

ATARI ST USER

The
top-selling
Atari ST
magazine

Volume 2
Number 3
May 1987
£1.50

TUTORIALS

Gem secrets revealed
Easier programming

BUSINESS

Reviewed: EzCalc and
Fleet Street Publisher

PROGRAMMING

Play 3D Oxo
Explore fractals

HARDWARE

Latest hard disc
and digitiser evaluated

MUSIC

What your ST can
do using Midi

INTERVIEWS

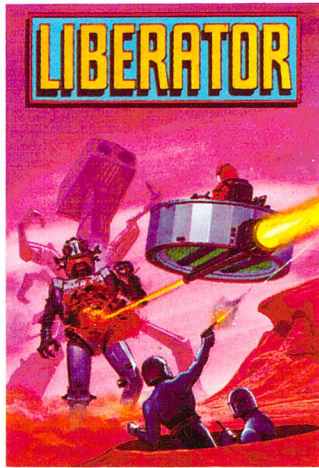
Meet a sci-fi artist
and Infocom bosses

FREE
Basic keywords
with their syntax
— at a glance

Use your ST to forecast the election result



FREE MOUSE MAT
(worth £4.95)
— Page 89



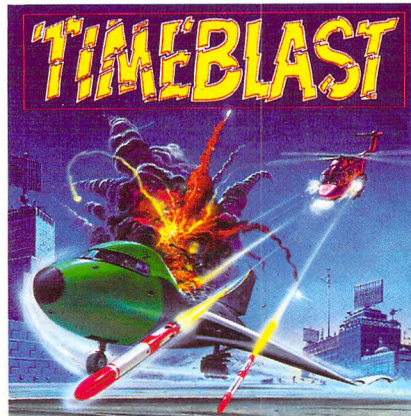
LIBERATOR (ST COLOUR)

Battle through the solar system, from planet to planet, liberating the imprisoned Federation Members from the aliens evil clutches.

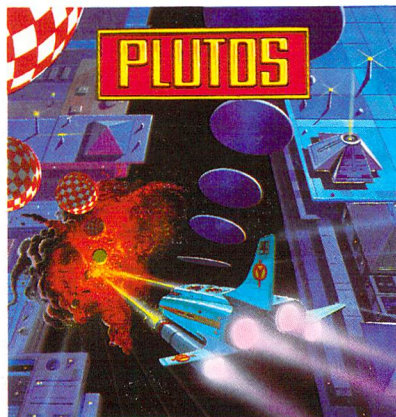
ST DISK £12.95

TIME BLAST (ST COLOUR)

A highly enhanced Arcade Classic. Guide your Jet Copter over mountainous enemy terrain avoiding ground-to-air missiles, MT-Refractor beams, Delta Ships and many more hazards. Nine levels of Arcade Action



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PLUTOS - (ST COLOUR)

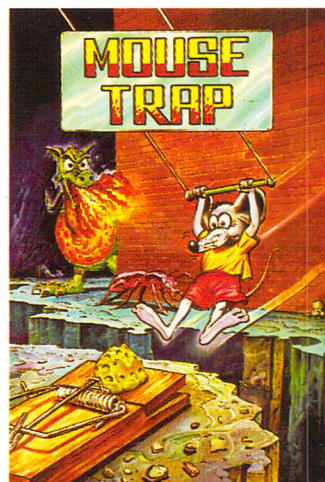
Finally, the game you've been waiting for. This superb Space War Arcade Simulation stretches your ST to the limits in a scenario which incorporates a scrolling Mother Ship of immense proportions and a multitude of ingenious defences for you to overcome and, if possible, destroy. Plutos, State of the Art space action in its ultimate form.

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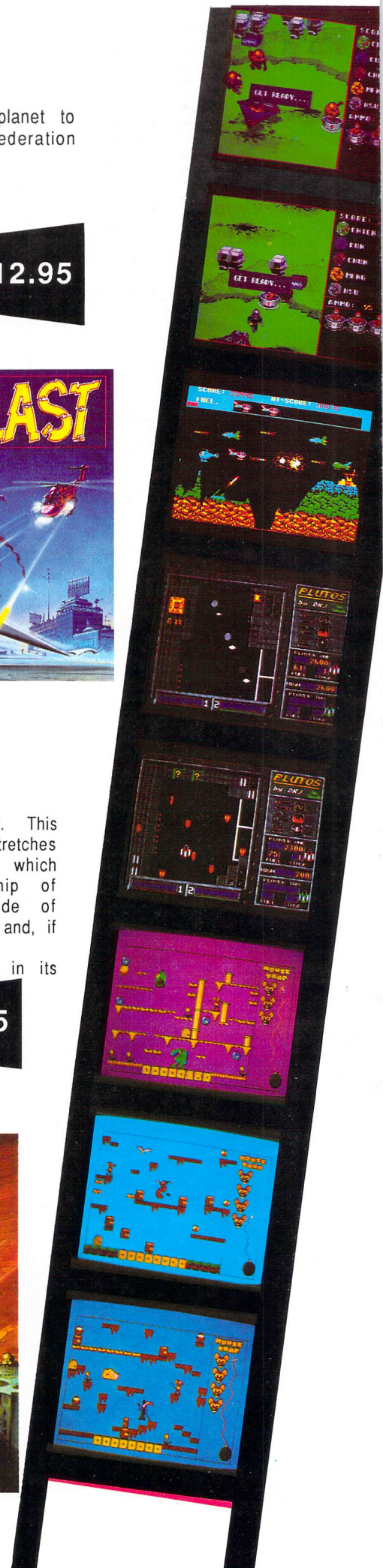
MOUSETRAP - (ST COLOUR)

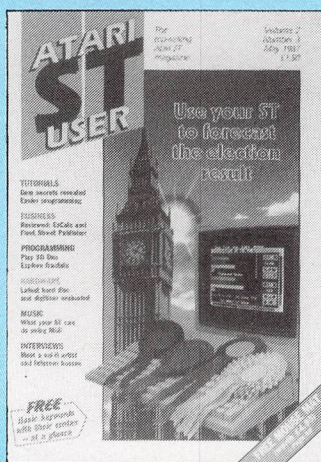
Guide Marvin the ravenous mouse around numerous superb action-packed screens of incredible graphic animations in search of his favourite food - a beautiful wedge of golden cheese, whilst avoiding all manner of dangerous obstacles in his path.

ST DISK £12.95



MICRO
VALUE





Vol. 2 No. 3 May 1987

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Don't miss this launchpad for all that's new in Atari computing

ATARI
COMPUTER
SHOW

10am-6pm Friday, April 24
10am-6pm Saturday, April 25
10am-4pm Sunday, April 26

**Champagne Suite, Novotel,
Hammersmith, London**

On display for the first time in the UK will be new Atari products that are set to rock the micro world.

Star of the show will be Atari's IBM PC compatible, offering a radically new design at a price that will revolutionise the PC marketplace. There, too, will be the latest models in the ST range – the Mega ST workstations. Plus the remarkable Atari laser printer, the machine that has broken the price barrier in desktop publishing.

All of these – along with breakthroughs for the ever-popular 8-bit range and hundreds of new software packages – will be on display at the April Atari Computer Show.

MORE arcade games
MORE bargain offers
MORE business software
MORE graphics packages
MORE hardware add-ons
MORE utility programs
MORE adventures

Bring this coupon to the Show to get 50p per person off the normal admission price of £3 (adults), £2 (children).

ATARI
COMPUTER
SHOW

**Champagne Suite & Exhibition Centre,
Novotel, Hammersmith, London W6**

Nearest Tube: Hammersmith

Ample car parking nearby

**50p
OFF**

Friday, April 24, 10am-6pm
Saturday, April 25, 10am-6pm
Sunday, April 26, 10am-4pm

Exhibitors who have booked stands to date.

Atari (UK)	GEM Distribution	Precision Software
Actionsoft	Glentop Publishers	Prospero
Adamsoft	Gultronics	Psychosis
Amten	Haba Systems	Pyramid Video & Software
Atari User/Atari ST User	HB Marketing	R & AJ Preston
Advanced Systems & Techniques	Hi-Soft	Red Rat Software
Bath Computer Shack	HSV Computer Services	Robtek
Calisto Computers	JB Software	SDL
Centec	Kuma Computers	Silica Shop
Compumart	Logical Design Works	Software Express
Computer Bookshops	Metacomco	Software Store
Computer Concepts	MicroLink	Sunshine Publications
Computer Magic	Micro Media Computer Supplies	Supertec
Demon Software	Migent	Supra Corp.
Direct Disc Supplies	Miniature Tool Company	The SW Software Library
Eidersoft	Mirrorsoft	Trybridge
Electric	Monitor Magazine	Twilstar Computers
Software/GST	Overbase	Tynesoft
Execon Software	Page 6 Magazine	Zonefour

ST BOOSTS ATARI SALES INTO ORBIT

ATARI ST sales are way ahead of even the company's own target for this year, a leading distributor has claimed. While Atari UK boss Bob Gleadow puts on a restrained face at the ST's soaring fortunes, retailers are more than happy about the first quarter's figures. But then even the conservative Gleadow expects at least 75,000 STs to be sold this year.

The marketing director of Silica Distribution, Tony Deane, said that from the start of the year the ST had been given a new lease of life. "It hit a massive peak just after Christmas – right at the time when we would expect the market to drop", he said.

The reduction in prices and the introduction of the 520STFM made all the difference. "Since then our volume has

doubled. We can sell all we get of the new machines. We are over budget on ST sales – Atari must be well over targets".

Deane forecast a continuing boom saying that if the prices stayed right it would be a big success story.

His views were echoed around the trade. Scottish ST distributor Silicon Centre boasts a 70 per cent increase in the number of machines sold since Christmas and Thompson Cook is talking about a "significant upsurge" in sales.

Advanced Systems and Techniques reported selling STFMs as fast as it could get them. York Computer Centre said sales of the ST were "on the up and up" while Compumart were well satisfied with present trends.

**It's music,
music, music
at the Show**

ATARI is to make the coming London Atari Computer Show one of the most significant ever. It will be the UK launchpad for the company's new IBM PC compatible machine, Mega ST workstations and desktop publishing system.

To mark the occasion Atari chairman Jack Tramiel will make a special visit to the show at the Novotel from April 24 to 26.

Syndromic Music has been asked by Atari to create a Music Studio at the show to demonstrate the ST's Midi capabilities. The company believes the machine's built-in Midi ports, fast computing times and large memory make it ideal for "the development of the creative process".

The Music Studio will display visual editing packages for a variety of synthesisers and will unveil for the first time in Britain a new 16 bit sampler for the ST.

Throughout the show there will be demonstrations and lectures on Midi applications and use both in general and professional areas. They will be presented by a number of specialists and well known musicians, including Ashley Ingram of the group Imagine.

Also at the show Precision Software will be launching its Superbase Personal, the unique database with the capability of merging text and graphics files.

America's leading third party supplier of hard disc drives for Atari machines will make a special trip to the show. The Supra Corporation will share a stand with its UK distributors, Frontier Software to give British Atari users the first chance to see the 20Mb, 30Mb and 60Mb ST hard discs.

The 20Mb version has been out-selling the equivalent SH204 Atari drive by three to one in the United States. It has also been selling well in West Germany.

The 30Mb and 60Mb discs have found popularity in the US, particularly among software houses capitalising on the Atari ST boom.

The Atari Computer Show, organised by Database Exhibitions, will be at the Novotel, London, from April 24 to 26.

Doors open at 10am until 6pm on Friday and Saturday and until 4pm on Sunday.

A money-saving advance ticket order form is on page 4.

New comms link planned

ATARI ST comms enthusiasts may soon be able to access Prestel's massive 300,000 page database through MicroLink. British Telecom is merging the messaging services of Prestel and Telecom Gold, with which MicroLink is associated.

This will immediately create a 130,000-strong user base of micro owners able to exchange messages with each other.

Chips battle is over

ATARI and Commodore have resolved a long-standing dispute over ownership of advanced graphics chips incorporated in the 68000-based Amiga.

An out-of-court settlement in America ends Atari's \$150 million damages claim based on support it provided for development of the chips before Amiga Inc was bought by Commodore three years ago.

Caught in tape

AUTHOR and computer enthusiast Douglas Adams has been writing an interactive adventure called Bureaucracy for the Atari ST. It will be released by Infocom.

Adams says Bureaucracy is drawn from his own painful personal experience of a red tape nightmare when he changed his address but couldn't convince his bank's computer of the fact.

UK database for French

A BRITISH database package, due to be released for the ST at the coming Atari Show in London, looks set to become the standard for the French micro market.

Superbase Personal from Precision Software (01-330 7166) won high praise from Frederique Beaudonnet, product manager at Micro Application – France's top distribution company – on its European release in the spring. "I am convinced that this database will become the French standard", she said.

The database places no limit on the number of fields nor the size of any record. It has been designed to be "very visual", featuring video recorder-type symbols which can be driven by a mouse.

It has a facility for coordinating pictures and text with a graphics management system which allows illustrations to be retrieved and displayed alongside text.

The Atari ST version costs £99.95.

Amiga 'no threat'

ALTHOUGH some industry observers feel the new Amiga 500 and 2000 machines are a threat to Atari, Leonard Tramiel is unimpressed. "The 2000 is just a packaging job, an over-priced pile of junk", he said recently.

While the Amiga 2000 is a pricey £2,500 to £3,000, the Amiga 500 at about £550 is being closely watched by Atari.

But informed sources say Atari will not hesitate to cut prices if the Commodore machine becomes a real threat to ST sales.

Guardian of the facts . .

A WOULD-BE Atari ST rival got its fingers burnt when it tried to fudge comparative prices. In a letter to the Guardian computer column, Commodore boasted that the Amiga A500 cost £759.86 with colour monitor and £603.34 with mono, compared with £782.60 and £608.69 for the Atari 1040ST.

The Guardian put them right. "Well, let's compare like with like", suggested the columnist, pointing out a few home truths:

The A500 has only half as much memory as a 1040ST. The A500 prices inc VAT are therefore £873 (colour) and £699.99 (mono), compared with the 520ST prices of £499 (mono), £599 (low res colour) and £699 (medium res colour) – or less from a discount shop. "That puts the Amiga prices around £200 higher, though you do get an 880k instead of a 320k disc drive", said the Guardian.

"No price is given for the one megabyte Amiga A2000, perhaps because £1,260 (without monitor) is not unadjacent to twice the price of a 1040STF with 720k disc drive, but without expansion slots".

The column ends with a hint to Commodore: "Stop making ST comparisons. The way to make the Amigas look cheap is to compare them with Apple Macintosh outfits".

GAMES UPDATE

BEST-SELLING adventure The Pawn from Rainbird has picked up no less than six awards from overseas computer journals.

Accolades for packaging, best graphics, most innovating computer design, ST entertainment program of the year and graphic adventure of the year came from results of readers' polls in France, Germany and the United States.

Ederyn Williams, general manager of Rainbird said: "We have shown that we are now right up there at the top, and 1987 should be even better".

Meanwhile, in the UK, Rainbird has launched a follow-up to The Pawn.

Guild of Thieves is again set in the mystical land of Kerovnia and players must pass various tests in order to join the elite band of rascallions.

Over 30 scenes are featured together with a comprehensive parser which allows sentences of commands to be strung together. Price £24.95.

□ □ □

THE fiendish multi-level maze game Xor, which is a smash hit for Logotron on Acorn micros, has been licensed by Atari for the ST series. Atari has also taken out an option to market the Xor maze generator software as a construction set.

Xor is a series of mazes the player has to find a way through, collecting masks and overcoming obstacles.

Each of the 15 levels has a logical solution requiring the strategic skills of a chess player.

The program was launched as a Logotron mail order promotion in January and sold more than 2,000 copies in its first two months.

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LATEST release from Gremlin is a martial arts simulation for the ST.

Karate Master challenges the player to recover the stolen swords of Daitokud-schi from the palace of Nu Chu.

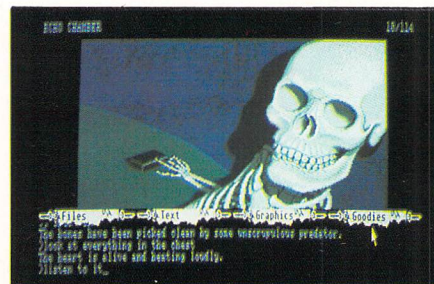
Guards trained in the art of karate must be defeated to complete the quest.

Seven levels are featured together with sound effects. Price £12.95.

□ □ □

A NEW software label has been set up by

AWARDS FOR THE PAWN



At play with Guild of Thieves

Robtek in association with German company Golden Games.

Diamond Software will license games from not only Golden Games but also from American software houses BCI and Parker Brothers.

First release on the Diamond label for the ST is a digitised strip poker program.

Hollywood Poker features Miss Germany 1987 and as Robtek's director Paul Share commented: "It's like seeing it in the flesh". Price £14.95

□ □ □

SOFTWARE house Creative Sparks is set to launch its first title for the ST.

Vikings will be released in the autumn and the company is hoping to have a further two ST games out by the end of the year.

No price has been fixed but the games will probably cost around £20.

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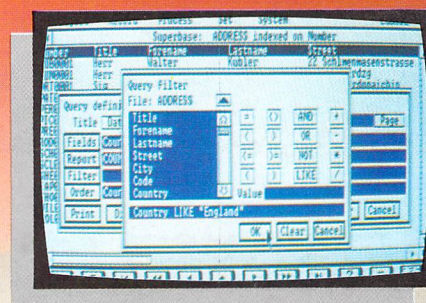
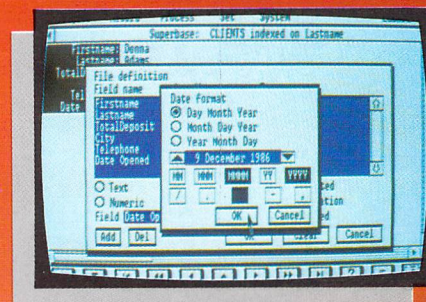
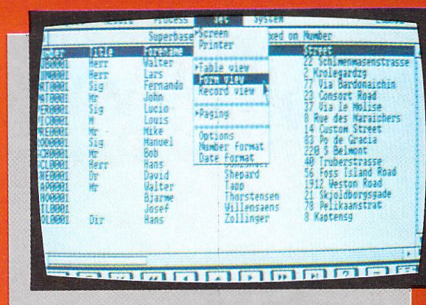
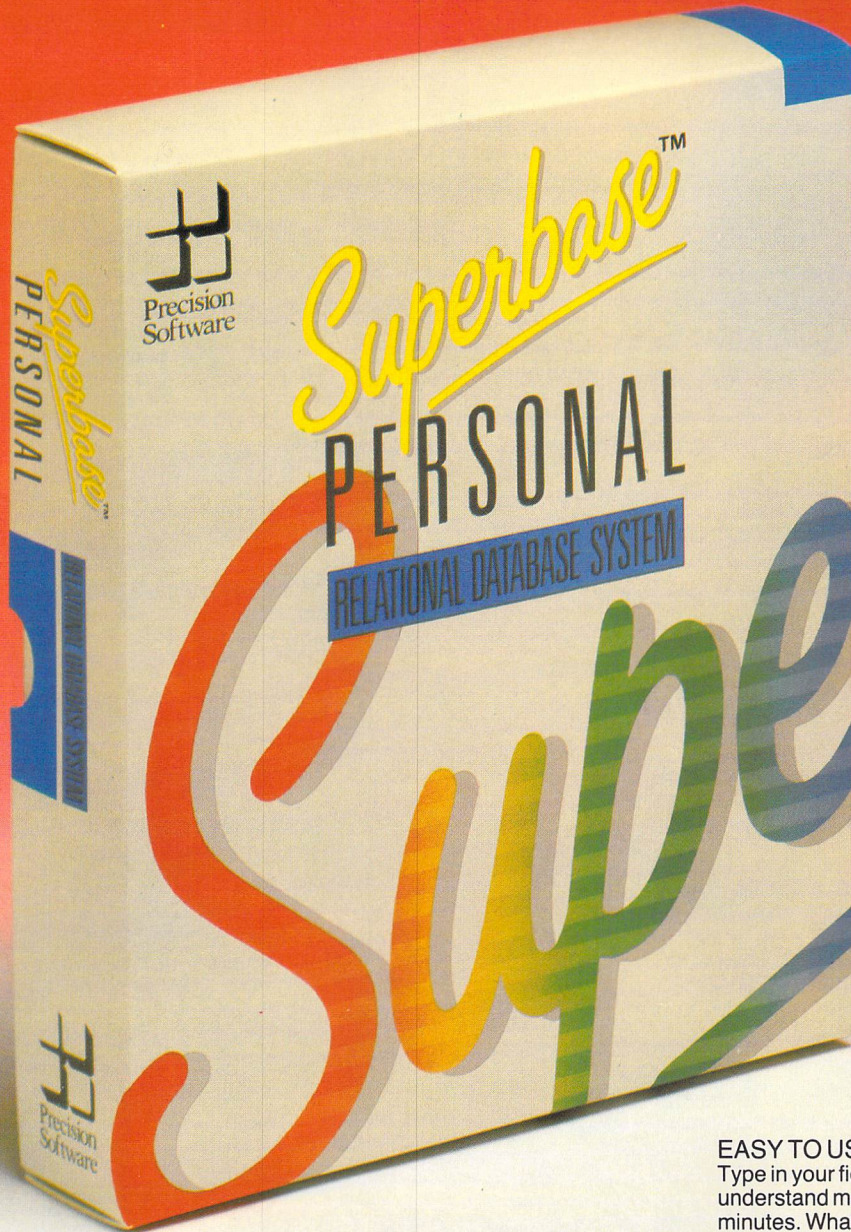
A SIMULATION of World War II conflict on the eastern front has been released by US software house The Avalon Hill Game Company.

Guderian is set in the Russian town of Smolensk. Players take the role of either a German or Russian commander and use various tactics to trap and destroy the enemy.

A rulebook is supplied with the game which introduces players to historical gaming and explains concepts such as zones of control, supply, combat and movement.

JOINING THE BOARD

ATARI UK sales manager Paul Welch has been elected to represent hardware manufacturers on the board of the recently-formed British Microcomputer Federation. Microsoft managing director David Fraser is its chairman. Its aims include stamping out software piracy, establishing a code of practice for the trade, acting as industry spokesman at government level, and compiling the first ever accurate statistical overview of the British computer market.



NEW

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Atari makes its mark in Germany

THE road to economic recovery for Atari has been paved with Deutschmarks. Now profitable for the first time in years – and with \$70 million in its bank account – the company owes much to its German subsidiary Atari GmbH.

Sales of Atari products in Germany now account for nearly one third of the parent company's worldwide sales volume.

Atari GmbH turnover increased by 134 per cent last year to £50.6 million – thanks largely to sales of more than 70,000 STs.

Alwin Stumpf, manager of Atari GmbH, said: "This positive growth is due to the product and price strategies of Atari. The ST series gained not only considerable interest among professionals, but also in the areas of educational and private use.

"Prior to the advent of Atari computers in Germany there has never been any possibility of acquiring peak technology at such low prices. We are now in a position finally to offer the private user a top system for less than DM1,000, when only a few months ago he would have had to pay a few thousand Marks to other suppliers.

"Regarding software, in Germany more than 700 tested programs are available for professional requirements and this total is constantly rising.

"At this year's Frankfurt Music Fair approximately 90 per cent of professional music systems on show were based on the Atari ST series for the reason that this is the first computer with a built-in Midi interface".

That DTP package: The third option

SPECULATION about which software will eventually be sold alongside the Atari ST desktop publishing system should soon be ended.

The company is expected to announce at the Atari User Show that it will be bundling its own package with the Mega ST and Atari laser printer.

Some computer journalists have been suggesting Atari will have to choose between Mirrorsoft's Fleet Street Publisher and American-designed Publishing Partner.

But they have ignored a third option – a DTP package designed by Atari specifically for the new Mega ST system.

And this is understood to be the route Atari has taken.

Sources close to the company in California told *Atari ST User* its technicians "have got a laser engine nearly finished and are hopeful of producing a complete package before

Christmas".

Atari UK software manager Bob Katz has already 'squashed the hopes of Fleet Street Publisher and Publishing Partner.

Asked which of the two was favourite to become the "Atari preferred" DTP package he answered: "Neither".

But Katz would not comment on development of Atari DTP software other than to say: "Look out at the Atari Computer Show if you want to know more".

While Publishing Partner, released in the US two months ago, has the advantage of a laser driver its features are less powerful than Fleet Street Editor. "This would not fit in with our company philosophy of offering power without the price", a spokesman said.

"We'll settle for nothing less than a package at least as good as PageMaker for our system, which will sell for one-third the price of the comparable Macintosh product".

SPACE SHUTTLE PRIZE WINNERS

THE January issue of *Atari ST User* included a super Space Shuttle Competition with prizes donated by Microdeal.

The hundreds of entries, most of them correct, were put in a big hat and the following lucky winners were pulled out:

Doctor K. Williams of Whitton near Twickenham will soon be receiving: Cornerman, Utilities, Animator, The Alternative, MiTerm, Pinball Factory,

Electronic Pool and Trivia Challenge.

Stephen Carter from Upminster wins copies of Cornerman, Utilities, Softspool, M-Disc, Pinball Factory and Trivia Challenge.

Lastly, copies of Pinball Factory and Utilities go to Stephen O'Kane from Derry in Northern Ireland.

Congratulations to them, and commiserations to everyone else.

Video digitiser for DIY artists

A NEW company, HB Marketing, has been formed by Haba Systems to sell complete micro solutions to specific markets. Its first product is Realtizer, a video digitiser for the Atari ST manufactured by Print Technik of Germany.

The £199.99 device, aimed at the art studio and desktop publishing markets, is claimed to provide more facilities than other products costing twice as much.

"Realtizer allows you to become a graphic artist in your own home", said HB Marketing managing director Mike Dale. "It's the highest performance video

digitiser available for the ST, but at a remarkably low cost".

Realtizer plugs into the cartridge slot of the ST, freeing the printer port for image production. It connects easily to video recorders and cameras and supports both mono and colour screens.

An auto exposure feature allows rapid digitising of video images in 2, 4, 8 or 16 grey levels. As each level takes only 1/25th of a second to digitise it is possible to create moving images.

A palette of 512 colours is available for adding false colour to the grey levels, and

allowing the image to be painted while digitising.

There is a variety of tools to manipulate images, and an integrated colour feature allows the capture of images in their true colours.

Images can be stored on disc in Neochrome, Degas, Doodle, Art Director or IMG formats. Hard copy reproduction is possible with print drivers provided for Epson, Canon colour ink jet, or HP Laser Jet printers.

Full colour images can be printed any size.

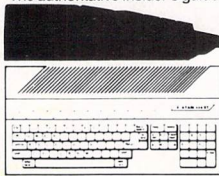
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Comprehensive!

Atari ST Reference Books from Abacus Software

Definitive!
Instructive!

ATARI ST INTERNALS

The authoritative insider's guide



Abacus Software

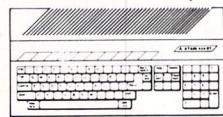
ST Internals

(Formerly Anatomy of the Atari ST)
An essential guide to the insider's information on the ST. Written for the programmer wanting a thorough, complete description of the inner workings of Atari's outstanding ST computers. Detailed descriptions of graphics and sound chips, hardware, the Centronics and RS-232 ports, GEM, important system addresses and much more. Included is a commented BIOS assembly listing. This reference work is a required addition to your ST library. Third printing.

AB 450 446 pages **£14.95**

ATARI ST GEM Programmer's Reference

The complete guide to programming the ST using the Graphics Environment Manager



Abacus Software

GEM Programmer's Reference

An indispensable guide for the serious ST programmer needing detailed information on GEM. Written especially for the Atari ST, it has an easy-to-follow format. Covers choosing the right programming language; introduction to C and assembly languages; a study of the Editor, C-compiler, Assembler & Linker; programming the Virtual Device Interface (VDI); Application Environment Services (AES); Graphics Device Operating System (GDOS); and interfacing to TOS. Many example programs. Cross-referenced VDI/AES calls.

AB 470 412 pages **£14.95**

BEST SELLER ATARI ST TRICKS & TIPS

Valuable collection of software tools and programming hints



Abacus Software

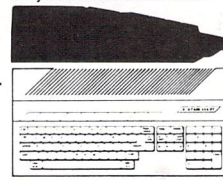
Tricks & Tips

Fantastic collection of ST program tools and techniques for the ST. Programs include a super-fast RAM disk; time-saving print spooler; colour print hardcopy; plotter output hardcopy; accessories construction - all of these programs and more are included in the price of the book! Learn how to create brilliant graphics, use the VDISYS commands, and master the powerful GEM applications. Refine your BASIC, assembler and C programs with advanced programming techniques.

AB 455 260 pages **£14.95**

ATARI ST BASIC Training Guide

Everyone's introduction to ST BASIC



Abacus Software

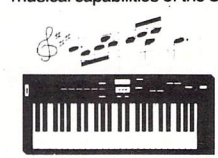
ST BASIC Training Guide

An educational, well-written introduction to Atari ST BASIC. You'll learn to program your ST quickly with the BASIC commands, problem analysis, and algorithms presented in the first few chapters. Quizzes throughout the book help you learn to "think in BASIC" while you get a practical grounding in the language at the same time. Topics include data-flow and program flowcharts, menus, multi-dimensional arrays, sort routines, file management, BASIC under GEM, advanced programming techniques, and much more.

AB 485 312 pages **£12.95**

NEW ATARI ST Introduction to MIDI Programming

Explore the infinite electronic musical capabilities of the ST



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Introduction to MIDI Programming

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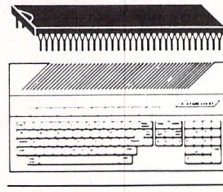
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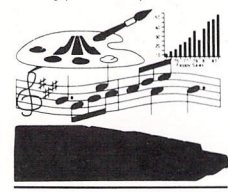
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A Data Becker book published by Abacus Software

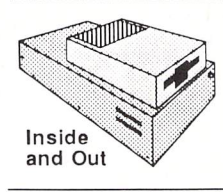
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Inside and Out



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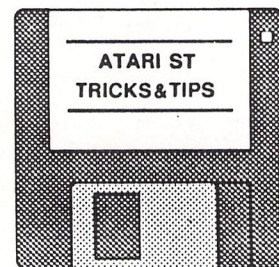


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Software hotline fills the gap

A REVOLUTIONARY support package for business and communications software users which includes membership of MicroLink has been launched by systems consultancy and software design firm Interlex.

It will provide previously unavailable support for the lower-priced – generally under £150 – software packages.

In addition, MicroLink will provide Interlex users with the bonus of electronic mail, telex and other communications facilities and databases.

Interlex managing director Mike Lane said: "As the trend toward low cost hardware and software has gathered momentum, the traditional dealer network has moved upmarket.

"Consequently the bulk of new business micro users have been left totally unsupported because the High Street and volume sellers supplying them are not geared up for the task.

"Interlex will fill the vacuum by supplying support at a price the new generation of users can afford.

"Initially this will be provided through a telephone hotline, but we are pushing ahead with plans for an Interlex bulletin board on MicroLink to extend the service to comms users".

MicroLink on the rates

BRITAIN'S 105-year-old Rating and Valuation Association has taken a giant stride into the 20th Century with the help of MicroLink.

Previously, the professional organisation for property experts in local government and private practice depended on phones and letters to communicate. It didn't even have telex.

Now its 5,000 members – town hall finance and

housing administrators, and chartered surveyors and valuers – will benefit from not only telex, but also electronic mail and Telemessages.

The Association conducts a four year course leading to professional exams, provides an information service, publishes text books, and holds between 70 and 80 conferences a year.

Assistant secretary Julian Price said: "Micro-

Link will give us the means to speed up our organisational communications, moving documents to and from between our Council members who are located all over the country, contacting our members and exchanging information with our affiliates in the US.

"It will also help us organise our conferences, book hotels and speakers and make travel arrangements for delegates".

Japan comes to Salop

MICROLINK was the catalyst for language school proprietor Duncan Baker's latest venture – teaching Japanese to British business people.

The new addition to the curriculum at Lydbury English Centre in Shropshire developed from a sociable electronic mail exchange on MicroLink

with antiquarian bookseller Tony Swann.

Swann revealed a long cherished ambition to study Japanese and suggested that Baker organise a course.

This has now been done, and after being advertised on MicroLink half the places were filled within a week.

High peak, low tech in Tibet

ACCORDING to crack mountaineer Chris Bonington, "it's only a small trip compared to climbing Everest and I'm looking forward to coming home and getting to grips with MicroLink".

He was speaking a few days before leaving for Tibet, hoping to add the unconquered peak of Menlungste to his own collection of Himalayan "scalps".

When he's not climbing mountains Bonington can often be found at a computer keyboard writing one of his numerous

books and articles or simply mastering the latest micro technology.

A self-confessed computer buff, he has joined MicroLink because it will help him organise his expeditions.

"The telex facility will be absolutely invaluable in this respect", he said. "At present I have to rely on the generosity of my accountant and use his office telex machine if I want to send and receive messages, but obviously this isn't always convenient for either of us.

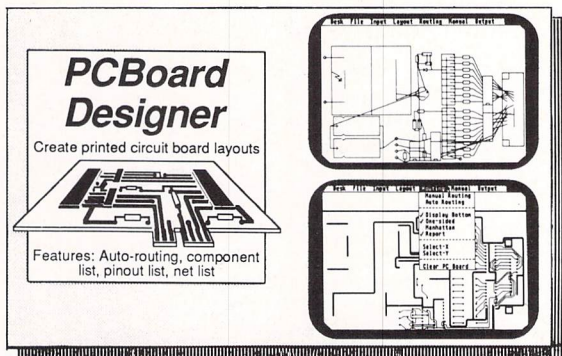
"Transmitting text to

my publishers is a definite possibility. They are a rather old-fashioned firm, but who knows, I may be able to convert them to Email. As a newcomer to MicroLink I'm also looking forward to exploring its many sections just for the fun of it.

"Unfortunately I won't be able to use MicroLink to keep in touch with home while I'm in Tibet. Where I'm going is so remote that my messages will have to be carried by runner for three days before they reach the nearest road".

