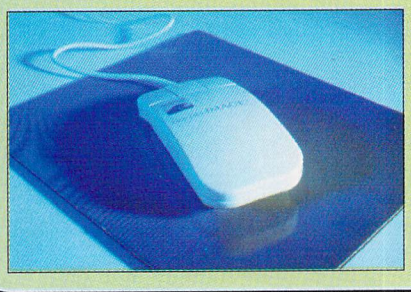

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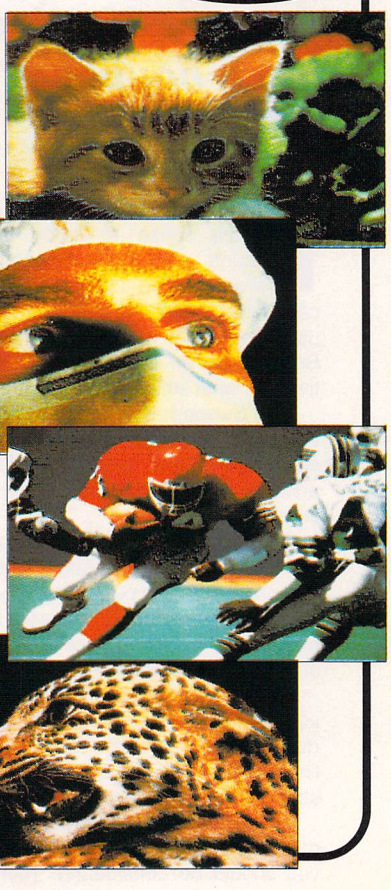

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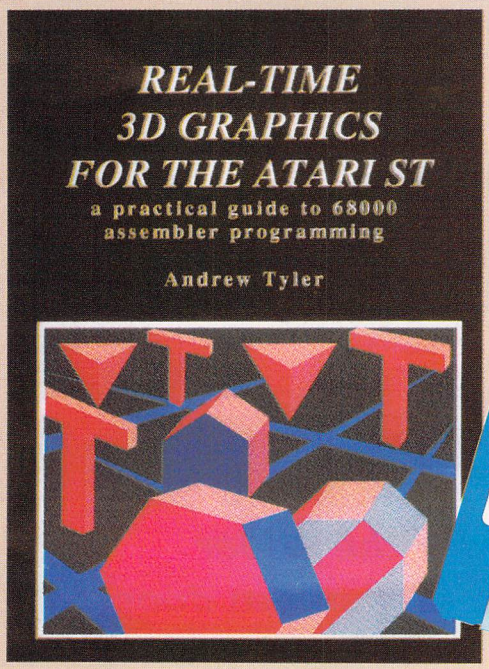

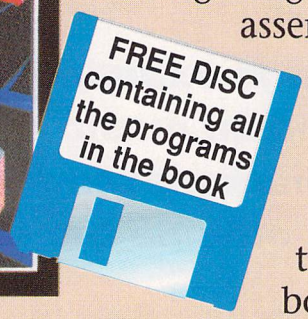

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CLASSY TRIO

Ian Waugh examines a new educational music system and gives it top marks, even for the wider market outside the classroom door

Hot off the lusty C-Lab workmill and fresh from Germany's Black Forest come three of C-Lab's latest musical offerings. They are available separately, but collectively they are known as The Education System. Despite that education tag, however, they will be of equal interest to budding musicians.

The first of the three, Notator Alpha, is a cut-down version of Notator which was reviewed in 'USER ages ago and recently updated to version 3 (see April's 'USER). But for all that it is still packed with more features than we could cram into a review.

So here's the nitty gritty. It has 99 Patterns, each of which has 16 Tracks. A single Pattern is adequate for recording simple pieces and when experience grows you can link Patterns in the Arranger.

Most users will enjoy the additional flexibility of creating music in sections this way, once the basics have been assimilated.

Operation is based on traditional tape recorder controls. Above them the Track Parameters list shows the MIDI channel, quantise setting, transpose and velocity offset for the selected track.

The Edit page contains an event list showing each event's name, its start time and, in the case of a note, its duration.

Events shown include Controller data, Program Change numbers and even System Exclusive data. Data is easily inserted, deleted and edited.

BRAVO ALPHA!

There is some support for Pseudo events which Notator – the Daddy – uses to control tempo changes among other things. Notator Alpha supports absolute tempo changes and, although it's not mentioned in the manual, you can access other Pseudo events by scrolling through them in the event list.

The music appears below the event list on staves in traditional notation. Alter a note and its entry in the event list changes and vice versa.

You can adjust the quantise factor of the display and remove tiny rests which may appear between notes to improve the notation's appearance.

The sequencer records everything exactly as you play it and no one plays to an accuracy of 1/96th notes! All quantise functions are non-destructive – you can always return to the original recording. Each stave can hold two voices and you can globally determine the direction of the stems.

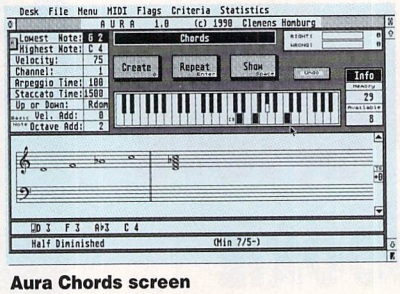
A wide range of music symbols can be added to finish off your score – dynamic markings, hairpins, slurs, accents, chord symbols, guitar tablature, lyrics – which align automatically under each note – and text.

There are printer drives for over half a dozen of the most popular printers. Different drivers (for the same printer) produce different sizes and density of printout. The quality, even on a humble 9-pin dot matrix, is excellent – the same as Notator printout, in fact, although without the new selectable fonts facility.

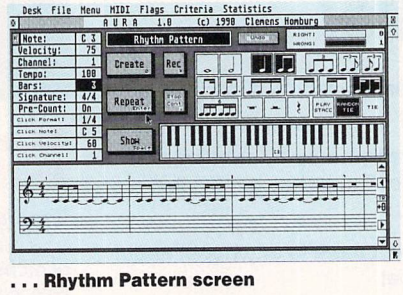
The manual includes a first steps section to get you started. Otherwise it follows those Notator manual sections which apply reasonably closely. It is well laid out with lots of diagrams.

A list of Notator functions which are missing from Alpha would fill these pages, too. Some functions have been removed, perhaps unnecessarily. Ones like Loop and Ghost in particular would have been useful, along with the ability to transpose a Pattern in the Arrange window. I don't miss Drop In and Out, but some people might.

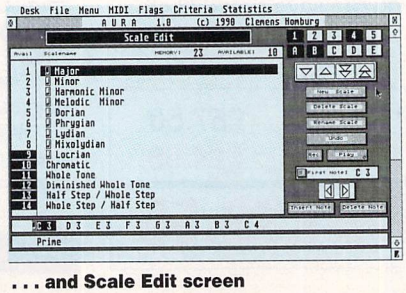
The special quantise settings – Groove in Notator – which add swing to a piece are both fun and, I think, educational. There is no drum mapping to show rhythm parts in drum notation. Gone, too, are the Matrix (grid) Editor, Hyper Editor – new to Notator 3 – and RMG (Realtime MIDI Generator) which can be used to mix a piece. But their absence is understandable.



Aura Chords screen



. . . Rhythm Pattern screen



. . . and Scale Edit screen

A major criticism, however, is the fact that only four tracks can appear on the stave at any one time. You can show more tracks by 'hiding' others, but this is a nuisance and you can't print them all out anyway.

A list of regretted omissions is bound to be somewhat subjective, and I suppose if Alpha scored all the tracks many users would find no need to consider Notator at all!

But the facilities Alpha does have are a large enough subsection of Notator's to let you produce good four stave scores.

Notator and Alpha Notator song files are compatible which is worth bearing in mind should you decide to upgrade.

MIDIA MUSIC

The second package, Midia, is subtitled A MIDI Education & Analysing Program. It establishes a link between a MIDI instrument and the computer, so what you do on the instrument is shown on the screen and what you do on the screen is sent to the instrument.

An on-screen keyboard shows which keys you press; two bar graphs reflect the On and Off Velocities, sliders move in sympathy with the pitch and modulation wheels and there are icons for generating aftertouch and volume, and soft and sustain pedal data.

In fact you can generate just about any type of MIDI data, which is handy if your instruments aren't too well endowed.

Most MIDI events consist of a status number, a MIDI channel number and two data bytes – although some events make do with one. Data generated and received is shown in a central panel.

An info box explains what the data is and

what the associated parameters are – in English, too! If an instrument has sounds arranged in banks and multi set-ups, you can easily check what program numbers each one transmits.

Conversely, Midia may let you select sounds which are not otherwise accessible from your keyboard's front panel, as is the case with the Roland E series keyboards.

The event list can be edited easily and remains until you decide to clear it. You can print it, too. A set of filters let you hide incoming messages which can generate a lot of data such as aftertouch and pitch wheel messages. The actual data is not removed – it makes the display easier to follow.

Another set of filters will remove up to six different types of data. This is useful with messages such as Active Sensing and MIDI-Clock, which can really clog up the list.

Little cogs in the System Exclusive icon turn when Active Sensing is being received – cute! A MIDI Calculator shows data values in decimal, binary and hex and can be used to insert data into the list.

WHIZZ KIDS

Midia can handle System Exclusive data. You can dump a sound definition to the program, check the contents using an ASCII display, and save and load it to and from disk. In this respect Midia can act as a cheap voice storage device. If you're a Sys Ex whizz kid you can even create your own Sys Ex messages.

Midia is fun to use – if you have a workstation or hardware sequencer, play it and watch Midia react to it! (OK, little things...). A large part of the credit must go to its highly graphic approach.

If you're keen to learn about the various MIDI messages generated by your equipment or monitor its output, there can be few easier ways of doing it.

The last of the three is an aural rhythm and pitch trainer. Aura is divided into five sections – Intervals, Chords, Scales, Random Music Lines and Rhythm Exercises.

Edit pages allow you to create and edit chords, scales and intervals – to prepare exercises, in other words. In the Intervals page, Aura plays two notes in succession. You must select the correct interval from a list or by 'playing' the on-screen keyboard or a MIDI one.

Playback options include Wait Until First Note Found, Any Octave Position, Ignore Bass and so on. You can select a wide range of default settings too, such as highest and lowest notes, velocity, arpeggio time, MIDI channel and so on.

The Chords page operates in much the same way except it plays three or more notes – chords. The complexity level can be set from simple to advanced, and the chord types include classical, pop and jazz.

You can create your own chords and make them as simple or difficult as you wish then save them to chord library files.

The Chord Analysis section will name any chord you play. First it tries to match it with a chord in memory. If it can't do so it applies a logical analysis. Chords created here can be stored in the library.

The Scales page lets you choose from a wide range of scale types and, again, you can create and save scale libraries. It plays a scale and you have to name it.

As well as major, minor and harmonic minor scales, there are wholetone, semitone, blues and lydian scales, among others.

Random Lines plays a sequence of random notes – chosen from one or more of the scales – and you have play it. This can be up to 14 notes long and will thoroughly test your aural ability.

Rhythm Pattern plays a rhythmic pattern which you have to duplicate. You can select the complexity level from a series of rhythm icons – everything from semibreves and minims to sixteenth notes and sextuplets with random ties. These will test your ability, too – even some of the simple patterns can be deceptively difficult. Crank up the tuplets for real mental anguish!

However, you can select various quantise levels which will be more tolerant of errant playing.

In the Auto Lessons page you can create a series of exercises which will follow one after the other – just like an exam! You can control most programs' functions directly from a MIDI keyboard, which will usually be the most convenient way of working.

Your answers are evaluated and shown on a statistics page (good job my music teacher can't see this!). It shows the number of exercises, repeats and the percentage of right and wrong answers. You can clear the statistics if you do disastrously. If you do well you can print them out!

Alpha will run in medium res, but in my opinion the display is not very satisfactory – hi res is what you need. Alpha is protected with a dongle, but the other two programs are on copy–protected disks. They can be copied but the originals then act as a key disk.

IT'S A RAP

The education market is a strange one. The demands of music IT are different to the requirements of the professional or even the amateur musician.

There's not room here to get involved in a discussion about the uses of educational software. Suffice it to say that any educational establishments which include sequencing and MIDI in their curriculum will welcome these programs.

Although Aura is an out and out educational program, Midia will interest many musicians and music hackers.

I can see Notator Alpha appealing to a great wadge of musicians who couldn't quite afford big brother Notator's £499 price tag. If the four track score limitation doesn't worry you, I can definitely recommend it.

Product: **The Education System**
Price: **£349 for all three. Separately: Notator Alpha £199, Midia £65, Aura £99**
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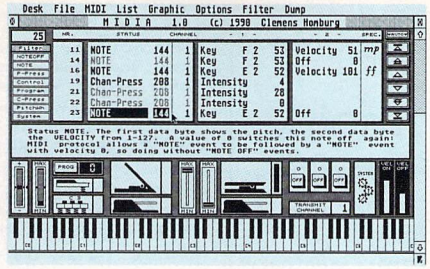
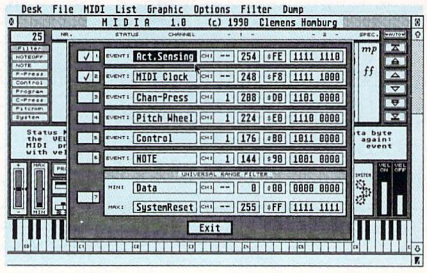
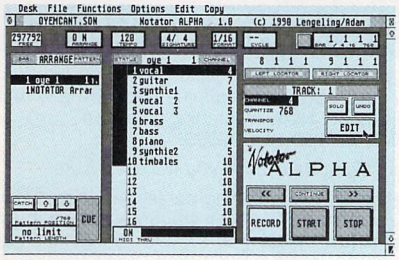


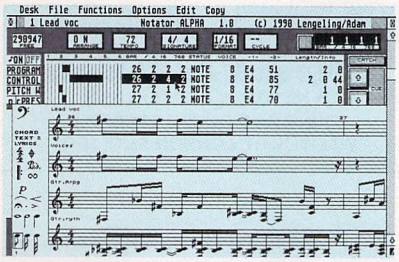
Midia's main screen. The program will interest musicians and music hackers



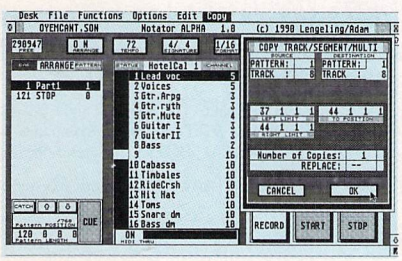
Midia filter window. Excessive data can be hidden



Alpha Notator sequencer screen



...Edit screen



...and sequencer screen – shown using the Segment copy function

THE BOTTOM LINE

FEATURES: Lots! This music package is definitely worth looking at.

EASE OF USE: Generally fairly straightforward, shouldn't be a problem.

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A point of view

Andrew Tyler continues his series on bringing 3D graphics to the ST screen

It's a curious fact that distant objects look smaller than those which are close. They aren't smaller, but they subtend a smaller angle at the eye. So for any world we create inside the computer to look real, the size of objects must diminish as they recede into the distance.

In real life all of this is done by the brain and the eye. On the computer screen we have to get the same effect with the help of geometry. That's what this month's article is all about – the perspective transform.

But before we launch into the perspective transform it's time to face up to an unfriendly little topic that's been lurking in the background since Part 1, when we considered coordinate systems and frames of reference.

It's a good idea to deal with it here, because from now on we'll have to think in 3D most of the time, rather than the 2D world of the monitor screen.

One of the most confusing aspects of computer graphics results from the way geometry is used in the various stages of bringing an object to life on-screen.

It helps a lot to visualise these stages from particular points of view which are called frames of reference.

For example, suppose you are going to build a model railway and have marked out the positions of each section of track, buildings and any other structures on a rectangular base, where x is along the long side and y is along the short side and zero is at one corner.

This way of fixing the positions of everything is called the world reference frame, and the way x and y are set up is called the world coordinate system.

But each individual object in the layout has its own detailed structure ,and we must have a separate way of specifying this, independent of where it is on the layout.

We could imagine listing the dimensions of each part of the object as measured from its centre. This is called the object reference frame.

Then, since the train itself may be in continuous motion, we need only specify its current position on the track by a single pair of coordinates – perhaps the coordinates of its centre would do – in the world frame. We can then refer to its object frame for the details.

But hold on, we haven't finished yet. Since this layout has to be drawn on the ST's screen, it has to be seen from a particular viewpoint, that of you, the observer. The frame of reference attached to the observer is called the view reference frame.

Jargon list

Subtend: Defines an angle of view

Column vector: The components of a vector written as a list in a column

FRAME: A space opened on the STACK by the LINK instruction

Homogenous co-ordinates: 4D mathematical space

LINK: A 68000 instruction that lets you reserve space on the STACK

Matrices: A way of showing how one vector changes into another – as in rotation, for example

Perspective transform: Projecting the 3D world inside the computer on to the 2D screen

STACK: A temporary storage place used by the 68000 processor

World coordinate system: The grid layout for the 3D world inside the computer

World reference frame: The space occupied by the 3D world inside the computer

CONFUSED?

Furthermore, the outline of each visible object when projected on to the screen for display is then a set of polygons whose vertices are specified in screen coordinates. The relation between these various reference frames is shown in Figure 1.

One other thing. Confusion abounds when it comes to setting up the coordinate axes which accompany these frames of reference. This is because there is no unique way of labelling the directions up, forwards and sideways, and different people have different preferences.

The first option is to decide whether to use left or right-handed coordinates. Figure 2 shows these alternatives. We have chosen to use the right-handed system, since that's what is comon in science and engineering.

The decision to point x upwards results from another convention in computer graphics – that of pointing the z-axis into the picture. This convention is adhered to consistently throughout.

There is one last coordinate system to deal with – that of the screen. The origin (0,0) of the screen coordinates (xs,ys) is at the top left-hand corner of the screen, so a conversion to this system has to be made before the picture can be displayed.

Figure 3 shows an object, in this case a cube, defined inside the computer in the world frame and seen from the viewpoint – the observer's eye, also called the centre of projection – which lies some distance (-100 in this case) along the negative axis of the view frame.

The monitor screen lies in the xv, yv plane of the view frame and is called the view plane. Complicated, isn't it! What we want on the monitor is the outline marked by the intersection on the view plane of the 'rays' from the object to the viewpoint.

That's really all there is to it. This is a particularly simple type of perspective projection. Draughtsmen use many other types, but this one works well.

To see how the perspective projection is worked out, look at Figure 4, where the line ED produces the perspective projection CB. Without going into details, you can see that the triangle ABC is similar to the triangle AED, so that the ratio CB/ED is in the ratio d/(d+zv). This, therefore, is the factor by which DE must be multiplied to get the projection CB.

There only remains an adjustment to express CB in terms of screen coordinates xs and ys, which have their origin at the top left-hand corner of the screen.

It's pretty clear that drawing in 3D gets complicated unless you have a shorthand notation. That's what vectors are – they allow you to specify a distance and direction in 3D

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easily and quickly. It's not surprising then that many of the complicated calculations in computer graphics are done in terms of vectors. In fact, it turns out that these calculations can themselves also be written in a special shorthand notation – called matrices.

Vectors and matrices go hand in hand. Whatever convention is chosen for the vectors affects what the matrices look like.

Let's look at how vectors and matrices can be used to perform calculations in computer graphics. This is one of the areas of mystique of the subject. If you can understand what's going on here you can really impress your friends.

To be really tricky, we'll do the perspective projection as a matrix calculation. It isn't really necessary to do it this way, but it will provide an opportunity to introduce another buzz word – homogeneous coordinates – and show off a clever assembler instruction, LINK, which allows us to safely meddle with the STACK.

You might remember from your GCSE maths that rotations can be done by matrices. This is certainly one application that is very useful and straightforward.

Figure 5 shows a 2D vector which stretches from the origin to the point 1,0 being rotated to the point 0,1. We want to have some way of saying this using geometry. A matrix is the answer.

Here's the way it's written down:

$$\begin{pmatrix}0\\1\end{pmatrix}=\begin{pmatrix}0 & -1\\1 & 0\end{pmatrix}\cdot\begin{pmatrix}1\\0\end{pmatrix}$$

What does this mean? The object on the left hand side is the final vector, written in a column and the object on the extreme right is the original vector, also written as a column. The thing in the middle is called a 2x2 matrix transform for a 90° rotation in the x-y plane.

To be thorough we should have also included the z-axis – which points out of the paper – in the figure even though no z values are changed by this particular rotation. Then the matrix would have had 3 rows and 3 columns making it 3x3. All rotations are 3x3 matrices.

The product as a whole is a piece of mathematical machinery. The good news is that having worked it out for this one case, it will work on any vector we care to try, not just the one at 0,1.

Well, we'll meet rotations again later. For the moment, just note that matrix transforms like to multiply a column vector on the right to produce an answer on the left.

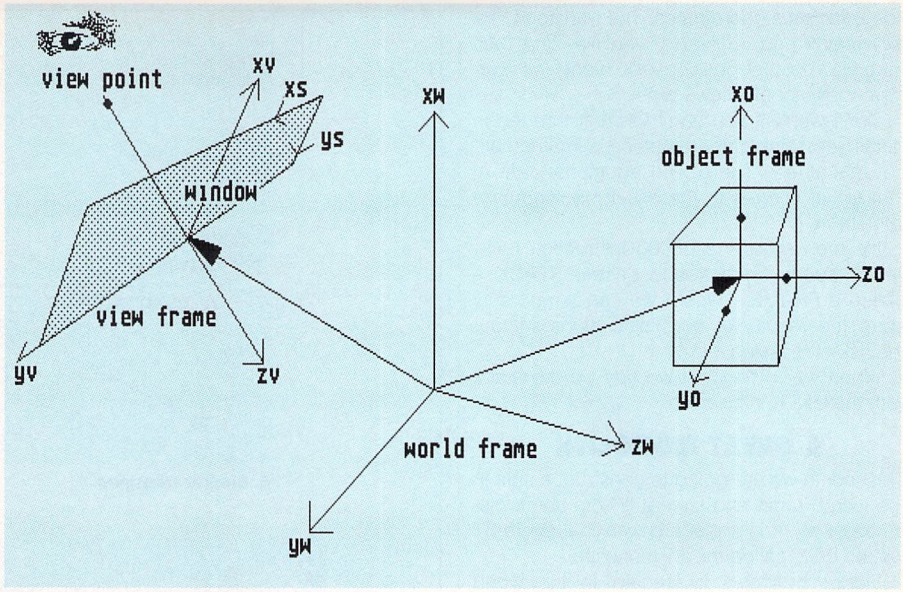
The perspective transform just can't be done using regular 3x3 matrices in x-y-z space, but it can if we move into the fourth dimension and treat it as a 4x4 transform.

Doesn't that sound crazy? But mathematicians do this sort of thing all the time. Inventing an extra dimension provides a way round the problem – it gives more 'space' to move in.

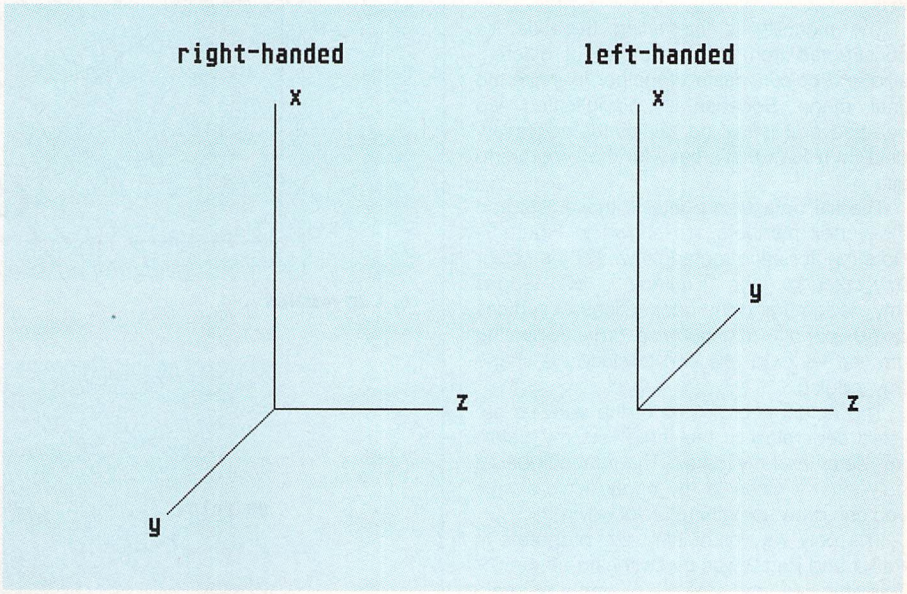
Funnily enough, the value of this dimension is always 1 and so a point in ordinary space with coordinates x,y,z has coordinates x,y,z,1 in this 4D space.

These four dimensions are called homogeneous coordinates. They are very popular with graphics programmers because with them, all manipulations of an object can be done as a matrix product.

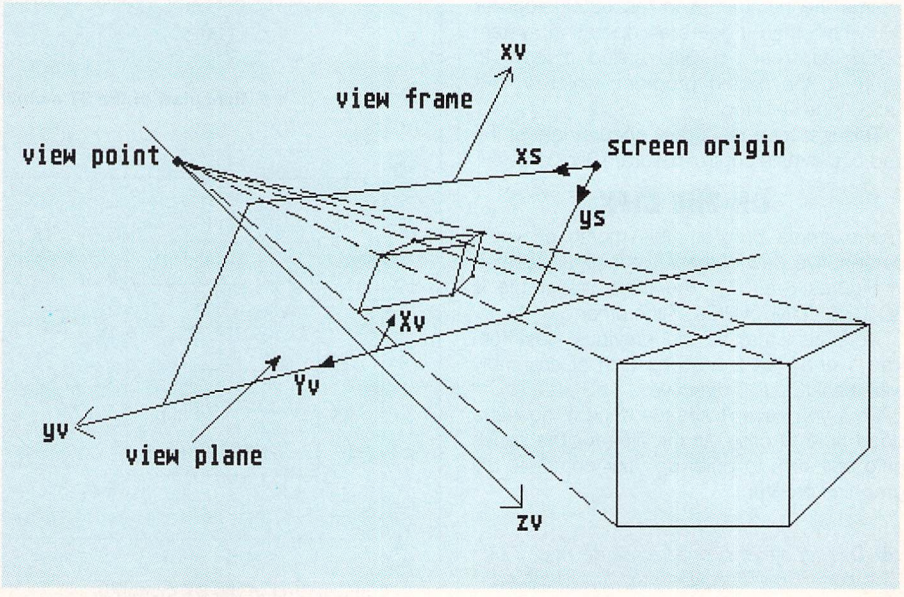
In the program file on the CoverDisk called core_02.s you can see how the perspective transform is done as a matrix product in



1. Frames of Reference



2. Right-handed and left-handed coordinates



3. Perspective projection

homogeneous coordinates. The transform is a 4x4 matrix and is listed in the file data_02.s for a viewpoint at position -100 along the negative z-axis of the view frame.