Atari ST Productivity Software from

You Can Count On
Abacus Software



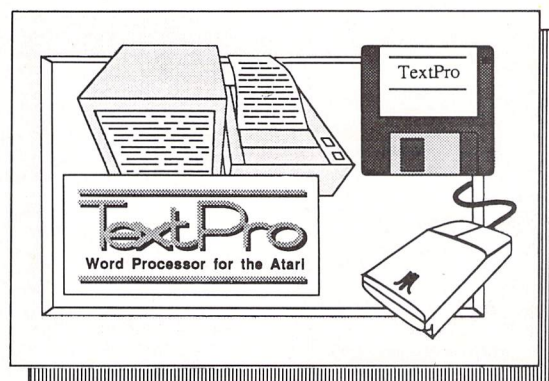
PCBoard Designer

PCBoard Designer is a powerful, interactive computer-aided design tool that automates the layout of printed circuit boards. The remarkable PCBoard Designer drastically cuts the cost, long hours and tedium of producing a working circuit board. PCBoard Designer has a wide range of sophisticated features and remarkable speed found only on systems costing thousands more. Exclusive to PCBoard Designer is its automatic routing capability – all traces are automatically drawn on the screen, and redrawn as you delete, modify your board design. In addition, it has options of 45° or 90° angle traces, different trace widths, routing from pin to pin, pin to BUS, BUS to BUS, as well as two-sided boards.

The rubberbanding feature lets you see the user-defined components during replacement – and you can reposition your components at any time during the design process. PCBoard Designer prints your completed layout to any Epson or Epson-compatible dot matrix printer at 2:1. The high-quality printout is camera-ready for final photo-etching. PCBoard Designer also prints your component layout, and lists every component and connection. Runs on Atari 520ST or 1040ST computers with monochrome monitor. Epson FX-80 or compatible, Hewlett-Packard plotters, NEC P6/P7 printers, or Toshiba 24-pin printers required for photo-ready traces.

AB 500

Improved version now only **£195!**



TextPro

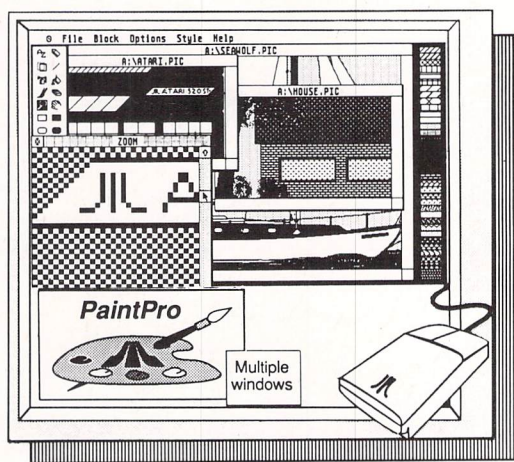
"...TextPro is the best wordprocessor available for the ST."

— Randy McSorley
Pacus Report Dec '86

The professional wordprocessing package designed for the ST by professional writers. ST TextPro combines great features with flexibility, speed and easy operation – but at a very reasonable price! ST TextPro offers full-screen editing with mouse or keyboard shortcuts, as well as high-speed input, scrolling and editing. You can create multiple columns of text, and choose up to 180 characters per line. ST TextPro even generates an automatic index and table of contents! Other features include 30 user-defined function keys; flexible printer installation; sideways printing; loading and saving to RS232 port; and much more.

AB 490

Unbeatable value at only **£39.95!**

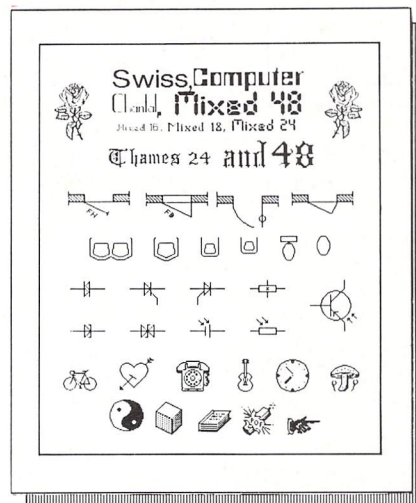


PaintPro

A true GEM™ among ST graphic design/paint programs. ST PaintPro is very friendly and economical – but very powerful. PaintPro supports up to three active windows, and has a complete toolkit of functions: free-form sketching, lines, circles, ellipses, boxes, text, fill, copy, move, zoom, spray, paint, erase, undo, help, as well as extensive text capabilities. You can even import "foreign" pictures for enhancement using PaintPro's double-sized picture format, and send hardcopy to most popular dot-matrix printers. Works with either monochrome or colour ST systems. ST PaintPro is a must for everyone's artistic or graphics needs.

AB 620

£49.95



PaintPro Library #1

A companion to the ST PaintPro package (and compatible with Degas as well). This complete graphics library includes five new original fonts that can be used with PaintPro – Swiss, Computer, Chantal, Mixed and Thames (Old English) – and hundreds of symbols, borders, ornamental lines, etc. for use in electronic, architectural and graphics design.

AB 622

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ST eye on the election

IT was radio that first brought election night fever into the homes of the great British public.

Then came television to transform it into an event that could even give Coronation Street a run for its money.

Now its the turn of the computer to mark another milestone – audience participation in the event itself.

The forthcoming general election will see people able to log and assess the results as they happen in the comfort of their own living rooms.

For it is now possible to turn a micro into a personal "Swingometer".

However, the facility is not available for just any micro – only the Atari ST.

It's all thanks to Ken Hughes, associate editor of Atari ST User, who has developed State of the Parties, an ST Basic program.

The software will allow users to chart the progress of the parties as the results are announced.

Such is the ingenuity of the program – which runs in low resolution mode – that ST users will be able to make regular predictions of the number of seats likely to be won by the parties.

"You will never need to envy Peter Snow and his Swingometer again", insists Ken Hughes.

"And just think of the fun you'll have arguing with Sir Robin Day and his panel of experts".

Once the program is running, the results are entered by clicking the left hand mouse button with the pointer on

Mike Cowley invites you to use your Atari ST to keep tabs on the election results

the + sign adjacent to the successful candidate's party. The minus signs are included in case of mistakes and clicking on these will reduce the total by one seat for each click.

The formulae used to determine the projected results – lines 1660 to 1720 – simply extrapolate the findings already declared and scale them up to reflect the final total of 650 seats.

However, you can alter the prediction specifications to take into account tactical voting, marginal peculiarities, or any other factor it is believed may influence the choosing of the next Government.

All the results are recorded on the top four bars and in the four totals boxes in the lower right hand corner of the screen.

The four lower bars show what the outcome would be if the voting trend identified at that stage was to continue.

As the number of results declared increases so the final predicted result becomes more accurate.

The short line drawn at location 220 in line 390 is the 325 seat marker. Once a party has crossed this line, it automatically has a majority in parliament and so will form the next Government.

State of the Parties has only one limitation. The bars will advance across the

screen until a total of 365 is reached. Once it gets to this point the bar will remain static. If this restriction was not imposed, the totals boxes would be overwritten.

"If, like me, you watch television election specials until Vincent Hannah has interviewed the successful candidate, the losers and the Returning Officer's dog, then this is for you", insists Ken.

One person who is certain to be up into the wee small hours of the day after the next election is Ken Hughes himself.

"I'll be there, hopefully, ecstatic as all my earlier predictions are confirmed", he says. "Then it will be a question of staggering off to bed happy in the knowledge that my trusty ST and I had seen it through to the end".

Not that Ken Hughes will be bothered about who wins.

"I'm not really interested in politics", he says. "Just computers in general and the ST specifically".

This is

IMAGINE if you can Election Night on television without a computer behind the scenes. No split-second analysis as each result comes in from the constituencies. No animated graphics showing the progress of the poll. But that was how it was in the early days of TV.

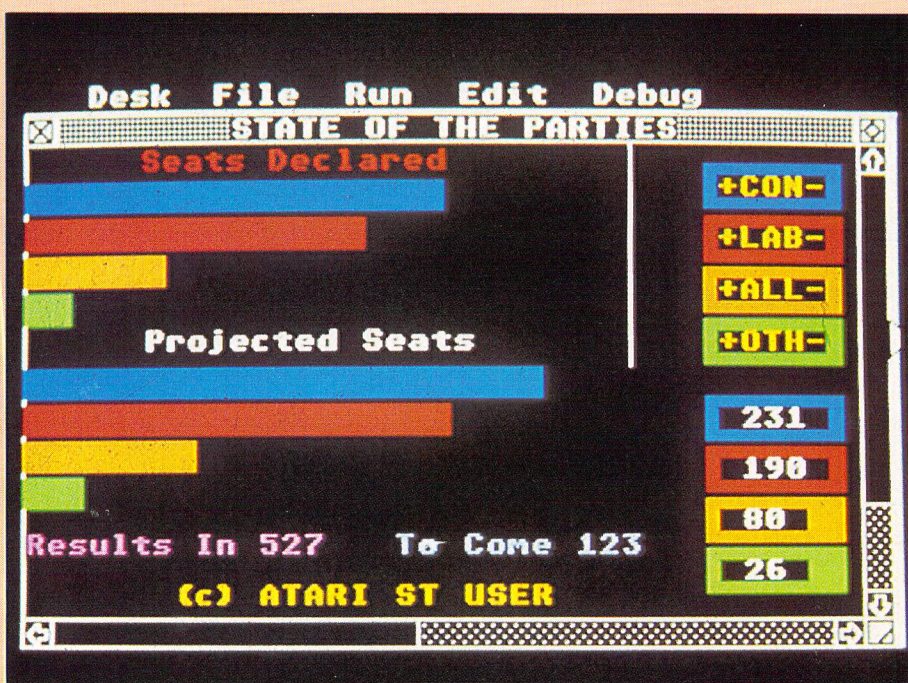
The first time a computer came to the aid of the parties was at the General Election of October 8, 1959.

Even then, Richard Dimbleby (BBC) and Ian Trethowan (ITV) would have given anything to have had the benefit of a fraction of the computer power used by the Atari ST as it runs the State of the Parties program given free with this month's *Atari ST User*.

On election night the BBC enlisted the help of a computer called Ella. ITV tried to go one better by roping in Lucifer, which the press described in awe as a "giant electronic brain", to find out exactly how coverage on TV had influenced the voters.

For this was to be known as the "TV election" – the first general election in which television was to play a major role. The impact of the box in the corner of the living room was to make political history.

It was up to Lucifer to discover how great an influence. And its answers were to be eagerly awaited by the



The election results we recorded using the mouse pointer and projections are generated

Atari ST Users won't have to wait until the date decided by Maggie Thatcher before they try out State of the Parties.

Come May 7, they'll be able to test it on the local elections being held across the country.

All that is necessary is to change the number of parliamentary seats to the number of wards in either the appropriate non-metropolitan or metropolitan district.

This will mean substituting the number 650 on lines 1680, 1720 and 1940 for the correct number of local seats involved.

It is also possible to adjust the bar graph scaling parameter – currently set at /1.5 in lines 1450, 1510, 1560, 1610, 1780, 1820 and 1860. So if the

TOWN HALL RESULTS ON SCREEN

local election district has 20 wards, a scaling of *15 will provide a more sensitive display.

Nor will watching the election using Atari STs and this clever program be restricted to computer buffs.

Stockport Metropolitan Council is considering installing ST machines equipped with the programs for the benefit of the media covering their local returns on May 7.

SUBROUTINES

810	Score keeping.
920	Bar Plot.
1040	Call Bar plot primitive.
1180	Read Mouse position.
1320	Print numerical score.
1420	Plot actual seats Bars.
1650	Calculate and plot seats.

VARIABLES

contot	Conservative total.
labtot	Labour total.
alltot	Alliance total.
othtot	Others total.
xloc/yloc	Mouse position.

now it all began

Derek Meakin recalls a date with Lucifer

leaders of the political parties, for whom TV was still something of an unknown factor.

But just what was Lucifer? To find out, shortly before the election I went to Leeds University to visit the "electronic computing laboratory" where the monster was housed.

I was introduced to Lucifer in what had once been a Baptist chapel, an old black-stone building with a high vaulted ceiling.

I wrote at the time: "Where once stood rows of pews now squatted steel-grey cabinets containing the brain's intricate memory patterns. To a perpetual humming sound, green pinpoints of light flashed on the faces of the monitor screens on the control desk as reel after reel of punched tape were fed into the machine."

Suitably impressed, I went on: "Lucifer – £100,000-worth of winking lights, whirring wheels and miles of multi-coloured wires which link its thousands of brain cells – can work out in hours a mass of complicated statistics that would otherwise take a lifetime to compile."

Laboratory director Dr A S Douglas proudly told me that he was planning to feed Lucifer with 40,000 facts which would then be converted into electrical charges and travel along the fine tracery of wires to be digested, analysed, compared and rejected – to finally produce the answers the political world was waiting to hear.

And the man in charge of the whole operation, Joseph Trenaman, who had recently taken up the newly-created post of Granada Television Fellow at Leeds University, was even more impressed.

"The brain works at the rate of 1,000 operations a minute", he enthused. As well he might, for that was going something – 28 years ago.

Today the Atari ST carries out 2 million operations a *second*! (And even that will soon become old hat. Unveiled in San Francisco last month was a new chip, the AMD 29000, that can execute more than 29 million instructions a second.)

I can report that Lucifer performed admirably, if rather slowly. But don't ask me about those results that were so anxiously awaited. After nearly three decades, and countless other elections in which computers have played an increasingly significant role, I just cannot remember.




```

1 REM *****
2 REM *      STATE OF THE PARTIES      *
3 REM *      ATARI ST USER              *
4 REM *      JUNE 1987                  *
5 REM *      (c)1987 ATARI ST USER      *
6 REM *      1987                      *
7 REM *****
8 REM
10 nme$="STATE OF THE PARTIES"+chr$(0
)
20 POKE SYSTAB+24,1
30 a#=GB
40 GINTIN=PEEK(a#+8):POKE GINTIN,PEEK
(SYSTAB+8)
50 POKE GINTIN+2,2:s#=GINTIN+4
60 POKE s#,VARPTR(nme$)
70 GEMSYS(105)
80 POKE SYSTAB+24,0
90 CLEARW 2:FULLW 2
100 PRINT "STATE OF THE PARTY"
110 PRINT "An Election Plotter"
120 FOR n=1 TO 9
130 READ i,r,g,b
140 POKE contrl,14
150 POKE contrl+2,0
160 POKE contrl+6,4
170 POKE contrl+12,2
180 POKE intin,i
190 POKE intin+2,r
200 POKE intin+4,g
210 POKE intin+6,b
220 VDISYS(1)
230 NEXT n
240 DATA 5,1000,0,1000,2,1000,0,0
250 DATA 4,0,0,1000,6,1000,500,0
260 DATA 0,0,0,0,1,1000,1000,1000
270 DATA 7,0,1000,0,3,500,500,1000
280 DATA 14,1000,900,0
290 POKE intin+10,1
300 POKE intin+12,1
310 POKE intin+14,1
320 hndl=2
330 contot=0:labtot=0:alltot=0:othtot=
0
340 CLEARW 2:FULLW 2
350 COLOR 2
360 GOTOXY 3,0
370 PRINT "Seats Declared"
380 COLOR 1
390 LINEF 220,0,220,80
400 GOSUB 1420
410 GOTOXY 5,7
420 PRINT "Projected Seats"
430 REM *** INPUT PANELS ***
440 x1=248:x2=298:y1=29:y2=44
450 COLOR 1,4
460 GOSUB 920
470 y1=47:y2=62:COLOR 1,2,2,2,1
480 GOSUB 920
490 y1=65:y2=80:COLOR 1,6,6,6,1
500 GOSUB 920
510 y1=83:y2=98:COLOR 1,7,7,7,1
520 GOSUB 920
530 COLOR 14
540 GOTOXY 28,1:PRINT "+CON-"
550 GOTOXY 28,3:PRINT "+LAB-"
560 GOTOXY 28,5:PRINT "+ALL-"
570 GOTOXY 28,7:PRINT "+OTH-"
580 REM *** TOTALS PANELS ***
590 y1=110:y2=125:COLOR 1,4,4,4,1
600 GOSUB 920
610 y1=128:y2=143:COLOR 1,2,2,2,1
620 GOSUB 920
630 y1=146:y2=161:COLOR 1,6,6,6,1
640 GOSUB 920
650 y1=164:y2=179:COLOR 1,7,7,7,1
660 GOSUB 920:REM BAR PLOT
670 GOSUB 1320

```

```

680 GOSUB 1910
690 GOSUB 1180
700 GOSUB 810
710 GOSUB 1420
720 GOSUB 1320
730 GOSUB 1650
740 POKE contrl,122
750 POKE contrl+2,0
760 POKE contrl+6,1
770 POKE contrl+12,hndl
780 POKE intin,0
790 VDISYS(1)
800 GOTO 690
810 REM *** KEEP SCORE ***
820 IF xloc<260 AND xloc>254 THEN posi
t=1 ELSE posit=0
830 IF posit=1 THEN 870
840 IF xloc<292 AND xloc>286 THEN posi
t=-1 ELSE posit=0
850 IF posit=0 THEN RETURN
860 IF yloc<31 OR yloc>97 THEN RETURN
870 IF yloc<42 AND yloc>31 THEN contot
=contot+posit
880 IF yloc<61 AND yloc>48 THEN labtot
=labtot+posit
890 IF yloc<78 AND yloc>67 THEN alltot
=alltot+posit
900 IF yloc<97 AND yloc>84 THEN othtot
=othtot+posit
910 RETURN
920 REM *** BAR PLOT ***
930 POKE contrl,11
940 POKE contrl+2,2
950 POKE contrl+6,0
960 POKE contrl+10,1
970 POKE contrl+12,hndl
980 POKE ptsin,x1
990 POKE ptsin+2,y1
1000 POKE ptsin+4,x2
1010 POKE ptsin+6,y2
1020 VDISYS(1)

```

This is one of hundreds of
programs now available
FREE for downloading on
MicroLink

```

1030 RETURN
1040 X3=X2+1:X4=X2+2
1050 COLOR 0
1060 POKE contrl,11
1070 POKE contrl+2,2
1080 POKE contrl+6,0
1090 POKE contrl+10,1
1100 POKE contrl+12,hndl
1110 POKE ptsin,x3
1120 POKE ptsin+2,y1
1130 POKE ptsin+4,x4
1140 POKE ptsin+6,y2
1150 VDISYS(1)
1160 COLOR 1
1170 RETURN
1180 REM *** READ INPUT ***
1190 POKE contrl,124
1200 POKE contrl+2,0
1210 POKE contrl+6,0
1220 POKE contrl+12,hndl
1230 butprs=PEEK(intout)
1240 xloc=PEEK(ptsout)
1250 yloc=PEEK(ptsout+2)
1260 VDISYS(1)
1270 IF butprs=0 THEN 1190
1280 POKE INTOUT,0
1290 SOUND 1,10,8,6,10
1300 SOUND 1,10,4,6,5:SOUND 1,0,0,0,0

```

```

1310 RETURN
1320 REM *** PRINT SCORE ***
1330 IF contot<0 THEN contot=0
1340 IF labtot<0 THEN labtot=0
1350 IF alltot<0 THEN alltot=0
1360 IF othtot<0 THEN othtot=0
1370 GOTOXY 28,10:PRINT contot
1380 GOTOXY 28,12:PRINT labtot
1390 GOTOXY 28,14:PRINT alltot
1400 GOTOXY 28,16:PRINT othtot
1410 RETURN
1420 REM *** ACTUAL SEATS ***
1430 IF contot<0 OR contot>365 THEN GOT
0 1490
1440 x1=0:y1=35:y2=45
1450 x2=INT(contot/1.5)
1460 COLOR 1,4
1470 IF SGN(posit)=1 THEN GOSUB 920
1480 IF SGN(posit)=-1 THEN GOSUB 1040
1490 IF labtot<0 OR labtot>365 THEN GOT
0 1540
1500 Y1=48:Y2=58:COLOR 1,2
1510 x2=INT(labtot/1.5)
1520 IF SGN(posit)=1 THEN GOSUB 920
1530 IF SGN(posit)=-1 THEN GOSUB 1040
1540 IF alltot<0 OR alltot>365 THEN GOT
0 1590
1550 Y1=61:Y2=71:COLOR 1,6
1560 x2=INT(alltot/1.5)
1570 IF SGN(posit)=1 THEN GOSUB 920
1580 IF SGN(posit)=-1 THEN GOSUB 1040
1590 IF othtot<0 OR othtot>365 THEN GOT
0 1640
1600 Y1=74:Y2=84:COLOR 1,7
1610 x2=INT(othtot/1.5)
1620 IF SGN(posit)=1 THEN GOSUB 920
1630 IF SGN(posit)=-1 THEN GOSUB 1040
1640 RETURN
1650 REM *** PROJECTIONS ***
1660 protot=contot+labtot+alltot+othtot
1670 IF protot=0 THEN RETURN
1680 prodiv=650/protot
1690 procon=INT(contot*prodiv)
1700 prolab=INT(labtot*prodiv)
1710 proall=INT(alltot*prodiv)
1720 prooth=650-(procon+prolab+proall)
1730 x1=0
1740 IF procon>365 THEN x2=INT(365/1.5)
ELSE x2=INT(procon/1.5)
1750 y1=100:y2=110:x1=0:x3=x2+1:x4=INT(
365/1.5)+1
1760 COLOR 1,4:GOSUB 920
1770 COLOR 1,0:x1=x3:x2=x4:GOSUB 920
1780 IF prolab>365 THEN x2=INT(365/1.5)
ELSE x2=INT(prolab/1.5)
1790 y1=113:y2=123:x1=0:x3=x2+1
1800 COLOR 1,2:GOSUB 920
1810 COLOR 1,0:x1=x3:x2=x4:GOSUB 920
1820 IF proall>365 THEN x2=INT(365/1.5)
ELSE x2=INT(proall/1.5)
1830 y1=126:y2=136:x1=0:x3=x2+1
1840 COLOR 1,6:GOSUB 920
1850 COLOR 1,0:x1=x3:x2=x4:GOSUB 920
1860 IF prooth>365 THEN x2=INT(365/1.5)
ELSE x2=INT(prooth/1.5)
1870 y1=139:y2=149:x1=0:x3=x2+1
1880 COLOR 1,7:GOSUB 920
1890 COLOR 1,0:x1=x3:x2=x4:GOSUB 920
1900 COLOR 1,1
1910 COLOR 5
1920 GOTOXY 0,15:PRINT"Results In";prot
ot;" ";
1930 COLOR 3
1940 PRINT"To Come";650-protot
1950 COLOR 14:PRINT
1960 PRINT ";" (c) ATARI ST USER";
1970 COLOR 1
1980 RETURN

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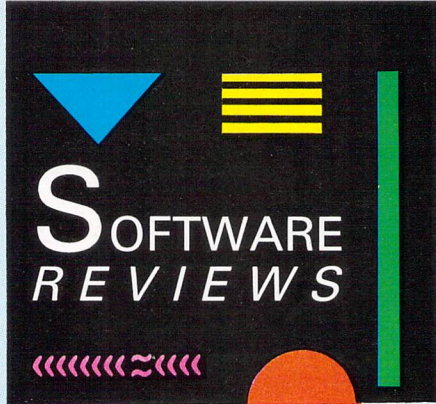
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Program: *Flight Simulator II*
 Price: £49.95
 Supplier: Sublogic, c/o Software Express,
 514-516 Alum Rock Road, Alum Rock,
 Birmingham B8 3HX
 Tel: 021-328 3585

THIS program really needs no introduction. The Cessna and Piper flight simulation programs produced by Sublogic Corporation of Illinois have, over the years, acquired a worldwide reputation for such quality and realism that there can be few PC owners who have not heard of them. Sublogic's Flight Simulator is the bench mark against which all others are judged. So far, no one has bettered it.

Now to the Atari ST comes Sublogic's Flight Simulator II, bringing new thrills and entertainment to what is already a classic program. FSII cannot really be called a game – it is more of an experience. Indeed, some people have made playing Sublogic's Flight Simulators a life-time hobby.

Just listen to these features and try not to drool. You can fly a propeller driven aircraft of the Cessna single-engine 182 type or take to the skies in a business jet of the Gates Learjet 25G class. There are 120 airports in five different US scenery areas (New York, Seattle, Los Angeles,



San Francisco and Chicago).

Fly in daylight, dusk or night during any of the four seasons and through variable weather conditions – fog, cloud layers, winds and turbulence. View the scene from multiple viewpoint through your cockpit window or from the tower or, for added thrills and some really sensationally dramatic effects, from a spotter plane.

And, to cap it all, there's even a special multi-player option. Using separate machines linked with each other via the ST's modem port connectors, two or more players can fly together.

Let's have a look at some of the many features in a bit more detail. The basic screen presentation uses the standard

What flying's all about . . .



horizontal split, with the top half normally showing the 3D view from the cockpit and the lower half the instrumentation.

However, both halves are actually windows. The top one can be moved around the screen by dragging it by the title bar, and expanded and shrunk as required. The smaller the window, the faster it will update.

The lower window can also be moved and even be pulled down off the lower edge of the screen, effectively giving more space for the upper window. You can also remove individual instruments from the lower panel by blanking them out.

The program uses the 68000 Precision Graphics Driver which enables you to view solid modelled images with hidden surface elimination and surface shading. What this amounts to in practice is a very fast and impressive updating of graphic images which, though not the most detailed in the world, are certainly the best I've ever seen in a flight simulator.

The neatly and clearly laid out instrument panel includes a cluster of the six basic flight instruments (airspeed indicator, attitude indicator, altimeter, turn coordinator, heading indicator and vertical speed indicator) as well as a host of engine monitoring instruments, radios, control position indicators and others (yes, there is a compass).

To be precise, there are 35 instruments in all but don't worry. You only need to concern yourself with a few to be able to fly while some instruments you may never need to learn at all (well, not unless you're really serious about this thing).

That's one of the joys of this program – you can play it at what level you like, from the casual "let's take a quick spin even though the only way I know how to land is to nose dive into Mother Earth" or to the dedicated "just off on a 500 mile aerobic

jaunt in the dead of night in gale force winds. See you at breakfast" ace pilot.

You control the plane using the mouse and/or keyboard. Nearly all keypress functions are also available from mouse-selectable menus. The mouse operates in two modes, cursor and yoke. Double clicking the left button or pressing the right button toggles between cursor and yoke mode.

In yoke mode the mouse is used as the aircraft's primary control stick or yoke. Moving the mouse forward or back pushes the nose down or up. Moving it to the left or right controls the ailerons and causes the plane to bank left or right.

Holding the left button pressed while moving the mouse forward or back increases or reduces throttle while moving it left or right applies or releases the brakes (the brakes are only effective on the ground, naturally). Simpler it could not be.

Alternatively, the numeric keypad (arranged in a diamond) serves the same purpose and perhaps might be more preferable since it can give you a more delicate sense of control of the craft (you can use single presses for micro-control or hold the keys down for faster adjustment).

For the more skilful and for advanced flight techniques, there are a number of secondary aircraft controls associated



with the control icons and radios on the right side of the instrument panel which are mainly used for navigation, control of the engine and of the simulator itself.

While in cursor mode, any of the menu functions can be selected at any time – this program is flexibility personified. And what a lot of choices you've got!

The View Mode menu lets you choose to view the action from inside the cockpit or, if you prefer to stay outside the plane, from a stationary control tower, a "tracking" tower or a spotter plane. With the latter you can select the distance, altitude and direction of the spotter plane (how far and where you wish the spotter to be in relation to your own plane). Use this for some breathtaking views and great fun – it's worth buying the program for this one feature alone.

In all modes you can zoom in and out using fine or coarse control. While in cockpit mode, you can view from any of nine different directions – great for taking a good look around.

The Environment menu lets you choose the season and specific cloud, wind and turbulence levels. The Navigation menu offers a map display (which can itself be "zoomed") of your current flying area.

Included among the many other options are the ability to save and reactivate a particular situation from and to ram and disc (several preset situations are already included for your use – I recommend the flight around the Statue of Liberty), instant replay of the last few seconds of a flight position, fly a Cessna or Learjet or even try your hand at being a World War One ace in a dogfight. The demo mode is well worth watching to see the program being put through its paces.

As well as the comprehensive and lucid 130 page large-format manual accompanying the program, there are three navigational maps and a quick reference card.

The program, too, contains a lot of instant assistance. Pressing the Help key while in cursor mode turns the pointer into a question mark. When positioned on any of the menu items or instruments and clicked, an overlaid window pops up and usually provides some useful information.

Flight Simulator II is the flight program par excellence. It is realistic, exciting, exhilarating, the nearest experience to flying one's own plane that most people are ever likely to get. If you genuinely want to see what quality and entertainment on the ST are all about then you really cannot afford not to buy it.

Bob Chappell

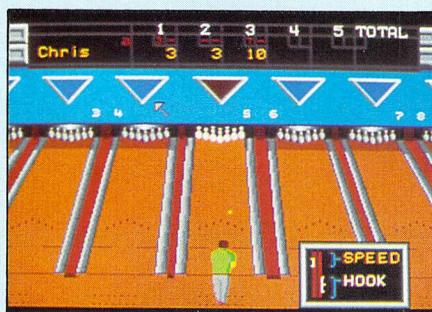
Sound	8
Graphics.....	9
Playability	10
Value for money.....	10
Overall	10

Strike out on your ST

*Program: 10th Frame
Price: £24.95
Supplier: Access c/o US Gold, Units 2/3,
Holford Way, Holford, Birmingham B6
7AX.
Tel: 021 356 3388*

FROM the team that brought you that excellent golf simulation Leaderboard comes yet another first rate game, only this time the action is all indoors. 10th Frame is a 10 pin bowling simulation sporting quality graphics and outstanding sound effects.

Like Leaderboard, the game comes with a security key which must be plugged into the rear joystick port on the 520 ST or the right joystick port on the 1040. The game won't function without the



key but this method of protection does at least mean that you can backup the disc for archive purposes, or even backup to hard disc.

The title screen is an impressive frozen-action shot of a bowler having launched his ball down the lane towards the pins. It is accompanied by the astonishingly realistic sound of pins being skittled over which is itself followed by some jaunty music.

You should note that the screen shots shown on the package cover are clearly stated to be from the Commodore 64 version and, need I say it, are not as impressive as those in the ST version.

An options screen allows league (team) or open (individual) bowling. Up to eight players may participate and a match can be over three games for team play and five for open play. There are three skill levels. The lowest is not a beginners' level and is really intended for children since the speed of the ball is automatically set by the program and the ball will always go straight toward where it is aimed with no hook (more of hooking anon).

The next level is amateur (the true beginner level) where the amount of speed and hook is less critical than that of

the final level, Professional, where accuracy and timing are all-important.

The main screen in the game depicts, in true perspective, five lanes of a bowling hall. Poised to throw in front of the centre lane is the bowler whom you control. Your view of the action is above and behind the bowler.

Running right across the screen above the lanes is the scoreline showing the last five frames of the current player's score.

Down at the far end of the lane, the pin set-up mechanism (what is it called?) slides down and deposits the 10 pins in traditional formation. Again, this is accompanied by realistic sound effects. You are now ready to start bowling.

A short distance in front of the bowler is a small, yellow mark which can be moved to the left or right using the mouse pointer. It is towards this mark that the bowler will hurl his ball. Similarly, the bowler himself can be moved to the left or right.

At the bottom right of the screen is a small window showing a pair of vertical bars. If you've played Leaderboard, you will be familiar with the way this operates. The left bar has a speed zone at the top and is used to determine the pace of the throw while the second bar has a hook zone at the bottom and is used to set the amount of curve. The faster the throw, the less effect will any hook have.

Holding down the left mouse button causes the left bar to move rapidly towards the top where the speed zone lies. This zone contains an area covering minimum to maximum speed, allowing the indicator to move beyond the zone





results in a speed error in your throw. Releasing the button sets the speed.

The indicator then moves rapidly down the right bar towards the hook zone, which covers straight throws to maximum hook. A further press of the mouse button sets the hook. Letting the indicator move beyond this zone causes a direction error in your throw.

The indicators move rapidly so you've got to be nifty with your mouse button handling. As soon as the speed and hook have been set, it's too late for second thoughts – the bowler strides forward and releases the ball down the lane. The bowler's animation is impressively smooth and natural.

The ball thunders down the lane – again, accurate sound effects – and if you've aimed well crashes into the pins – further superb sound. If you haven't knocked down all the pins the mechanism rattles down and resets the remaining pins or, if the frame is complete, replaces them all.

Each frame consists of two throws. Knocking down all the pins with your first ball (a strike) or clearing all the remainder with your second (a spare) is greeted with a wild burst of applause and excited murmuring – a further example of the sound effects used in this program. Indeed, close your eyes while playing and you could almost swear you were actually in a 10 pin bowling hall.

Scoring is handled automatically. As well as the scoreline being updated as a player is throwing, a large overall scoreboard is brought on when all players have completed a frame.

Scoring is quite simple when you know how. A strike scores 10 pins plus the total number of pins knocked down with your next two throws. A spare scores 10 pins plus the pins knocked down with your next throw. If it is neither a strike or a spare, in other words, there are still one or more pins remaining at the end of your frame, you simply score the number of pins felled.

If you get a spare or a strike in the final tenth frame (each game is 10 frames long) you get an extra one or two throws respectively. A perfect score is 300, which can only be scored by getting 12 consecutive strikes (10 frames of 30 points). That should give you something to go for!

Additional features include restarting

from the beginning with the same names, abandoning a game and beginning completely afresh, obtaining a printout of the score sheet, and a demo mode.

The only doubt I have about the game is whether it is likely to keep any but the bowling enthusiast enthralled for very long. After all, there's a limit to the variety you can get with this type of game.

In Leaderboard, for example, there's a choice of clubs, holes, courses and wind conditions to keep the player stimulated and challenged. In a computerised bowling simulation, there is simply not that range of game factors available – after all's said and done, a bowling lane is a

bowling lane is a bowling lane.

Having said that, 10th Frame is undoubtedly a professional and entertaining game. The sound effects are remarkable and the graphics (realistic perspective and animation) are of a high quality. I enjoyed it immensely and I'm sure many of you will, too.

Bob Chappell

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

Stylish karate

Program: International Karate
Price: £19.95
Supplier: System 3, Davis House, 29 Hatton
Garden, London EC1N 8DA.
Tel: 01-831 7403

WITH the trend in martial arts games more or less at an end on 8 bit home computers, programmers of the world now unite to create the ultimate karate masterpiece for the Atari ST. With competing titles already available from Eidersoft, Microdeal and Gremlin, the question is what does International Karate have to offer?

In the area of graphics, it must be stated immediately that nothing matches the superlative style, presentation and attention to the minutest detail that International Karate boasts.

Set against the superb animated backdrops which include France, Egypt, Australia, USA, Venice and Hungary, the gameplay (one or two players) is very closely modelled on the original Fist game from Melbourne House.

Using 16 possible move combinations, including chest kick, front somersault, roundhouse and footsweep, the two exponents of the martial arts attempt to earn points by, basically, decimating each other.

Most physical movements and reactions are depicted, from the facial expressions (I'd love to know the words being mimed here) to the audible grunts and groans which serve to indicate even the slightest sensation of pain.

You can later earn the chance to take part in the tile smashing stage, where the on-screen judge, a portly little Chinese gives you your starter for ten. Bamber Gascoigne, eat your heart out.

While the animation, background graphics and sound effects are all of the highest quality, the overriding requirements of any computer karate game is that in the one-player mode, the com-



puter does its utmost to provide the human player with a taxing and challenging opponent. This is where International Karate comes slightly unstuck.

There were many occasions where the computer, for reasons of its own, decided to fight an invisible opponent on the other side of the screen.

Only by the use of short, sharp jabs was I able to persuade it to engage me once more in combat. Of course, in the two player mode this criticism will not apply, unless your real opponent has forgotten to wear his glasses, then it will be all too easy to take advantage.

I always thought that for feel and realism, the original C64 version of Fist has long been the mark by which to judge variants such as this. It is always very easy to be swayed by graphics and presentation.

And feel, so essential in a game of this type, is one thing that International Karate seems to lack. On the surface, everything seems to be right, but during gameplay you are left with the feeling that you have never really been in control of your destiny.

Victor Laszlo

Sound	8
Graphics.....	10
Playability	7
Value for money.....	7
Overall	7

Program: *Typhoon*

Price: £19.95

Supplier: *Gremlin Graphics, Alpha House,
10 Carver St, Sheffield S1 4FS.
Tel: 0742 753423*

Typhoon's a bit of a breeze

WITH the interest in arcade type space shoot-'em-ups on the lesser 8 bit machines continuing unabated, the Atari ST has quite rightly been targeted as the computer to produce something akin to the real thing.

With hi-res graphics, high-speed processing and a superb colour palette, the ST is the most likely popular contender to produce the ultimate in Galaxian style games. But how does Typhoon really rate?

On the surface it appears to have everything going for it, but after playing it for a few hours I was left feeling rather disappointed, and a mite frustrated.

The problem with Typhoon is not the beautifully-detailed vertically-scrolling backgrounds, the masses of attacking aliens, nor indeed the ground based flashing obstacles. I managed to fight my way through the starbelts, the asteroid fields, the jungle landscapes and yet



more snazzy orange asteroid belts, and quite enjoyed the action.

The problem is purely one of speed: The attackers are much too slow, their size too small, and more importantly, very poor choice of colour makes it near impossible at times to distinguish the aliens ships from the pretty backgrounds scrolling smoothly beneath.

More attention to this kind of crucial detail and perhaps less to the almost, by

now, obligatory use of punchy digitised music on the colourful title page, would have made for a much more playable game.

My frustration was largely due to having to return to Zone 1 after losing the last ship, a feature to continue play from the last zone achieved would have been more than welcome.

Amid the growing number of really zappy arcade-quality games on the ST, I feel that Typhoon, while visually quite appealing, will not satisfy those looking for long-lasting interest and fun. I did like the name though!

Victor Laszlo

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

Leisurely line from France

Program: *MGT*

Price: £24.99

Supplier: *Loricels, c/o Activision, 23 Pond
Street, Hampstead, London NW3 2PN.
Tel: 01-431 1101*

MGT is one of the new ST titles distributed by Activision, but programmed by the French software company Loricels. As with many French titles, it has a style and atmosphere of its own, owing little to American or British influences.

The scenario in MGT puts you in control of the Magnettle or MGT, the tank of the future. Your mission is to travel around the Crystal Palace (the French one that is) which has been invaded by alien bacteria. These nasty little germs obviously belong to the super-tough one per cent that Domestos cannot cope with.

MGT is basically a hovercraft-type vehicle under joystick control, and very manoeuvrable. It tends to drift as it floats through the palace rooms and it does take a while to learn how to guide it accurately.

But the luxurious PVC upholstery affords you the ease and comfort to negotiate the many and varied hazards on

your way to the conclusion of the mission the Room of Enlightenment.

MGT is presented in the forced 3D graphic perspective common in French games of the genre, with just a hint of the style Ultimate Play The Game were renowned for.

But here subtle shades of blue are the order of the day, giving the game an air somewhat similar to that of a Gitanes cigarette packet.

Play is relatively simple, and conforms closely to the original Amstrad version. Avoid the lurking scanners, slide across the slippery iceblocks, which have an annoying tendency to jump up and down, blast the droids and hazards, and make sensible use of the lift pads to raise you on to the upper levels.

The temptation while playing MGT is to take your time and explore the palace at your leisure, except for the motto of the EVL Corp who have kindly instructed you to switch the life support systems in the palace back on: "Finish the job or we'll break your neck!"

Some element of intelligence is required – for example you must shoot the correct symbols on the walls to free the laser-guarded doorways.



You have possibly realised by now that I have not become overly excited by MGT. It is a competent conversion of an Amstrad CPC original, with no advantage being taken of the ST's amazing capabilities in terms of graphics and processing power to enhance the game. Indeed, the packaging actually features Amstrad screenshots.

Sound effects are just about adequate, with what appears to be a modest attempt at sampled sound on the title screen.

If you like fast action games, responsive, noisy and full of adrenalin-producing excitement, with a wide selection of options available, then MGT is not the game for you. If you cannot cope with all of the above, then you might just like it.

Victor Laszlo

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

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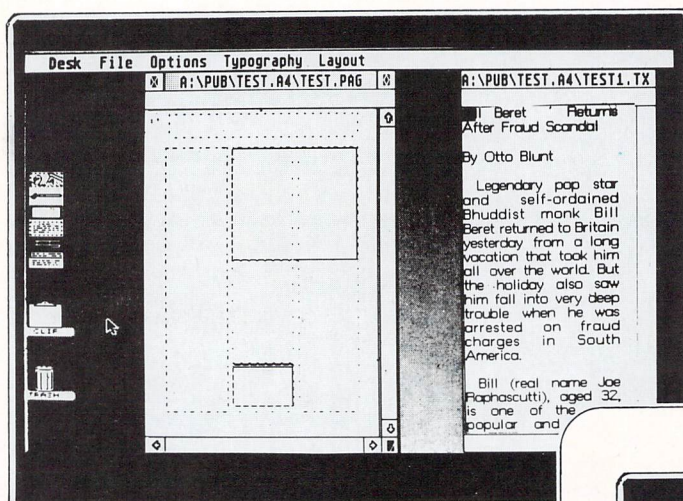
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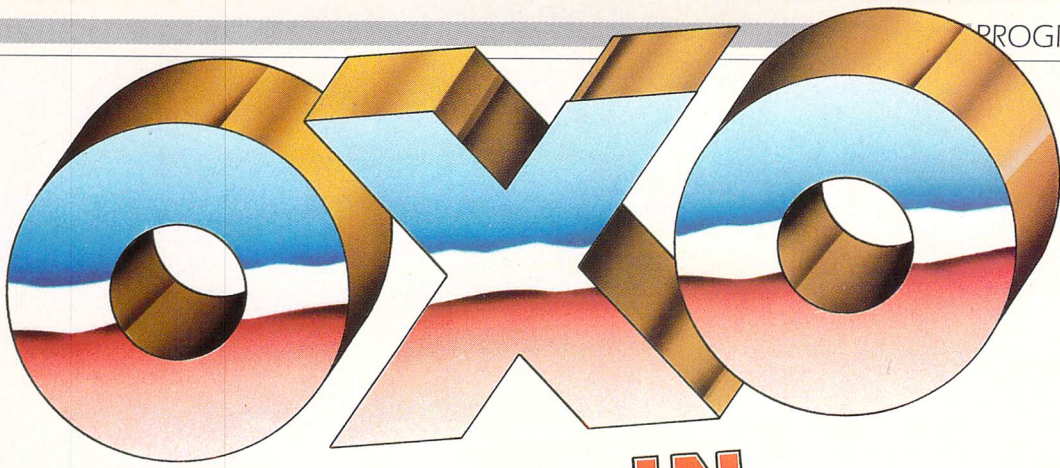
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By Kieron Leech

THIS is a three dimensional noughts and crosses game written in Atari Basic which makes heavy use of the mouse. You can play the ST or against another opponent.

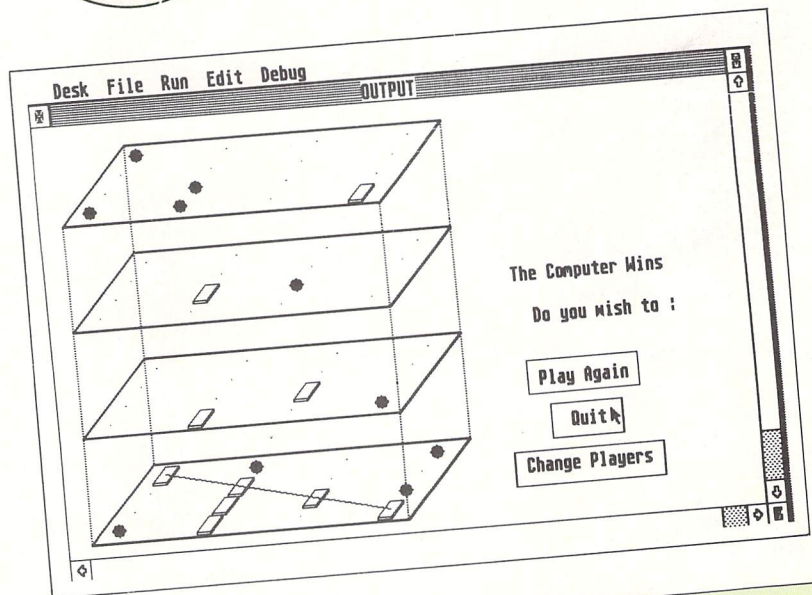
The program is well written and is split into several subroutines which are called often by various parts of the program. For example, the subroutine which controls the mouse is called by the instruction, board display and option portions of the program.

The mouse pointer is used to choose all options on the screen and to place your noughts (represented by tiles) and crosses (represented by counters) on the four layers of the three dimensional board.

When you select an item using the mouse you must hold down the button slightly longer than you would normally expect, because Atari Basic takes a while to catch up with your action.

If you play against the computer you will find it is difficult to beat and should give you hours of fun. Even if you find it relatively easy to win, you can always adapt the "thinking" portion of the program to make it a better match.

The program is written for a high resolution display. If you wish to use it in medium resolution you must change the variables in line 1660 as described in the listing. Most of the text will also have to be adjusted so that it appears in the correct place on the screen.



LINE BREAKDOWN

60	Transfers control to the title screen routine.	880-930	Wipes out the cross.
70-190	Draws a box at the move position.	940-1030	Draws a layer of the board.
200-230	Draws a circle at the move position.	1040-1080	Draws a dotted line which connects the layers.
240-310	Finds out where the mouse is.	1090-1130	Finds a free position on the board.
320-360	Waits for the mouse button to be pressed.	1140-1380	Check for winning positions.
370-430	Puts a border around a message.	1390-1530	Computer moves.
440-470	Prints some text and puts a border around it.	1540-1570	Delay routine.
480-520	Prints a message.	1580-1630	Display the title screen.
530-570	Wipes the last message.	1640-2360	The main game loop which handles the moves and display by calling the other subroutines.
580-820	Finds out where the player has moved and places an X or O there.		The program's data.
830-870	Places a cross showing the position.	2370-3180	

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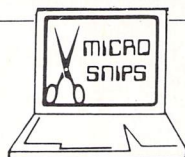
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```

10 REM 3D OXO
20 REM by K. Leech
30 REM (c) 1987 Atari ST User.
40 if peek(systab)<>1 then print "Please
use in High Resolution" else 60
50 stop
60 goto 1650
70 REM draw box at position given by
x,y
80 box:
90 color 1,0,0: linef x,y,x,y: color
1,0,1
100 linef x,y-6/ylim,x+12/xlim,y-6/ylim
110 linef x+12/xlim,y-6/ylim,x,y+6/ylim
120 linef x,y+6/ylim,x-12/xlim,y+6/ylim
130 linef x-12/xlim,y+6/ylim,x,y-6/ylim
140 linef x+12/xlim,y-6/ylim,x+12/xlim,y-4/ylim
150 linef x+12/xlim,y-4/ylim,x,y+8/ylim
160 linef x,y+8/ylim,x-12/xlim,y+8/ylim
170 linef x-12/xlim,y+8/ylim,x-12/xlim,y+6/ylim
180 linef x,y+8/ylim,x,y+6/ylim
190 return
200 REM draw a circle at the move
210 REM position given by x,y
220 circ:
230 pellipse x,y,6,5: return
240 REM work out where the mouse is
250 mouse:
260 a#=gb: cntl=peek(a#)
270 glbl=peek(a#+4): gtin=peek(a#+8):
gout=peek(a#+12)
280 addin=peek(a#+16): addout=peek(a#+20)
290 gemsy(79)
300 xpos=peek(gout+2): ypos=peek(gout+4)-38/ylim: pntr=peek(gout+6)
310 return
320 REM call mouse until button press
330 waitmouse:
340 gosub mouse: if ( pntr and 1 ) = 0
then 340
350 pass=0: if xpos>xs and xpos<xe and
ypos>ys and ypos<ye then pass=1
360 return
370 REM put border round message
380 bdr:
390 REM xs,xe,ys,ye = box start/end pos.
400 xs=17.083*(xp-(lenmess+3)/4-.4)
410 xe=17.083*(lenmess/2+.7)+xs:ys=(yp-1)*18.105:ye=(yp+.5)*18.105
420 linef xs,ys,xe,ys:linef xs,ye,xe,ye:linef xs,ys,xs,ye
430 linef xe,ys,xe,ye: return
440 REM print message
450 bordermess:
460 gosub prmess
470 goto bdr:
480 REM
490 REM print message in mess$
500 prmess:
510 lstlenms=lenmess: lenmess = len( mess$ )
520 gotoxy xp/xlim-lenmess/4,yp/ylim:
print mess$: return
530 REM erase last message from screen
540 wipe:
550 color 1,1,0: gosub bdr: color 1,1,

```

```

1: REM wipe out any border
560 gotoxy xp/xlim-lenmess/4,yp/ylim:
print spc( lenmess )
570 lenmess=lstlenms: return
580 REM determine players move
590 getmv:
600 mo=one: if mvid=one then mo=2
610 xp=30: yp=8: mess$="Your move "+pl
$(mo): gosub prmess:t1=lenmess
620 xp=30: yp=10: mess$=" Hint ": gosub
bordermess
630 gosub waitmouse:
640 if pass then mess$=" Wait ": gosub
prmess: gosub compmove: goto 720
650 REM Check to see if valid move
660 move=one: while move<65
670 if abs(xpos-k(move,one))<5 and abs
(ypos-k(move,zero))<5 then 690
680 move=move+one: wend: goto 630
690 if b(move)<>zero then 630
700 REM If valid, flash cross then
710 REM wait until okay or cancel
720 gosub wipe
730 xp=32:yp=11:mess$="ok": gosub bord
ermess:x1=xs:x2=xe:y1=ys:y2=ye
740 xp=31: yp=13: mess$="cancel": gosub
bordermess: sta = one
750 gosub flip: for i=one to 10
760 gosub mouse: if ( pntr and one )
= zero then 820
770 if xpos<xs or xpos>xe or ypos<ys o
r ypos>ye then 790
780 gosub wp: gosub wipe:xp=32:yp=11:
gosub wipe:goto 620
790 if xpos<x1 or xpos>x2 or ypos<y1 o
r ypos>y2 then 750
800 gosub wipe: xp=32:yp=11:gosub wipe
810 lenmess=t1:yp=8:xp=30:gosub wipe:
goto wp: REM return via wp
820 next: goto 750
830 REM put cross marking position
840 putcrs:
850 xt1=k(move,1):yt1=k(move,0): adx=
6/xlim: adx1=6/ylim: ady=6/ylim
860 linef xt1-adx,yt1,xt1+adx,yt1
870 linef xt1+adx1,yt1-ady,xt1-adx1,yt
1+ady: return
880 wp: REM wipe cross out
890 sta = 1: REM fall through to flip
900 flip: REM flash the cross
910 sta = -sta: if sta=1 then putcrs
920 color 1,1,0: gosub putcrs: color 1,1
930 linef k(move,1),k(move,0),k(move,1),k(move,0): return
940 REM draw a layer of board
950 layer:
960 xa1=x1/xlim: ya1=y1/ylim:xb=280/xlim:yb=60/ylim:xa2=xa1+xb
970 linef xa1,ya1,xa2,ya1: linef xa2,ya1,xa2+yb,ya1-yb
980 linef xa2+yb,ya1-yb,xa1+yb,ya1-yb:
linef xa1+yb,ya1-yb,xa1,ya1
990 xa2 = xa2 + one:if xlim = 2 then 1010
1000 linef xa1+1,ya1+1,xa2,ya1+1:linef
xa2+yb,ya1-yb+1,xa1+yb,ya1-yb+1
1010 if ylim = 2 then return
1020 linef xa2,ya1+1,xa2+yb,ya1-yb+1:linef
xa1+yb,ya1-yb+1,xa1,ya1+1
1030 return
1040 REM draw dotted line
1050 dtline:
1060 for i=y1/ylim to (y1+255)/ylim step 2
1070 linef x1,i,x1,i: next

```

```

1080 return
1090 REM find free position in line
1100 find:
1110 for j=one to 4: move=t(ln1,j)
1120 if b(move)=0 and move<>i then return
1130 next j: stop
1140 REM check for winning positions
1150 Check:
1160 chk2=chk/2: pass=zero:pri=4
1170 for i=one to 64: if b(i)<>zero then 1290
1180 cnt=zero:cnt1=zero
1190 for j=1 to 7: a=u(i,j): if a=zero
then 1240
1200 b = no(a): c=c(a)
1210 if c=chk and b=2 then cnt=cnt+one
1220 if c=chk2 and b=one then cnt1=cnt1+one:ln1=a
1230 next j
1240 if cnt>one then move=i: pri=one: goto 1290
1250 if cnt=zero or cnt1=zero or pri=one then 1280
1260 pri=2: if block then move=i else gosub find
1270 goto 1290
1280 if cnt1>2 and pri=4 then pri=3: if block then move=i else gosub find
1290 next i
1300 if pri<4 then pass=one
1310 return
1320 REM see if there is a winner
1330 checkwin:
1340 pass=zero:for p=one to 76: if c(p)=chk then 1360
1350 next: return
1360 for i=one to 4:move=t(p,i): if b(move)=zero then pass=one: return
1370 next i
1380 stop
1390 REM
1400 compmove: REM computer moves
1410 if nmv<5 then 1440: REM if less than 5 moves don't bother checking
1420 chk=3*mvid: gosub checkwin: if pass then return
1430 chk=-chk: gosub checkwin: if pass then return
1440 block=zero: chk = 2*mvid: gosub check: if pass then return
1450 block=one: chk = -chk: gosub check: if pass then return
1460 REM no good moves found, so go for the highest placed position
1470 max=0: ptr=one: for i=1 to 64: if b(i)<>0 then 1520
1480 a=zero: j=one
1490 p=u(i,j): if p<>0 then a=a+1+abs(c(p)):j=j+1:if j<8 then 1490
1500 if a>max then max=a:mvp(1)=i: ptr=one: goto 1520
1510 if a=max then mvp(ptr)=i: ptr=ptr+one
1520 next i
1530 move=mvp(int(rnd(1)*ptr)+one): return
1540 REM
1550 delay: REM cause a delay
1560 for de=1 to 3000: next: return
1570 REM
1580 title: REM print out the title
1590 clearw 2
1600 xp=18:yp=6:mess$="Three D Noughts and Crosses": gosub prmess
1610 yp=8:mess$="Written by K. Leech":

```



```

gosub prmess
1620 return
1630 REM
1640 REM The program
1650 fullw 2: color 1,1,1: one=1: zero=
0
1660 xlim=1:ylim=1:Rem xlim and ylim =2
for low res
1670 gosub title
1680 xp = 18: yp=12 : mess$="Please wai
t while I read in data"
1690 gosub prmess
1700 REM random number generator
1710 gosub mouse: randomize xpos*ypos/1
00
1720 dim t(76,4),u(64,7),c(76),b(76),k(
64,1),no(76),mvp(20),pl$(2)
1730 for p=one to 76 : for i=one to 4 :
read t(p,i): next i,p
1740 for s=one to 64: for j=one to 7: r
ead u(s,j): next : next
1750 REM work out the screen x and y fo
r of each position
1760 for i=0 to 3: t1=i*16: t2=i*85: fo
r j=zero to 3
1770 t3=j*4+t1 + one: t4=15*j + 45: t5=
( 344 - (19+t2+14*j))/ylim
1780 for k=zero to 3: n = k+t3: k( n,on
e)=( 80*k+t4 )/xlim
1790 k(n,zero)=t5 : next k,j,i: gosub w
ipe
1800 REM Find out who plays who, then g
et names
1810 xp=18:yp=13: mess$=" Play the comp
uter": gosub bordermess
1820 x1=xs:x2=xe:y1=ys:y2=ye
1830 yp=15: mess$=" Play an opponent "
: gosub bordermess
1840 gosub waitmouse :if xpos<x1 or xpo
s>x2 then 1840
1850 if not(ypos>ys and ypos<ye or ypos
>y1 and ypos<y2 ) then 1840
1860 xp=18:yp=15:gosub wipe:yp=13:gosub
wipe
1870 if ypos>y2 then 1910
1880 pl$(1)="The Computer" : pl=1
1890 gotoxy 10/xlim,15:input " Enter yo
ur name ";pl$(2)
1900 goto 1950
1910 gotoxy 10/xlim,15: input "Enter pl
ayer 1's name ";pl$(1)
1920 gotoxy 10/xlim,17: input "Enter pl
ayer 2's name ";pl$(2)
1930 pl=2
1940 REM Setups for each game
1950 nmv=0: for i=1 to 76: c(i)=zero: b
(i)=zero:no(i)=zero: next i
1960 clearw 2: color 1,1,1: REM clear t
he screen then put the board up
1970 x1=20:y1=334: gosub layer: y1=249:
gosub layer : y1=164: gosub layer
1980 y1 = 79: gosub layer: gosub dtline
: x1=300: gosub dtline
1990 y1=19: x1=80: gosub dtline: x1=360
: gosub dtline
2000 for i=1 to 64 : linef k(i,1),k(i,0
),k(i,1),k(i,0): next:REM put points
2010 REM decide which player goes first
2020 mo = int(rnd * 2)+1: xp = 28:yp=8:
mess$=pl$(mo):gosub prmess
2030 yp=10:mess$="goes first": gosub pr
mess
2040 gosub delay : gosub wipe: yp=8: go
sub wipe
2050 mvid=one: if mo=2 then mvid=-one
2060 REM loop until win or draw
2070 while nmv<65

```

```

2080 mvid=-mvid: if mvid=one or pl=2 th
en gosub getmv: goto 2120
2090 xp=28:yp=8:mess$=pl$(1): gosub prm
ess
2100 xp=29:yp=10:mess$="will now move":
gosub prmess
2110 gosub compmove: gosub wipe:xp=28:y
p=8: gosub wipe
2120 x=k(move,1):y=k(move,0): if mvid=-
1 then gosub box else gosub circ
2130 b(move)=mvid:for j=one to 7:p=u(mo
ve,j): if p=zero then 2180
2140 c(p)=c(p)+mvid:no(p)=no(p)+one
2150 if c(p)=-4 then 2210
2160 if c(p)= 4 then 2230
2170 next
2180 nmv=nmv+one: wend
2190 REM All position used - a draw
2200 xp=29:yp=7:mess$="The game was a d
raw": gosub prmess: goto 2280
2210 if pl=2 then xp=29:yp=7:mess$="Con
gratulations": gosub prmess
2220 xp=29:yp=8:mess$=pl$(1)+" Wins": g
oto 2250
2230 xp=29:yp=7:mess$="And "+pl$(2)+" w
ins"
2240 REM line connecting winning pos.
2250 gosub prmess: for i=1 to 3:m1=t(p,
i):m2=t(p,i+1)
2260 linef k(m1,1),k(m1,0),k(m2,1),k(m2
,0) : next
2270 REM See what the player(s) want
2280 xp=29:yp=10:mess$="Do you wish to

```

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```

:": gosub prmess
2290 xp=28: yp=13: mess$="Play Again":
gosub bordermess
2300 x1=xs:x2=xe:y1=ys:y2=ye
2310 yp= 15: mess$=" Quit ": gosub bord
ermess:x3=xs:x4=xe:y3=ys:y4=ye
2320 yp=17: mess$="Change Players": gos
ub bordermess
2330 gosub waitmouse: if pass then gosu
b title: goto 1810
2340 if xpos>x3 and xpos<x4 and ypos>y3
and ypos<y4 then end
2350 if xpos>x1 and xpos<x2 and ypos>y1
and ypos<y2 then 1950
2360 goto 2330
2370 data 1,2,3,4,5,6,7,8,9,10,11,12,13
,14,15,16,17,18,19,20
2380 data 21,22,23,24,25,26,27,28,29,30
,31,32,33,34,35,36,37,38,39,40
2390 data 41,42,43,44,45,46,47,48,49,50
,51,52,53,54,55,56,57,58,59,60
2400 data 61,62,63,64
2410 data 1,5,9,13,2,6,10,14,3,7,11,15,
4,8,12,16,17,21,25,29
2420 data 18,22,26,30,19,23,27,31,20,24
,28,32,33,37,41,45
2430 data 34,38,42,46,35,39,43,47,36,40
,44,48,49,53,57,61,50,54,58,62
2440 data 51,55,59,63,52,56,60,64,1,6,1
1,16,4,7,10,13,17,22,27,32
2450 data 20,23,26,29
2460 data 33,38,43,48,36,39,42,45,49,54
,59,64,52,55,58,61,1,17,33,49
2470 data 2,18,34,50,3,19,35,51,4,20,36
,52,5,21,37,53,6,22,38,54
2480 data 7,23,39,55,8,24,40,56,9,25,41
,57,10,26,42,58,11,27,43,59
2490 data 12,28,44,60,13,29,45,61,14,30
,46,62,15,31,47,63
2500 data 16,32,48,64,1,21,41,61,2,22,4
2,62,3,23,43,63,4,24,44,64
2510 data 8,23,38,53,12,27,42,57,16,28,
40,52,15,27,39,51,14,26,38,50
2520 data 13,25,37,49,9,26,43,60,5,22,3
9,56,1,18,35,52,4,19,34,49
2530 data 16,31,46,61,13,30,47,64,1,22,
43,64,4,23,42,61,13,26,39,52
2540 data 16,27,38,49
2550 data 1,17,33,41,57,69,73
2560 data 1,18,42,58,0,0,0
2570 data 1,19,43,59,0,0,0
2580 data 1,20,34,44,60,70,74
2590 data 2,17,45,68,0,0,0
2600 data 2,18,33,46,0,0,0
2610 data 2,19,34,47,0,0,0
2620 data 2,20,48,61,0,0,0
2630 data 3,17,49,67,0,0,0
2640 data 3,18,34,50,0,0,0
2650 data 3,19,33,51,0,0,0
2660 data 3,20,52,62,0,0,0
2670 data 4,17,34,53,66,72,75
2680 data 4,18,54,65,0,0,0
2690 data 4,19,55,64,0,0,0
2700 data 4,20,33,56,63,71,76
2710 data 5,21,35,41,0,0,0
2720 data 5,22,42,69,0,0,0
2730 data 5,23,43,70,0,0,0
2740 data 5,24,36,44,0,0,0
2750 data 6,21,45,57,0,0,0
2760 data 6,22,35,46,58,68,73
2770 data 6,23,36,47,59,61,74
2780 data 6,24,48,60,0,0,0
2790 data 7,21,49,66,0,0,0
2800 data 7,22,36,50,65,67,75
2810 data 7,23,35,51,62,64,76
2820 data 7,24,52,63,0,0,0
2830 data 8,21,36,53,0,0,0
2840 data 8,22,54,72,0,0,0
2850 data 8,23,55,71,0,0,0
2860 data 8,24,35,56,0,0,0
2870 data 9,25,37,41,0,0,0
2880 data 9,26,42,70,0,0,0
2890 data 9,27,43,69,0,0,0
2900 data 9,28,38,44,0,0,0
2910 data 10,25,45,66,0,0,0
2920 data 10,26,37,46,61,65,76
2930 data 10,27,38,47,64,68,75
2940 data 10,28,48,63,0,0,0
2950 data 11,25,49,57,0,0,0
2960 data 11,26,38,50,58,62,74
2970 data 11,27,37,51,59,67,73
2980 data 11,28,52,60,0,0,0
2990 data 12,25,38,53,0,0,0
3000 data 12,26,54,71,0,0,0
3010 data 12,27,55,72,0,0,0
3020 data 12,28,37,56,0,0,0
3030 data 13,29,39,41,66,70,76
3040 data 13,30,42,65,0,0,0
3050 data 13,31,43,64,0,0,0
3060 data 13,32,40,44,63,69,75
3070 data 14,29,45,61,0,0,0
3080 data 14,30,39,46,0,0,0
3090 data 14,31,40,47,0,0,0
3100 data 14,32,48,68,0,0,0
3110 data 15,29,49,62,0,0,0
3120 data 15,30,40,50,0,0,0
3130 data 15,31,39,51,0,0,0
3140 data 15,32,52,67,0,0,0
3150 data 16,29,40,53,57,71,74
3160 data 16,30,54,58,0,0,0
3170 data 16,31,55,59,0,0,0
3180 data 16,32,39,56,60,72,73

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Back-Pack

A cartridge-based pack of general purpose utilities for every ST owner. When plugged into the cartridge port of any ST, all Back-Pack facilities are available whilst using GEM compatible applications and, because it resides in ROM, it occupies no valuable RAM space.

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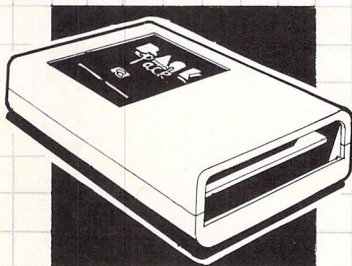
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DISC

ST Doctor

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Memory editor

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Linked to the memory editor are many other useful features, including: Copy memory block, Print block, Save block, Fill block, Search for any character or string of characters, Memory map - showing a pie chart of memory usage.

Disc editor

Similar to the memory editor described above, this allows any disc sector or complete file to be loaded into free memory and examined/edited. Other related features include: Fast disc formatting, File recovery, Print file contents, Save a file, Join files, Search disc or file for a specified string, Show free disc space, delete file, Show file size, move to and examine any specified track and sector.

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Computer Concepts

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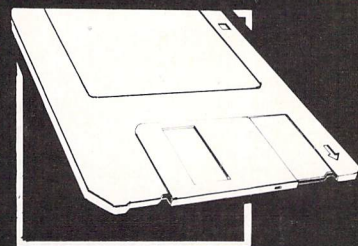
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Making ST music

**Find out all about
the Midi interface
with Ian Waugh**

THE introductory manuals don't have a lot to say about those two ports on your machine labelled Midi In and Midi Out. They tell you that Midi is an acronym for Musical Instrument Digital Interface and that these ports give you access to the latest generation of musical instruments – and that's it.

Apart from the other excellent aspects of the ST, the inclusion of Midi sockets plus its memory capacity have made it the premier micro for music control. In the short time since its launch, upwards of 30 Midi programs have appeared, which shows how much confidence software producers have in the future of the ST as a Midi control centre. Let's dive behind those sockets and see what's there.

As the manuals say, Midi is a communi-

cation system which allows musical instruments to "talk" to each other. They do this with digital signals which flow between the Midi ports. Midi uses serial data transmission rather like the RS232, only faster and much more advanced.

Parallel transmission would be faster still and much more efficient but serial is cheaper which means it can be included on low-cost instruments, making Midi available to those of us with less than a

mega bank balance.

Midi can transmit and receive information on up to 16 channels which means it can control up to 16 Midi instruments. These are tuned to a channel number rather as you would tune a TV set into a TV station.

The Midi Out socket transmits information and the Midi In socket receives it. That's straightforward enough. There is also another socket called Midi Thru which duplicates the data arriving at the Midi In socket and this is used to pass on instructions to other synthesisers linked to the Midi Thru.

The ST doesn't have a Midi Thru as such but the Midi Out has been wired to provide a Midi Thru function which will be very useful in many situations.

Midi messages can appear quite complex if you translate them into their constituent bits and bytes. The technically-minded may like to know that behind the Midi sockets lies an optoisolator and a UART (Universal Asynchronous Receiver-Transmitter) which operates at 31.25 Kbaud with a start bit, eight data bits and a stop bit.

Fortunately, most Midi software protects you from the intricacies of the system, but some editing packages will let you get right down there among the bits and bytes if you wish. It is, however, sometimes handy to know that a complete note on instruction comprises three bytes which inform the system of the function, the Midi channel, the key number of the note and the key velocity or volume.

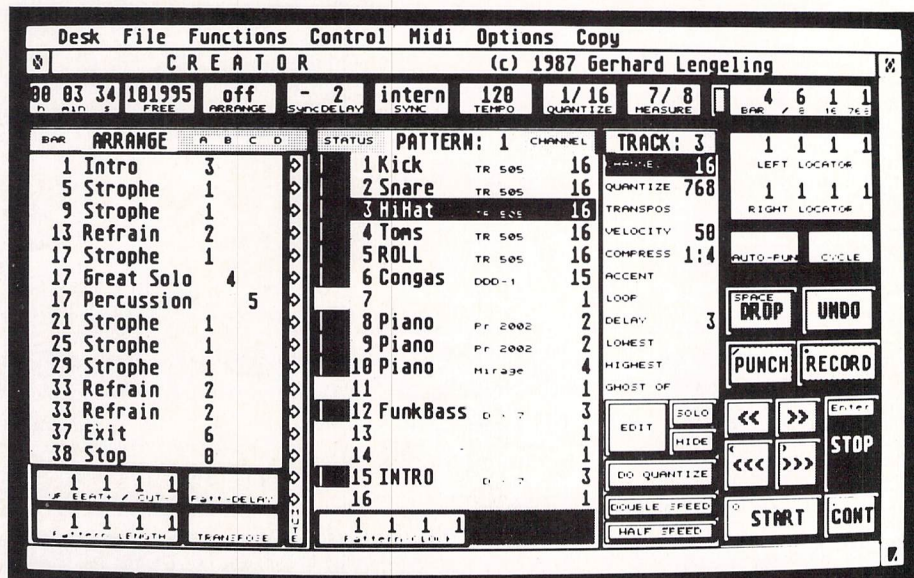
You can see that Midi crams quite a lot of information into a relatively small space and that's just about as technical as we're going to get in this article.

What can you do with it? Well, Midi programs tend to fall into two main areas – sequencers and voice editors. A sequencing program allows you to record a piece of music a part at a time, even a note at a time, so you can build up a recording exactly as you want it.