Don't worry if you can't follow it through in detail, just think of it as a piece of mathematical machinery. There's an additional item in that file of interest to the assembly language 'athlete'.

It's the use of the 68000 instruction LINK which opens up a space on the STACK – called a FRAME – where we can temporarily store the results of our calculations without the risk of messing it up.

When we've finished we tidy up the stack with the UNLK instruction.

A GREAT MONOLITH

This month we are going to construct a sign in the world frame and look at it from some distance away. It is a placard with the letters ST written on it, called the ST monolith.

Figure 6 shows it erected in the world frame and seen from behind. In later instalments we'll rotate it in various ways and show it illuminated by a light source. Right now all we want to do is build it and look at it.

The monolith is interesting because it's constructed from six rectangles of different size and colour, pasted together to make the final image. Because it's complicated, we need several lists to contain all the necessary data, in a form that's easy for the program to use.

The file data_01.s contains these lists and the vertex numbers are shown in Figure 7. Note that for each rectangle we list the colour (my_colour), the number of edges (my_nedges) and the connections of vertices going round in a clockwise order repeating the first vertex at the end to close the shape (my_edglst).

The actual coordinates of the vertices are listed separately in the three lists my_datax, my_datay and my_dataz. The total number of polygons is given in my_npoly. If you want, you can draw something of your own.

The only way of quitting the programs in Part 1 and Part 2 was by switching off the ST. This time, you can stop the example program running from the keyboard.

This is done using first an operating system BIOS call – number $1, called bconstat – to see if a key has been pressed. If one has, this returns the number -1 in the 68000 register D0, which then triggers an operating system BDOS call (number $4C called p_term) to return to the calling program, which in this case is the Desktop.

This test for a key press occurs right at the end of the main control program 3D_03.S

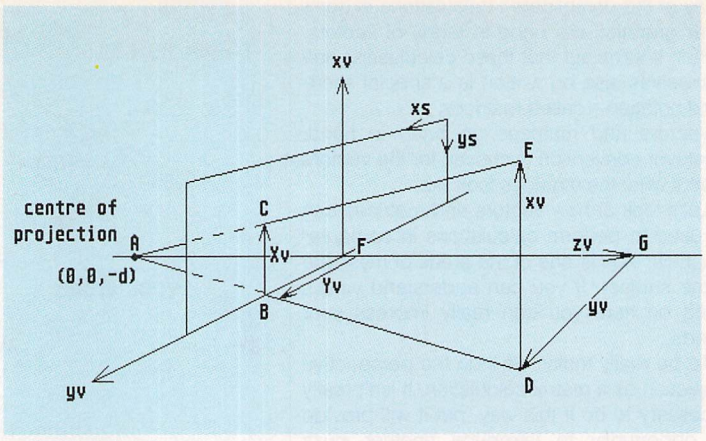
ON THE DISK

The example program this month shows a perspective view of the ST monolith illustrated in Figures 6 and 7. The file to assemble is 3D_03.S. It INCLUDEs all the others.

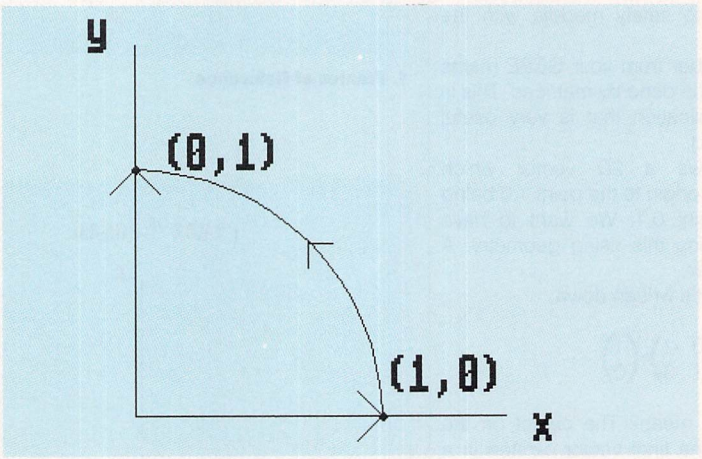
Note also that all the previous files from Part 1 and Part 2 are pulled in at assembly with the INCLUDE directive.

So if you haven't already done it, now is a good time to copy all the files for the series onto one disk to build up your complete 3D graphics program.

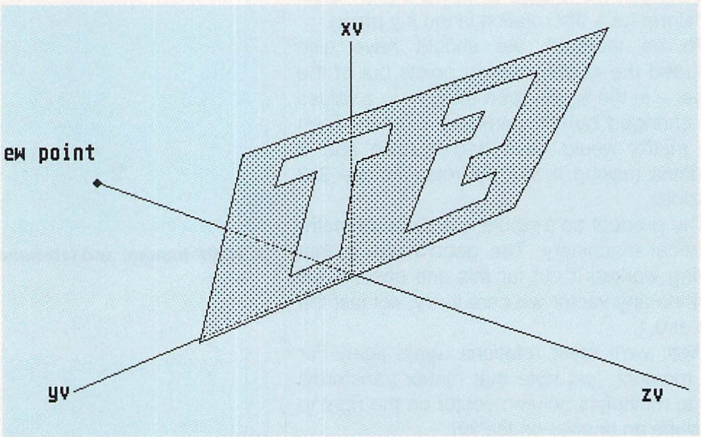
● *This article and programs are based on the book RealTime 3D Graphics which has been published recently.*



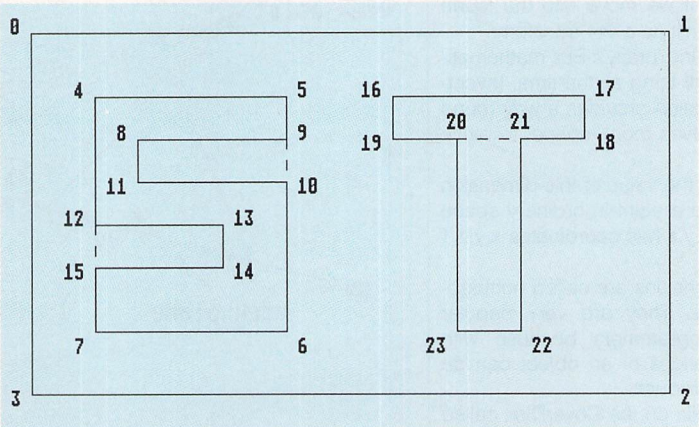
4. Similar triangles



5. A 2D rotation



6. Rear view of the ST monolith



7. Construction of the ST monolith.

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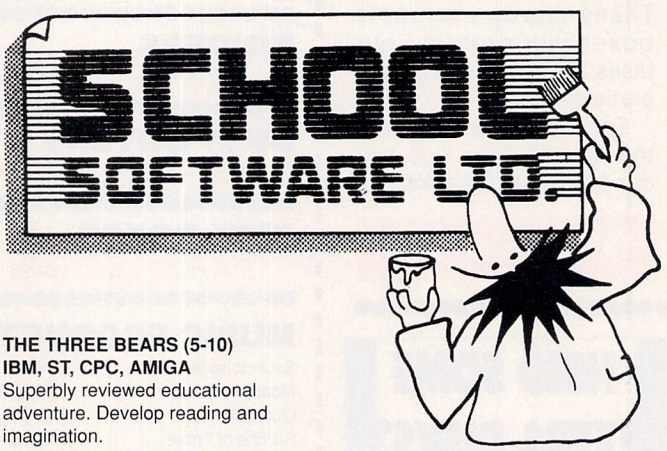

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Ian Waugh presents a proposed new MIDI standard, some help for drummers, the latest on TOS, and a hot news round-up

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Want to lern how to spel? Pat Winstanley has gathered together a selection of spelling programs which can help

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Having problems with line noise? Does your ST keep supplying you with gobbledygook? Fielding explains why...

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Gunter Minnerup applaud the latest upgrade to Spectre GCR and takes a look at Sir Clive's old faithful, the QL

ADVENTURES **PAGE 125**

Cyclops is at it again – he's gone batty, tried to discover Tony Crowther's latest, and has been Enchanted by Virgin

DESKTOP PUBLISHING **PAGE 127**

Multi-scan monitors, expanding and condensing characters and Calligrapher Paks – Charles Michael has it all!

MIDI AND MUSIC • EDUCATION • COMMUNICATIONS • EMULATION • ADVENTURES • DTP •

A new MIDI standard, hints for drummers and what's this? What's MIDI?

Although details are a little sketchy as we go to press, a new MIDI standard has been proposed called General MIDI. It looks as though musical instrument manufacturer Roland will be one of the first companies to implement it.

General MIDI proposes that the same set of sounds be assigned to fixed program numbers in *all* General MIDI instruments. Also, that specific music parts (such as drums and bass) be assigned to specific MIDI channels.

This will allow you to transfer your music from one instrument to another – and still have it play back correctly!

The proposed standard aims to take the mystique out of MIDI and make it accessible to people who would not normally think of buying MIDI equipment. It's basically a plug–in and go system, a sort of DIY music kit.

As all General MIDI instruments will sound more or less the same, they are unlikely to find favour with professional and semi-pro musicians.

In a way, General MIDI defeats the original object of MIDI which was to give musicians a great deal of flexibility and control over sounds and equipment, albeit sometimes at the expense of a degree of complexity.

But if it brings music making to more people, it can only be a good thing, can't it? More details soon – watch this space!

KEEP ON DRUMMIN'

Reader Mike Griffiths from London is a newcomer to MIDI and has recently bought an Akai XE8 sample drum expander. But, he says, he's finding programming a bit of a pain.

He asks about Hybrid Arts' Genpatch and Genedit, and wonders if one of these would save him buying C-Lab's Xalyser and Explorer.

GenPatch (£225) offers generic editing and filing for a range of MIDI devices, GenEdit (£99) is more concerned with system – exclusive data storage.

Neither would be much use in programming the XE8. Apart from that, the company handling Hybrid Arts software, Hybrid Arts UK, has ceased trading and I'm not aware that a successor has been found.

Although you may be able to track down some existing stock – probably quite cheaply – in a shop, there won't be anyone to offer support. This could be important to a MIDI novice.

C-Lab's X-Alyser is a DX7 editor and Explorer is the generic name given to some of C-Lab's synth editors. There is not, at present, one for the XE8.

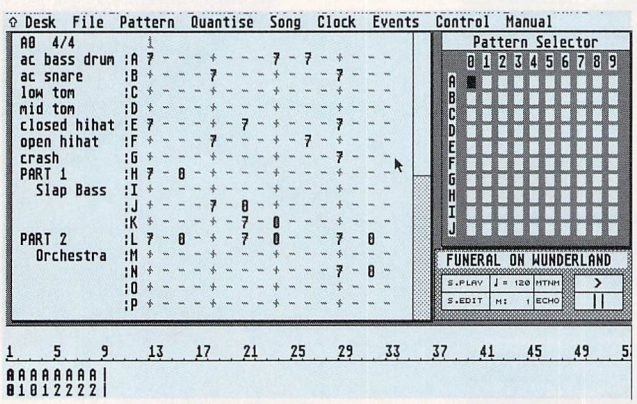
C-Lab is currently developing a new modular system of editing software called Polyframe. I don't know if the XE8 will figure here but given its lack of market share I would think not.

If the main programming problem is the creation of drum patterns then check out MIDI Drummer £85 from Square Dance Audio (0332 385021) which is a sequencer for drum machines.

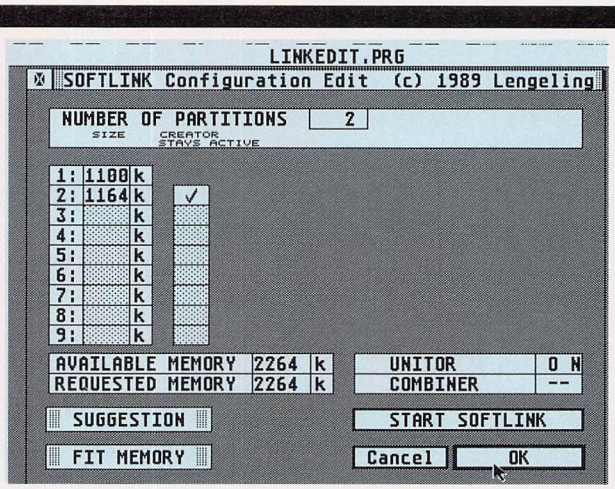
Patterns can be saved in MIDI File Format and loaded into a conventional sequencer. A demo disk is available for a fiver.