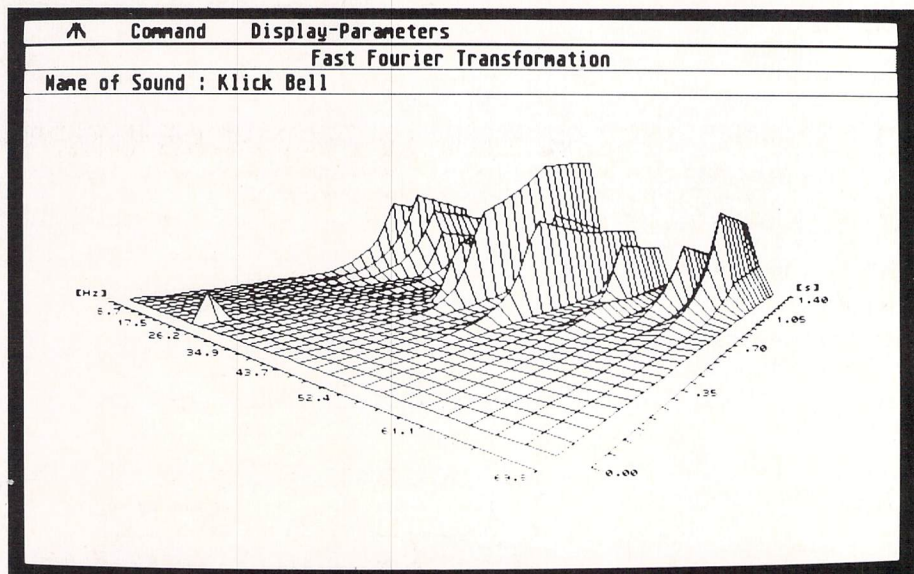
There are two ways of entering notes into a sequencer: Real-time and step-time. In real-time, the program records what you play exactly as you play it. With step-time you input each note or chord one at a time. This is obviously slower but good software will make the process as fast as possible and you know the result will be note perfect.

Some ST sequencers give you up to 60 tracks to play with and most have substantial editing facilities so you can easily build up a song from any part of the tracks you've recorded.

You can program voice changes, tempo changes and control external drum machines and Midi effects units from the main program. Most programs simulate a tape machine in operation so ▶



Screen shot from C-Lab's Creator showing Pattern and Track allocations



Screen shot from C-Lab's X-alyser showing a 3D (fourier) analysis of a DX7 sound

◁ the jump from audio to digital recording is not going to give you future shock.

Voice Editors help you to program a synthesiser. For example, most digital synths, magic beasts though they may be, only display and allow you to alter one parameter at a time. A Voice Editor gives an on-screen display of all the parameters, and special features such as automatic scaling help make the programming process as painless as possible. Voice Editors also let you store banks of voices on disc which can save you the cost of the program in ram cartridges alone.

A fascinating feature of many of the new generation Voice Editors is their in-built artificial intelligence which will create totally new voices for you. Some of them will tweak an existing voice if it's not quite right, too. Others such as X-alyser will sort and store voices for you by timbre to help you find a particular sound quickly. This program will also transfer DX sounds directly to a sampler.

One of the new exciting applications which has found a home in the ST, is sampling. Hybrid Arts' ADAP is a professional sampling system based around the ST which produces CD quality results.

There are also Notation programs which print out a score of your music and can produce very professional output.

Moving a little more upmarket – although not all that far up – are sequencing programs with SMPTE (Society of Motion Picture and Television Engineers) interfacing facilities. SMPTE is a time code standard used in films and video recording which helps composers to sync their music to the images on a film – and you know how important that is.

Finally, mixing programs are starting to appear which give automated control over a mixing desk. C-mix by Jellinghaus can control a 16 track mixer and can be expanded to handle up to 64 tracks.

Applications such as these were unthought of when Midi was first developed but now, partly thanks to the ST they are a reality. New applications will no doubt continue to be developed. With all that memory, even games writers have room to include Midi soundtracks with their programs, for example, Little Computer People and Starglider. It adds another dimension to the game.

The ST is already finding favour with professional musicians and is being used by bands such as Dire Straits and Marillion. Ashley Ingram of Imagination is using the Hybrid Arts programs for a current project and many musicians, professional and amateur, are buying an ST specifically to use for making music.

There is no doubt that the ST has the most powerful potential for music production of any personal computer and the coming year is going to see the release of even more exciting products. We'll be covering them in detail as they arrive. □

Atari ST Midi Software Programs

Sequencers				
Company	Product	Trks	Comments	Price
Dr. T	KCS	48		£250.00
Steinberg	PRO-24	24		£285.00
C-Lab	Creator	64		£285.00
Passport	MidiSoft Studio	32	Real- and step-time editing	£ 99.95
Hybrid Arts	EZ-Track	20	Introductory program	£ 59.95
Hybrid Arts	SyncTrack	60	Includes Hardware	£349.95
Hybrid Arts	SmpteTrack Pro	60	Smptetrack + SmpteMate + GenPatch	£539.95

Voice Editors				
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Dr. T	CZ-101 Ed.	DX100/27/1		£120.00
Dr. T	DX Heaven	CZ-101		£120.00
Dr. T	Kawai K-3 Ed.	DX7	Kawai K-3	£120.00
Dr. T	Matrix 6 Ed.		Oberheim	£120.00
			Matrix 6	
Steinberg	PRO-Creator	DX/TX	Creates voices	£150.00
Steinberg	S-900 Soundworks	Akai S-900		£285.00
Steinberg	Mirage Soundworks	Mirage		£285.00
Steinberg	Prophet 2000	Prophet 2000	Available soon	TBA
Steinberg	Emax	Emax	Available soon	TBA
C-Lab	X-alyser	DX7	3D display of voice	£199.00
Hybrid Arts	CZ-Android	CZ	Creates voices	£89.95
Hybrid Arts	DX-Android	DX/TX	Creates voices	£219.95
Hybrid Arts	GenPatch		Generic patch librarian	£139.95
Hybrid Arts	Midi Utilities		Programs Genpatch files	£49.95

Sampling				
Company	Product	Resolution	Comments	Price
Hybrid Arts	ADAP 1	16-bit	44.1kHz Sampling Rate	£2499.00
Hybrid Arts	ADAP 2			TBA

Notation				
Company	Product		Comments	Price
Dr. T	Copyist			£250.00
Steinberg	Music Notation		Available soon	TBA
Hybrid Arts	EZ-Score		Available soon	£89.95

Recording				
Company	Product		Comments	Price
Hybrid Arts	SmpteMate		Syncs external recorder with SmpteTrack Midi Recorder	£479.95

SUPPLIERS

Dr. T: Take Note, Unit 7, 43 Carol Street, Camden Town, London NW1 0HT. Tel: 01-485 2988.

Steinberg: Steinberg Research UK, The Spendlove Centre, Charlbury, Oxford, OX7 3PQ. Tel: 0608 811325.

C-Lab: Sound Technology, 6 Letchworth Business Centre, Avenue One, Letchworth, Herts, SG6 2HR. Tel: 0462 675675.

Passport: Rittor Music Europe Ltd., 24 Broomgrove Gardens, Edgware, Middlesex, HA8 5SJ. Tel: 01-952 5302.

Hybrid Arts: Syndromic Music, 24-26 Avenue Mews, London, N10 3NP. Tel: 01-444 9126.



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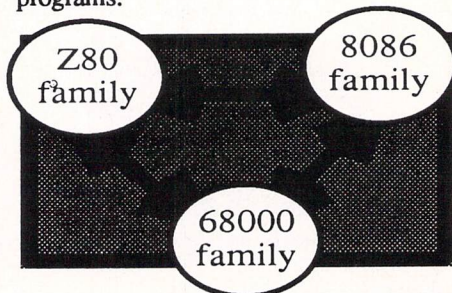
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Burglars and bureaucrats

COMING soon from Rainbird is *Guild of Thieves*, an adventure by Magnetic Scrolls. It was these very same people, you will remember, who wrote *The Pawn* so it promises to be very good.

Guild of Thieves is set in Kerovnia, as was *The Pawn*, and like its predecessor contains many complex puzzles and 30 of those superb illustrations which made everybody gasp when they first saw them on the ST.

The adventure begins as you apply to join an elite band of professional brigands, the Guild. To be admitted, you must pass a test that will tax your wits and ingenuity to the limits.

The head of the Guild leaves you alone on an island with the express order to loot the place and return with the spoils. But nothing is straightforward. On the island you'll meet up with a bewildering assortment of birds, beasts and other inhabitants. But which are friend and which are foe?

Priced at £24.95, *Guild of Thieves* is something to look forward to with great anticipation.

Infocom has a new text adventure, *Bureaucracy*, ready for shipment now. Written by Douglas Adams (he of *Hitch Hiker's Guide to the Galaxy* fame), *Bureaucracy* is an hilarious journey though a labyrinth of red tape.

You start in your posh new apartment, getting ready to go to Paris on a combined business and pleasure trip. Always provided, of course, that the money order your boss has posted to you turns up in time.

What ensues has you enmeshed in a series of bureaucratic bungles and frustrating fiascos. Along the way, you'll tangle with an officious bank and traipse round an airport of the most bewildering kind.

Included in the eccentric cast of characters are a greedy llama and a paranoid owner of a camouflaged house. And when you eventually find

yourself hanging upside down from a tree in the heart of the Zalagasian jungle, you'll realise that you're well and truly caught up in the bureaucratic system.

As usual, the Infocom presentation and packaging is superb and includes an official letter from your boss, a credit card application form (in triplicate), a skinny pencil, a helpful brochure from your bank and a charter membership flyer for *Popular Paranoia* magazine. Can't wait to get my hands on it.

Activision has something very unusual about to hit your local computer store. *Portal* is a sort of computer novel and has been heralded as ushering in a new era of computer literature.

Set in the year 2106, *Portal* has you returning from a 100 year voyage only to find a peaceful but apparently deserted world. The only way you might find out what has happened is to delve into the innermost recesses of

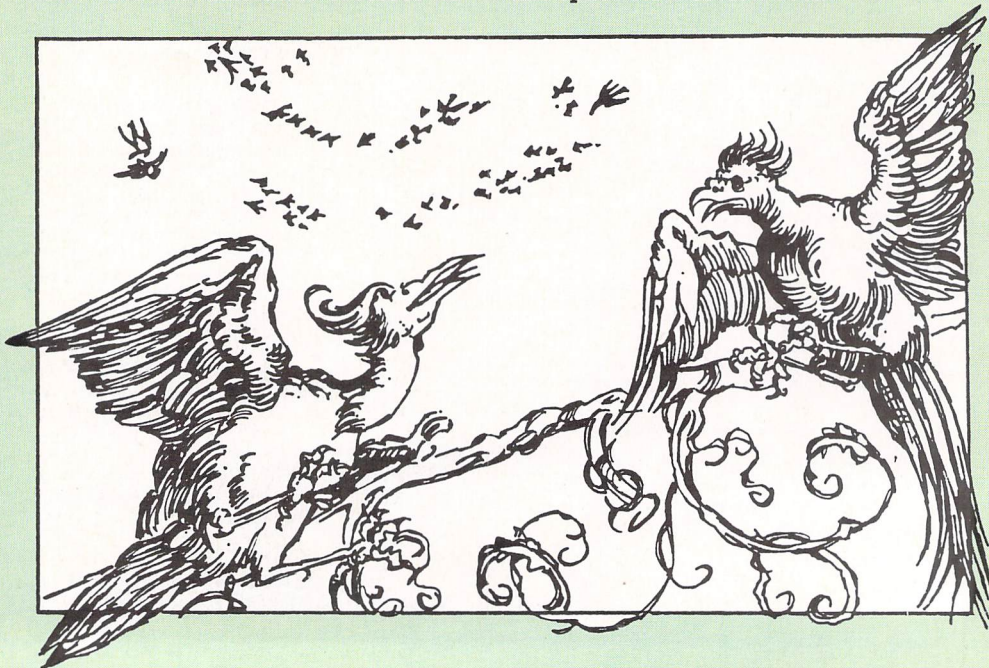
the Worldnet databases.

As you scan the records of vanished civilisations, the slim threads of your knowledge begin to widen and grow. Homer, the sole survivor of the lost world, is revived as the game unravels. But he is not a human: Homer is a biological computer.

Apparently, *Portal* does not demand the solving of puzzles in a linear fashion as so many adventures do. Rather, the construction of the game allows the player to direct his own research and so controls the development in what seems to be quite an original way.

Although it may sound a little like Infocom's *A Mind Forever Voyaging*, *Portal* is a mixture of graphics and text, the graphics being mainly icons used to drive the interaction of the game.

The game is so large that it comes on multiple discs. Judging by what I've already seen from the Commodore 64 version just released, the ST edition of *Portal* looks set to be a winner. Watch this space for a review soon.



Hints and tips

My heartfelt thanks go out to Dominic Vaessen of Billericay, Essex who has kindly written in with many tips on playing The Pawn. Dominic is 14 years old and has completed this pretty tough adventure – a clear case of a wise head on young shoulders if ever there was one.

Coincidentally, a number of readers, including Paul Smith of Darwen in Lancashire, have written requesting help with this very same adventure. Thanks to Dominic, I am able to give some assistance here.

Brian Jenkins of Cardiff would like to make some progress with Mindshadow. While I can aid on many ST adventures. I cannot assist with this one – can anyone else help?

James Clark of Whitstable and many others are wrestling, so to speak, with Leather Goddesses of Phobos. Having just finished it I am pleased to abet you in your struggles to overcome these

unspeakable threats to world peace.

In case you have not worked out how to decode my hints and tips (a bad omen for your future success with adventures if that is the case) let me briefly explain.

The tips are written backwards and then split into blocks of four letters. To decode, simply start from the right hand end of the sentence and read from right to left. Working out where one word ends and the next begins is usually pretty obvious once you have written the letters down in the correct order.

The reason for coding the clues in this way is to avoid any possibility of an adventurer catching sight of a clue he really did not wish to see. Breaking the sentence into groups of four letters, rather than leaving the words in their original form but backwards, is intended to make the clue indecipherable to the casual eye. Why not share your adventure experiences, problems (and solutions!) with other readers by

writing to me, Brillig, at the editorial address given at the front of the magazine.

THE PAWN

Guru laughing himself silly?
TRIH SRUO YHTI WDNA BTSI
RWRE VOC

Want an implement to help deal with the boulder?

TRIH SEHT HTIW REHT EGOT
EKAR DNAE OHEI T

Can't find a light?

GNIR AELC NIPM UTSM ORFS
TNET NOCH CUOP XIM

LEATHER GODDESSES OF PHOBOS

Headlight unreachable?
NWOD BMIL COTD NEIR FROF
EPOR EKAM NEHT TEEH SPIR
Beam giving you a headache?
LLEW EHTA IVTI OTTR OPSN
ARTN EHTK CODY CIOT EGRA
BDNE S

Infocom goes to Hollywood

Program: *Hollywood Hijinx*

Price: £24.99

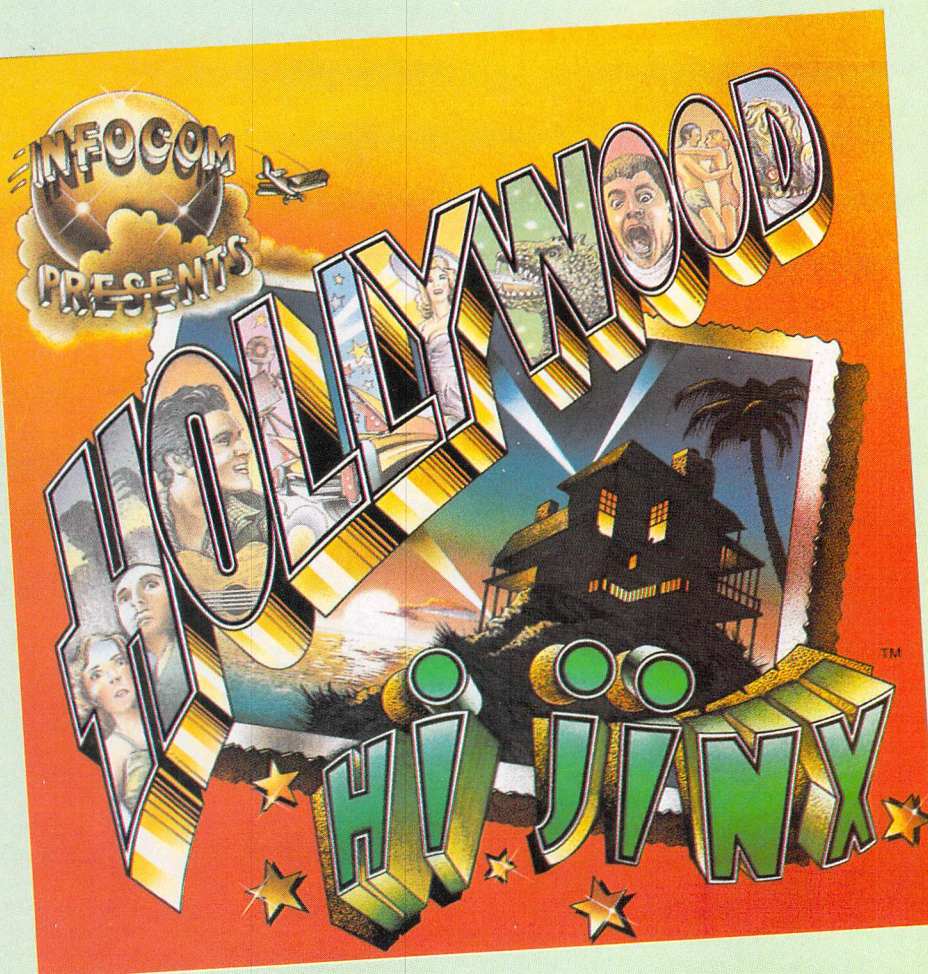
Supplier: Infocom c/o Activision, 23 Pond Street, Hampstead, London. NW3 2PN
Tel: 01 431 1101

DO YOU remember these classic B movies?: Meltdown On Elm Street, It Came From The Neighbour's House, Vampire Penguins, A Corpse Line, The Seven Dwarves Do Dallas?

And what about that famous series featuring the all-American fighting mailman, Buck Palace? Who could forget Postage Due, where Buck took on five New York Mafia families who tried to cheat the Post Office out of eight cents postage?

And Address Unknown in which Buck tracked down and rescued some US POWs still held in Vietnam, returning them to safety by mailing them to the Pentagon disguised as parcels. Surely you recall these Hollywood hits?

No? Well, I can't say I'm surprised. Art they ain't. These masterpieces of ▶





◁ cinematic slush have all sprung from the fertile imaginations of those adventure experts over at Infocom.

According to their very latest text adventure, *Hollywood Hijinx*, these and many other successful, low budget pot boilers were all produced by your uncle, the one and only Buddy Burbank of Hollywood.

Many's the happy time you spent as a child with your uncle and his wife, your Aunt Hildegard, down on their luxurious ocean-front mansion at Mailbu. The only fly in the ointment was another regular visitor, little cousin Herman, as mischievous and precocious a brat as you could ever wish to kick up the pants.

Sad to say, Uncle Buddy passed away a while back and now Aunt Hildegard has shuffled off this mortal coil to join him.

They were both very fond of you. In fact, you were their favourite nephew and Auntie has therefore left everything to you in her will... on one condition (where there's an Infocom will, there's always a catch).

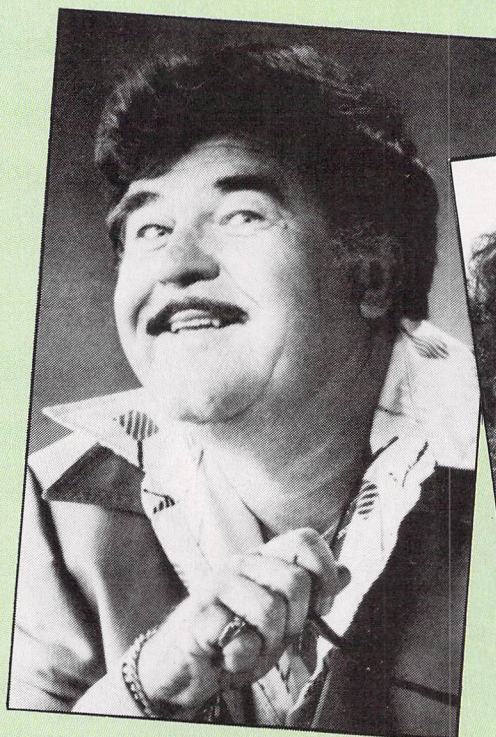
The stipulation is this: In order to inherit the Burbank bundle, you've got to find - within 12 hours - 10 "treasures" that have been hidden in the Malibu house and grounds. The treasures take the form of memorabilia lifted straight from the sets of some of Buddy's old films.

Now some say the place is haunted but you know better. Uncle Buddy loved nothing more than to fill the place with outlandish booby traps, goofy gags and kitsch of the most excruciating kind. I know for a fact that there's a private screening room, and the gold-plated taps in the bathroom are shaped like Oscars.

The game begins with you being dumped outside the house, armed with a photo of Buddy, a letter from your aunt and a flashlight. A copy of the letter and photo come with the package, which is as sumptuously presented as only Infocom knows how.

Included with the package are a copy of *Tinsel World*, a glossy gossip magazine that gives you the low down on the characters and locations featured in the game, and a lucky palm tree swizzle stick.

On the back of the photo, Buddy has scrawled some weird, home-spun verses which he hopes will give you a few clues. I guess these are only going



Flashy Buddy Barbook (left) and one of the cast of *Meltdown* on Elm Street

to begin to make some sense when you're well into the game.

At the entrance to the house and grounds is an imposing stone statue of Buck Palace, the fighting mailman, showing him armed to the teeth and ready for action. His shoulder-high bazooka is pointing north.

The oak front door is locked, as is the patio door, and there seems no obvious way to gain entry to the house. The mailbox opens up easily enough, though, revealing a yellowing piece of paper that looks like a map of some kind, a business card and a copy of *Status Line* (the latter being really a plug for Infocom's new newsletter, formerly called the *New Zork Times*).

The gardens are attractive and a cursory exploration reveals a small shovel and an orange punched card. Hmmm. Don't know what the pond is for though. Wonder what would happen if I throw the yellowing piece of paper in it?

That weedy-looking rose bush draws attention to itself. Wonder what it smells like? Yukkk! You now recall that it's the very same one you were sick on when you once played here as a child!

Still can't get into the house. What's this cannon with a fuse sticking out? Aha! There's a small compartment under one of the wheels. A quick push and ...darn! Can't shift the cannon - it's too heavy. A quick walk down the cliff path and, hooray, someone's left a ladder here. Great! Just cart it up the cliff and ... darn. It's too heavy and I just keep sliding back down when I try to carry it up.

But what's this? A hatch. Darn, it won't open. Ah well, let's try a walk around the hedge maze. Oh crumbs, I wish I hadn't. This maze is enormous.

No good trying to map it out by the tried and trusted method of dropping objects; for this maze you'd need more objects than are contained in all the Infocom games put together. There must be an easier way.

Hello, what's this? I could have sworn the bazooka on the statue was pointing north when I arrived. Curiouser and curiouser. Just time now for a brisk walk down these rickety wooden steps to the beach. Darn, there's a gap here. Shall I try to jump it or shan't I? Oh, go on, be a devil. Fade to black and cut!

It did take a while, but I finally got into the house but I've hit another brick wall as it were. Yes, Infocom has ensnared, baffled, entertained and frustrated me yet again.

I have only one small gripe: The command parser doesn't seem to be quite as tolerant as usual. I found it a little annoying when in the maze to be met with the response "With what?" every time I tried to dig the ground, even though the only digging implement I had was a shovel - Infocom usually takes that sort of thing for granted.

But enough of this nit picking. Without a shadow of doubt, *Hollywood Hijinx* is another excellent Infocom adventure and can be confidently recommended to players new to adventures and particularly to all fans of this company's immaculate products.

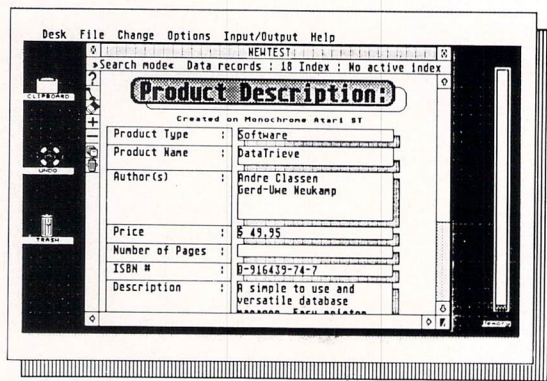
Music to crescendo and roll the credits.

Brillig

Presentation	10
Atmosphere	9
Puzzlement	9
Value for money	9
Overall	9

ST Business Software from

You Can Count On
Abacus Software



DataRetrieve (Formerly DataTrieve)

"DataRetrieve is the most versatile, and yet simple, data base available for the Atari 520ST/1040ST on the market to date."

— Bruce Mittleman
Atari Journal
Nov. '86

A simple-to-use and versatile database manager, ST DataRetrieve's drop-down menus allow you to quickly define your file and enter your information through screen templates. ST DataRetrieve has fast search and sorting capabilities, a capacity of up to 64,000 records, and allows numeric values with up to 15 significant digits. This package indexes up to 20 different fields per file, and has complete, built-in reporting capabilities. Lets you access up to four files simultaneously. Supports multiple files and seven different-sized RAM disks on the 1040ST for lightning-fast operation. DataRetrieve includes seven pre-prepared data base templates that you can customize to your own uses. Interfaces to TextPro files. Easy printer control, many help screens, and complete manual.

AB 505

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ST Language Software from

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AssemPro

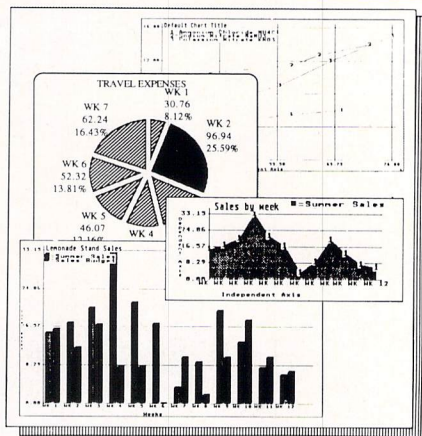
"The whole system is well designed and makes the rapid development of 68000 assembler programs very easy."

— Jeff Lewis
Input
Dec. '86

ST AssemPro is a complete machine language development tool for the professional developer. The Assempro package makes assembly language programming easier and quicker than ever before, because it takes full advantage of the ST's GEM environment. AssemPro includes a full-function screen editor with search and replace, block operations, upper/lower case conversion, and user-definable function keys. The fast 68000 macro assembler assembles to either disk or memory, and features interactive error correction. AssemPro sends an assembler and/or symbol table listing to printer or disk, and features a powerful debugger with single-step, breakpoint, 68020 emulator, and much more. ST AssemPro gives the programmer online help including instruction address mode and GEM parameter information, disassembler and reassembler, and a comprehensive 175-page manual.

AB 625

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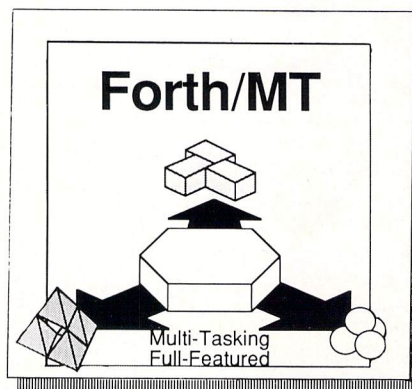


Chartpak

Chartpak is a versatile package for the ST that lets you make professional quality charts and graphs fast. Designed to take full advantage of the ST's GEM features, Chartpak combines speed and ease of use unimaginable until now. You enter, edit, save and recall your data easily through options on menus. Then you specify scaling, labeling and positioning. Chartpak instantly draws the chart in any of 8 different formats – and you can change your format or resize it immediately to draw a chart of another type. Other features include statistical routines for average, standard deviation, least squares and forecasting. Interface with spreadsheet programs. Import clip art from PaintPro files. Send hardcopy to most popular dot-matrix printers. Works with either monochrome or colour ST systems. Chartpak is a must for all your charting or graphing projects. DEGAS compatible. Available first quarter '87.

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Vision Mixer

André Willey takes a look at the prototype ST Video Controller

HAVE you ever thought about video recording the output of your ST? I'm sure that many of you would like to be able to use your machine to add really professional looking captions and titles to your favourite video tapes, but short of simply recoding the output from the modulator there isn't an awful lot you can do with it.

Wouldn't it be great to be able to mix text and superimpose graphics over the video picture – thus opening up a whole host of new markets for the machine in the amateur and professional video business.

Most people will probably be familiar with sound mixers, the units musicians use to link all of their instruments into in order to adjust each portion of the music to just the right volume.

Each slider control on the mixing desk alters the volume level for one instrument only, so it is possible to blend the sounds in exactly the way the artist wants. Mixers can also be used to fade between different recordings, and to add new recordings to an existing piece of music.

All a simple mixer needs to do in essence is to fade down the voltages provided by one microphone and fade up another, just like turning the volume control up or down on a domestic hi-fi.

If you watch any television broadcast – the news is an excellent example – you can see the same basic techniques being applied to video images. Watch the way the editor can fade one picture out and

replace it with another, or add scrolling captions to form the end credits.

Unfortunately, mixing video is much trickier than mixing sound. An audio recording is made up of nothing much more than a constantly changing voltage, whereas video signals form a series of separate still pictures, which when played back fast enough appear to move.

In the UK our television system displays 25 full pictures a second, each made up of 625 lines across the screen. If you look very closely at your TV set you might just be able to make out these faint horizontal lines.

Similarly a video recording or computer output must also be made up of 25 frames of 625 lines a second. Before each new set of picture information starts a short pulse tells the television to go back to the top of the screen and start again (known as frame blanking), and there is a similar pulse before each horizontal line begins.

Now imagine two such signals playing into a conventional type of mixer. When one signal is at full strength there is no problem, but as soon as you start to fade in the second recording then there are two sets of frame blanking pulses at different intervals.

The TV can't cope with being told to

start a new picture when it's only half way through the old one, and the picture collapses into a mess of confused static.



The Muppets meet the desktop – an example of a genlocked screen



Remarkable effects can be obtained by using random noise

So now we know how not to mix video, let's take a look at how it should be done. Put simply, all you need to do it make sure that the two pictures are synchronised with each other so that the frame blanking pulses on each of the images occur at the same time. Such images are said to be Genlocked to each other.

One simple way of doing this is to store each frame electronically from one recording (normally in a digital form), and only release it when the sync pulses match those found in the second recording.

Unfortunately, every single picture contains 625 lines of around 400 separate dots of colour. That's a quarter of a million dots, or 750,000 bytes of red/green/blue data each twenty-fifth of a second. The data transfer rate works out to almost 20 million bytes a second, and even our trusty ST running at 8 Mhz is outclassed here.

The sort of equipment used by the professionals – known as a time base corrector (TBC) – would set you back many thousands of pounds, and is out of the question if all you want to do is use computer graphics on your home videos or add titles to a wedding recording.

At this point, enter Rendale Limited from the tiny country village of Cottington, near Corby. Their ST Video Controller turns the whole problem on its head, and provides a solution at a tiny fraction of the cost of a full blown TBC.

They reasoned that since the ST has to generate its own sync pulses from a special crystal on the motherboard, why not simply replace this internal clock with one which derives its timing from an incoming video signal?

Instead of waiting for its own crystal oscillator to start the cycle for each frame to be drawn, the ST just checks the video input for a similar pulse and then carries on as normal.

I recently spent a morning with Rod Welburn at Rendale, and he explained how it works. "We found that we could get nearly all of the signals and connections we needed by tapping into the video shifter chip.

"Our board plugs into the socket that the shifter is normally in, and the shifter goes back into an empty socket on our board. Only four other connections have to be made, plus the two new video sockets".

The device I saw was most definitely a prototype, with masses of wire and components hanging all over the place. It was fully functional, but prone to slight picture interference from the rest of the equipment on the bench.

The final PCB should be no bigger than 6 inches by 4 inches and will fit inside the metal screened casing of a 520 STFM or 1040 STF. At present there are no plans to design a special version for the straight 520 STM due to lack of internal space.

Rendale recommends dealer fitting, but there shouldn't be anything too complex involved apart from removing the chip and soldering a couple of wires on to the main board. In addition to these internal modifications you will also need to cut two small holes in the plastic casing to accommodate the new Video-in and mixed Video-out phono sockets.

After connecting a video signal to the input socket and a composite TV/monitor or video recorder to the output, all you need to do is place a small program in the AUTO folder on your bootup disc. All this does is select the external sync function and set up a couple of interrupt driven routines to scan the keyboard for user-definable Alt- key combinations to control the picture mix.

The RGB monitor output is not affected by the device and continues to display

the normal computer screen, but the monochrome display can't be mixed because of the faster blanking rate it requires.

There are three modes that the unit can operate in; video-only, white-transparent and computer-only. In video-only mode the composite monitor connected to the new output socket will show only the video image being provided by the external recorder or camera.

In computer-only mode the output will simply show the computer's text and graphics screen. This signal is fully Genlocked to the input image so that it can then be fed into a standard video mixing desk.

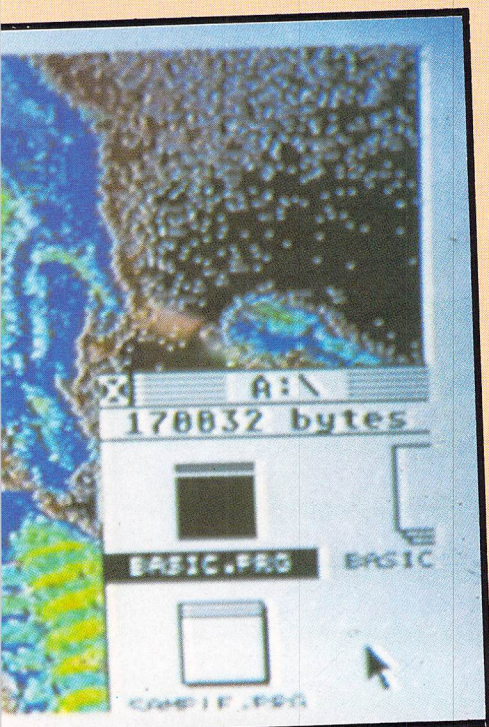
But the really exciting option is white-transparent. In this mode, anything that normally shows up as pure white (colour 7-7-7) will become transparent, letting the input video image show through it. If, for example, you drew a Neo or Degas picture of a spaceship with a white background then you would see the spaceship suspended over any video-recorded or camera-generated image you choose.