Mike also asks about books which take you from the basics of MIDI right up to System Exclusive messages. There are lots of books on MIDI – a trip to your local friendly music store sounds like a good idea – but run your baby blues over the mini review of *What's MIDI?*

And if you have any queries about making music on the ST – this is the place to send them.



Creating drum tracks the easy way with MIDI Drummer



Configuring C-Lab's Softlink

MEMORIES ARE MADE OF THIS

With more and more music programs requiring 1 Meg of memory it makes sense to take advantage of current relatively low RAM prices and upgrade now – RAM is expected to rise at least 10 – 15 per cent over the next few months. It's started already, so delay ye not!

The extra memory will enable you to store more music data and to install more Desk accessories such as Chameleon (see News item). Also, most program sharing/multitasking environments require more than 1 Meg. This includes Steinberg's M.ROS and C-Lab's Softlink.

If you have an early ST, you may also find that your version of TOS needs updating. Softlink, for example, which allows up to nine programs to reside simultaneously in RAM kindly informed me that it didn't recognise the TOS in my machine!

TOS 1.4 was reviewed in December's 'USER, so if you think you need an upgrade dig out your back issues. It's well worth it if you have TOS 1.0 – or earlier – although perhaps less so if you have 1.2.

A major improvement for musicians with a hard disk is the 40 folder limit fix, improved disk access and faster screen updates. And it needn't cost you an arm and a leg.

C & P Rossiter Computer Services are selling TOS 1.4 for £25 and will fit it for another tenner. They also have a good deal in memory upgrades such as the Frontier Xtra Ram 2 Meg board for £150.

Contact C & P on 0602 631631. But please bear in mind the volatile nature of RAM prices – they're rising even as you read this!

BOOK O' THE MONTH

Still baffled by MIDI? Think you could use some light but informative reading on the subject? If so, check out *What's MIDI?*, which is now in its second edition. It offers a concise but comprehensive introduction to the subject. Topics are arranged by chapter and include the history of MIDI – don't worry, not too heavy – expanders, sequencers, master keyboards and computers.

There are chapters on MIDI processing and routing, using MIDI live and an explanation of MIDI messages for those who really want to know about such things.

Add a smattering of hex and sections on System Exclusive messages and the MIDI File Format and you've got an ideal first MIDI book. All written in an easy-to-read manner.

***What's MIDI?* costs £4.95 including P&P and is available from Making Music, 20 Bowling Lane Green, London, EC1R 0BD. Tel: 071 251 2622.**

NEWS ROUND-UP

● Karaoke machines, which someone once described as a cross between entertainment and humiliation, are an established way of life in Japan and are catching on rapidly over here.

Many pubs and clubs already have regular Karaoke nights. If you feel you need a little practice before stunning the world with your talent, check out Casio's PT-480, which is a cross between a keyboard and a karaoke machine.

It comes with a plug-in mini-microphone and includes a Voice Change button which lets you distort your voice, making it up to an octave higher – ideal for the Mickey Mouse Club Song! Additional song libraries are available on plug-in ROM packs.

The PT-480 will cost between £80 – 90. More from your local music shop or from Casio on 081 450 9131.

● Quinsoft's Trax, the recording studio manager (reviewed in December's 'USER), has undergone a major revamp.

It has now made it to version 1.5. The new version includes countless improvements and a new database.

Quinsoft's Trax costs £99.95 plus VAT and is available from Villasoft on 0621 868523.

● After my sequencer, C-Lab's Notator, Chameleon is my next most-essential music program. It's a Universal Patch Librarian which can operate as a Desk accessory.

With it you can load and organise sounds from almost every synthesiser ever made. Recent updates now bring the total of library files for Chameleon to an amazing 354.

They cater for instruments from over a dozen manufacturers. Individual libraries may load voice, bank, multi, set-up data and so on.

The update – along with the latest version of Chameleon (minor enhancements and bug-fixes) is available to existing users for £3 to cover costs and P&P. The full program is still a most nominal £89.95. Highly recommended.

More from Keynote Music Software on 0761 32610.

● Four Minute Warning is not an alarm but the name of a new music software distributor with umpteen new music programs for the ST.

First out of the bag is a range of Desk accessory editors from Mississippi (M-I-S-S-I-S-S-I-P-P-I) Software which see their first release in the UK.

Editors are currently available for Ensoniq's ESQ-1/ESQ-m (£39), Yamaha's DX7 (£39) and for Roland's U-110 (£39), U-20/220 (£99) and D-110 (£39).

The Alpha One (£39) and JX One (£79) simulate the PG-300 and PG-800 hardware programmers for Roland's Alpha Juno and Super JX range of synths.

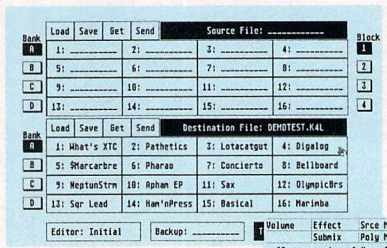
Filemaster offers support for the Akai X-7000 and S-700 samplers and Roland's S-10 and S-220. These are good quality 12-bit machines which have been discontinued (the onward march of technology). They can be picked up quite reasonably second-hand and offer a cheap way into sampling.

Filemaster can transfer samples to the instruments using the ST's standard 3.5" disks instead of the rather expensive 2.8" Quick Disks. FMW are planning a 3.5" disk library of samples which will cost 'about the same as a blank Quick Disk'. Filemaster is an incredibly reasonable £20.

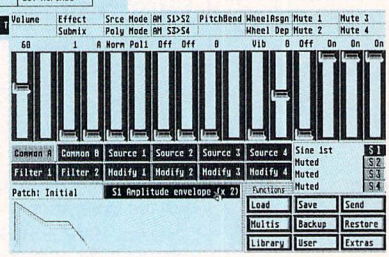
Freebase is a sample database and listing generator. It automatically categorises samples from name fragments using a 250-stage 'expert system' identification algorithm. Impressive, eh?

You should be able to pick a sample from your sample library with the minimum of effort. Freebase is available for the Akai S-900/950 and the 1000 range and Roland's S-330 and S-550 samplers (£49 each).

More information can be had from FMW on 0924 386 527.



Quinsoft's Kawai K4 'Magician' Librarian/Editor



Quinsoft's Kawai K4 'Magician' Librarian/Editor – the Editor Page

● To complement the Kawai K4 and Casio VZ editors, Quinsoft has developed a Proteus editor and one for Yamaha's TG55.

Quin of Quinsoft (well, where did you think the name came from?) asked me to point out that the 'Incredible Dump' generic dump utility referred to in February's 'USER is actually called the Incredible Bulk. But what's in a name, Quin?

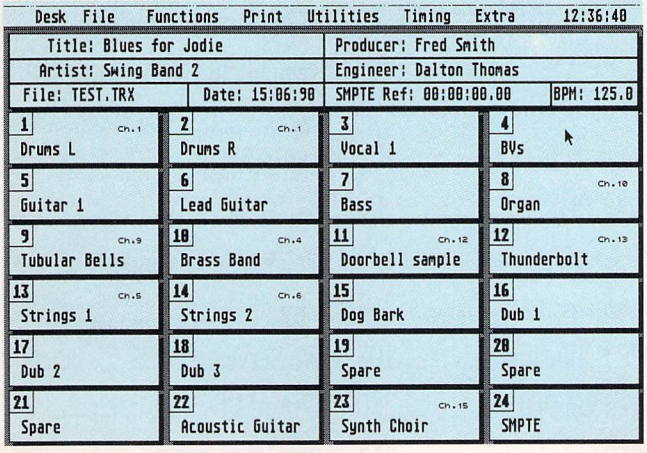
More from Patchworks on 0424 436674.

● If you use Steinberg's Cubase you'll know that the MIDI Manager section offers great potential for real-time control over instrument parameters.

This usually means getting on first name terms with System Exclusive messages. But if you have a Roland MT-32 or a CM module the hard work has been done for you.

Roland has produced a set of parameters which let you alter reverb, filter settings and attack and decay times. All this is yours for £2. Make cheques payable to Roland (UK) and send them to George Thorn, Cubase MIDI Manager, Roland (UK), Rye Close, Ancells Business Park, Fleet, Hampshire, GU13 8UY. Tel: 0252 816181.

● Writing Songs? Got a good band? Looking for promotion? Then check out the Bandit A & R Newsletter. For a FREE trial offer contact: Bandit, 7 College Road, Newport, Gwent, Wales.



Quinsoft's Trax Studio Manager

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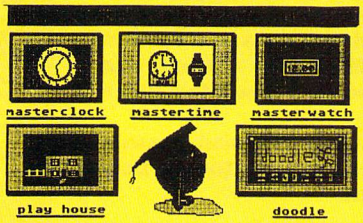

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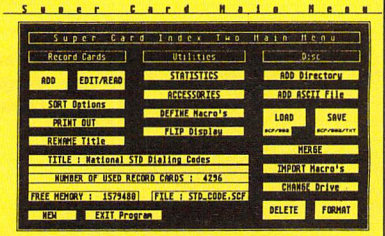

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Now it's testing time for the current crop of spelling aids for children

While the debate rages over whether poor spelling should be penalised in examinations or ignored if the candidate puts the meaning across despite presentation, I've been looking at some of the spelling programs currently around.

Unlike maths programs, which can simply present a formula and wait for the answer, spelling is rather more difficult to handle effectively on the computer since the answer is the same as the question – show one and you show the other.

Several different techniques have been used in the following selection, some or all of which should suit your child.

LET'S SPELL - OUT AND ABOUT

This program, aimed at the younger child, uses pictures to illustrate the words to be spelled. A variety of full-screen pictures are available each of which contains different objects.

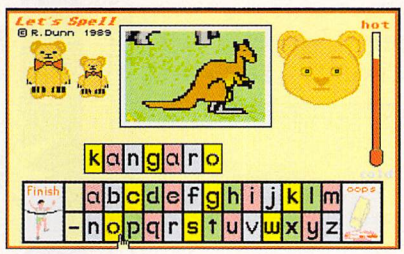
The child clicks on the object to be spelled and is then shown a new screen containing a picture of the individual object and the full alphabet.

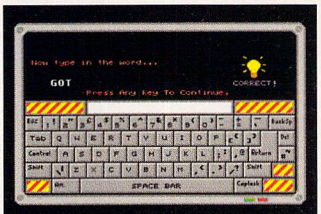
When selecting letters for the word the child is given the sound of that letter phonetically via sampled speech – such as ahh, buh, cuh – which ties in with the usual primary teaching methods and which helps the jigsaw puzzle of stringing sounds together.

My six-year-old thoroughly enjoys this program and handles it easily on his own – which is just as well since after the first few words I have to retire to another room to avoid the speech! I wonder if I could attach some headphones?

Out and About is one of several scenarios, some even have French rather than English vocabulary which is good to see when so many primary schools now give a grounding in this subject.

Supplier: SoftStuff Software, 19 Quarry Hill Road, Tonbridge, Kent TN9 2RN
Telephone: 0732 351234
Price: £15.95
Ages: 4 – 9





JUNIOR TYPIST

Although many educational programs are beginning to use only mouse control, some knowledge of the keyboard is essential for anyone using a computer. This program is one of the most user-friendly I've seen.

Junior Typist consists of several sections, some simply teaching the keyboard layout and the use of 'home' keys, while others concentrate on speed and accuracy.

Thus one game has you watching a word drop from the sky and trying to type it in before it hits the ground, while another sees you typing complete sentences against the clock with your speed and accuracy displayed afterwards.

While not fitting precisely into the spelling games category, this program is an excellent complement. Learn to type and a sometimes frightening barrier is removed, allowing more concentration to be applied to the academic side of things.

Supplier: School Software, The Tait Business Centre, Dominic Street, Limerick, Ireland
Telephone: 010 353 614 5399
Price: £16.95
Ages 4 – 10

BETTER SPELLING

This package uses two approaches to the spelling problem. One section makes use of the technique in which a word is flashed on to the screen for a few seconds. Then it's blanked out and the child is asked to type the word from memory.

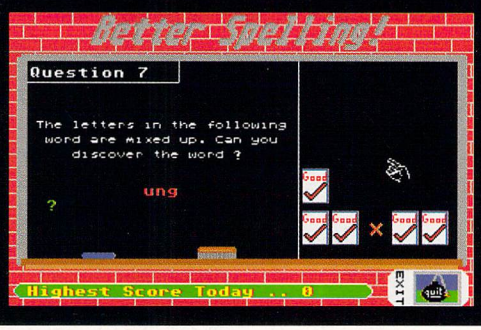
The other section is anagrams where a jumbled word is presented on-screen – and remains there – while its unjumbled form must be typed in.

Of the two techniques the second was preferred by a couple of seven-year-olds, mainly because the letters involved remained in front of them, allowing them time to think.

In addition, the puzzle element gave the task the flavour of a game. Both children disliked the memory technique saying that it was like "boring spelling tests at school". Perhaps having the computer speak the word rather than show it would be a spicier approach.