Imagine the possibilities for adding captions or extra graphic details to wedding videos, or adding an electronic phaser beam in Neo's colour cycle mode to your latest homemade science fiction tale. We've printed photos of some other interesting possibilities for the device.

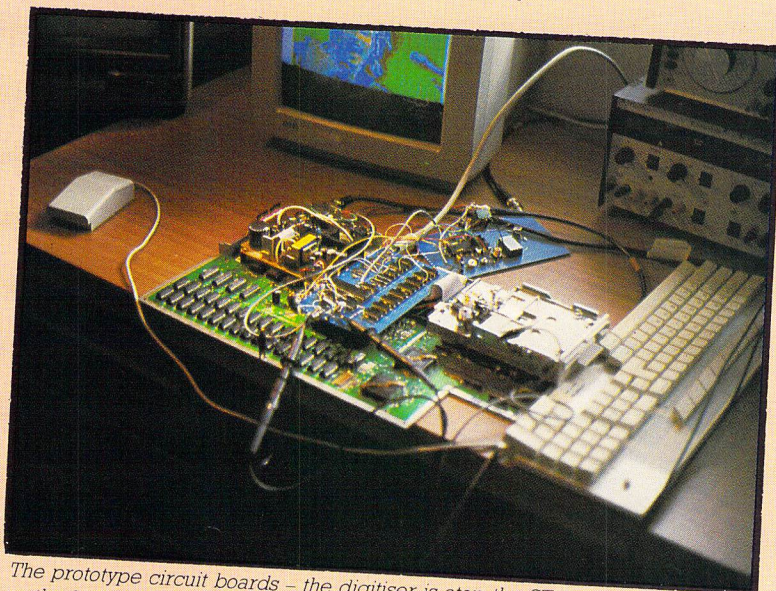
All this is remarkable enough in itself, but Rod then demonstrated an interesting side-effect of the Genlock board – a colour video digitiser capable of frame-grabbing images at a rate of 50 times a second.

A standard video frame is made up of two interlaced fields of 320 lines, which in plain English means that the unit can grab a complete image in one-fiftieth of a second. This picture will be in low resolution monochrome, with 16 grey levels.

If you want colour, the system will automatically take three consecutive



rs with a digitised image



The prototype circuit boards – the digitiser is atop the ST motherboard and the Genlock unit sits on the table behind



fields for the red, green and blue levels and then sort out the best image it can from the results.

The strange thing is that the image grabbed really has 4096 colours, but must then be mapped into the limitations of the ST's display, which only allows 16 colours a line.

As the whole process is handled by just a couple of special software registers there is no reason why you shouldn't write your own software very easily. POKEing one location will select the type of Genlock mode, and another will request a red, green or blue frame grab at the current screen ram pointer. It's as simple as that.

The software to be provided with the unit is still under development, but it should allow you to make time-lapse recordings and/or achieve slow motion

effects by changing the record and playback speeds. Given enough ram you could store whole animated sequences, or perhaps download them to a hard disc.

The initialise routine placed in the AUTO folder will allow you to digitise a new frame at the touch of a key. There would appear to be no reason why you couldn't grab a video frame straight into Degas or Neo, for example – though we didn't have a chance to try it while I was there.

The most amazing thing of all is that all these facilities don't even use up a single CPU cycle – the whole digitise effect is hardware mapped straight into the video ram during the video fetch cycle (when the processor is dormant anyway). This means that you can be grabbing up to 50 full images a second and still have another program running at full tilt.

The digitiser is capable of such amazing feats only because the computer is already locked to the input source, so no additional timing program need be run. Although Genlock alone will be available as a separate option, the two digitiser versions (black-and-white or colour) will only come in package form – they can't function without an already

Genlocked image.

The fact that the digitised image is then displayed real-time on a Genlocked screen also allows you to use your ST's colour palette to generate the same sort of video effects that can be regularly seen on Top of the Pops.

This Paintbox effect of superimposing extra detail on to some portions of a picture and not others is normally extremely expensive, but with this package some spectacular results can be achieved at a fraction of that cost.

There are no confirmed prices as yet, but Rod did promise that they would undercut the competition considerably – which means less than £200 for both the Genlock and the digitiser – and significantly less than that for the Genlock only version.

Both versions will be on display at the Atari Show in London at the end of April, and they should be available through dealers about a month later.

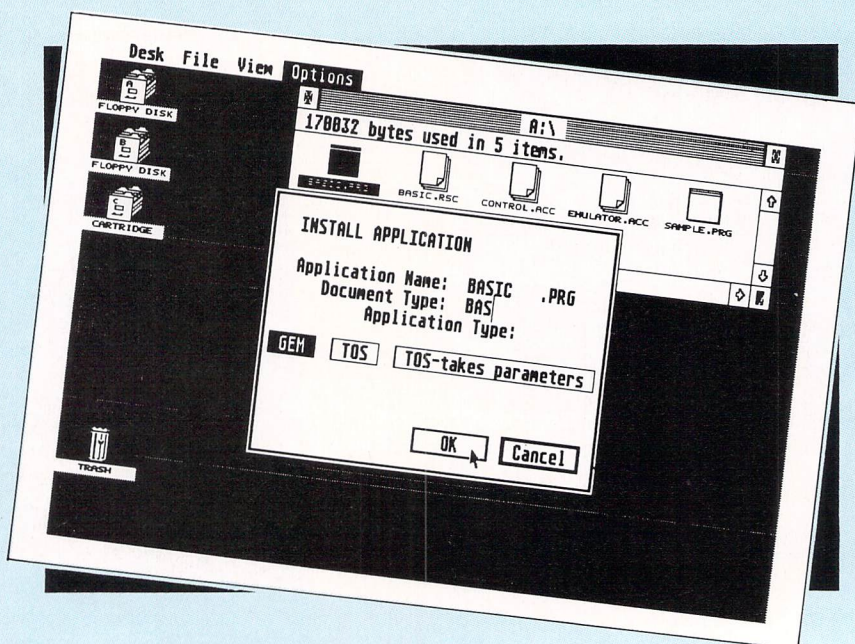
Product: ST Video Controller
Supplier: Rendale, 7 Coverdale, Brompton Park, Northampton NN2 8UU.
Tel: 0604 8432

PSSST!

Auto loading text and data

WE have had many inquiries as to the best method of auto loading text and other data files into programs. There are certain programs, such as Atari Basic, which will allow you to set them up so that all you have to do is double click on a data file and the program will automatically be run with the data loaded.

To set up a program to be used in this way, click on the program's icon once and choose the Install Application option from the Options menu. Now type in the desired file extender – .BAS for Atari Basic files, and leave the dialog by clicking on the OK button. Now when you double click on a file with the chosen extender the main program will be loaded and the file will automatically be loaded into it. You can also use the Save Desktop option to make this work every time you boot your ST.



● If you have any useful tips which you would like to pass on to your fellow ST users, then why not send them to: PSSST!, Atari ST User, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

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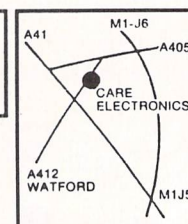
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THERE are two very good reasons for using a computer to store information for business purposes – ease of access and speed of operation. That said, have you ever sat and silently cursed as the 3.5in drive whirrs quietly to itself and you are left with nothing but a busy bee on the screen?

The problem is the sheer volume of data that the machine is being asked to cope with, and the fact that a floppy disc has a rather limited access speed. One solution would be to use a ramdisc, but this still requires its data to be loaded from floppy in the first place – and you must transfer everything back again afterwards if you don't want to lose it all when you turn the computer off.

By far the best answer is to use a more advanced type of disc drive – a hard disc. This differs from a normal floppy drive in that the magnetic media (the disc itself) is not removable and is sealed inside a special airtight housing.

This allows a much more sensitive read/write head to float far closer to the surface without risk of dust or dirt damaging the delicate surface. Such a disc can store more than 50 times the amount of data you could get on to a 3.5in floppy, and access it considerably faster.

I have spent the last month or so evaluating the new Supra Corp 20Mb hard disc unit which is now available in the UK via Frontier Software. Having already used an Atari SH204, I was amazed at the size of the box that the Supra arrived in... surely this couldn't actually contain a hard disc? The cardboard packaging was in fact slightly smaller than Atari's drive.

After unpacking I found that the box did indeed contain a hard disc – but an amazingly compact one. No bigger than a standard floppy drive from the front, and only a little deeper, the Supra is apparently based on a 3.5in hard disc mechanism. Atari's own SH204 is based on the more standard 5 inch mechanism and hence is slightly larger than the average shoebox.

The Supra's design is very clean, with the power socket, switch and data cable hidden away on the rear panel and just two LEDs on the front – one for power

Sheer volume

André Willey puts Supra's hard disc to the test

and the other to tell you when the drive is busy.

The first thing you must do is format the unit in exactly the same way as you would a floppy. As you can store 20Mb of data on the one disc, Supra has provided a utility which allows you to split that massive space into up to four smaller units which Gem will treat as separate drives.

I set up my first 8Mb "drive" for applications such as word processing, databases, communications and so on. Another 5Mb went on graphics and demos, four more on utilities and the rest on programming languages.

At first the unit seems incredibly fast – easily 10 times faster than a standard drive. However, as you fill the disc up and space is allocated over the whole magnetic surface access speed slows down a little.

The data transfer itself hasn't really slowed down, but more time is being taken searching for the correct piece of information. This is known as the seek time and varies considerably depending on how carefully you allocate your space.

Even now, after I have about half filled the available space on my applications drive, the unit isn't exactly sluggish. The specifications indicate that it runs slightly faster than the Atari, and I can well believe it.

As an example, from clicking on the First Word program icon to being presented with the file selector box takes around four seconds. On floppy that time is nearer 20 seconds, and when writing data the speed improvement is even

more pronounced – this shows up best when using a database.

The manual also quotes the Degas slideshow as being able to run 32 pictures in 10 seconds and I have been able to obtain similar figures. The 30Mb unit can apparently run 34 pictures, and the 60Mb units will flash up an amazing 45 Degas pictures in those 10 seconds.

The cooling fan used is a little quieter than Atari's, but that said the track-to-track stepper motor seems a bit noisier. And it's much higher pitched – the sound is more of a squeaky bleep than the more traditional clunking noise from the SH204.

Software compatibility is the same as with any type of hard disc, which means that most protected software will not function without the master disc in floppy drive one. This seems to be a very shortsighted attitude on the part of the software producers. While protection is useful and important for games packages, let's hope we will soon see it removed from expensive business packages.

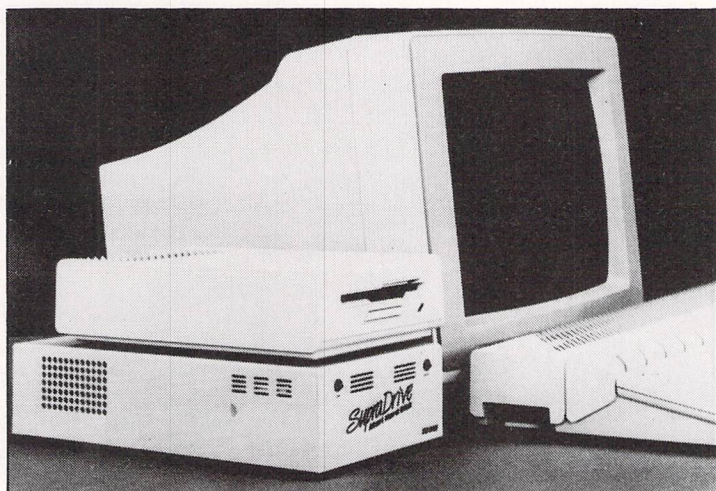
In all other cases, the hard disc is treated by Gem exactly as if it were just another floppy and you can use all the normal folders and icons. Desk accessories and the DESKTOP.INF file can be stored on the hard disc, but you do need a small AUTO folder on your first floppy drive to boot the system drivers into place.

In fact, I never remove my bootup disc from drive one these days – after all, there's very little else you'll want to do with a standard drive when you've got a 20Mb hard disc on tap. •

Hard discs are extremely delicate, so one of the programs on the driver disc that comes with the unit is called PARK, and will lock off the tiny read/write head away from the sensitive disc surface ready for transportation. There are also a couple of other utilities such as zero partition and a bad sector check.

The unit will even function with Atari's own hard disc driver software, but you'd be better off using the Supra version – it has far fewer undocumented features to hold you up.

Price wise, the Supra and the Atari drive are the same at £699.95, and both should be available from all the major ST dealers. On that basis, I see no reason for anyone to want buy the larger, noisier and marginally slower SH204 drive when they could be the proud owner of a Supra. □



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WHEN you write your own programs in Atari Basic it can often be off-putting to have the Output title at the top of the window when your program is running.

This small program uses AES code 105 to change the title of the output window to

Line Breakdown

- 1 Define the header string.
- 2 Add a null to the end of the string and obtain the value for the start of Gem's variables.
- 3-4 Define the variables used by the AES routine.
- 5 POKE in the address of the header\$ string and call the routine.

any string that you wish – simply replace the string `header$` with your chosen one.

You can also use this program to change the title of any of the other windows in Atari Basic by changing the last 2 in line 4 to the number of the relevant window.

```
1 header$ = " Atari ST User Five-lin
er "
2 header$ = header$ + CHR$(0): A# =
Gb
3 Gintin = PEEK(A#+8): S8=PEEK(Systa
b+8)
4 GI4# = Gintin+4: POKE Gintin,S8: P
OKE Gintin+2,2
5 POKE GI4#,VARPTR(header$): GEMSYS(
105): FULLW 2
```

TITLE CHANGER

from

KAVAN YATAWARA

DECIMAL CONVERTOR

from

PETER LYNNGAARD

IF you have ever tried to use Atari Basic's `HEX$` and `OCT$` commands, you will have found that they are far from reliable. They are supposed to convert a decimal number into either hexadecimal (Base 16) or octal (Base 8) form.

This small routine will convert any decimal number into its binary (base 2), octal and hexadecimal counterparts quickly and easily.

```
10 input "Enter decimal number: ",dec
: num = 2: gosub 100: binnum$ = hexnum$
20 num = 8: gosub 100: octnum$ = hexn
um$: num = 16: gosub 100
30 print binnum$;" B", octnum$;" O",
dec;"D", hexnum$;" H": goto 10
100 hexnum$ = "": value = dec: while v
alue <> 0: r = value - int ( value / num
) * num: if r > 9 then r = r + 55 else
r = r + 48
110 value = int ( value / num ): hexnu
m$ = chr$ ( r ) + hexnum$: wend: return
```

Line Breakdown

- 10 Inputs a decimal number and converts it into a binary number in the `binnum$` string.
- 20 Converts the decimal number into octal and hexadecimal in strings `octum$` and `hexnum$`.
- 30 Prints the results into the output window.
- 100-110 The conversion routine itself which is used to convert the decimal number into binary, octal and hexadecimal.



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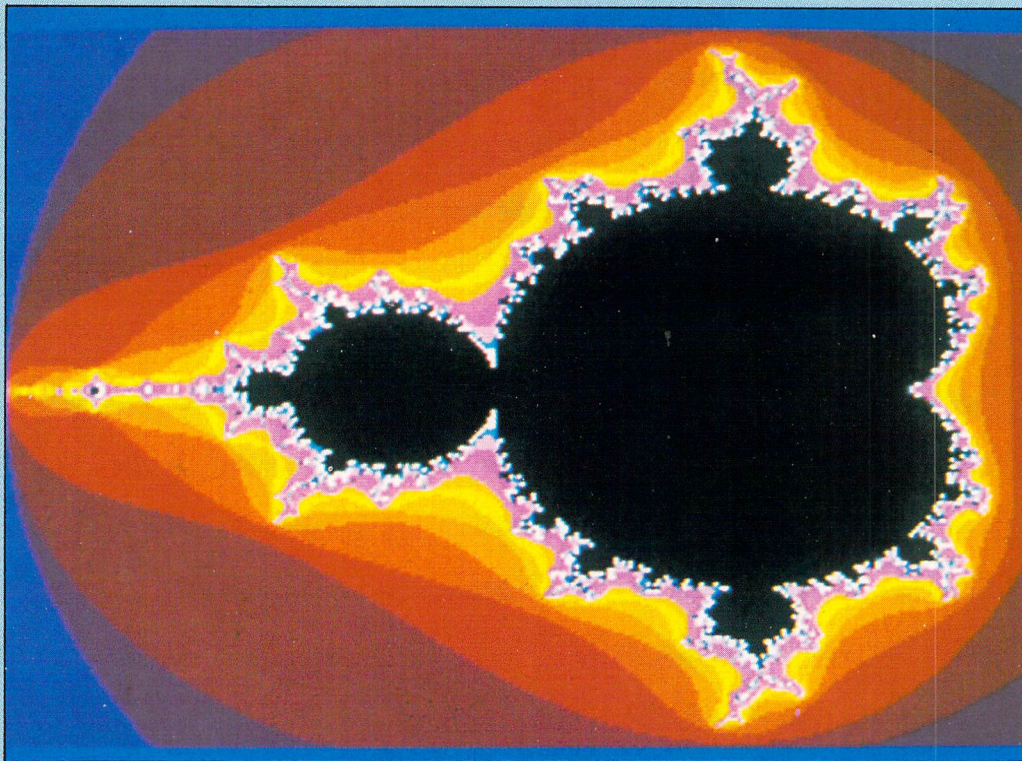
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Figure 1: The Mandelbrot set



ZOOM in on the

Roland Waddilove takes you into the world of the Mandelbrot set

FRACTALS, recursion and the Mandelbrot set are three related topics that have been cropping up recently on various micros.

They all have their roots firmly embedded in mathematics and are often used by computer programmers as the basis for generating impressive graphic displays.

What makes them so fascinating is the way in which a simple mathematical formula or algorithm can give rise to a beautiful pattern or picture.

The programming techniques involved are generally quite straightforward and seldom require large amounts of code. This results in short, neat and structured listings. So the programs, like the maths, are also short and simple.

Fractals are strange beasts sometimes called monstrous curves. They can be described as lines of infinite length bounding a finite area – a seemingly impossible object.

Examination of these fractals has revealed a rather strange and puzzling phenomenon: The closer you look the more detail you see. This unusual nature can be shown by drawing a fractal (really

just an approximation), on screen and magnifying it by zooming in on a small section. The more you magnify it the more fragmented and irregular it becomes.

This behaviour has been used to great effect in several arcade games to create impressive scenery and background landscapes. In one game involving a flying sequence the hills and mountains are simply fractals. The closer you fly toward them the more detail you see.

Rescue on Fractalus written for the 8 bit Atari used this technique to create the rocky surface of the planet.

This clever technique of creating landscapes from simple mathematical formulae saves vast amounts of precious ram which would otherwise be filled with compressed screen data.

The Mandelbrot set, the subject of the accompanying program listing, is named after Benoit Mandelbrot who has studied the behaviour of one particular class of fractals.

To find whether the point a, b lies within the set the following function is applied repeatedly to itself an infinite number of times:

$$\begin{aligned} x &= 0 \\ y &= 0 \\ x &= x^2 - y^2 + a \\ y &= 2xy + b \end{aligned}$$

Monitoring x and y reveals that one of two things is likely to happen: Either the function will rapidly grow, eventually ending up infinitely large, or it will remain stable and small. It can be shown (see *The Fractal Geometry of Nature* by Benoit Mandelbrot), that all the points within the set are such that:

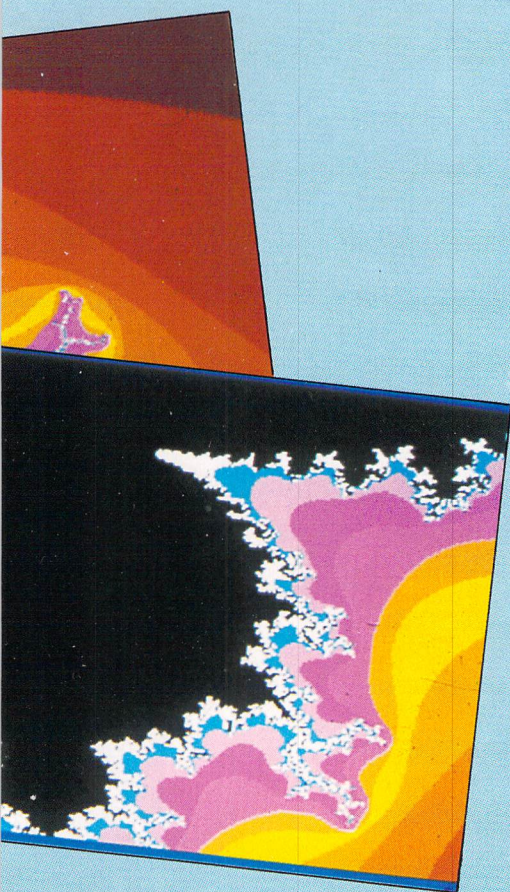
$$x^2 + y^2 < 4$$

Obviously we can't repeat the process an infinite number of times, life is just too short, so we restrict ourselves to some arbitrary number, say 40. However, the limit condition may be exceeded long before 40 iterations have been completed.

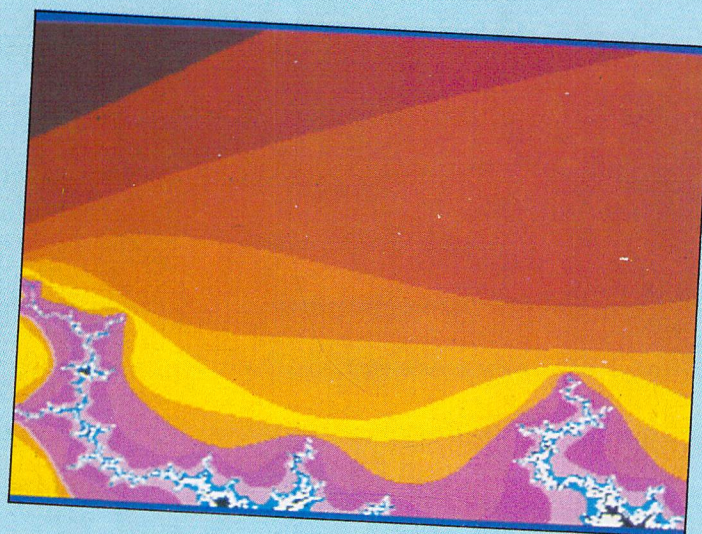
To obtain the impressive screen display shown in Figure 1 what we do is look at the points that lie within and just outside the Mandelbrot set.

The black area represents those points that lie within the set and the colours are generated by measuring how quickly the points outside the set shoot off towards infinity.

The main difficulty experienced by programmers when coding fractal generators is that of achieving a reasonable speed. The screen in low resolution is 320 pixels wide by 200 deep. Of course, not all the points lie within the set but those that do will require the full 40 iter-



fractals



ations of the function – this means around 32,000 pixels. As you can imagine this takes quite some time to calculate even on a relatively fast micro like the ST.

The version presented here is written in Computer Concepts' Fast Basic and will generate a full screen display in around 45 minutes.

When the program is first run you are given the opportunity to load a screen. Since you haven't created any yet press N. Now you'll be asked to enter a filename and this will be used to save the screen when the program has finished.

After entering this the Mandelbrot set will be drawn. When it has finished and saved the display a small box will be drawn and you can move this around the screen using the mouse. Use this to select an interesting portion of the set and hold the mouse button down until the screen clears.

The program will now zoom in and magnify the highlighted portion of the set and due to the nature of fractals the new display will show even more intricate detail. Obviously, there's not much point in looking at the black area in the centre of the set, the edges are most interesting.

Remember: The nature of fractals means that you can create an infinite number of different screen displays by zooming in and magnifying sections of the set so get cracking and explore this fascinating world. □

```
REM The Mandelbrot Set
REM * By R.Waddilove *
REM *** Fast Basic ***
IF SCREENMODE>0 THEN PRINT "Low res only":END
ON ERROR GOTO here
PROCinitialise
PRINT "Load a screen (Y/N)"
REPEAT
K%=GET OR 32
IF K%=121 THEN PROCscreen
UNTIL K%<>121
PROCmandel
GRAB 0,0,320,200
REPEAT
PROCzoom
PROCmandel
UNTIL FALSE
END

DEF PROCmandel
CLS
PRINT "I'll save the screen when finished."
INPUT "What shall I call it:"name$
CLS
FOR i=Lx TO Rx STEP (Rx-Lx)/321
FOR j=By TO Ty STEP (Ty-By)/201
N%=-1:x=0:y=0
REPEAT
y2=y*y:x2=x*x
y=2*x*y+j:x=x2-y2+i
N%=N%+1
UNTIL N%=40 OR x2+y2>=4
IF N%<11 THEN MARKCOL N%
IF N%>10 AND N%<12 THEN MARKCOL 10
IF N%>11 AND N%<15 THEN MARKCOL 11
IF N%>14 AND N%<19 THEN MARKCOL 12
IF N%>18 AND N%<24 THEN MARKCOL 13
IF N%>23 AND N%<40 THEN MARKCOL 14
IF N%=40 THEN MARKCOL 15
PLOT ox+i*xf,oy+j*yf
NEXT
NEXT
BSAVE name$,PHYSBASE,$8000
WHILE INKEY$<>":WEND
BEEP:K%=GET
ENDPROC

DEF PROCinitialise
RESTORE
FOR i=0 TO 15
READ A%,B%,C%
PALETTE i,A%*1000/7,B%*1000/7,C%*1000/7
NEXT
HIDEMOUSE
TXTEXT 0,0,SCREENWIDTH,SCREENHEIGHT
GRAFRECT 0,0,SCREENWIDTH,SCREENHEIGHT
CLS:INK 14
MARKTYPE 1

Lx=-2:Rx=0.8:Ty=1.2:By=-1.2
xf=320/(Rx-Lx):yf=200/(Ty-By)
ox=-Lx*xf:oy=-By*yf
ENDPROC

here:
PALETTE 0,0,0,0
PALETTE 1,1000,1000,1000
IF ERR=4 THEN END
LASTERROR

DEF PROCscreen
CLS:DIR
INPUT "Enter filename:"name$
CLS
BLOAD name$,PHYSBASE
ENDPROC

DEF PROCzoom
PUT 0,0,3
LINEWIDTH 2
MOUSE X%,Y%,B%,K%:B%=0
REPEAT
MOUSE X%,Y%,B%,K%
X%=40*(X% DIV 40):Y%=25*(Y% DIV 25)
LINECOL 14:PROCbox
FOR i=1 TO 500:NEXT
LINECOL 15:PROCbox
UNTIL (B% AND 1)
X%=X% DIV 40:Lx=-2+0.35*X%:Rx=Lx+0.35
Y%=Y% DIV 25:By=-1.2+0.3*Y%:Ty=By+0.3
xf=320/(Rx-Lx):yf=200/(Ty-By)
ox=-Lx*xf:oy=-By*yf
ENDPROC

DEF PROCbox
LINE X%,Y% TO X%+39,Y%
LINE X%+39,Y% TO X%+39,Y%+24
LINE X%+39,Y%+24 TO X%,Y%+24
LINE X%,Y%+24 TO X%,Y%
ENDPROC

DATA 0,0,7
DATA 2,0,5
DATA 4,0,3
DATA 5,0,2
DATA 7,0,0
DATA 7,3,0
DATA 7,4,0
DATA 7,5,0
DATA 7,7,0
DATA 7,5,2
DATA 7,3,5
DATA 7,0,7
DATA 7,4,7
DATA 3,4,7
DATA 7,7,7
DATA 0,0,0
```


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REVIEW

Basically the best

GFA Basic is really fast. ... but the speed isn't limited to the mindless number crunching, as the graphics demos spectacularly prove. GFA Basic is also compact, taking up 55K of valuable memory - yet it provides a structured programming environment second to none, with a bewildering array of useful commands. A silence descended on the office and mouths hung open as the demo of the block memory move command drew a pattern in a window, then plastered copies of it all over the screen at the rate of about five per second.

Bench test

No.

1
2
3
4
5
6
7
8

Average:

Speed (seconds)

Fast Basic GFA Basic

0-145
0-58
1-305
1-55
1-505
2-575
4-11
2-725

0-105
0-395
1-025
1-01
1-085
1-765
2-845
2-945

1-397

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A spreadsheet that's easy on the mouse

A Gem of a program? Andrew Williams investigates EzCalc

EZCALC (pronounced Easycalc) is a fully fledged 999 by 300 cell spreadsheet program which makes full use of Gem and the ST's mouse. It comes with a 40 page manual which devotes much to complete tutorials on spreadsheets and Gem – the file selector in particular.

The mouse or the cursor keys can be used to move around the sheet using the scroll bars, by clicking on the required cell or by moving the cursor around using the cursor keys.

Having multiple choices for movement and selection of cells is what Gem is all about – ease of use and the inclusion of command methods for advanced users. Scrolling as you move the cursor around a window is both fast and smooth.

By using the split window command you can display the same sheet in two separate windows which lets you view different sections of the same sheet at once. Full moving and copying of blocks of cells is also possible between the two windows.

A set of function key definitions displayed on the bottom of the screen give one-key equivalents to some of the main menu selections. A help menu provides quick support on all points of possible problems ranging from formulae through ranges to the exact function of some of the keys such as Undo. The help and resource files are also supplied on the disc in German and French, so using EzCalc in a foreign land should be no problem.

Data entry couldn't be easier. Simply move the cursor to the required cell using the mouse or keyboard and then type in the required formula. When you press Return after entering some data, the auto cursor option makes the cursor automatically move in the direction in which it was last moving, making the entry of rows or columns of numbers very straightforward indeed.

In addition, you can point at other cells and their reference numbers will automatically be entered. Most of the available mathematical functions are available as options on the main menu.

One very useful feature is the notepad,

which can handle up to 120 characters about each cell in the sheet. This note can be anything from a reminder about how the cell's formula is arrived at to the exact meaning of the cell's contents. A built-in desk calculator allows you to grab the result from the calculator window using the mouse and paste it into a cell.

The program allows you to produce different spreadsheet templates and save the layout and formulae of the various cells without saving the numbers in them. This means that you can easily set up a spreadsheet for use by a number of people in the same company in calculating, for example, their expenses.

One useful set of options – which it would be nice to see appear in more ST Gem programs – carry out simple disc operations from within the program. EzCalc provides menu options to format discs and rename and erase files without returning to the desktop.

It shares some keyboard and mathematical commands with VIP Professional and Lotus 1-2-3, which should make it easy to pick up. There is also a separate conversion program which will convert files from VIP to EzCalc format.

Maths commands include sum, range, exponent and square root. Trigonometric commands include the usual normal and arc functions along with the value of Pi. A smaller range of statistical functions are also provided in the form of max, min and average. In addition to these, the pro-

gram comes with various financial functions built-in, which make it easy to calculate most normal spreadsheet functions. These include discount, profit of a series of cash flows and mortgage calculations.

Operators include the usual plus, minus, multiply and divide and logical operators along with a very flexible if...then construct which lets you set the value of a cell dependent on the values of a group of others.

Is EzCalc any better than its K-Spread and VIP competitors? For most light to middle spreadsheet usage, it is certainly feature-packed and comes at a very reasonable price. Its only drawback is its inability to display more than one sheet at once, but this is a feature most users won't find a use for anyway.

EzCalc, which operates in high or medium resolutions, is certainly easier to use than K-Spread, but if you want to draw graphs and use the facilities of a database you will have to decide whether you would be better off buying VIP Professional, which costs almost five times as much. □

Product: Ez Calc

Price: £49.95

Supplier: Robtek, Unit 4, Isleworth Business Complex, St Johns Road, Isleworth, Middlesex.
Tel 01 847 4457

Desk File Commands Print Recalculation Defaults Help Functions										
EZ CALC										READY
D7	1755.73									
	B	C	D	E	F					
1	*****									
2	BALANCE SHEET									
3	TED'S TOY STORE									
4	AS OF 12/31/85									
5										
6	ASSETS									
7	Cash in Bank (12-31-85)			\$1,755.73						
8	Cash-Payroll Account			\$0.00						
9	Cash on Hand			\$2,352.50						
10	Accounts Receivable			\$6,189.83						
11	UPS COD's outstanding			\$6,281.55						
12	Postal COD's			\$329.10						
13	Interest Receivable			\$0.00						
14	Allowance for bad debts			\$0.00						
15	Inventory Value			\$256,315.16						
↓										
↓										
F1	F2	F3	F4	F5	F6 ↑	F7 ↓	F8 ←	F9 →	F10	
SAVE	LOAD	GOTO	NOTES	JUSTIFY	TOP COL	BTH COL	STRT ROW	END ROW	RECALC	

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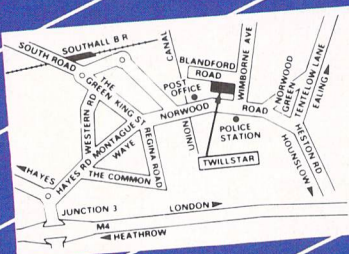
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Exploiting Gem's natural resources

IN the first article in this series on Gem programming we looked at its overall structure and how to use some of its simpler features. We shall now dig rather deeper into its complexities, looking at the operation of simple dialogs and the resource data structures.

The alert box is a useful tool for displaying a small amount of information and can also be used to input a choice of two or three options through its buttons.

However, if we wish to use Gem to

Ray Jackson looks at Gem's more complex and flexible facilities

obtain a more complex input we must design our own form and provide the necessary software to interpret the result.

This type of form is known as a dialog

box and you will already have used these on your ST – the RS232 and printer configuration options from the desktop menu are good examples.

Dialog boxes are far more flexible than alerts: You can design your own layout with text instructions, buttons and editable text fields.

Clearly we must somehow tell Gem how the form is to be laid out and how each part of it is to work. The alert is simple enough to define as a single text string, but the dialog box allows too much complexity for that to be feasible. Instead, a special data structure is used, known as the resource data structure.

Many programs use resource files, they have the file extension .RSC, containing all their resource data definitions. To create such a file we must use a program known as a resource constructor set.

This allows you to design your forms and menus graphically with the mouse. When the layout has been defined the resource constructor will save the data that defines it to disc as a file.

If you use Megamax C you will already have a resource constructor. Digital Research also supplies one, but it is only available as part of the developer's tool kit. For Modula-2 users, Modula-2 software includes a version of the Megamax constructor set on its additional toolkit disc. Perhaps the most flexible alternative is Kuma's K-Resource, reviewed in the March 1987 issue of *Atari ST User*.

Virtually all resource data structures are based on the resource tree. This is made up of a number of objects, which can be one of several types including buttons, strings, and boxes. Figure 1 shows the data making up an individual object in a tree.

Each element in the tree is defined by 12 words. The first three elements are concerned with the relationship between objects in the tree and we will return to them shortly.