One problem with the anagrams approach is its inflexibility when it comes to marking answers. For instance, I was presented with the letters EEMPRUS and answered with 'presume'. The program said I was wrong and that the answer was 'supreme'. Quite annoying, as it was the first anagram I'd 'correctly' answered that session!

Supplier: School Software, The Tait Business Centre, Dominic Street, Limerick, Ireland
Telephone: 010 353 6145399
Price: £22.95
Ages: 8 – adult



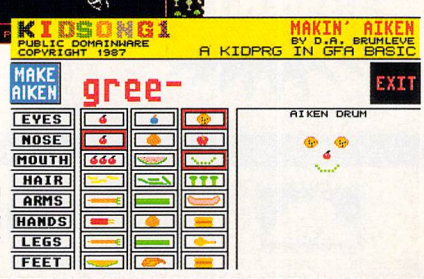
PD & SHAREWARE

Don't fancy shelling out £15 to £20? Why not look at a couple of reading/spelling packages from the public domain. On the theme of spelling and keyboard skills you could do a lot worse than GD804 from this PD library.

Seven different programs are included which cover picture spelling, alphabet ordering, read 'n sing, fast number typing and others. On disk GD803 there is a simple desktop publishing program suitable for the younger child. A complete simple version is backed up by a demo – no save or print – version of a more fully featured offering. There's also a hilarious opportunity to write your own version of Red Riding Hood. Fancy a woodcutter chopping down trees with a rolling pin or an egg whisk?

Supplier: Goodman Enterprises, 16 Conrad Close, Meir Hay Estate, Longton, Stoke-on-Trent, Staffordshire ST3 1SW
Telephone: 0782 335650
Price: around £2.50
Age: various

Write your very own version of Little Red Riding Hood



In Kidsong you choose body parts after hearing the music...

The ST Club

FONTKIT PLUS 3
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UNIVERSAL ITEM SELECTOR III
Powerful replacement for the Atari Item Selector. Universal Item Selector III incorporates a host of utility functions: format disks, copy, move and rename files and folders, create folders, find files, set file paths, etc. "You'll wonder how you ever lived without it," ST Format, December 1990. Price: £19.95.

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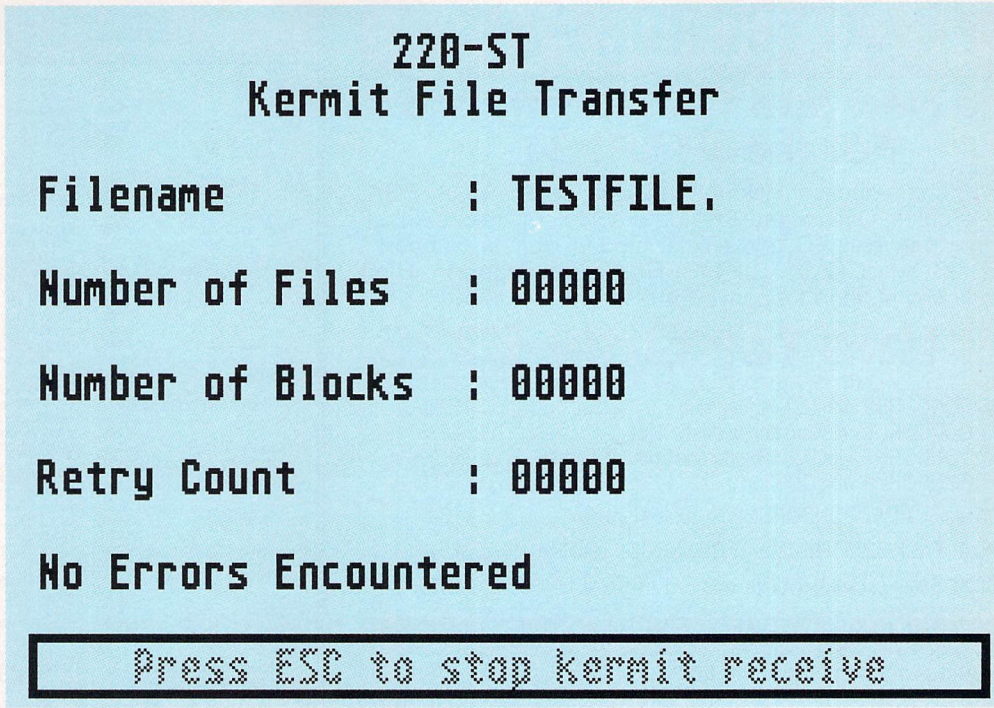
Some much used but often misunderstood techniques explained...



Kermit is not the way to go if you want to transfer files fast

Although for the most part when you make a telephone call the line is moderately clear, you can almost always hear electromechanical clicks and whirrings in the background.

Even if your home town has finally got around to installing a digital exchange, the lines are still plagued by various extraneous noises.

Sometimes you are cut off mid flow, at other times the electronic whistles are just too much to cope with and you have to redial.

Now for the most part, as I said, these noises are little more than an annoyance. It's a drag picking up snippets of other people's conversations, or listening to the exchange cope with someone dialling a 25 figure number to the United States, but you can live with it.

Computers, on the other hand, are completely flummoxed by this noise.

The quality of transmission across the telephone lines is governed by something called bandwidth. The greater the bandwidth, the more you can jam into it, and the better the quality of the results at the other end.

Telephone lines have a comparatively narow bandwidth which, although it's fine for human voices, is awful for computer transmissions.

That's why, although modem technology is cheap now, and in theory computer communications could operate at enormous speeds, in practice they're restricted to minuscule baud rates.

Until quite recently, using a modem at V22bis (2400/2400) was thought to be the miracle of the age and pushing phone technology to its limits.

In fact, although you can use speeds far in excess of V22bis, the higher the baud rate the more errors and therefore retransmissions your data has to go through. Consequently so much time is lost that it often isn't worth persevering with the higher baud rates.

Like all good computer stories, however, there's a more or less happy ending. While no one except the corporate buyer is going to bother to lease breathtakingly expensive dedicated lines for transmissions, the rest of us didn't just sit around twiddling our thumbs while the computer dribbled data down the lines at 300 bits per second.

AND THE SOLUTION

Error correction turned out to be the answer. You are, of course, already familiar with the concept. When was the last time that you downloaded a file from your favourite bulletin board without at least using good ol' XMODEM to ensure that your bits and bytes were in good working order?

It's slow, but it works and that's the main thing. And therein lies its problem, for no self-respecting hobbyist or interested party is gonna sit around while his or her computer is working at a fraction of its capacity. They're going to do something about it, right?

Various extensions of the XMODEM way of doing things were tried. That lead to YMODEM and ZMODEM which are faster and much more efficient than XMODEM or Kermit, another blast from yesteryear.

But just how do computers distinguish between data and plain old line noise? Surely it's all just 1s and 0s to the average ST?

Well, yes, that's quite true. If you're without error detection and correction, then the ST won't be able to distinguish between interference and good data.

You've all seen those strange characters which appear at random in the words scrolling up your screen from the host computer. Those are the bits of line noise which the computer interpreted as letters, numbers and so on and which made it into your machine and on to its screen.

Here's the secret. What constitutes line noise and that making up data isn't determined by the ST – at least, not directly. It's determined by software written by users who know the difference and who have thought of clever algorithms to sort this electronic wheat from the silicon chaff. The data is broken up into little pieces called packets which, in the case of XMODEM packets for example, are 128 bytes long. A packet of data is then summed to determine its value and that figure, the checksum, appended to the packet.

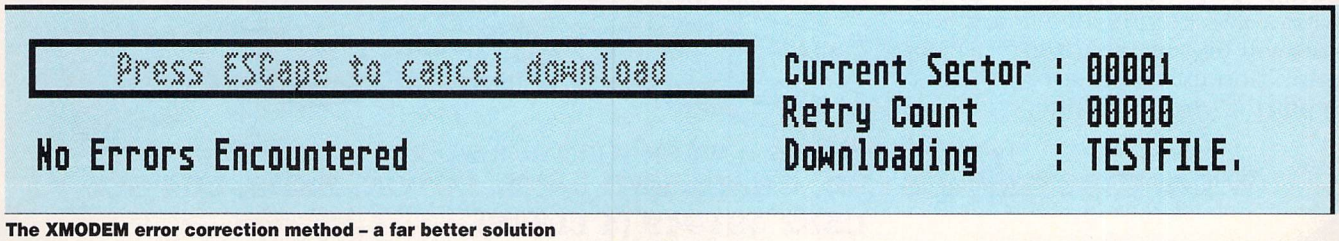
When it's received at the other end, the checksum is tested against the summed data packet and if the two don't match – if data has become corrupted because of line noise – the packet is re-transmitted.

Simple, but very, very effective. Suddenly it's possible to receive programs from bulletin boards and the like and know that they're going to work because all the data has already been checked.

Back to the problem of speed. XMODEM works fine, so does Kermit, but they're very slow, and telephone charges being what they are in this country (and computer users' patience being what it is...), it was soon back to the drawing board.

Faster and more efficient ways of transmitting data without incurring errors or time penalties were needed.

The fruits of those sessions will be discussed in next month's issue. See you then...



The XMODEM error correction method – a far better solution

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The latest upgrade for a favourite toy, and Sir Clive again...

The emulation event of the month is without doubt the arrival of version 3.0 of the Spectre GCR software.

Every time this magnificent Macintosh emulator is upgraded I am left gasping at the ingenuity of it all. That man Dave Small is a genius, and worth every penny he makes on Spectre.

It's no exaggeration to say that the combination of an ST or TT with a Spectre GCR cartridge is now not only equal to the real thing itself, but far superior to a MacPlus – and even the new Mac Classic in terms of price, performance and power.

Did I say TT? Yes, indeed: Spectre 3.0 is now compatible with Atari's new power baby, making full use of its high-resolution modes and pushing the software at a breathtaking pace which, in the words of Dave Small himself, "easily outruns the 25MHz Mac IIci".

But there also are plenty of goodies for the common or garden ST running on a more sedate 8MHz 68000. Hard disk handling has been further improved, giving up to 16 partitions and a new Turbo SCSI option which really makes my Third Coast drive fly.

It's now possible to format disks from within Mac mode without problems, and Macintosh disk utilities such as Norton or SUM II will work fine.

The ST floppy drives are now treated as FDHD drives, enabling you to read and write MSDOS-format disks with the Apple File Exchange program.

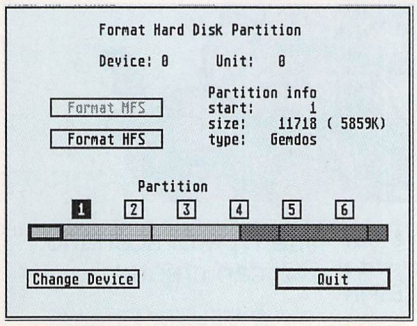
Since the ST will happily use DOS disks there has never been an easier method of exchanging data files between the different operating system environments.

Aladin disks, too, can now be read. The Sound Manager is now fully supported and Hypercard sounds, too. Spectre 3.0 will run correctly on any size monitor and parameter RAM – which holds your Control Panel, Map CDEV and Sound CDEV settings – can now be saved to hard but not floppy disk at last.

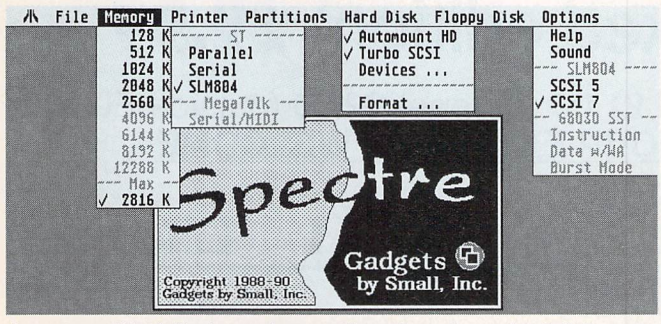
The keyboard is freely reconfigurable to any foreign language or customised layout, and the Shutdown and Restart options behave exactly as they do on a Mac.

There are just too many improvements and bug fixes (fixing Macintosh software bugs, mainly!) to list here. The only real disappointment is that the long-promised support for UltraScript printing from within Spectre has still not been implemented.

However, I suspect that this is more to do with the current uncertainty surrounding the UltraScript PostScript emulator than with any lack of determination on the part of Gadgets by Small to crack this one too.



Some of the new menu items are disabled because they require additional hardware – a TT (for a 12Mb Mac!), the MegaTalk board (for networking and Mac SCSI devices such as scanners or AppleWriters). The 68030 option will also work with most accelerator boards featuring this chip



A neat graphical display makes configuration of your hard disk easy – to select one partition just click on the appropriate section. Up to 16 partitions of any size are now possible, as well as removable media (cartridge) drives

WAIT FOR IT...

As I write, Site, the world's largest computer show, CeBIT is underway in Hanover, West Germany, and I'm told that it will mark a new era in DOS emulation on the ST.

Both AT Speed and ATonce are said to have 16MHz and 386-based models in the pipeline, and Super-Charger apparently promises to fight back with 286 and 386 versions featuring genuine PC expansion slots. A fax card and VGA monitor trailing off the back of my ST?

Sounds exciting. Watch this page, as ever, for all the news that's fit to print.