The next entry, *ob_type*, identifies the type of object to be drawn. The possible values for *ob_type* are listed in Table I. The *ob_flags* word contains a set of flags which specify details of the object operation and are listed in Table II.

A similar set of flags is contained in *ob_state* and these are concerned with

Name	Type	Description	Meaning of ob_spec
G_BOX	20	Graphic box	Colour and thickness
G_TEXT	21	Graphic text	Pointer to TEDINFO
G_BOXTEXT	22	Graphic box with text	Pointer to TEDINFO
G_IMAGE	23	Graphic bit image	Pointer to BITBLK
G_PROGDEF	24	Programmer defined	Pointer to APPBLK
G_IBOX	25	Invisible box	Border colour, thickness
G_BUTTON	26	Graphic text with box	Pointer to string
G_BOXCHAR	27	Graphic box, single char	Char, colour, thickness
G_STRING	28	Graphic string	Pointer to string
G_FTEXT	29	Formatted graphic text	Pointer to TEDINFO
G_FBOXTEXT	30	As 29 with box	Pointer to TEDINFO
G_ICON	31	A GEM icon	Pointer to ICONBLK
G_TITLE	32	Menu title	Pointer to string

Table I: Object types

Bit	Meaning	Description
0	Selectable	Will invert when clicked on and set state.
1	Default	Selected by return key.
2	Exit	Returns control to the program when clicked.
3	Editable	User-editable field.
4	RButton	Radio selecting deselects other rbuttons.
5	Lastob	Indicates last object in a tree.
6	Touchexit	Returns control if button pressed in object.
7	Hidetree	Object and descendents not drawn or found.
8	Indirect	ob_spec is a pointer to the real ob_spec.

Table II: Object flags

Bit	Meaning	Description
0	Selected	Object will be drawn inverse.
1	Crossed	Will be drawn with an X (boxes only).
2	Checked	Drawn with a tick (usually in menus).
3	Disabled	Drawn faintly to indicate not available.
4	Outlined	Box outlined, defined by colour in ob_spec.
5	Shadowed	Drawn with a shadow (usually boxes).

Table III: Object states


```

/* A simple resource data structure demonstration */
main ()
{
/* declare and initialise the object tree */

static int tree[6][12]={
{ -1, 1, 5,20,0, 0X0010,0X0002,0X1000,30, 30,200,100
},
{ 2,-1,-1,27,0X0007,0, fLXf15FE,fLX11-
fLfl,5, 5, 20, 20 },
{ 5, 3, 4,25,fL, 0, 0, 0, 60, 60,80 ,30
},
{ 4,-1,-1,27,0X0011,0, fLX41fL1,fLX11-
fLfl,5, 5, 20, 20 },
{ 2,-1,-1,27,0X0011,0, fLX42fL1,fLX11-
fLfl,55, 5, 20, 20 },
{ 0,-1,-1,27,0X0021,0, fLXfL7FF,fLX11-
fLfl,175,5, 20, 20 }
};
int button;

```

```

appl_init();

/* set mouse to arrow */
graf_mouse(0,0);

/* reserve screen area */
form_dial(0,0,0,0,tree[0,8],tree[fL,9],tree[fL,1fL-
],tree[fL,11]);

/* draw dialog box */
objc_draw(&tree,0,99,0,0,320,200);

/* activate form */
button = form_do(&tree,0);

/* release screen area */
form_dial(3,0,0,0,tree[0,8],tree[fL,9],tree[fL,1fL-
],tree[fL,11]);

appl_exit();
}

```

Listing I

◁ those aspects of an object which may change when in use. The state flags are listed in Table III.

The `ob_spec` field can be interpreted in one of two ways, depending on the value of `ob_type`. In most cases it is an address which is a pointer to more data. In the cases `G_BOX` (20), `G_IBOX` (25), and `G_BOXCHAR` (27) the `ob_spec` field contains a border thickness, a character code for `G_BOXCHAR`, and a colour word which breaks down as shown in Figure I.

The write mode for text is 0 for transparent and 1 for replace, while the fill

mode ranges from 0 for hollow up through increasing densities of shading to 7 which is solid.

The final four fields of the object define its position and size in screen pixels. The important point to be aware of here is that for all objects except the root object, the `x` and `y` positions are relative to the parent object.

We now have enough information to specify a few simple objects. The only other thing we need to establish is how to build them into a tree. This is where the first three fields of the object specification become important.

Each object has three pointers and the way they are used is what makes the structure a tree. In fact this tree is upside down, with a single root at the top and the branches spreading downwards.

The objects immediately below another object are considered to be its "children", while it is their "parent". Those objects on the same level are then considered to be "siblings".

Figure II shows a simple tree and how the pointers are used. The `ob_head` pointer points to the first child of an object, and the `ob_tail` points to its last child. The `ob_next` pointer links each child to its sibling.

In the case of the last child on a level, the `ob_next` pointer points back to the parent. With the root object, which has no parent, the `ob_next` pointer is set to -1. If an object has no children then its `ob_head` and `ob_tail` pointers are -1.

In all these cases the pointer is not an address but simply the object number. This is its position in the order in which the objects are stored in memory, with the root as object 0. These links should become rather clearer if you study the details in Figure II.

Although a resource constructor is almost essential for a complex form, we can build a simple dialog box by defining the data in the program.

Listing I shows an example of a dialog box written in C based on the tree structure shown in Figure II. Listing II is the same dialog box implemented in Computer Concepts' Fast Basic. The data used is identical in the two listings.

As in Figure II, there are six objects numbered 0 to 5. The root object is a graphic box (type 20), with its top left corner at (30,30), a width of 200 and a height of 100. This will fit on any resolution screen. The root object has the `OUTLINED` bit set in its state word. It also has a border thickness of 2 and a border

```

REM * A simple dialog box demonstration *
REM * The array to hold the tree must be a word *
REM * array. This is indicated by the &. *

DIM tree$(5,11)

REM * Initialise the tree from DATA statements *

FOR i% = 0 TO 5
  FOR j% = 0 TO 11
    READ tree$(i%,j%)
  NEXT j%
NEXT i%

REM * Display and activate the dialog box. *

DIALOG @tree$(0,0),-1

REM * Data to define the dialog box. *

DATA -1, 1, 5,20,0,$10,$2,$1000,30, 30,200,100
DATA 2,-1,-1,27,$7,0,$5FE,$1100,5,5,20,20
DATA 5, 3, 4,25,0,0,0,60,60,80,30
DATA 4,-1,-1,27,$11,0,$4101,$1100,5,5,20,20
DATA 2,-1,-1,27,$11,0,$4201,$1100,55,5,20,20
DATA 0,-1,-1,27,$21,0,$7FF,$1100,175,5,20,20

END

```

Listing II

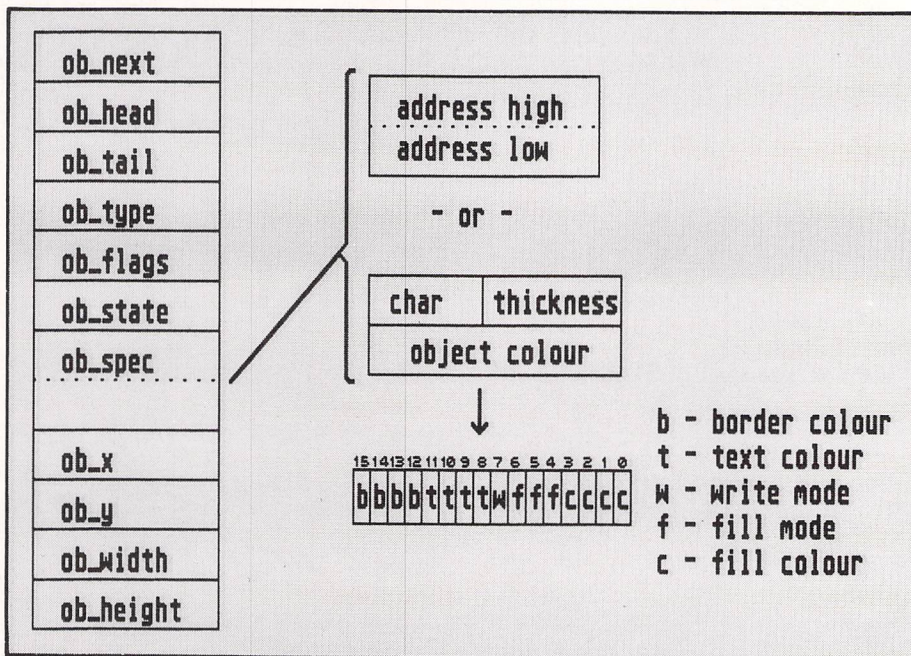


Figure I: The data making up a single object in a tree

colour of 1.

Objects 1,3,4 and 5 are G_BOXCHAR, 3 and 4 are radio buttons contained within the invisible box, object 2. Object 5 is selectable but does not have its EXIT or TOUCHEXIT bit set so, the form continues when it is clicked on. Subsequent clicking will deselect it.

Object 1 with the closer symbol in it is the only exit button and is also the default object, so pressing the Return key will trigger it.

The border thicknesses for objects 0, 3 and 4 are positive, which means that the border is drawn inside the boundary of the object. Objects 1 and 5 have a negative border byte indicating that the border is external to the object boundary.

Finally object 5 has its LASTOB bit set

to indicate that it terminates the tree in memory.

The programs to activate the form are both fairly simple. In C it is necessary to warn Gem that we wish to use part of the screen. This ensures that it knows what to repair later, and is achieved by a call to form_dial. The first parameter is zero to indicate that we wish space reserved. The dimensions of the space are taken from the x, y, width and height fields of object 0.

When the interaction is completed we call form_dial again with a value of 3 as the first parameter to release the space.

We could also call form_dial with values of 1 and 2 to draw expanding and shrinking boxes respectively. This is the effect used by the Gem desktop when it

opens or closes a disc directory window.

Having reserved the space we draw the dialog box with objc_draw. This takes the address of the tree as an argument. The second argument indicates the object to commence drawing with, in this case the root, object 0. A value of 99 for the depth is simply a convenient way to draw the entire form.

Finally a clipping rectangle is specified. This could be used to draw only those parts of a form not obscured by something else but, can be set to the size of the screen if preferred.

The form is activated by a call to form_do. This again takes the address of the tree as its first argument. The second argument is for use with editable forms so must be zero.

The function returns the object number of the object that caused the exit. In this case it will always be 1 as there is only one object capable of exiting.

The other functions called in Listing I are the appl_init and appl_exit functions which we've met before, and graf_mouse.

Graf_mouse is used to change the mouse cursor to an arrow. The first parameter (0-7) selects the form required, 0 being the arrow. In addition a value of 256 will disable the mouse and 257 will enable it.

In fact it is not quite this simple as the effects of the hide and show values are cumulative. This means that if graf_mouse is called with 257 to show the mouse when it is already visible then it will take two calls with 256 to turn it off again. The second parameter should be left as zero, as it is used to define custom mouse shapes. We shall investigate this in a future article.

The Fast Basic program is even simpler although it must use a pair of nested loops to initialise the word array tree&. The complete form interaction is handled by one statement. The DIALOG performs the combined actions of the four function calls in the C listing. It can also perform the growing and shrinking boxes by adding a further four parameters defining x, y, width and height of the box minimum size.

Unfortunately, the DIALOG statement omits one important feature of form_do, as does the simpler statement DOFORM which simply calls form_do, this is that neither return the number of the object that caused the exit.

As the data structure of the dialog box is quite simple, you should be able to experiment with the effects of many of the bits defining the objects. Some caution is required when changing the structure as the object library will follow pointers until it returns to the root - and one misdirected pointer can leave it wandering through memory trying to display it as a resource tree.

● Next month we will look at the use of the resource constructor set and some of the more complex object types.

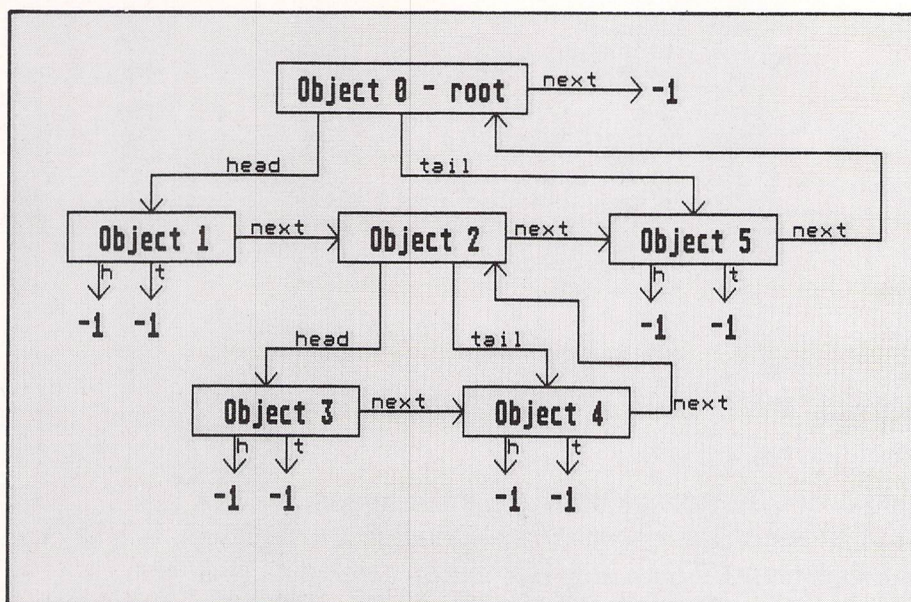


Figure II: A simple tree consisting of six objects and three generations

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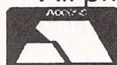
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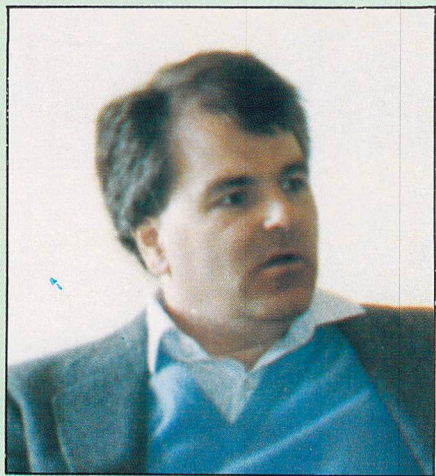


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Interview at the end of the universe

WHEN the 1986 awards were handed out recently by the Software Publisher's Association in America, the software industry's main trade association there, the name of Infocom was prominently featured.

Silver Certificates were awarded to its recent adventures, Wishbringer and Leather Goddesses of Phobos, for selling more than 50,000 copies, a Gold Certificate went to an earlier game, Suspended, for passing the 100,000 mark.

And there were Platinum Certificates (for over 250,000 sales each) for Infocom's two most famous titles, Zork and Hitchhiker's Guide to the Galaxy. Sales of Zork have obviously come on a little from when it was originally released, as I discovered when I spoke to the game's co-author, Dave Lebling, making his first visit to England.

"Zork did start slowly", he told me. "We were originally distributed by Visicorp, which is the company that also distributed VisiCalc, the first spreadsheet program, and they sort of had the feeling I think that, well, this is a very nice game but games were not very exciting at the time, but we've got this spreadsheet which is really exciting.

"So it started off with pretty much what games sold then in the United States when they were introduced, which was about ten or twelve thousand copies. That was pretty much what they expected, and they weren't terribly interested in pushing it harder.

"So we got the distribution rights back from them and started distributing it ourselves. We repackaged it and it was very successful, and because it was our own product we were very motivated to make it a success and it began to pick up from that time".

As well as helping to write Zork, Dave Lebling was one of the men behind the setting up of Infocom in the late 1970s.

"The Dynamic Modelling Group was really where we all started from, which was a research group at MIT (Massachusetts Institute of Technology) and we did many different things. We did elec-

tronic mail and database systems and all kinds of very serious funded research-type stuff. But we also spent a lot of time fooling around in our spare time, hacking.

"At the time we were on the computer network ARPAnet, that was run for research sites that got money from the Department of Defence in the United States and one of the things that this network is used for is sending interesting software around from place to place.

"One such piece was this game called Adventure or Colossal Cave Adventure and everyone just went totally berserk over it.

"The excitement was astonishing because nothing like it had ever been seen before and all work ceased throughout almost the entire country at these research sites.

"It was almost like an infection. One site would get it and all work there would

Mike Gerrard meets Infocom's Dave Lebling

cease for a couple of weeks and then it would spread to sites nearby...you would look at the computers, because these were all time-sharing machines, and there would be 12 people logged in but they were all playing Adventure".

This original game was written by two programmers called Crowther and Woods, and because it was public domain software it has since appeared in various versions, notably in the UK by Level 9/Rainbird as the first part of the Jewels of Darkness trilogy for the ST. Adventure was inspired by Dungeons



Leather Goddesses of Phobos: Software, 3D glasses, scratch 'n sniff and instructions

and Dragons, as was Dave Lebling himself.

"I used to play D&D and I liked the idea of being able to play it on a computer. I've always been a science fiction and fantasy fan and that was a way of indulging that interest, so the combination of D&D, fantasy, computers, was so seductive that it was impossible that I wasn't going to end up playing it".

The game and the idea of computerised adventures attracted several other people at MIT who set about trying to write their own game. This dealt with magic and mystery in the great underground empire of Zork.

Dave Lebling was principally involved in the creation of a parser that would extend the simple verb-noun format of adventure to read and understand quite complex inputs from players.

Zork was hacked into ARPAnet, and when the group of people from MIT decided they wanted to form a software company it was to be their first release.

Says Dave: "We wanted to have a software company, and we weren't quite sure of what it would do, but we thought Zork was a good thing to start with because we had seen Scott Adams' adventures, which were the first ones to be seen on micros.

"We said they were all very nice but we could do much better and it was just a question of how much of our mainframe adventure game we could fit on a micro. We found the answer was about one-third, so we did that and then the next third and the next making three games out of it".

Zork proved to be the making of Infocom, and although the company's published a couple of other products – Cornerstone, which was a relational database, and Fooblitzky, a graphic strategy game – it is the text adventure game they are renowned for.

The latest release, Hollywood Hijinx, is the 23rd in a row. It comes, as do all the others now, with the familiar detailed packaging that makes the opening of the box containing an Infocom game such a treat.

Hollywood Hijinx is written by Dave "Hollywood" Anderson, who started with Infocom as an adventure tester, a route taken by several people now writing adventures for the company.

"Four of our writers are former testers", Dave Lebling explains, "such as Steve Meretzky, who wrote Hitchhiker's with Douglas Adams, then Jeff O'Neill who did Ballyhoo, Dave Anderson, and a new writer named Amy Briggs.

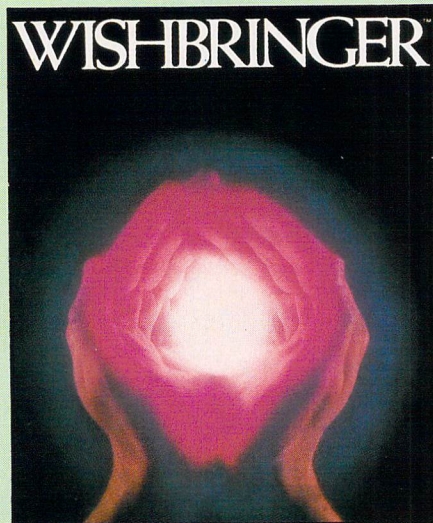
"What often happens is that people come into our testing department and they start hinting that they have a good idea for a game, and that's how they turn into writers. The way we typically write games is to write a short scenario of three or four pages of 'This is what it's going to be about' and circulate it to other authors to see what they think, almost like a job

application, and that's what Hollywood did – his nickname really is Hollywood, by the way.

"We get together at least once a week, all the writers, and discuss what's going on. That's another incentive for a tester to become a writer, because testers are barred from our lunches! Every so often someone will say 'Don't tell me any of the details of any of the puzzles,' and you even get people saying, 'I'm going to get up and leave now, I don't want to hear it.' That's so you get the pleasure of playing the game for yourself when it's finished.

"With Hijinx I knew in slightly more detail what was happening because Hollywood, being a new writer, was asking a lot of questions about how to implement particular things, how to make an elevator work, or how to program the Atomic Chihuahua. As a result we knew far more details of that game than we would of a Steve Meretzky game, for example.

"All our authors do both the program-



ming and the creation of scenarios, the writing of the adventures, but it works out pretty well because the level of programming ability that it takes is not all that high.

"We use a very high-level language and you can learn the rudiments in a few hours. From then on it's just a question of when you get in a sticky spot you come to someone else, like myself or Steve Meretzky, and say 'Well, I've got this rope...how do I do a rope? It can be in two rooms at once if you tie it to something and take the end with you, and can you tie things up with it and drag them around with you?'

"Then we'll stop and think and say, 'You don't want to have a rope in your game,' and that makes it much easier for the new writers, you see.

"My new game has a chain in it, and it's even worse than a rope in almost every respect you can imagine and it's caused me no end of horror...the number of bugs that have come in on this chain alone would stack from here to there and back

again".

Having enjoyed Dave's previous games, which as well as Zork were Starcross, Suspect, Enchanter and Spellbreaker, I ask him what his new one will be about.

"I'm afraid we have this stock response to questions about our new products, which is that it's not our policy to talk about them until about six weeks before they're released...but I can tell you a little bit about it.

"It's got some very bizarre stuff in it and it's in a new genre. It's not a Tolkien-style fantasy and it's not science fiction and it's not a mystery and it's not a comedy".

I thank Dave for this detailed information and ask about the fact that Infocom no longer seems to categorise its games or rate them as to how difficult they are meant to be.

"No, we no longer do that as it seemed to be becoming a little meaningless. Like the new game, Bureaucracy. What is Bureaucracy? It's got some science fiction elements and some fantasy elements but it's mostly just bizarre, so we'd have had to create a special category to put it in".

As it's less than six weeks to the release of Bureaucracy the ST will be the first machine to see it – I ask Dave if he can tell me a little about that.

"It's the third that we've done on our fairly new 256k system, which will only run on the larger and newer machines. The story is set off by your ill-fated decision to move to accept a wonderful new job that involves having to accept a free trip to Paris. So you send a change of address form to your bank, which promptly does what banks always do with that sort of thing, which is to throw it away.

"As a result your entire life begins to collapse into a shambles of total uselessness. You basically have to acquire the means to extricate yourself from this situation of having no money, of having your mail going to the wrong address, having your credit cards cancelled, your computer not working, all the kinds of terrific things that can happen.

"One of the people who tested it – fortunately in the minority – didn't like it very much because he said, 'I have enough of this happening at work. I don't want to go home and have it happen too!'

With Hitchhiker's such a success, and Bureaucracy set to follow it, I wondered if there would be any more Infocom/Douglas Adams' collaborations.

"Well, I'm afraid it's not company policy etc etc...but the obvious next thing to do would be The Restaurant at the End of the Universe, and there's always the possibility that that will happen".

On leaving I ask Dave, just for the record, what his job title is at Infocom.

"It's officially written in my job description that I wander the halls clutching a cup of coffee... and that's about the size of it!"

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- * Unlimited headers & footers
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- * User variable superscript/subscript characters

7 PAGE LAYOUT

Whatever you require, custom logos, unique borders, unusual letterheads etc. Publishing Partner is your solution. After all, it was specially designed by professionals who realize that there's more to your computer than just typing letters.

- * Accurate to 3 decimal places
- * Adjust character size from 1 to 216 points
- * Auto text flow between columns
- * Change columns on finished page
- * Display 15%-1500% of original size
- * Display actual size
- * Display multiple pages/rulers/text routing
- * Layout multiple columns
- * Print to disk
- * Set auto text routing
- * Snap to guides
- * Superimpose text on tint or tint on text

8 GRAPHICS

Not only can you load any Degas, N-Vision, Neochrome or digitized pictures into your Publishing Partner files, you can also enlarge or reduce them for an exact fit. Or, you can copy just a section of a picture and then paste it into your document as many times as you want. You can still go back and resize it at any time or crop it to delete unwanted areas.

- * 3 types of line ends, square/rounded/pointed
- * 7 types of line which are all editable
- * 7 weight lines ranging from ½pt to 6pt
- * 40 fill patterns each with a border option making a total of 80 fill options
- * Ability to produce separations for 2 colours
- * Copy graphics to and from clipboard
- * Cut, paste, copy or crop graphics
- * Import graphics from third party graphic programs such as Degas, Neochrome, N-Vision or any art program that produces compatible ASCII files
- * Select colours to use and print with
- * Toolbox features include: Circles, ellipses, boxes, rounded corner boxes, horizontal/vertical lines, diagonal lines, polygons and free hand drawing

9 OUTSTANDING OUTPUT

Publishing Partner is a unique program with a large variety of printer drivers for both laser and dot matrix printers. Dot matrix is supported in both 80 column and 132 column mode, so you could even produce a tabloid width newspaper (11½" wide) on a wide body printer. Drivers are also available for the new technology 24 pin dot matrix printers which can give a fine resolution of 360x360 compared with laser printers at 300x300. The current drivers (included FREE with the program) are as follows with new ones being written on a weekly basis:

9 PIN DOT MATRIX (Various Res)

- * Atari SMM804
- * Blue Chip M120/10
- * Cal Abco Legend 880
- * C Itoh Prowriter
- * Mannesman Spirit-80
- * NEC 8023
- * Panasonic KXP
- * Star Gemini & SG

9 PIN DOT MATRIX (240x216 Res)

- * Citizen MSP
- * Epson RX/FX/EX
- * Mannesman Tally MT
- * Star NX/SD

18 PIN DOT MATRIX (240x288 Res)

- * Okidata Microline 292
- * Okidata Microline 293

24 PIN DOT MATRIX (360x180 Res)

- * C Itoh C-715
- * Epson LQ
- * Epson SQ
- * Toshiba P321

24 PIN DOT MATRIX (360x360 Res)

- * NEC P6/P7
- * NEC XL new series

LASER PRINTERS (300x300 Res)

- * Centronics PP-8 in Epson or H.P. Laserjet mode 1½Mb RAM
- * Any other H.P. Laserjet compatible with 1½Mb RAM
- * QMS PS800 or Apple LaserWriter - Postscript
- * Any other Postscript compatible printer

SEEING IS BELIEVING

We have already told you how powerful Publishing Partner is and how easy it is to use. However, the recipients of your finished work will only be able to gauge the package by the end results of your work. The true test of any Desktop Publishing software is in the output it produces and it is here that Publishing Partner excels. With its graphics capabilities and the thousands of type styles it produces, there is no end to the design possibilities which you can create. And, with drivers for a variety of printers, including Postscript at no extra charge, you can be sure that you will be able to output in the quality your work deserves. The output quality is truly remarkable. But don't just take our word for it. Before you go any further with your enquiries into Desktop Publishing, return the coupon below for samples of Publishing Partner's output on a variety of printers. We will also send you details and prices of each printer as well as further information on Publishing Partner and the Atari range of ST computers. We don't expect you to take our word for it. We want you to see for yourself how Publishing Partner outshines the competition. So, complete and return the coupon today. Remember, SEEING IS BELIEVING!

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The official UK version of Publishing Partner has a pound (£) sign as a standard part of its character set. Other versions have also been imported unofficially from the USA and have a dollar (\$) sign instead of a £ sign. These versions will not be supported by the UK distributors or their dealers. The UK version also contains clip art, different fonts and a full range of printer drivers. Ensure that you buy the official UK version, not an unofficial import with incorrect characters.

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Publishing Partner is available from Atari ST Dealers throughout the UK. If your local dealer does not have Publishing Partner in stock, it can be obtained by mail order (Postage & Packaging free) from:

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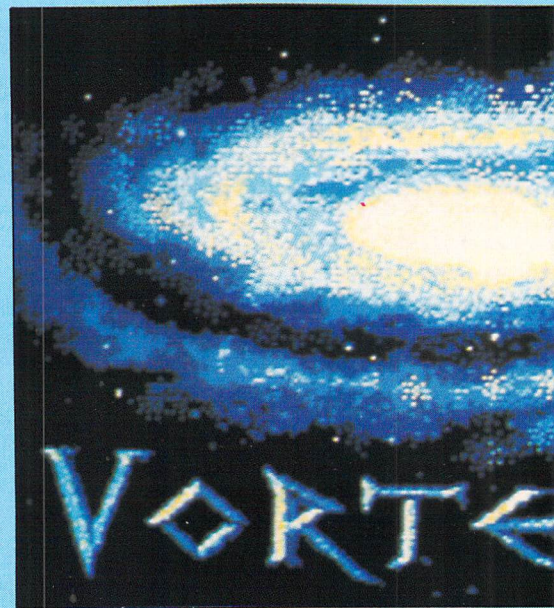
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DTP



Into space and S-F with the ST



An animated screen developed using Colourspace

THE 1980s are seeing a great leap forward in what is essentially a new art form, computer graphics. And the ST, with superb graphics capabilities at an affordable price, is doing much to spread that art form in the way that other micros brought word processing within reach of thousands of writers.

Someone who's now exploring the creative possibilities of the ST's graphics is David A. Hardy, one of the world's leading science fiction artists. As well as decorating book and magazine covers, he has had exhibitions of his work at the London and Stuttgart Planetariums, at the Space '86 exhibition in Utrecht, and elsewhere in Europe and the USA.

In 1979 he was nominated for a Hugo Award, and in 1984 was voted Best European SF Graphic Artist at the European SF Convention. In 1982 he worked on production art for the film of *The Never Ending Story*, and he has since done other film work too.

Originals of his paintings are owned by science fiction writers such as Isaac Asimov, Carl Sagan and Arthur C. Clarke. His first success, though, was a small collaboration with Patrick Moore in 1954.

"I was 18 then", he says, "and had already started doing space paintings. A friend of mine happened to be going to see Patrick Moore about something, and at that time he was working on his *Guide to the Planets*, a follow-up to his very successful *Guide to the Moon*.

"This friend very kindly took some of my paintings along to show to Patrick, who liked my work and said that he'd like to use some of it. The artwork for *Guide to the Planets* was already commissioned, but he then did a book called *Suns, Myths and Men*. I had to provide eight black and white illustrations for that in five days, which was quite a tall order but I was due to go into the RAF to start my National Service so I had to get it done.

"Since then, I've done a dozen or so

Mike Gerrard meets the rising star of ST computer graphics

books with Patrick, but I started doing my own thing about 1974, both writing and illustrating my own books, and we haven't collaborated since then."

It was the fact that he both wrote and painted that caused David to choose an Atari ST for himself about a year ago, when the 520ST first appeared.

"I'd been interested in computers for years, really, but most of the machines that were affordable weren't quite suitable for what I wanted to do. I didn't want to play games. I don't have the time for one thing, and I wanted a machine for both its graphics and word processing facilities.

"A good friend of mine in Birmingham, where I live, is Laurence Miller. He's quite well-known as a programmer and a general adviser to software houses and so on, and he'd been keeping an eye on what was happening for me.

"Of the machines that were around just over a year ago, he suggested maybe the Commodore 64 might be the one to go for, and we also went to last year's Which Computer? Show at the NEC and looked at Amstrads, Commodores, Apple Macs and so on, but there was nothing that quite filled my needs – not that I could afford, anyway.

"Then one day I went along to Software Express in Birmingham and saw the 520ST being demonstrated. I saw enough to know that it would be useful to me and got one straight away. I started with a monochrome monitor and used that till I got used to everything, then I moved up to colour when I started working more seriously on it".

Initially David's idea was that the com-

puter would help him on the word processing side, where in addition to books he also writes magazine articles and short stories in the science and science fiction areas.

He planned to use its graphics facilities as a kind of rough pad, where ideas for illustrations could be experimented with, rubbed out and moved around, before being committed to paper. But he soon began to see the greater potential in graphics packages like Degas.

"I discovered that you can get much more interesting effects than when you're just sketching, such as blurring and smearing, and I got more and more interested in computer graphics in themselves. You see, each medium that an artist uses always imposes itself on him to some extent.

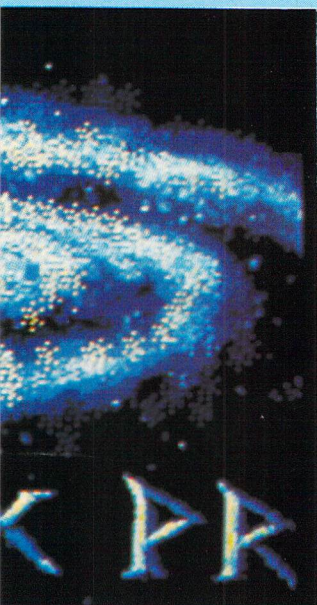
"For instance, you can get certain effects using chalk, others using oils, so that dictates how you use the medium and the type of work you produce in it. Working on a micro is a new medium and is different again from any other. It's more like a pointillist technique, all those tiny pixels sprayed across the screen."

David also admits to getting a computer simply because he felt he was being left out of the technological revolution that was going on around him.

"I didn't want to feel that I was going to be left in the backwoods with my paintbrush while everyone else was using this amazing technology."

As you might expect, David now uses a range of graphics and other software, including Art Director, Degas, Degas Elite, Rubber Stamp, Typesetter and Megafonts, as well as having a Haba Digitiser for importing photographs and other images into the backgrounds he produces himself.

"At the moment I tend to alternate between Art Director and one of the Degas programs, simply because each has its advantages. One will stretch and



Kenilworth Castle

bend something a bit better, so I have to work on one and then convert it across to the other and carry on in that.

"One of my gripes, though, is that whatever you have on the screen isn't necessarily what you get printed out, at least not on the Epson dot-matrix printer that I've got. This has to be the only medium I know where the artist is just expected to accept that what you design on the screen will look differently when it's printed out".

"Take this tie I'm wearing, for instance. It's a personal one that I designed on the ST, and it has a sphere on it which has my initials in a very stylised way. But if you design a perfect sphere on the screen then it always gets either compressed or elongated slightly so it isn't perfectly round when it's printed out.

"It doesn't seem to me to be asking too much that a circle on the screen will actually still be circular shaped when you print it out. But to get this circle on the tie I calculated that I'd have to compress the circle on-screen by 11 per cent to achieve a perfect result when printed.

"I've thought about getting a colour printer that might make things better, like one I've been looking at by Fujitsu, but I don't know about it yet.

"As an artist you're obviously interested in getting good hard copy of what you've created, and I'd like to be able to use the polaroid process to take instant snapshots, but at the moment the process isn't compatible with the Atari screen, so far as I know." Another of David's complaints is the common one dealing with the standard of manuals, and the difficulties faced by a novice – even one who's acquired a lot of general scientific knowledge – in getting to grips with a computer for the first time.

"I spent the first few weeks tearing my hair out", he admits, "as I tried to get used to using the thing. Manuals never give you enough information. They're written

by people who know what they're talking about, and they always assume you know more than you do, but most people don't know anything, they're beginners, like I was.

"Another major problem I had was that one of the disc drives wasn't working, but of course I didn't know that at first. I thought it was just me doing something wrong or having them connected up wrongly. But once I got used to the machine I started to use it all the time and I wouldn't be without it now.

"The Atari's really taken over in the last 12 months – at least my wife says it has. I'm very keen on photography, in fact I'm an LRPS – that's a Licenciante of the Royal Photographic Society. But I haven't done much at all in the past 12 months.

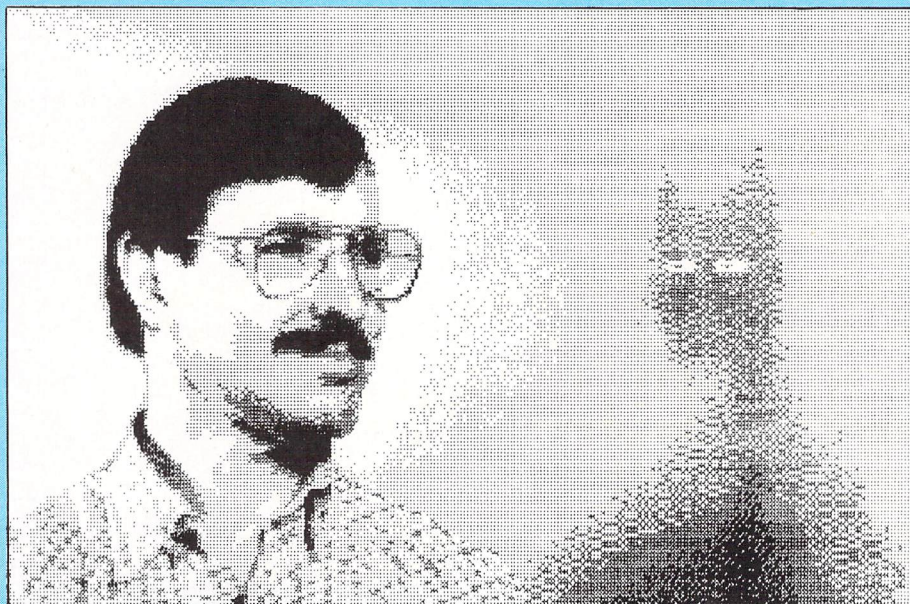
"I haven't had a lot of work published on computer graphics yet, but that's an area I hope to move into. I've just been to see Andromeda Software, who wrote the

Art Director and Film Director programs for Mirrorsoft, and it looks like I'll be doing something with them.

"I do have lots of ideas about things. For instance, it amazes me that so much computer packaging doesn't use computer graphics to promote the products. The covers and manuals and so on are all illustrated by conventional artistic means, when computer graphics would be much more appropriate and eye-catching.

"I know partly why that is, which is the coarseness you get with computer graphics. One of my complaints is that you still can't get a proper air brush technique.

"But I do have ideas for combining all the various media that interest me, like photography, conventional art-work and computer graphics, and I think I can produce some very exciting results. But I don't want to give too much away about it just yet." □



David A. Hardy: The science fiction artist who's discovered the ST

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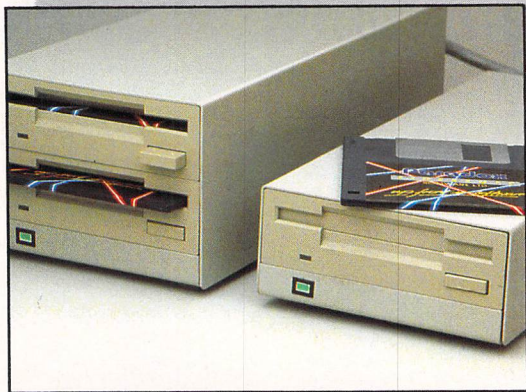
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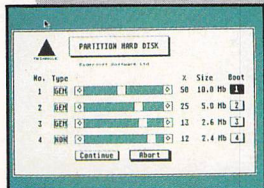
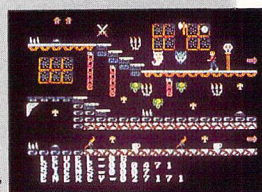
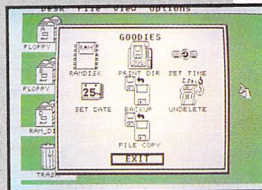
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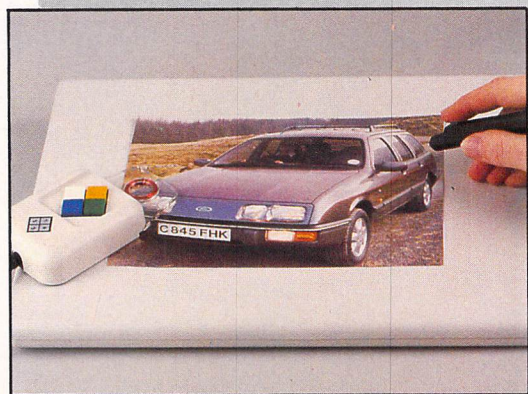
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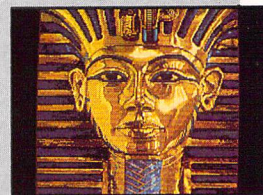
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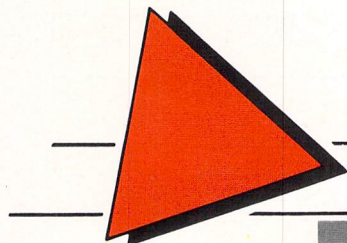
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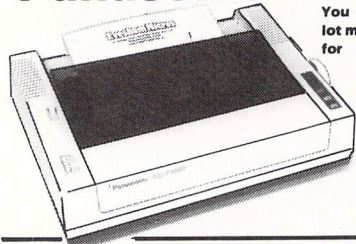
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Modulated Pascal

Ray Jackson examines Modula-2, its strengths and weaknesses

THE Modula-2 development system was originally reviewed in the April 1986 edition of *Atari ST User*. This article is to give you an insight into using it for software development on the ST.

Modula-2 is a derivative of the language Pascal. It was created by Niklaus Wirth, the father of Pascal, which was developed primarily as a language to teach the fundamentals of good programming techniques.

It is available for almost all computers, from 8 and 16 bit micros through to mainframes.

Despite Pascal's wide acceptance as a programming language for developing application software (as opposed to learning programming technique), it has some serious problems.

Because it was not intended for practical use it lacks many of the features required in a "real" language.

In particular, the input and output facilities defined are simplistic and there are no mechanisms for accessing the physical hardware of the computer or its operating system.

In order to provide these facilities, each version of Pascal has many extensions for file handling, operating system access, and often the capability to access absolute memory addresses and hardware devices.

This has led to a wide variety of specific implementations of the language, none of which is pure Pascal. Some attempts at standardisation have been made, but there still exists a wide variety of dialects with the attendant problems of non-portable software.

To tackle this problem Wirth developed Modula-2, which he describes as

the language he meant to design when he invented Pascal.

It solves the problems of input and output by providing a well-defined system of library modules from which the necessary procedures may be imported.

He also defined a suggested set of library modules to provide a useful minimum group of facilities.

The ST release of Modula-2 from TDI software includes virtually all these. It also includes a complete set of library modules allowing access to the Gem Aes and Vdi routines as well as the low level Gemdos, Bios and XBIOS.

These modules make Gem facilities very easy to use from Modula-2. You simply import the procedure that corresponds to the Gem function required and call it.

The calls are very similar to their C equivalents although not necessarily identical in parameter sequences. One slightly annoying feature for those who also use a C compiler is that the actual procedure names are not the same as the Digital Research standard C function names.

These names reflect a shift towards the Pascal tendency to use long English names such as ResourceLoad in place of RSRC_LOAD and OpenVirtualWorkstation instead of V_OPNVWK.

I must admit that the longer names are

more meaningful, but they are a little hard on the slow typist.

There are almost no omissions from the set of Gem calls provided and they include a simple Aes and Vdi call in case you wish to set up the primitive data structures yourself and make direct calls.

As long as you can live with the modified names, you can do anything with Gem that you could do with C.

Modula-2 is also somewhat more foolproof than C, because it has strong typing. Typing means that the compiler will not let you call a procedure which takes parameters of one type and supply it with arguments of a different type.

For example, you cannot pass a number larger than 255 when the compiler expects a character - C will let you get into trouble in these areas if you are not careful when accessing external functions.

Like Pascal, and to a certain extent C, Modula-2 lets you declare new data types based on the set of simple types provided. When a named type has been declared, the compiler will not allow a confusion of data meaning when parameter passing and assigning values.

One selling point for Modula-2 is that it provides the power and flexibility of C with the readability and maintainability of Pascal.

It is certainly easier to produce readable code with Modula-2 than with C, although the cost of this is seen in the far more verbose style.

As far as the power is concerned, the Modula-2 compiler allows access to 68000 instructions, providing you code them as hexadecimal values for the machine code, rather than the true 68000 assembler mnemonics allowed by most C compilers.

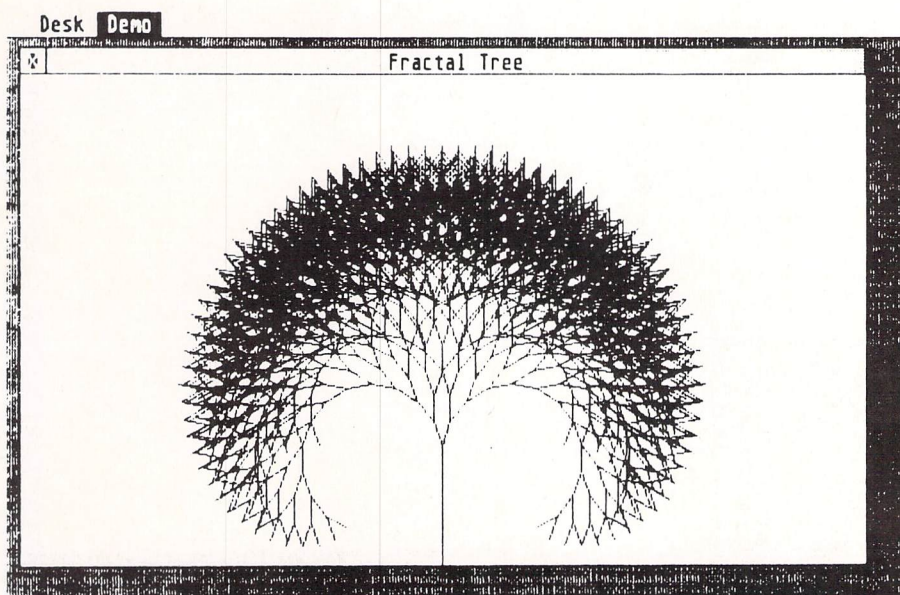
In combination with procedures to set and read processor registers this feature can be freely used to insert one or two useful instructions within normal Modula-2 source code.

Because of its limitations, its use should be limited to solving very devious machine specific problems. The main problem I have encountered so far in using this facility is the lack of bitwise logical operators and shift operations.

It is unclear why such obviously useful operations should have been excluded from a language which claims to offer low level facilities with the ease of a high level language.

An unfortunate side effect of the module structure of Modula-2 is that it is impossible to link software written in it to software written in C, Pascal, Fortran, assembler or any other language.

This means that if you are a C programmer and have built up useful ▸



A fractal tree

libraries of functions, they cannot be called as if they were Modula-2 procedures: they will have to be rewritten.

Similarly there are a large number of numerical algorithms written in Fortran which are not usable without a rewrite.

On a minicomputer this could be a serious constraint as many library routines are only available as object code libraries which must use the standard linker.

On the ST you can live with it, especially as many languages use their own unique linker format which is incompatible with any other language anyway.

In terms of program development times, the Modula-2 system is helped by the inclusion of a ramdisc utility, which can speed compile and link times dramatically.

Unfortunately the Modula-2 system is quite large and, including all the library modules, amounts to just under 100 files. This requires a ramdisc of around 650k if everything is to be loaded to ensure maximum performance.

This is only just possible on a 1Mb ST, and leaves little space for the program under development. It is quite possible to develop programs with all the software on floppy, but the edit-compile-link cycle time is much longer.

Anyone intending to use this system seriously on a 520ST could well find a 1Mb upgrade very desirable. The more expensive alternative is to buy a hard disc.

This offers several times the performance of floppies and gives tolerable times for compilation and linkage, but it does not approach the speed of ramdisc based development.

The editor has a facility for finding the

location of a compiler detected error and displaying a message describing the cause. This is immensely useful and avoids the need for list files, which although available from the compiler are something I have never yet needed.

Unfortunately the editor does have its drawbacks. The up and down cursor keys almost defy belief as they send the cursor leaping through the file until it finds a line which has a character in the same column position as the line it just left.

This means that if the cursor is at the end of a long line you can't go up or down to the end of the adjacent but shorter line without reaching for the mouse.

The other main complaint about the editor is that, unlike almost all other language development editors for the ST, it can only edit one file at a time. This is a little strange for a language which insists on two files for every module.

For serious program development with Gem a programmer's toolkit is available for Modula-2.

This includes a resource constructor set (RCS) which allows you to design menus, icons and dialog boxes for use with your program.

This is actually a converted version of the Megamax RCS, although it seems to have been tidied up in the process of conversion and is more complete than its Megamax counterpart.

It also adds a program which converts the resource file (.RSC) into Modula-2 source code that can be embedded in your program. This removes the need to copy .RSC files around, and is especially useful for desk accessories which waste a lot of memory when they use separate resource files.

Also on the toolkit disc is a set of high level modules which includes win-

dow management features to a standard recommended by Wirth as optional extensions to the set of basic library modules.

A set of utility programs includes a symbolic post-mortem debugger which allows the analysis of a crash dump file to determine the cause of the crash.

Example software is provided in the form of the Modula-2 source files for the ramdisc and a printer spooler which usefully demonstrate how to use the 68000 instructions with the Modula-2 code.

Portability of software is a claimed benefit of Modula-2. This will not matter if you just want to write programs for private use, but if you wish to develop software for sale you may well be interested in how easy it will be to convert it for use on another machine.

The basic language has almost no deviations from the standard defined by Niklaus Wirth. Since the company has closely followed Wirth's book for the non-Gem library modules, these calls should also port on to another machine fairly easily, assuming a similarly equipped Modula-2 compiler is available for the other computer.

Clearly any calls to Gem will only work on another machine if it supports Gem. Otherwise the calls must be replaced by the equivalents for the other machine's operating system.

This will be made much easier if you follow the spirit of Modula-2's structure and localise all your calls to operating system features in one module which can be updated without needing to affect the other modules in your program.

Overall, the Modula-2 development system provides a very capable facility for serious program development.

Its advantages over other languages only start to shine on larger projects, especially those shared by several people. □

```

TDI Modula-2 ST
Modula-2 Compiler Version 2.81a
source file : HELLO.MOD
Import List Processing
Terminal : TERMINAL.SYM
.....
Declaration Analysis
.....
Statement Analysis
Expression Analysis
Code Generation
link file : HELLO.LNK
End of Compilation


```

Compiling Modula-2
source code

```

MODULA.PRG
TDI Modula-2 ST
Modula-2 Compiler Version 2.81a
source file : HELLO.MOD
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Terminal : TERMINAL.SYM
.....
Declaration An
.....
Statement Anal
** Compilation
error file : H
End of Compila

```

 Error(s) occurred during Compilation

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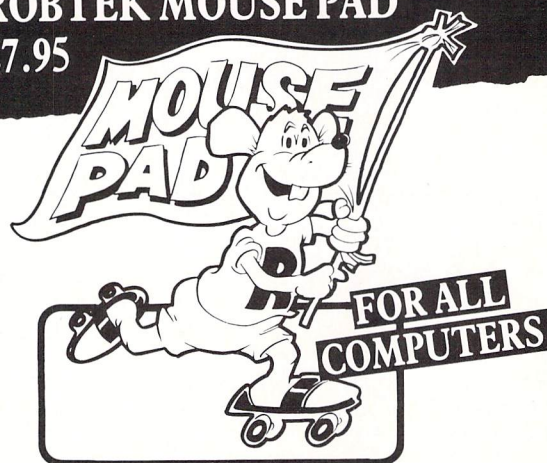
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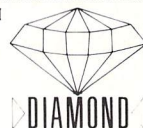


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Pseudocode it . . .

Trevor Roberts shows how to plan some really elegant programs

I'M one of those programmers who spends more time thinking about a program than actually sitting at a keyboard typing in code.

I plan it in a thoroughly logical, efficient way. I make sure that it is completely structured and that a GOTO never raises its ugly head. I also tell lies.

In fact the above is what I'd like to be and am slowly becoming, but it's a long job. Usually I just scrawl down a brief outline of what I want to do on a piece of paper and start coding. By the time I've finished the program it rarely bears any resemblance to my original plan – on those few occasions I can read my writing, that is. And normally the whole thing has been such an effort that I resolve that next time I'm going to plan my program properly. And sometimes I do.

One thing I've noticed when I have planned ahead is that the longer I spend thinking about the program, the easier it is to eventually code and the better the program works. The trouble is that actually thinking tends to be a bit painful and isn't as much fun as coding so I tend

to fall back into my bad habits. "Program first – think later" seems to be my motto. Or it was until I met pseudocode.

Pseudocode is a Program Design Language (PDL), which is just a posh way of saying that it's a tool that can be used to create and describe programs. But it's not a language like Basic or Pascal where you have to learn a whole new syntax before you can use it. In fact, it's the opposite.

As we'll see, it just consists of a description of a program in normal English held together with a few uncomplicated rules. Because of this it's easy to learn and simple to use and understand. Yet using it helps produce logical, structured, error-free programs. Even from someone like me. And it's all to do with algorithms.

Whether you've realised it or not, whenever you've written a program you've produced an algorithm. This is just a set of actions to be taken to achieve a desired result.

We use them all the time, they're not confined to programming. Knitting patterns are algorithms, as are musical scores and kitchen recipes. In fact almost anything that tells you how to do

something, from a DIY manual to a book on yoga, consists of algorithms – the steps and rules to be followed to achieve a desired result.

Armed with the fact that you've used algorithms all your life you should now feel confident enough to tackle the algorithm in Figure I.

This is the algorithm for having a drink in a pub or coffee bar. It's written in plain English and is, I hope, easy to follow. Which proves my earlier point, because it's written in pseudocode.

Thinking about the algorithm in more detail, there are some important points to grasp. Obviously it consists of three instructions. And obviously they are to be performed one after the other, starting at the first line and finishing at the last.

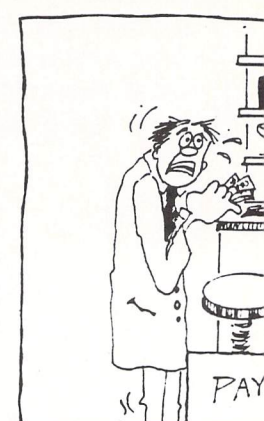
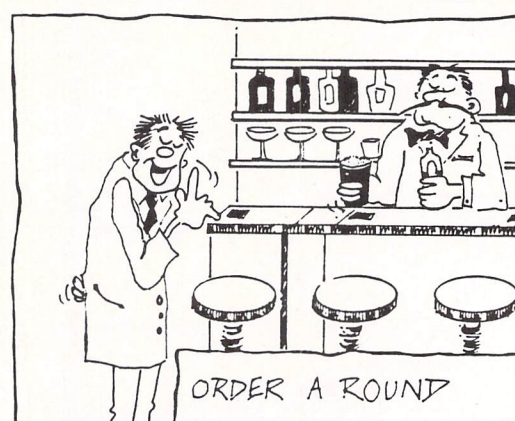
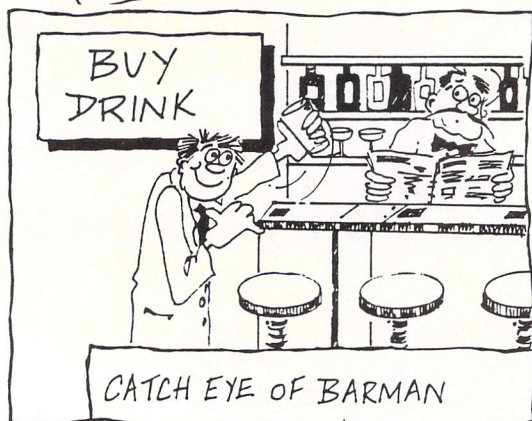
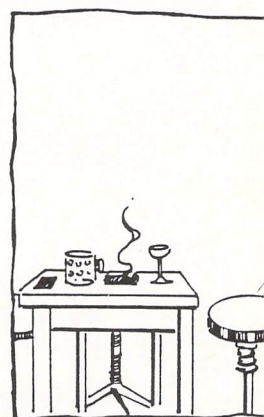
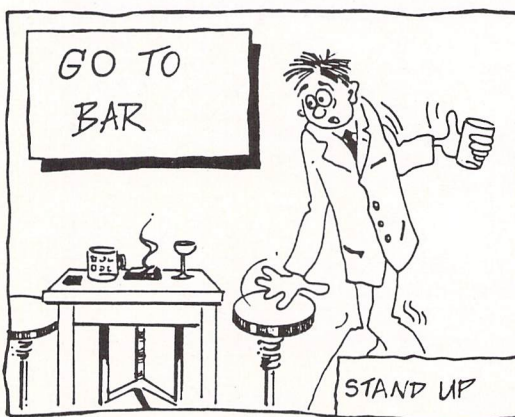
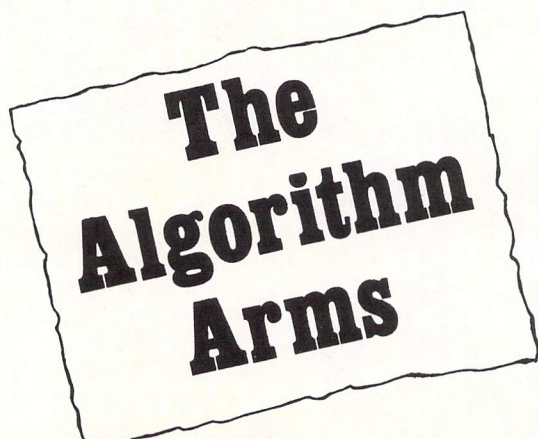
But take a closer look at each instruction. These consist of a single, simple action – "go to bar", "consume drink". Each starts with a verb, the "doing word" beloved of English teachers. And each is a brief but readily understandable description of what is to be done.

And that, in essence, is pseudocode. It's a set of simple statements, one after another, giving instructions on what to do in a rather stilted, but nevertheless comprehensible, form of English. Moving on from the bar (to which we'll return later, do not fear) have a look at the pseudocode in Figure II.

I'm thinking of having this algorithm

```
go to bar
buy drink
consume drink
```

Figure I: An algorithm to drink to




```
be born
live
die
```

Figure II: The algorithm of a lifetime

published as a novel. It says all there is to say about the human condition. Yet it does it briefly and precisely in three steps, each step to be taken one after the other. Having said that, most of us try to avoid the last instruction.

"But what about programming?" you may be asking. "These algorithms have nothing to do with my micro", you may protest. The pseudocode in Figure III shows something more relevant.

```
initialise
calculate
output
```

Figure III: An all-purpose algorithm

Most programs consist of the three steps shown. There's usually a part of the program that deals with setting things up such as opening files or requesting keyboard input, initialising variables and so on. This is followed by the bit of the program that actually does the work followed in turn by the part that returns the required results to the user.

The pseudocode in Figure III shows this process, clearly and concisely. It also leads on to another aspect of pseudocode and algorithms.

I've said that each pseudocode statement should be a brief description of a

simple action. Well the descriptions in the pseudocode of Figure III are probably a little too brief. After all they could apply to anything and, as they stand, are no use for a specific program.

What we need is a way to elaborate on these elementary but rather vague statements so that we have a better idea of what they do. Pseudocode allows us to do this by the simple method of allowing each single statement in turn to be turned into another set of pseudocode instructions.

To return to the bar as promised, let's look at each statement in turn. You might think that:

go to bar

needs no further explanation but all that means is that you haven't met our editor. Since it's so long since he's bought his round, we have to break it down into:

```
stand up
leave table
head towards counter
stop at bar
```

with:

buy drink

becoming:

```
catch eye of barman
order round
pay for drinks
stop crying
```

As for:

consume drink

we can leave it as it is. He knows that bit all too well.

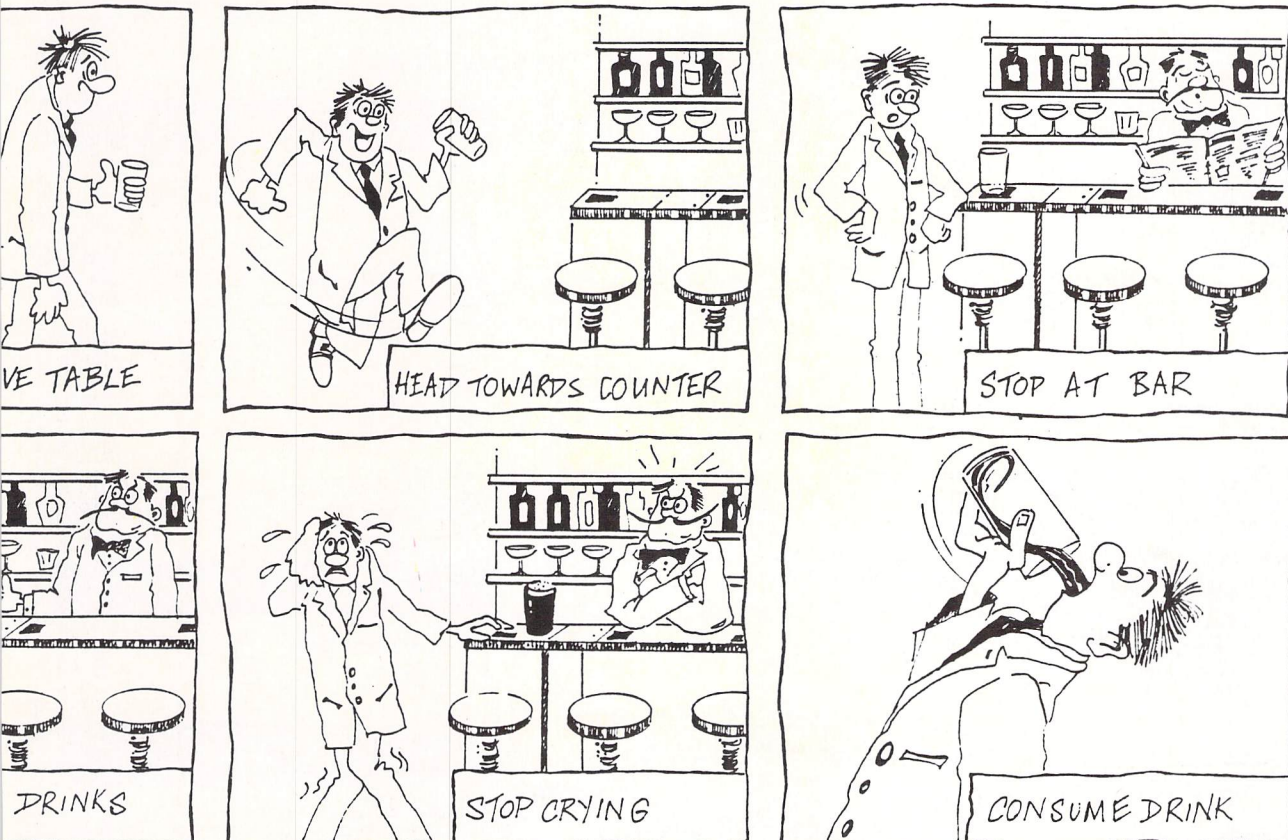
From this admittedly silly example, you'll see that pseudocode allows you to start with simple descriptions of what you want doing and then move into more complicated ones as the need arises. Putting all this down on paper brings us to another of the principles behind pseudocode.

Suppose that you'd broken down our bar algorithm's statements into simpler components as shown above. How would you write the new algorithm? One way would be to put the more detailed descriptions in the place of the less detailed ones. Figure IV shows the results of this substitution.

```
stand up
leave table
head towards counter
stop at bar
catch eye of barman
order round
pay for drinks
stop crying
consume drink
```

Figure IV: A more detailed algorithm

Although this works, it's not very clear is it? You could follow it step-by-step but grasping the overall structure, seeing how the thing works, becomes difficult. A rather better way of adding the more




```

go to bar
buy drink
consume drink

```

```

go to bar
  stand up
  leave table
  head towards counter
  stop at bar

```

```

buy drink
  catch eye of barman
  order round
  pay for drinks
  stop crying

```

Figure V: Same algorithm, different style

detailed instructions is shown in Figure V.

Here the earlier algorithm is shown in full, but without all the added details. The more precise instructions for each step are given later on in the pseudocode. Each of these mini-algorithms is shown under the instruction it is elaborating.

The pseudocode still reads from top to bottom, one instruction at a time as before. However, if an instruction needs expanding you jump to the more detailed description of that step. This is worked through line-by-line and when it's finished you go back to the next instruction

in the main algorithm.

So with Figure V you read:

```

go to bar

```

and then look to the mini-algorithm entitled "go to bar" to see precisely what this means. Once you've worked through this step-by-step, you return to the first piece of code and do the next instruction:

```

buy drink

```

This in turn sends you off to another, more detailed set of instructions. And if this gets you thinking of subroutines and procedures – full marks.

One thing to grasp is that although the layout of Figure V is different from Figure IV, the actual instructions performed are the same. However, I find the pseudocode of Figure V much easier to understand. The first three lines give an indication of what the whole thing is about while the others give me more details should I require them. They allow me to see the wood and then to hunt down individual trees as necessary. Notice how the underlining of the mini-algorithms' titles and their indentation helps make the scheme of things clearer.

And anything that makes an algorithm

clearer helps with programming. Yet there are a lot of questions remaining.

Suppose that our editor didn't understand:

```

pay for drinks

```

and needed to be told exactly how to do it such as:

```

open wallet
pass over money
receive change

```

How would you fit this into the pseudocode? Would you just substitute the instructions for "pay for drinks"? Or would you use another mini-algorithm? And how would you show this? And suppose, unlikely though it be, that the editor bought another round? How would you deal with the repetition?

As these questions show, there's a lot more to pseudocode than we've dealt with here. We'll cover them all in the next three months. As it is, try using the simple pseudocode structure shown here to plan your programs. While it may seem a bit strange at first, I have little doubt that you'll find that it makes your programming easier. Next month we'll be looking at how pseudocode deals with decisions. □

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1 SPREADSHEET

VIP Professional was modelled after the powerful, best selling Lotus 1-2-3™ program. It has every feature, every command of that program. In fact, the experienced 1-2-3™ user will feel right at home using the same keystrokes. But this version is made even easier to use by adding the user friendly face of GEM, so the beginner can use it right away. If you want to do your home budgets, financial planning, or sophisticated business inventory control or budget modelling, VIP Professional will fit the bill. And you can freely use 1-2-3™ or VIP Professional files created on other computers in VIP Professional on your Atari ST. And Professional is not only flexible, it's powerful too, with a full 8,192 row by 256 column worksheet to use with up to a massive 4Mb of memory. (Note: Lotus 1-2-3™ has only 2,048 rows).

2 DATABASE

VIP Professional includes a powerful data manager to arrange, store and analyse your important information. It can be used to store your home or business records and do extensive searches, sorts and comparisons. It allows up to 8192 records, with up to 256 fields and queries and 256 search criteria. The database manager can be used in conjunction with the spreadsheet commands to add greater power to the database facilities including sorting specific ranges of the database. You can also specify how you sort files, from the highest value to the lowest value (or from the lowest to the highest), or alphabetically (forwards or backwards). The graphics part of VIP Professional can be used to show trends in the database or other information. With its powerful statistical functions, it has almost limitless power.

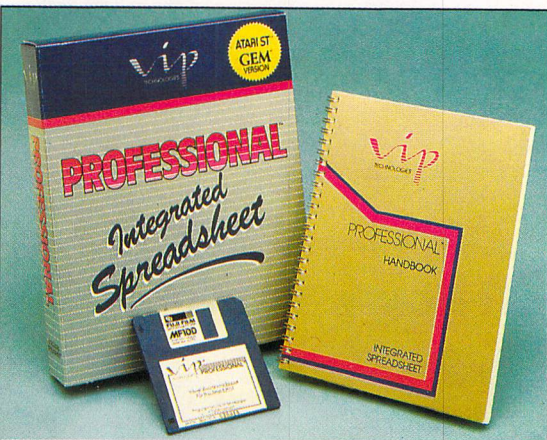
3 GRAPHICS

VIP gives shape to your figures by letting you graph your data into six different types of graphs, in startling colour or black and white. Pie charts, bar graphs, stacked bar graphs, line graphs, scatter graphs and X/Y graphs. You can graph your spreadsheet or database data to give instant professional presentations. Your graphs will change instantly as you change the data. When creating a graph you may specify a main heading, a sub heading and a third title at the base of the graph. The necessary scales can be defined either by the user or automatically created. In pie graphs, the most important section of the pie can be separated from the other sections to draw attention to its importance. You may save graphs individually on disk for use at a later date. You can also print your graph on any Epson compatible dot matrix printer.

- VIP Professional has 'Instant Help' so you can find more information instantly.
- VIP calculates to a full 300 digits against Lotus 1-2-3™ which only calculates to 100.
- VIP allows for 256 Query Fields against only 32 allowed by Lotus 1-2-3™.
- VIP has a complete GEM interface, for ease of use, unlike the text of Lotus 1-2-3™.
- VIP allows different fonts and has an on/off cell grid. Not found in Lotus 1-2-3™.
- VIP supports greater memory and larger spreadsheets than Lotus 1-2-3™.
- VIP graphs and worksheet can be viewed together. Pie charts can be exploded.
- VIP can accept any .WKS files from Lotus 1-2-3™ without modification.
- VIP displays all spreadsheet information in user-sizeable GEM windows.
- VIP can be manipulated using either the keyboard or the user friendly mouse.
- VIP is currently available for the AMIGA, ST and APPLE IIc, IIe and IIGS.

OFFICIAL UK VERSION

The official UK version of VIP Professional has a pound (£) sign as a standard part of its character set. Other versions have also been imported unofficially from the USA and have a dollar (\$) sign instead of a £ sign. These versions will not be supported by the UK distributors or their dealers. Ensure that the VIP you buy is the official UK version, not an unofficial import with incorrect characters.



VIP Professional is available from Atari ST Dealers throughout the UK. If your local dealer does not have VIP in stock, it can be obtained by mail order (P&P free) from:

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All comparisons made to Lotus 1-2-3™ are to version 1A.