A QUANTUM LEAP BACKWARDS

Remember the QL? Probably not, unless you were following the microcomputer scene back in 1985 when Clive Sinclair (then still unknighted) of Spectrum fame launched his ill-fated venture into business computing.

As is well known, his plans foundered upon the largest collection of teething troubles ever encountered by a new computer. Eventually nobody dared buy a machine with such an established reputation for flakiness and Sinclair was forced to sell out to Amstrad's Alan Sugar.

Despite these tribulations, many owners of the Sinclair QL remained loyal to the machine, and even a brief glance at its specifications shows that the QL must have had something going for it.

It was the first affordable personal computer based on the 68000 series Motorola chip (albeit, in an Atari-like quest for cost-cutting, the 8-bit 68008), and had built-in networking and multitasking, as well as some rather neat, integrated business software.

I have never used one in anger myself, so I am extremely grateful to Ian Braby, of Guildford, Surrey, for writing in with just about everything I could ever have wanted to know about the elusive ST/QL emulator.

Originating in Norway, the emulator board is now sold by a German firm, Jochen Merz Software, for £163. A PCB no larger than a PC-Speedboard must be installed internally, displacing the shifter chip.

Since there are also six wire connections and a few tracks to be cut, this does not sound a job for the fainthearted or inexperienced.

The emulator works only in what the QL called high resolution mode, giving four colours, and is roughly equivalent to the ST's medium resolution – that's what we call progress! So monochrome monitors are out, unfortunately.

Other hardware restrictions concern the absence of the networking ability and, of course, a lack of support for the original QL's quaint microdrive tapes, so copy-protected software will pose problems.

Presumably for the same reason, software needs to be transferred by a serial hook-up, unless it is also available on 3.5in disks.

Ian's letter does not clarify this, but he reckons that virtually all serious QL software runs fine on the ST, and, because of the true 16 bits of the 68000 chip, at twice the speed of a real QL.

The emulator board autoboots and automatically loads the QDOS operating system and SuperBASIC, but apparently the emulator comes with a disk crammed with utilities written by no less than Tony Tebby, the original author of QDOS.

These include a remapped ST keyboard driver, hard disk driver, addressable serial and parallel port drivers, a dynamic RAM disk and printer spooler, and various toolkit extensions to SuperBASIC.

I suspect that the microdrive problem and the necessity for delicate surgery on your ST mean that this emulator is primarily of interest to existing owners of a QL.

If you belong to this dwindling band and would like to acquire one of these gadgets, Jochen Merz Software can be contacted at: Im Stillen Winkel 12, D-4100 Duisburg 11, Germany, Tel. 01049203501274.

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Atari ST/STE

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The Fantasy Graphics Disk can also be used with other systems such as STOS & STAC with the aid of screen-capturing devices (requires main Talespin program to run first).

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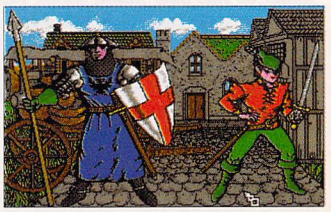
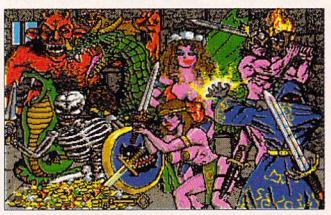
A Village Scene



Or Mayhem!



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Yea! Though I walk through the Valley of Darkness, I fear no evil – Cyclops is with me

"Make really big zorkmids! Learn magic in just 12 weeks! Write for a full catalogue today to: Guild of Enchanters, Land of Frozboz."

Sounds intriguing doesn't it? Little did I know what I was getting into when I applied to the Guild of Enchanters in beautiful Arcadia-by-the-Sea. Having handed over my last few zorkmids, I was given a book of spells and dumped on a country path on the outskirts of Nowhere-Blooming-Special!

To the west was an impassable mountain range and to the east was the entrance to a large black tower. Past experience should have warned me that impassable mountain ranges are easier bets, but large black towers have always had an irresistible fascination for me – especially ones with well-fed vultures sitting on the gates!

Behind the gates is the world of Enchanter where you can fly, cast spells which summon demons, and blast open the gates which bar the deepest dungeons. Anyone with even half a brain likes a good story. A tale told by a master, full of wit and mystery, can take you to the lands beyond the rainbow.

So it is with Enchanter from Infocom. This re-issue on a budget label from Virgin is the first in a great trilogy of magic tales set in the lands of Frozboz.

No doubt you have heard countless times of the all-text adventures which the mighty Infocom company loosed upon the adventure scene in the early Eighties, but in those days large sums of gold were needed to buy one.

Now Virgin has bought the rights to 10 of the best titles and repackaged them at the more realistic price of £9.99. The latest five titles being released in April are: Enchanter, Sorcerer, Deadline, Zork 2 and Zork 3.

Out of this latest batch I recommend Enchanter and Sorcerer. These are the first two games of the Spellbreaker trilogy which will capture your mind for months. The first is ideal for newcomers and I promise that it will break your soul gently.

But dare you buy such a game and risk spending forever trapped in the dark dungeons? Trust me, if the worst comes to the worst, a blank disk with an SAE sent to Cyclops will ensure that you'll always come up smelling sweetly of roses.

PREPARE TO BOGGLE!

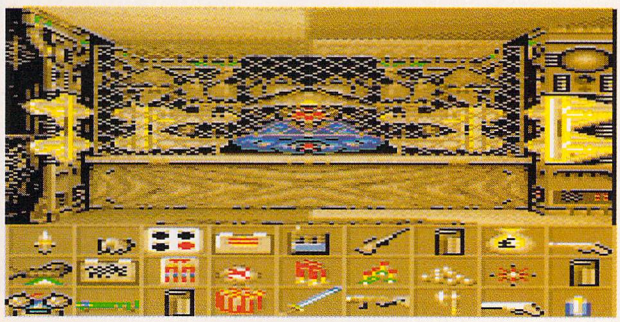
Not content with writing Captive, the hottest RPG of 1990, Tony Crowther is currently putting the finishing touches to his latest masterpiece which he promises me will be an even greater success for him this year.

The art work for the game, which has a licence tie-in, will be drawn by a different artist, but it uses similar features. Once again you will have a number of characters to control, and there are masses of weapons, monsters and protective clothing to cope with.

The game is no longer set within space stations and corridors – underwater areas and forests are your new stamping grounds.

When I tried to persuade our boy to describe the overall theme he only agreed to reveal that you will be able to travel underwater, use boats, thwart goblins and wear a Bart T shirt!

The mind boggles!



Captive was Tony Crowther's last masterpiece. What Next?

COMPLETELY BATTY

Surely there is something lurking in the shadows which needs dragging out and giving a good shaking...

Aha! What have we here? The structure of BAT is based on what's known as a 'distributed adventure'. The player can reach a solution in various ways, enabling him to be blocked only rarely.

"The adventure is therefore resumed by a 'main backbone' composed of branches and knots (eh?) The

There's more than one way to solve a BAT!

branches can be parallel or concurrent (uh!). They converge towards the knots which lead to the next step in the adventure by logical relations".

Well I'm glad we cleared that up! The above is the explanation given for BAT – the latest offering from the French software company UBI Soft.

Billed as the ultimate RPG-cum-adventure, you are free to wander distant star clusters, meet strange,

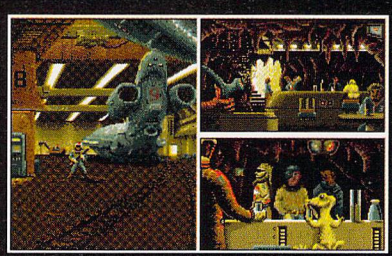
The 'ultimate RPG-cum-adventure' has restrooms?

exciting aliens – and zap them! Being a super-spy, your arm has its own built-in computer on which you can write and run simple programs.

I recall that the ill-fated Federation of Free Traders (FOFT) game had a similar option which was equally odd. My love affair with this computer began on an inauspicious note caused by incorrect instructions in the manual.

Much of the gameplay consists of asking the same three inane questions of an endless troop of passing aliens, and getting the same unfunny replies.

As the same graphic is used to represent every



BAT is stylish and weird. You're on your own with this one...

member of the same group, you have no idea if you are asking the same question of the character you have already spent the last fortnight speaking to, or whether this is his identical mother.

The graphic screens are of the French comic book school – stylish and weird. Lots of alien sprites wobble in and out, but they are strictly for decoration.

The manual urges you to enjoy yourself, forget about solving the game and spend time visiting the bars to eat and drink. This is sound advice.

I have waited two years to get my hands on this game, but 'Tis a tale told by an idiot, full of sound and fury, signifying nothing'. Eat my shorts!

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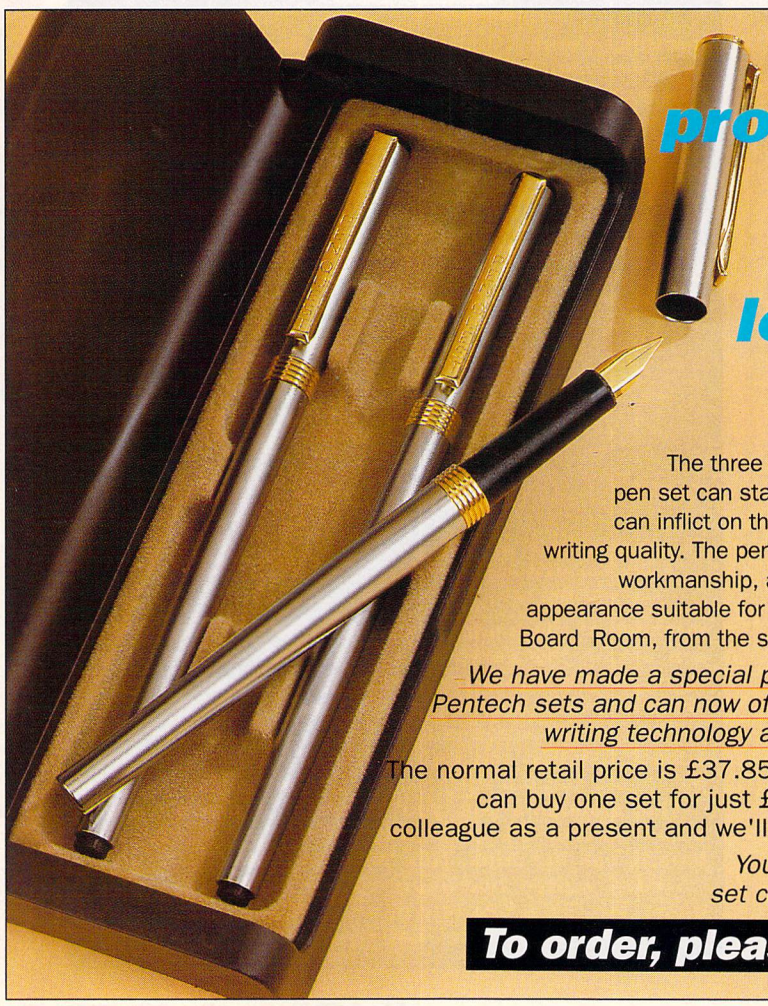

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Multi-scan monsters, expanding and condensing type, what next?

Atari's original decision to supply the ST with two monitors for mutually exclusive purposes has caused endless problems. The user who wants to get the most out of an ST needs to buy both colour and mono units.

For many, this isn't on, but there is another solution; it still costs, but not as much.

The multi-scan monitor offers a single advantage over a regular display – it can latch on to a range of scan rates put out by micros. In this case it's the difference in the ST's two scan rates which makes it impossible for low, medium and high resolution screens to be displayed on the same 'ordinary monitor'.

Connect a colour multi-scan, such as the NEC Multi-Sync IIA, to your ST though, and you can display games in low-res and DTP screens in mono, high-res.

Well, nearly – you actually need a special cable to fool the ST into your desired mode. As you know, you can't normally select an unavailable screen mode, as the machine checks which type of monitor it's connected to.

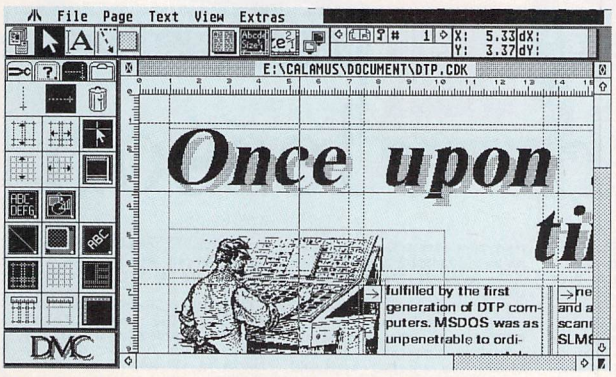
An NEC Multi-Sync IIA, probably the cheapest multi-scan on the market, can be had for £332.35 from Watford Electronics (0923 37774), considerably less than the cost of both colour and mono Atari units, and taking up half the space. The special lead can be had from any dealer stocking Lindy accessories.

Ask for part number 31211. It costs around £20.

WHAT PRICE ISBN?

Paul Whiteside writes with a sad tale of a wasted trip around the bookshops of East Anglia looking for a copy of *The Guide to Calamus Desktop Publishing*, mentioned in this column a few months back.

If anyone else is trying to find a copy and can't get any sense out of a local book shop, I can only recommend the original publisher; Ditek International, 2651 John Street, Unit #3, Markham, Ontario, Canada L3R 2W5. The ISBN number is 1-550-84-000-2 and if the original source of the review copy would like to contact me, I'll pass any information on.



Keep looking for *The Guide to Calamus Desktop Publishing*

A WORD BY ANY OTHER NAME

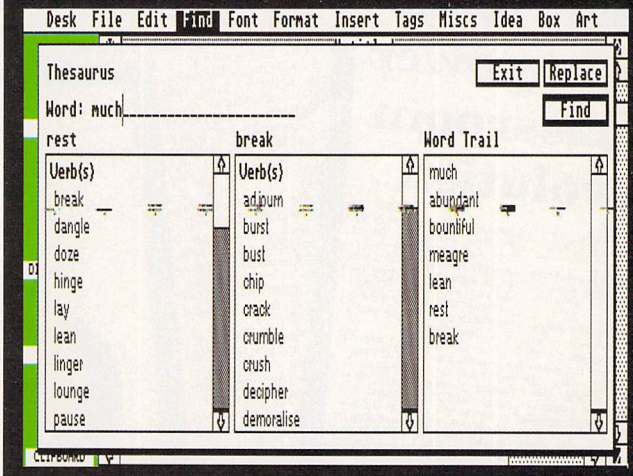
Calligrapher, the document processor from Eclectron which has nothing to do with handwriting, is a powerful program with more than its share of DTP features. It also has the facility for expansion using various overlays, which Eclectron calls Paks.

Recently released Paks include foreign language word lists for the spell checker and a thesaurus.

Installation can only be made to the unprotected, registered version of the program and involves a lot of disk swapping on a floppy-based system.

This is only a one-off task though, and once your thesaurus disk has been prepared and Calligrapher has been told of the addition, it pops up under the Open Pak option from the Find menu.

A thesaurus is a good application for overlaying. If you think of the way you use a paper thesaurus, you would normally refer to it with a particular word in mind, find a suitable synonym and return to your work with the replacement word.



You can pick any word from the first list to start a second. The third list is a word trail

This is how the Calligrapher thesaurus works, though it takes longer to load the thesaurus data file from floppy than to grab a book from your desk. If you have highlighted a word in your Calligrapher document, the thesaurus automatically uses this as the subject of its search.

Synonyms are listed separately for each part of speech and you can take synonyms of synonyms to your heart's content – the program thoughtfully maintains a word trail, so you can see how you arrived at any word. The final synonym is automatically pasted back into your document when you quit the thesaurus.

The Calligrapher thesaurus and the French, German and Spanish word lists from Eclectron cost £25 each, all inclusive.

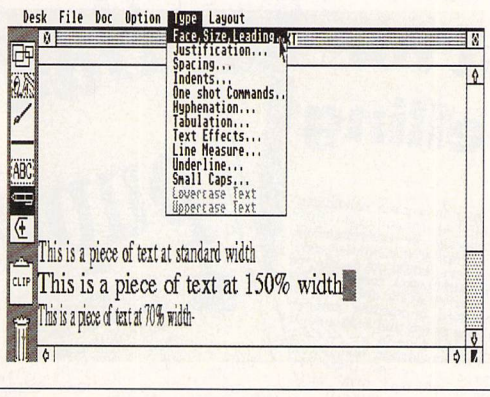
EXPAND AND CONDENSE

Among the many text styles you can apply to your words there are two which should be widely available, but aren't. The ability to expand and condense characters is pretty rare on the ST.

Timeworks Publisher ST can't do it and neither, at present, can PageStream, though this may change with the introduction of scaleable fonts in version 2. Even the vector font-based Calamus can't do it, unless you take the piece of text into Outline Art and manipulate it from there.

Of the four main DTPs, only Fleet Street Publisher has simple control over expansion and compression. It achieves this with the Set Width command from the Face, Size, Leading option of the Typography menu.

It's fun but not vital.



Only Fleet Street Publisher can do this, though it's not particularly refreshing

Clarke spells it out

PUPILS will lose marks for spelling in all GCSE exams from summer, Education Secretary Ken Clarke ruled yesterday.

Sixteen-year-olds who make spelling mist... subjects such as history, biology, phys... geography, as well as English, could have ... per cent of their marks deducted.

The move was prompted by criticism from emplo... parents that many pupils left school unable to spell simple words.

But it has angered examination boards and teachers, who say it is unfair to penalise children for poor spelling in tests designed to examine other skills such as knowing about the Battle of Hastings.

By Educatio...

Guildford, ... to ...

Pupils will lose marks for bad exam spelling

Alison Brace, Education Correspondent

PUPILS will lose marks in all exams for spelling errors in a new crackdown on slipshod standards in schools.

And teachers have been told to go back to school themselves if they cannot spell.

Education Secretary Kenneth Clarke has ordered examiners to mark down papers by up to five per cent for bad spelling.

It could mean the difference between pass and fail for youngsters.

Ministers were shocked last year when GCSE examiners said bad spelling was ignored in all but English papers. A host of ... have since revealed a dramatic slump in pupils' ability to spell.

... words most misspelt are: missal- (miscellaneous); ma- (materially); ensiatic (asiastic); amitter (ur) and imideate (iate).

... Mr Clarke ... immediate action, ... examiners' ... nothing could ... until next year.

... "Everyone in ... of education ... serious steps ... standards.

... spelling is essen- ... communic- ... must make ... it is properly ... subjects."

... pils will not ... the action.

... on, head of ... sional Assoc- ... ation of Teachers, said ... staff who could not spell ...

Daily Exp...

Opin...

Spelling it...

"IT is amazing that ar... oppose the idea o... docked for bad spe... exams. Almost as ... fact that examiners have a... ing them already. But ... which is why Education ...

Clarke to use parent power in classroom revolution

Barry Hugill
Education Correspondent

THE Government is preparing to launch a massive drive to involve parents in the classroom.

Kenneth Clarke, the Education Secretary, believes he has won the battle with his professional advisers and the examination boards over the importance of spelling. He is convinced that his announcement on Friday that spelling should be taken into account in the marking of GCSE papers will meet with widespread approval. Now he hopes to capitalise on this with a new 'parent power' campaign.

Millions of leaflets will next month be distributed to primary schools for pupils to take home. They will explain the national curriculum and tell ... have a crucial ...

Clarke has no power to force the examining boards to deduct marks for poor spelling, but is confident they will not defy him on this issue. For 30 years, the GCE — and now the GCSE — examining boards have refused to penalise poor spelling except in English exams.

But Ministers are worried that parents do not fully understand the extent of the shake-up taking place in schools. They admit that the technical language of the national curriculum and the regular tests soon to be introduced in schools is jargon-ridden and baffling to many parents and teachers.

Next month's leaflet to all primary school parents will be followed up in the summer with an explanatory pamphlet for the parents of seven year olds. Despite their belief in 'the basics', Ministers have ruled ... legislation to bring teachers ...

HELP CHILDREN READ AT HOME, SAY MINISTERS ... DS BATTLE GOES ON

Parents taught a lesson

PARENTS must help reverse the decline in children's reading standards, education Ministers warned last night.

The lesson was spelled out as teachers prepared this year to carry out the first round of new reading tests for seven-year-olds.

By LIZ LIGHTFOOT
Education Correspondent

... schools which ask parents to go through books with their children in the classroom.

"Teachers have found pupils improve when they read wi... their parents at home or ...

... many sch... parents at... is chan... realise pa... nt part to... also cond... ks' or 'er...

... reading' systems — where children are taught not to sound out words but are expected to pick up reading by looking at story books. No school should use this 'odd' method alone, he said.

This newspaper investigated the method and found that in Croydon, South London, schools ... had thrown out their ... homes and refused to ... sound out ... and ...

... read. Now expert Dr Joyce Morris has compiled a checklist.

She suggests they ask questions like:

- How do you ensure children make a successful start?
- What is your main approach?
- What importance do you attach to phonic methods (emphasis on sounds)?
- Are children taught how the 26 alphabet letters represent the 44 speech sounds?

Meanwhile, The Mail on Sun... ... praised yesterday for ... tion to the slump ... dards. ...

... sloppy spelling tolerated by exam boards in an article based on research by teacher Mrs Jenny Chew.

On Friday Kenneth Clarke announced the results of an inquiry and ordered examiners to deduct up to five per cent of marks in all subjects for poor spelling.

Last night Mrs Chew called the decision 'wonderful news and common sense'.

Following our article the then Education Secretary John MacGregor ordered exam boards to take more note of spelling when ... awarding marks ...

5pc of marks to be cut for poor spelling

Stephen Bates
Education Editor

PUPILS will lose up to 5 per cent of their marks in GCSE examinations next summer if they spell incorrectly, according to guidelines put forward yesterday by Kenneth Clarke, the Education Secretary.

The minister rejected as inadequate proposals by the School Examinations and Assessment Council, the regulatory body, to tighten spelling standards. He said more must be done to ensure that spelling is taken into ... quently to weaken candidates' ability to communicate their knowledge or understanding. He added that computer spell-checkers should not be allowed in examination rooms. "I am concerned at the decline in the standard of spelling amongst young people and I am anxious that everyone in the world of education should take serious steps to improve those standards. We must make certain that spelling is properly tested at all levels and in all subjects."

Jack Straw, Labour's education spokesman, said the announcement was "a further admission of years of government ...

EDUCATION SECRETARY GETS TOUGH OVER FALLING SCHOOL STANDARDS—

Bad spelling to cost pupils exam marks

By IAN MACGREGOR Education Correspondent

CHILDREN must lose marks for bad spelling in all their GCSE exam subjects, the Government ruled yesterday.

Until now pupils have not ... Even in English, some boards have not tested candidates specifically on spelling in GCSEs or the old O-levels.

Mr Clarke criticised Government advisers who said it would ... There is likely to be hostility to Mr Clarke's plan from the boards when they meet later this month.

John Edmundson, secretary to the Joint Council for the ... such as history, science or economics."

"Communication is achieved by more than the written word nowadays, diminishing the importance of spelling. ...

Mounting alarm among parents about the appalling standards of spelling among Britain's schoolchildren has finally erupted. Now Government ministers and teachers have joined parents and employers in stressing the vital importance of spelling throughout the National Curriculum.

Parents themselves are being told THEY have a crucial role to play. Education experts want to mobilise 'parent power' – to put mums and dads in the front line of the attack on poor spelling.

Many of them will find they have a powerful ally. For today, most homes have what could be the ideal means of teaching spelling – the computer.

Instead of zapping aliens it could be turned into the best weapon of all to deal a body blow to bad spelling.

- **5 DIFFERENT TESTS**
- **OVER 5,000 WORDS**
- **FOR AGES 5 TO 15**

How SPELL! meets teachers' requirements

The programs will test over 5,000 words, split into the categories which cause the most problems when learning to spell. These are:

- ***Vowel sounds.*** *Stressing the differences between* a, i, o *and* u *and how the combinations of* oo *and* ai *change the sound of words.*
- ***Consonant Blending.*** *Covering the changes caused when two or more consonants are put together in a word*
- ***Prefixes and Suffixes.*** *Showing how changes at the beginning and end of words can alter the meaning as well as the spelling.*
- ***Word Families.*** *Assessing how different words come from the same base word but then change in spelling and pronunciation.*
- ***Irregular spelling.*** *Covering the many peculiarities of the English language, such as* receipt, thorough, bough *and* thieves.

The words are graded for children between the ages of 5 and 15 and are based on National Curriculum required reading books as well as Ginn Reading 360 – the most commonly used reading scheme in the UK – and the 123 and Away reading scheme.

SPELL! is unique. It harnesses the power of the home computer and uses it in novel ways, showing that spelling can gain a child top marks at school . . . and that practising it can be lots of fun as well.

SPELL! lets children learn at their own pace. They can take as long as they like – or take on the computer in a high-speed challenge!

And this one package covers the whole of their time at school – with the lowest age group suitable for under-5s, while the more advanced words will stretch even the most able students.

It includes five different tests, each making use of more than 5,000 words – so much variety that they'll never get bored.

The programs are:

In a Flash: *Read the word as it flashes on the screen, then type it in. For practice runs, the word is left on the screen as it is typed.*

Rocket: *Hidden words have to be discovered in this hi-tech version of the old favourite Hangman. If they are guessed correctly the rocket will blast-off. Fail and all that's left is a load of scrap.*

Lunar Buggy: *Type fast for fun. The aim is to key in the word as it's pulled across the screen by the buggy. It has to be completed before the letters drop down a crater.*

All Mixed Up: *Jumbled letters have to be sorted out to find the scrambled word. To help beginners – and anyone else who is stuck – clues can be obtained at the press of a key.*

Conveyor Belt: *Words pass by on the screen and have to be remembered. Then they must be typed in – spelt correctly. This is a challenging test of both spelling and memory.*

In addition to using the 5,000 words provided, parents – or children – can create their own word lists for using with SPELL! This makes the package ideal for practising those hard-to-learn words, or for "Learn these spellings" homework.

All the programs have several options for extra flexibility – like a timer with on/off option to add that extra challenge.

SPELL! only costs £8.95. It is now available on disc and tape for six of the most popular home computers and can be ordered on the form below.

SPELL!

Please send me a *SPELL!* package for my computer
(Tick as appropriate)

Name .....

Signed .....

Address .....

..... Post code .....

Daytime phone number in case of queries .....

STU5

I wish to pay by:
☐ Cheque payable to Database Publications
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CLOSE BOX

UP, UP AND AWAY...

You would not be entirely wrong if you thought that this entry in our Where in the World Competition looks like a ring-in. Your suspicions would be correct. But the problem is that we just couldn't resist it.

We had that brilliant Enstrom – turbo, no less – helicopter and that awe-inspiring Vauxhall Carlton to play with one day this month. So we thought, well, why not take up an ST while we're here?

It was the best fun ever. Absolutely unforgettable. Now, what can we do next? Certain daredevil members of the team have suggested cover shots of mountain climbing, speedboat racing, grand prix and yacht racing – all in the interests of the magazine, of course.

That's all very well, but there's just this tiny problem of relating them to the ST! Bad luck guys!

Anyway, if you have a pic of your ST in a weird and wonderful location, or are engaging in a sport of sorts, send it in. If it makes the grade, you'll score a prize – at the editor's discretion. We'll be waiting...

AND THE WINNERS ARE:

In our February issue we ran a competition featuring the word processing package Write ON. Now, as ever, true to our word here are the 10 entries chosen:

Steve Foster, Coalville, Leics
P Herrington, Wootton, Abingdon
Gavin Cape, West Bridgford, Nottingham
T C Morris, Hedge Hill, Birmingham
D Bedford, Lightwater, Surrey
Chris A Braley, Burrough Green, Newmarket
J G Arnold, Stoke Row, Henley-on-Thames
Dave Ballard, Harpole, Northants
David Neil, Lathom, Lancs
David Ainslie, Sheffield, S Yorks

Is your name here? If it is, you can expect your prize to appear soon.

EEEEK!

It wasn't hard was it? Some of you struggled, but most managed to guess what was in that photograph in last month's CloseBox. OK, so it was a mouse, all right? But there was more to it than that.

The winner is *Mr A C Kent, from New Cross, London.*
He answered:

1. Pilot Mouse
2. Born about Sept 1990
3. Favourite food is dust and fluff

And as a just reward for your incredible efforts, you can expect a game in the post soon. Yep, that's right, a real, commercial ST game. Easy, innit?

NEXT MONTH IN YOUR SUPER ATARI ST USER

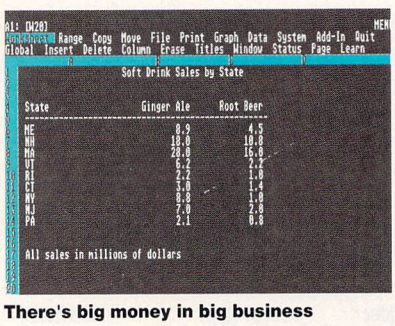
Have we got a brilliant issue for you! Every month we aim to provide you with a mag that covers all aspects of the Atari scene, and the June one is no exception.

We give a better, more balanced coverage than any other ST magazine on the market. See for yourself!

First off the press is our feature on marketing games. We give you the ins and outs of the marketing machine; how it begins, how it happens, and what's in it for you. Do the games houses spend more money on hype than on developing their games?

Does it matter? Does it work? Find out in 'USER.

Then, if you're more interested in business than in the business of games, we take a look at how the ST is infiltrating the business market. It is making great inroads into the PC and Mac strongholds, but it could do better still. See how it compares and what the future holds. Look out Big Blue!



There's big money in big business

And, as always, we have the latest products for re-view; Retouche, MIDI File Formats, three programming books, Art Tutor and more. If that's not enough, we also have the latest games, played to destruction and intelligently assessed.

Do games live up to their hype

Then there's the fourth part of our 3D graphics series, the Beginners series, six pages of hot news, the Aspects pages, Mail, competitions, the CoverDisk... what more could you possibly want?

See you next month!

ProFlight from HiSoft

Fuel up, weapons loaded...let's fly...

The Tornado Flight Simulator for your Amiga and Atari ST

...target spotted...try your cannon...

Some comments from ProFlight Customers

"The best simulator on the ST by far."

"Very well done, the only flight simulator that gets it right! Thanks."

"Well done!!! It is real!"

"Superb - without exception the best on the market."

"Very impressive - brilliant manual."

"At last - a real flight sim for the purist."

"Your usual high standard of software. Excellent."

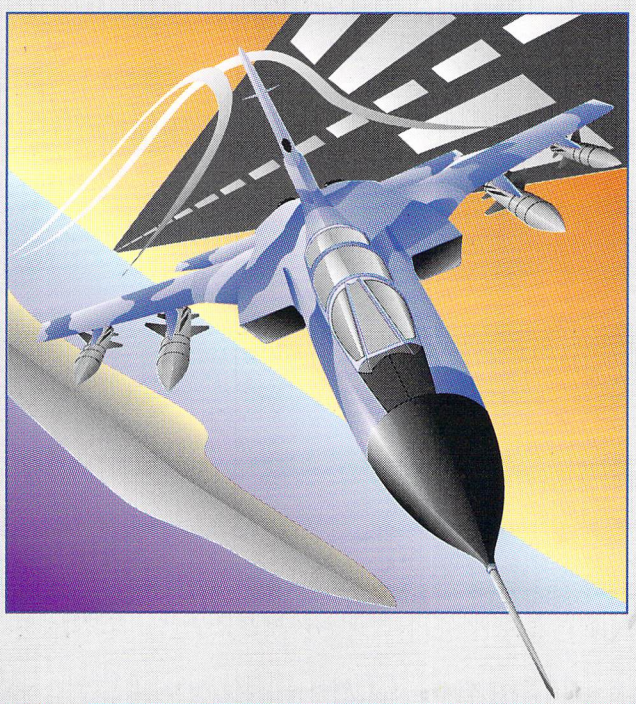
"For realism, beats anything I have ever seen on a home computer."

"Good fun & makes me nervous when flying dangerously - 10 out of 10."

"Brilliant manual, brilliant simulator."

"Another HiSoft winner!"

These are all unsolicited comments from users of the Atari ST version of ProFlight.



and the Reviews ...

"The sheer range of things to do makes this a winner and with future expansions planned this one could become as popular as the now classic Flight Simulator II."

"A great deal of thought has gone into how the plane handles and the controls are very responsive."

ST Action, March 1991.

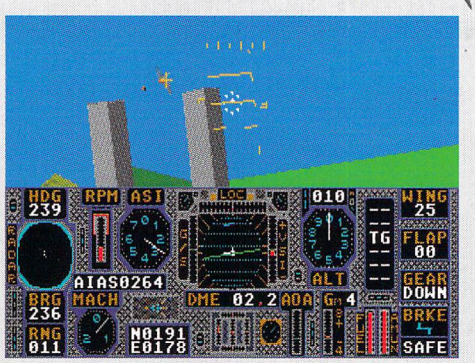
1 ST ACTION A1 RATED

"ProFlight isn't the same as other fighter sims - it really does feel real."

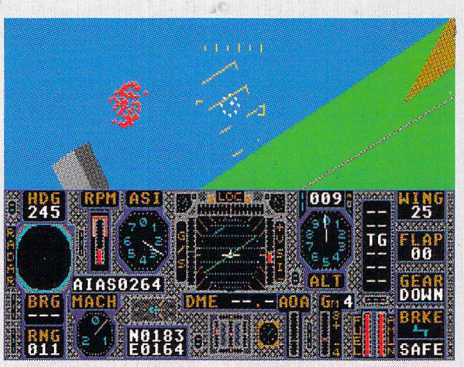
"ProFlight is addictive ... if you've got the hang of less realistic simulators, moving on to ProFlight will give many more months of exciting flying. Very complex but enjoyable and well worth the clams!"

Atari ST User February 1991.

...change to missiles...locked on...



...heat-seeking missile launched...



...target destroyed...back to base...

HiSoft is delighted to announce the immediate availability of ProFlight for the Atari ST and Amiga.

ProFlight; a supremely accurate simulation of the Panavia Tornado military aircraft, a plane that is the fastest aircraft in the world at ground level (Mach 1.2) and one of the fastest at any level (Mach 2.2) with advanced swing-wing technology that gives it a truly multi-role capability. ProFlight uses complex and exact flight equations that allow you to fly this powerful fighter just like its pilots.

Everything is there ... you can fly peaceful reconaissance missions or roar into full attack with cannons, bombs, heat-seeking Sidewinder and radar-guided Sky Flash missiles.

ProFlight comes complete with a professional 170-page, ring-bound flight manual which details every aspect of flying this exciting aircraft together with a pull-out specification sheet of the Tornado.

ProFlight is available from all good computer stores and costs only £39.95 inclusive (UK only); if you have difficulty locating your copy, please call HiSoft on 0525 718181 and ask to speak to Julie.

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High Quality Software

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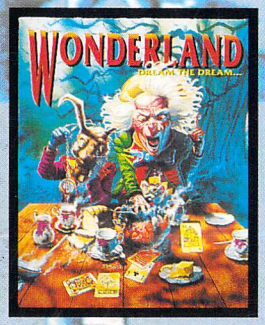
REASONS TO BE CHEERFUL (1-11)

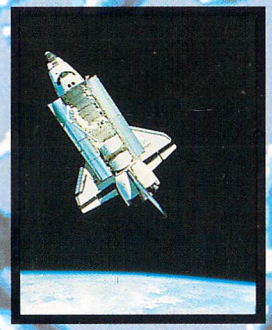


WONDERLAND

Puzzles, conundrums, potions, a caterpillar, mushrooms and a very Mad Hatter for your **IBM PC, Amiga, Atari ST and Archimedes**

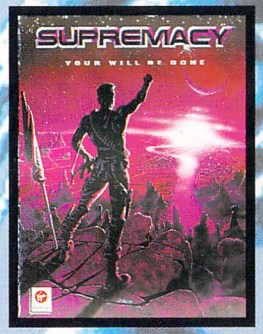
FISTS OF FURY

Battle your way through four of the biggest selling games of all time – Double Dragon II, Shinobi, Ninja Warriors and Dynamite Dux. **Amiga, Atari ST, C64, Spectrum and Amstrad**



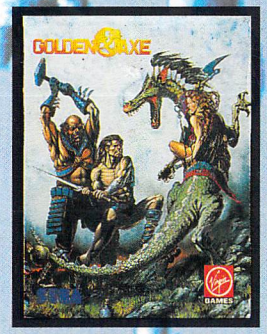
SHUTTLE

The most authentic space simulation ever conceived for your **IBM PC, Amiga and Atari ST**



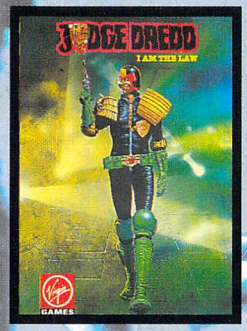
SUPREMACY

The last word in space strategy for your **IBM PC, Amiga, Atari ST and C64**



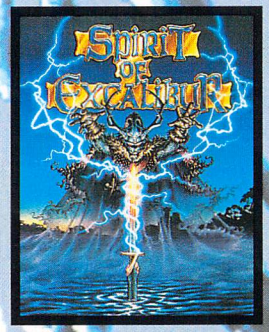
GOLDEN AXE

The smash hit coin-op hacks and slashes its way onto the small screen for your **Amstrad, Spectrum, C64, Amiga and Atari ST**



JUDGE DREDD

"Nobody's innocent citizen – we're just here to determine the level of guilt." **Amstrad, Spectrum, Amiga, Atari ST, C64**



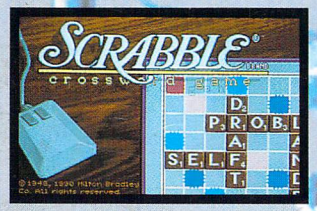
EXCALIBUR

A rich blend of Fighting, Fantasy and Strategy set in Arthurian Britain. For your **IBM PC, Amiga and Atari ST**

Coming Soon

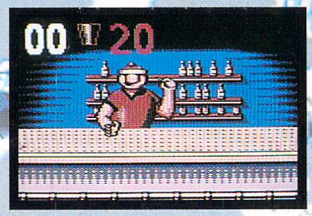
REALMS

"Let's make no bones about it, REALMS looks like being the game to topple PowerMonger as the greatest strategy game on home computers... it's going to be a stunner!" C&VG Feb '91. **Atari ST, Amiga, IBM PC**



"NEW" DE LUXE SCRABBLE

The ultimate De-luxe computer version of J.W. Spears No. 1 best selling board game. It will stretch your wordpower to the absolute limit. **IBMPC, Amiga, Atari ST, CBM 64, Spectrum & Amstrad**



V I Z

Includes all the faves from your favourite mag. Roger Melly, Buster Gonad, The Fat Slags, Finbar Saunders fnaar fnaar. **Amstrad, Spectrum, C64, Amiga and Atari ST**

THE MAGNETIC SCROLLS COLLECTION (VOLUME ONE)

Corruption, Guild of Thieves and Fish! – three classic adventures enhanced to run under Wonderland's new Magnetic Windows system. **IBM PC, Amiga, Atari ST and Archimedes**

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