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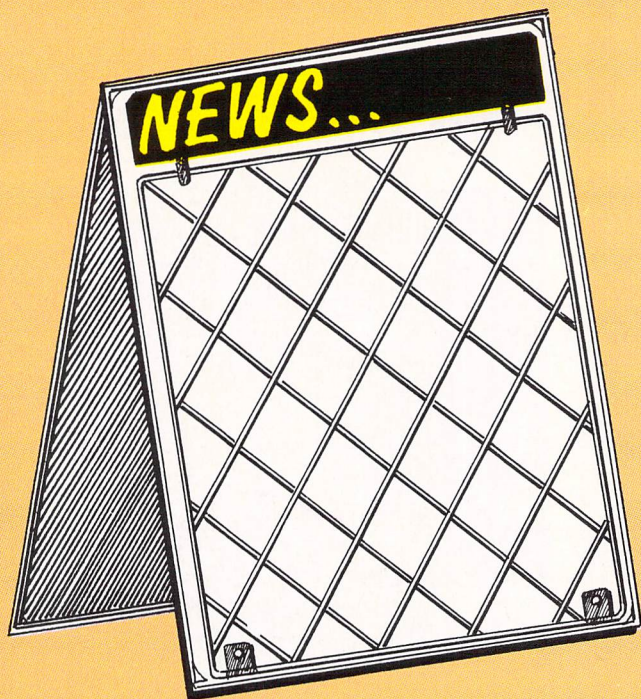
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I already own an Atari ST ☐





All the news fit to print

READ all about it, read all about it, Fleet Street Publisher for sale! No, it's not another take-over bid, but the announcement of an exciting new release from Mirrorsoft – Fleet Street Publisher.

Until now desk top publishing (DTP) has been out of reach of Atari users, but now, thanks to Fleet Street Publisher, ST owners can use the power of their micro to the full.

DTP is concerned with the production of inexpensive documents combining text and graphics, laying out to make the best visual impact and printing hard copies, all without the need to use traditional methods of publishing. What's more, it can be done on your ST, enabling you to keep control over your document throughout the publishing process.

Fully Gem-based, this package of three discs and 200 page manual exudes friendliness. Anyone who feels at ease with the Gem environment, 1st Word and any of the current drawing programs will soon be producing exciting newsletters and impressive notices.

A wealth of information is packed into the documentation for the complete computer or publishing novice starting with a gentle introduction showing how to get the best from the manual.

There are seven chapters: Glossary of Terms, An Introduction to Desk Top Publishing, Introduction to Fleet Street Publisher, The Guided Tour (tutorial), Fleet Street Publisher in detail, Fleet Street Publisher Management, The Publishing Process and bringing up the rear, the Appendices.

Unless you are experienced in the field of publishing the manual's tutorial section will be a good place to start. Its intention is to provide you with a basic knowledge

Alan Goldsbro gets geared up to join the press barons

of the processes of DTP by taking you through the majority of the commands and modes.

FSP has five modes of operation:

- Picture Block enables you to move, size and copy pictures.
- Picture Edit lets you draw or edit pictures at the pixel level.
- Box Rule allows you to create, position, size, copy and move boxes.
- Text Block is the same as Picture Block, but works with text.
- Text Edit mode enables you to enter and edit text.

All these, plus a text mode overflow indicator are all placed conveniently down the left hand side of the screen.

There are five stages to creating a document and using the Guided Tour. I was able to produce my first A4 sheet in under an hour.

Stage one is producing the text. This can be created either by typing directly into FSP or alternately by using a word processor, providing it generates Ascii files. Habawriter and 1st Word are suitable.

The Text Edit mode functions are similar to those in a basic word processor. Blocks of text can be deleted, moved, copied or changed to a different font and size. Extra care is needed here as blocks have to be accurately pinpointed. It takes some considerable skill to define a single word but this can be achieved with practice.

Comprehensive search and replace facilities are available. Choose from Search for, Match Case, Any Case, Replace With, Replace Case, Forward and Reverse direction, Replace All and Search Next.

A handy feature is the Information at

Cursor option which displays pre-selected information on the status line just above the page. For instance x/y coordinates, current mode, number of words and caps indicator.

Macro facilities are available via the Function buttons and the Alternate Key.

Having written your text it can be stored on a clipboard for future use or the whole file can be saved to disc.

The second stage is deciding on the pictures or diagrams you want to use to illustrate the document. More than 140 images are stored on the graphics disc, all of which can be modified to suit your requirements.

There is a stand-alone art conversion program which will convert Art Director, Degas mono and colour files and Neochrome files to the .IMG standard used by FSP. This requires 40k of disc space and each converted file will occupy slightly less space than the original.

Stage three is designing the page layout. Whether you've typed directly to the screen or are about to load in text from an external source, you must first design your page.

You can select the page size from A4 letter, B5 letter, US letter, US legal and tabloid. The default page size is A4 and there are a number of further options apart from the different sizes of page.

Margins are set by default and until you've become accustomed to them are best left that way. You can set the number of columns, the gap between them (the gutter) has a default value of 6mm and the program will automatically calculate the width. The column guides are displayed as dotted outlines.

You can see the layout by selecting the Fit Window option from the magnification menu, and the whole page is laid out on the left hand side of the screen.

The penultimate stage is merging text and graphics into pre-defined columns. Text and graphics may be sized on the page both in reduction and enlargement.

Product: Fleet Street Publisher

Price: £115

Supplier: Mirrorsoft, 115 Maxwell House, 74
Worship Street, London EC2A 2EN
(01-377 4645)

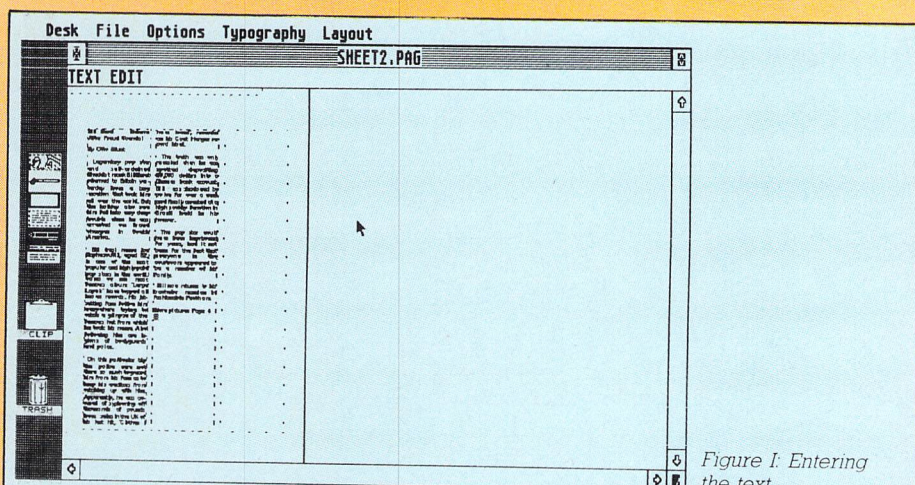


Figure I: Entering the text

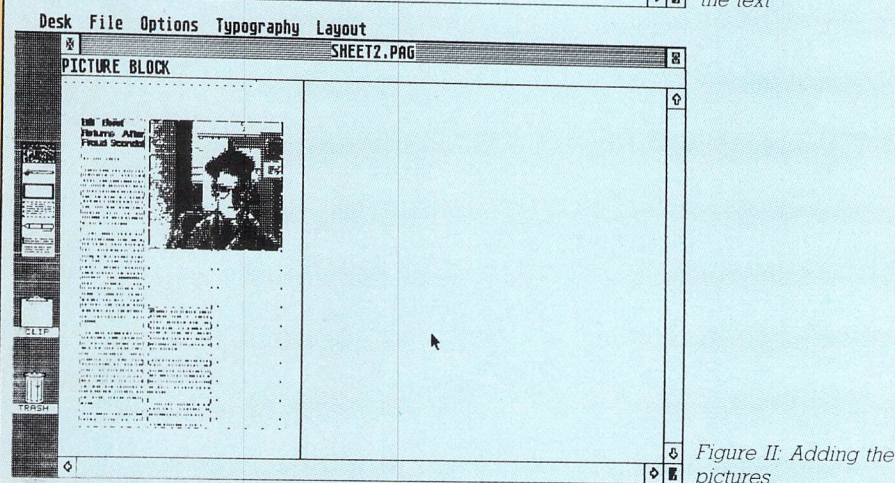


Figure II: Adding the pictures



Figure III: Magnifying a section of the page



Figure IV: Adding the headlines

Typefaces can be altered in size and style and the context of your document can be altered to achieve the best possible appearance.

Just as text can be modified, pictures can be re-scaled both in enlargement and reduction. Depending upon the size of re-scaling this can take from a few seconds for minor adjustments to approximately four minutes to re-scale a quarter page to a full page.

All pictures can be cropped to fit in with existing text columns but this, like scaling, needs accurate positioning of the mouse pointer to stop the picture from moving.

One excellent feature of the picture block mode is the facility to rotate the picture clockwise in one degree increments.

To highlight a picture or frame an advertisement, Box Rule mode is selected. The default weight (thickness) is 1 point, although any weight can be selected to suit the emphasis required.

Rules (lines separating text), are also produced via the box rule mode. These can be either vertical or horizontal, and again the weight can be altered to suit your requirements.

The final stage in production is printing the document. The output can be sent to either a dot matrix printer or to disc.

Either a whole page or any portion can be output. If you choose the disc option the page will be saved as an image file and consequently can be re-loaded as a picture.

Output to a printer is to the Epson FX series or compatibles by default. However, there are options to allow other printers to be used: A user definable printer control editor is included for printers other than the FX.

It takes approximately five minutes to print out a draft page and final quality takes ten. As for the quality, well, it's still dot matrix but definitely presentable.

Unfortunately, even if you have access to a laser printer your hard copy will still take on the appearance of a dot matrix printout until Mirrorsoft produces the required printer drivers. To whet your appetite, a laser printer will produce a pattern of 300 dots per inch while a standard dot matrix can only manage 72 dots per inch at normal density.

There's nothing much more to say about FSP except to tell you it was the most exciting review I've ever undertaken. Even though I think the asking price is a little high considering you can't achieve laser quality output, it'll go right to the top of my collection and what's more I don't think I'll be the only one to make that decision. □

Presentation	10
Graphics.....	9
Ease of use	9
Value for money	9
Overall	10

ATARI USER

If you're interested in all things Atarian then you certainly shouldn't miss the great second birthday issue of *Atari User*. There's lots of up-to-the-minute news and features, plus some great competitions for you to enter.

Also featured in the new-style bumper sized issue:



- A super little utility – a pop up calculator for use from your Basic programs – just like the ST!
- Two exiting games, including a high-speed spaceship game which is really addictive.
- The second part of Len Golding's three part series on making your Basic programs automatically load when you switch on the computer.
- Stephen Williamson provides a set of additional routines for his Advanced Character Set Editor featured last month. These allow loading and saving of character data plus some other useful features.
- Our gadgets series considers the Atari's lack of analog joysticks, and constructs a device to allow the machine to use a graphics mapper via two analog potentiometers.
- Our full colour adventure map this issue is from Planetfall, one of Infocom's all-time classic adventures – plus all the usual hints and tips.
- Also: Software reviews, mailbag, Five Liners, utilities and a full index to the first two years of *Atari User*.

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AST5

The truth about TELEX

How much does it cost to go on Telex?

You could go the conventional way and buy a dedicated Telex machine. The cheapest will cost you £1,604 (the Whisper), the dearest £2,892 (the Cheetah). You will also need a separate telephone line, costing £101 to install, plus £404 a year rental. That's a total outlay over the first year of a minimum of £2,109. (All prices include VAT.)

Or you could do what more and more micro users are doing – use your Atari ST to double as a Telex machine. And just use your ordinary telephone!

How do I turn my Atari ST into a Telex machine?

All you need is a modem and appropriate communications software (see the advertisements in this issue), a telephone, and a subscription to *MicroLink*.

Telex is just one of a growing number of services available to micro users on *MicroLink*. With it you can also read the news as it happens, go tele-shopping, create your own closed user group, send telemessages and electronic mail right round the world, download free telesoftware programs directly into your micro . . . and much more.

But why use Telex?

Because it's a standard means of instant communication between businesses. Today there are 150,000 Telex machines in use in Britain – and more than 2 million worldwide. They need it to dramatically speed up business communications – just as quick as using the phone but far more efficient, because you have a hard copy of every "conversation" for your records.

But there's a big bonus you get when you use *MicroLink* for Telex that the conventional way doesn't offer.

With *MicroLink* you don't HAVE to be in your office to send or receive Telex messages. You can just as easily use your computer at home (or even a portable). So now you can check whether there are any Telex messages waiting for you – anywhere, anytime. How's that for your business efficiency?

MicroLink application form: Page 31

A prince among WPs

MANY people must have been wondering when the final version of 1st Word Plus would be launched for the Atari ST series. It has recently appeared for the much publicised PC market, aimed clearly at the Amstrad PC. And the designer, GST Software, has at last come to an agreement with Atari for the marketing of the ST version.

Now it has hit the streets it was certainly worth the wait. Having been sent a pre-release version a while ago, I can honestly say that it is without doubt one of the best and easiest word processors I have ever used.

The clarity of the hi-res monochrome monitor and the on-screen display of print controls, such as bold, italic and underlining, make it a joy to use. It also has the option for disc-sharing, whereby very long documents can be processed in sections, involving reading and writing to disc, to overcome the limitation of ram.

When loaded you are presented with a window for file selection. Either click on a file that already exists, or type in the name of a new file to move to edit mode, where you now create or modify the document. There are eight pull-down menus at the top of the screen and users of 1st Word will recognise many of the commands. However, the additions are numerous and important.

The file menu is concerned with loading and saving files, and there is now the welcome addition of Save and Resume. This enables you to save your file, and then continue editing from the same point.

Blocks of text can be saved for merging into other documents and 1st Word users should not that the layout option has been removed and expanded into a menu of options in its own right.

The old edit menu has been changed and simplified to get rid of the rather laborious means of setting and going to markers. An additional option is Goto page, enabling fast movement through the text.

This works, but I feel that the process of moving to the mouse, selecting the menu and option, then specifying the number is still rather cumbersome – a key combination might have been preferable.

Automatic hyphenation while reformatting has been added to this menu, as has Statistics. This will give valuable information about the size of file, memory

Paul Hendy finds 1st Word Plus well worth waiting for

remaining, number of words and the amount of disc space available – most welcome for those who have to write to specific guidelines.

The block menu has not changed from 1st Word and is involved with the movement of text within the document. Sections may be cut, pasted, moved, copied and deleted as would be expected, and the speed is dependant on the length of the file.

There is a completely new menu called Layout, concerned with the ruler. Looking at the top of the screen, the ruler has a small symbol at its right hand edge. Clicking on this opens a window of information about ruler length, type style, justification, tabs, and any changes made

alter the default ruler.

In addition, the pull-down menu allows you to add new rulers so that, for example, you can change to double spacing elite text, part way through the document.

As you then move the cursor through the text you will see the ruler at the top of the screen, and at any time you may alter the values of that current ruler by clicking on the small symbol.

Similarly, at any point in the text following a new ruler, that particular ruler can be deleted, and the text will then be governed by the ruler previously in force. It may sound confusing but it is in fact very easy to use.

I would comment that some means of adding the default ruler would be nice. It seems that when you decide to add a ruler it remembers the last values entered, and you have to alter these back to your original values if you wish to revert to the default ruler.

Rather than show the ruler, it is possible to show the current cursor position by page and line number – useful for knowing when you are reaching the end ▽

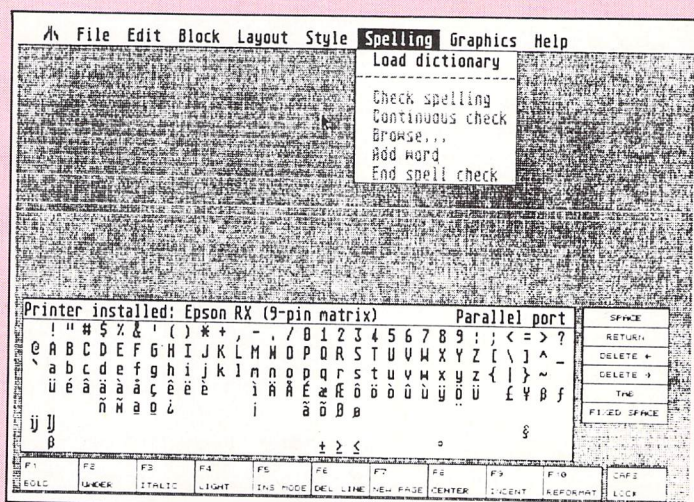


Figure I: Opening screen, about to load dictionary, showing box of characters that can be inserted into text using the mouse.

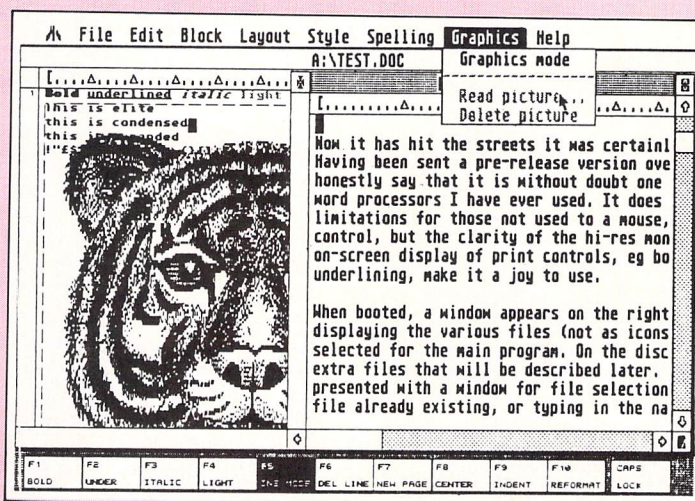


Figure II: Editing two documents at a time. The left document shows the text in graphics mode.

Product: 1st Word Plus

Price: £79.95

Supplier: Electric Software, Unit 8, Cromwell Business Centre, New Road, St. Ives, Cambs. PE17 4BG

Tel: 0480 66433

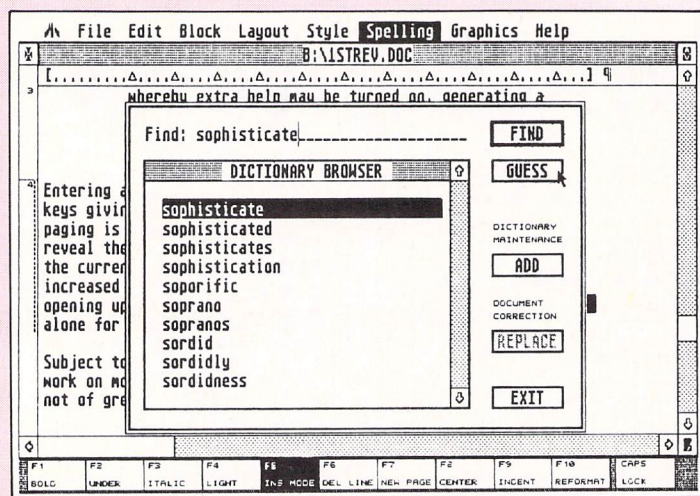


Figure III: The spelling checker browse option, used to check a spelling here. Also note the conditional page. If there is insufficient room, this entire paragraph will be transferred to a new page

of a page.

Another option allows you to "read" a ruler. And on selection the program will look through a file specified and read the first ruler it encounters. Consequently you could store a series of dummy files on the disc for various layout templates, and then read them as required. This would go some way to answering the criticism about the default ruler mentioned earlier. GST has included some samples on the disc.

The layout option has been moved here from the old file menu, a sensible move, and the final two options are for footnotes. Selecting footnote format allows you to set up the limits on the page for footnotes, and selecting add footnote enables you to add small notes at the foot of the page.

The current cursor position will have an incrementing figure inserted in superscript, and a small window opens for the footnote text. The system works well and should be handy for those who need to fill their pages of text with numerous small footnotes.

There is an addition to this menu, allowing text to be justified on the right margin, rather than the normal left or full justification. This isn't used very often but some people prefer it for addresses, or for scriptwriting.

One of the major new additions is the spelling checker. Selecting load dictionary causes the massive disc dictionary to be loaded into memory.

This takes some time, and if you have a lot of desk accessories already in memory you may not have enough room, especially on the unexpanded 520ST. Checking takes place from the current cursor position, activated from the menu or by pressing Escape and the speed is unbelievable.

On finding an unrecognised word, you may browse through the dictionary and replace the word automatically with the option of adding new words to the dictionary or simply altering the word by hand. Browsing shows just how large the dictionary is, with, for example, 13 entries just concerned with anaesthesia.

The ubiquitous aardvark appears – just

how many people refer to this animal – and GST has catered for American and English by including both familiarise and familiarize, for example.

You may be surprised if you select graphics mode with this menu because the text will suddenly change shape. GST states that this is to achieve a better size ratio with the pictures, which can be drawn with many computer drawing packages for the Atari, then placed in a document where they may be moved around.

A nice feature is that text can then be inserted around, or on to the graphics image. Obviously this option is only of use to those people capable of printing the output properly. On the disc, GST includes a snapshot program for taking screen shots of other programs while they are running. These may then be brought into 1st Word Plus documents.

The help function is very similar to the one in 1st Word, whereby extra help may be turned on, generating a window of information every time a menu option is selected, or where specific help can be given on a range of 1st Word facilities.

Entering and editing text is almost the same, with the function keys giving various style and formatting facilities. Conditional paging is possible and the main edit window can be reduced to reveal the box of extra characters underneath for insertion at the current cursor position.

The range of characters has been increased to include Return, Tab, fixed space and others, thus opening up the possibility of using the word processor by mouse alone for people with limited physical movement.

GST has duplicated many of the mouse features of cursor control with Shift and Control key combinations. This is an improvement on word processors that only offer one or the other and caters for those users who dislike having to leave the keyboard while editing. The character table is exciting for those who cannot control a normal keyboard, because almost everything can be done with the mouse if necessary.

Subject to the limitations of memory space, it is possible to work on more than

one document at a time and blocks of text can be cut from one and inserted into another. Obviously the amount of ram available controls how much text can be in memory at any one time.

One of the criticisms of 1st Word was that it was not easy to control the printer, depending as it does on the Install printer from the desktop. The system is now much more elegant. A small status line in the opening screen shows which printer driver has been installed. Clicking on this opens up a menu of printer drivers, any of which may be selected.

Writing a new driver file is well explained in the manual and the process is now much more rapid and easier to achieve. I wish that hex versions of all the drivers had been included for users who wish to make very minor changes to a particular driver.

As if this wasn't enough, GST has also added a comprehensive mail-merge facility. This will allow for not only normal mail-merging, but reformatting whilst merging, extra commands for indenting and line spacing, justification or ragged after the insertion of the data, and more.

Data fields can be skipped, and you can write form letters consisting entirely of commands for powerful merging work. Commands and keywords are entered in light text (using f4) and these are read and interpreted by the program to control the printed output. In addition the system allows for files to be nested and/or chained together in a variety of ways, so that entire books can be written as separate files, but printed as an integrated whole.

Data can be accepted from a variety of proprietary databases, included DB Master One, H & D Base, and the sadly missed LaserBase. For anybody who has need of a flexible merging system, 1st Word Plus probably has all the facilities needed. It has the facility for printing in multi-columns a feature that I would have preferred to be available from the main word processor.

So what can be said as criticism? Movement through the text using the Goto Page should be simplified, and jumping a paragraph at a time should be made possible. The spelling checker could be easier to use – for example, on finding an unrecognised word, the window of possible replacements is automatically opened.

I would have liked to see a control key combination to automatically change the case of the letter at the cursor position, and perhaps another to swap adjacent letters entered in the wrong order, such as 'teh'.

However, these criticisms are minor when compared to the overall feel of this word processor. It positively oozes with features designed to make the process of entering, editing, formatting and printing text easier, and GST is to be congratulated for bringing it out – despite the long wait. □

TECHNOLOGY SO ADVANCED ...

MEMORY

- * 512Kbytes RAM (520ST-M, FM)
- * 1024Kbytes RAM (1040ST-F)
- * 192Kbytes ROM
- * 128Kbytes external plug-in ROM option

ARCHITECTURE

- * Motorola 68000 Central Processing Unit (CPU) with a clock speed of 8MHz
- * 16-bit external data bus
- * 32-bit internal data bus
- * 24-bit address bus
- * 8x32-bit data & address registers
- * 7 levels of interrupts
- * 56 instructions
- * 14 addressing modes
- * 5 data types
- * DMA (Direct Memory Access)
- * real time clock as standard

GRAPHICS

- * full bit-mapped display
- * palette of 512 colours
- Using Atari Monitors (on 520 & 1040):**
- * 640x400 high resolution - monochrome
- * 640x200 medium resolution - 4 colours
- * 320x200 low resolution - 16 colours
- * 80 column text display (40 col low res)
- Using Domestic TV (on 520):**
- * 640x200 medium resolution - 4 colours
- * 320x200 low resolution - 16 colours
- * 40 columns x 25 line text display

SOUND AND MUSIC

- * 3 programmable sound channels
- * frequency programmable 30Hz - 125KHz
- * programmable volume
- * wave & dynamic envelope shaping
- * programmable attack, decay, sustain, release
- * Musical Instrument Digital Interface (MIDI)
- * MIDI allows connection of synthesizers etc.



MOUSE

- * high precision
- * 2 button control
- * free with 520ST-FM/1040ST-F
- * non slip ball motion sensor
- * removable ball for easy cleaning

STANDARD SOFTWARE

- * GEM desktop + TOS operating system
- * ST BASIC interpreter/language system

INPUT/OUTPUT

- * MIDI out (5 pin DIN) 31.25K baud
- * MIDI in (5 pin DIN) 31.25K baud
- * audio out 1.0V DC peak to peak, 10K ohm
- * audio in 1.0V DC peak to peak, 10K ohm
- * RGB monitor 1.0V DC, 75 ohm
- * mono monitor 1.0V DC, 75 ohm
- * mono horizontal scan rate 35.7KHz
- * mono vertical scan rate 71.2KHz
- * sync 5V DC (active low) 3.3K ohm
- * modem/serial RS232C, 50 to 19,200 baud
- * floppy disk 250 Kbits/s
- * hard disk 11.3 Mbits/s
- * mouse standard Atari connector
- * joystick standard Atari connector
- * cartridge port 128K capacity
- * RF output (520ST-FM) for TV use

OPERATING SYSTEM

- * TOS with GEM environment in ROM
- * hierarchical file structure with sub-directories and path names
- * user interface via GEM, with self explanatory command functions
- * multiple windows + icons
- * window resizing, re-positioning and erasing
- * drop down menus (selected by mouse)
- * GEM virtual device interface

COMMUNICATIONS

- * RS-232C serial modem port
- * 8-bit parallel port (also for networking use)
- * MIDI port (also for networking use)
- * VT52 terminal emulation

KEYBOARD

- * standard QWERTY typewriter format
- * 95 full stroke keys
- * 10 function keys
- * 18 key numeric keypad + cursor keys
- * variable auto-repeat & key click response
- * keyboard processor reduces CPU overhead

... IT'S AFFORDABLE

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Finally, there's a personal computer that not only solves problems like other computers, but also solves the one problem that other computers have created. Affordability. Silica Shop are pleased to present the ST range of personal/business computers from Atari. The ST was designed utilizing the most recent breakthroughs in semiconductor technology, producing a personal computer that performs tasks with fewer parts. Which means it costs less to make. And less to buy. The latest ST computers now include built in power supplies and built in disk drives. The TOS operating system and GEM window environment are now on ROM chips which are already installed in the ST keyboard. This enables automatic instant booting when you switch on. Silica Shop are pleased to offer the complete Atari ST range. Our mail order department is situated in Sidcup and we have 4 retail outlets at Sidcup, Orpington, Lion House (Tottenham Court Rd) and Selfridges (Oxford Street). We have eight years experience of Atari products, longer than any other UK company, and are well established as the UK's No.1 Atari specialist. With a group turnover of over 25 million and in excess of 70 staff, we provide unbeatable service and support. We provide several facilities which you will find invaluable during your Atari computing life and most of these facilities are available **ONLY FROM SILICA**. We suggest that you read through what we have to offer, before you decide where to purchase your Atari ST.

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TV MODULATOR UPGRADE: Silica can upgrade the 1040ST-F to include a TV modulator so that you can then use it with your TV set. This is an internal upgrade and does not involve any unsightly external boxes. A cable to connect your ST to any domestic TV is included in the price of the upgrade which is only £49 (inc VAT). The upgrade is also available for early 520ST computers at the same price.

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We aim to keep stocks of all Atari related products and our warehouse carries a stock of £1 million. We import many software titles direct from the USA and you will find that we have new releases in advance of many of our competitors. Unlike dealers who may only stock selected titles, we have the full range. In addition, we carry a complete line of all books which have been written about the Atari ST. A range as wide as ours is something you will find is available **ONLY FROM SILICA**.

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520ST-M

The affordability of Atari computers is reflected in the price of the 520ST-M keyboard, which is a mere £259 (inc VAT). This version of the ST comes with 512K RAM, as well as a modulator and lead for direct connection to any domestic TV. The price does not include a mouse. In addition, when you buy your 520ST-M from Silica, you will also receive the FREE Silica 'ST Starter Kit'. During 1987, many software houses will be producing games software on ROM cartridges, which will plug directly into the cartridge slot on the 520ST-M keyboard, giving instant loading without the expense of purchasing a disk drive. With the enormous power of the ST, you can expect some excellent titles to be produced, making this the ultimate games machine! If your requirement is for a terminal, then the 520ST-M can fulfill this role too. Leads are available to connect the ST to a variety of monitors, and with the imminent introduction of terminal software on ROM cartridge, the ST provides a low price terminal for business use. If you wish to take advantage of the massive range of disk software available for the ST range, you will need to purchase a disk drive. Atari have two floppy disk drives available, a 1/2 Mbyte model £149 and a 1Mbyte model £199. Full details of these drives, as well as the Atari 20Mbyte hard disk are available on request. If required at a later date, the mouse may be purchased separately.

£259

520ST-FM

The 520ST-FM with 512K RAM and free mouse, represents a further breakthrough by Atari Corporation in the world of high power, low cost personal computing. This model is the latest addition to the ST family, and is not only powerful, but compact. It is priced at only £399 (inc VAT) a level which brings it within the reach of a whole new generation of computer enthusiasts. When purchased from us, it comes with the FREE Silica 'ST Starter Kit' see paragraph on the left. To make the 520ST-FM ready for the straight away, Atari have built into the keyboard a 1/2 megabyte disk drive for information storage and retrieval, allowing you easy access to the massive range of disk based software which is available for the ST. This new computer comes with all the correct cables and connections you will need to plug it straight into any standard domestic television set. You do not therefore have to purchase an Atari monitor. If you do require a monitor however, these are available with the 520ST in the following money saving packages:

- 520ST-FM Keyboard Without Monitor - £399 (inc VAT)
- 520ST-FM Keyboard + High res mono monitor - £499 (inc VAT)
- 520ST-FM Keyboard + Low res colour monitor - £599 (inc VAT)
- 520ST-FM Keyboard + Med res colour monitor - £699 (inc VAT)

Because the 520ST-FM has its own power transformer built into the keyboard, there are no messy external adaptors to clutter up your desk space. You are left with only one mains lead, serving both the disk drive and the computer. You couldn't ask for a more stylish and compact unit.

£399

1040ST-F

For the businessman and the more serious home user, Atari have their most powerful model, the 1040ST-F with 1028K RAM. This low cost powerhouse can be introduced into a business environment as a stand-alone system, or can support a mainframe computer as a terminal. The 1040ST-F not only features twice as much memory as the 520ST-FM, but also includes a more powerful built-in disk drive. The drive featured on the 1040ST-F is a one megabyte double sided model. The extra memory facility of the 1040ST-F makes it ideal for applications such as large databases or spreadsheets. Like the 520ST-FM, the 1040ST-F has a mains transformer built into the console to give a compact and stylish unit with only one mains lead. The 1040ST-F is also supplied from Silica Shop with a free software package and 'ST STARTER KIT'. In the USA, the 1040ST-F has been sold with a TV modulator like the 520ST-FM. However, for the UK market, Atari are manufacturing the 1040ST-F solely with business use in mind and it does not currently include an RF modulator, this means that you cannot use it with a domestic TV (Silica Shop do offer a modulator upgrade for only £49). The 1040ST-F keyboard costs only £599 (inc VAT) and unless a modulator upgrade is fitted, will require an Atari or third party monitor. There are three Atari monitors available and the prices for the 1040 with these monitors are as follows:

- 1040ST-F Keyboard Without Monitor - £599 (inc VAT)
- 1040ST-F Keyboard + High res mono monitor - £699 (inc VAT)
- 1040ST-F Keyboard + Low res col monitor - £799 (inc VAT)
- 1040ST-F Keyboard + Med res col monitor - £899 (inc VAT)

The 1040ST-F comes with a mouse controller and includes 1Mbyte of RAM. It has a 1Mbyte double sided disk drive and mains transformer, both built into the keyboard to give a compact and stylish unit, with only one mains lead.

£599

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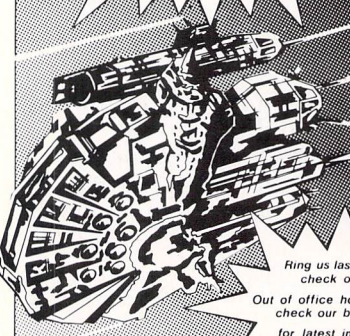




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- Sieve benchmark
determine first 1651 primes
- Create 1000 bytes
sequential file and read it by bytes
(floppy disk environment)
- Optimization demo
- Screen output
1000 strings of 70 characters

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- Compiler can be invoked as a menu driven GEM application.
- Can be run from a batch file.
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- Easy to tailor to your system configuration.
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- Produces binary or assembly source output.
- Many very useful options.

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- Both single and double precision floating point.
- Very fast integer arithmetic.
- LDW BASIC creates the fastest ST programs on the market! (In some cases the best "C" compilers produces marginally faster programs).
- Fully dynamic arrays, i.e. application can re-use RAM memory.
- No other Basic or "C" compiler allows array indices to take any integer value, even a negative! Program may define base of an array.

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3.7
3.1

2.8
7.7

10.2
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AMONG the many things that are missing from Atari Basic for the ST is the ability to read the position of a joystick. This program will allow you to do just that.

Using information from 1st Publishing's Atari ST Internals I found out that the keyboard has its own processor which communicates serially with the 68000 processor.

On receiving a character from the keyboard an interrupt is issued and control jumps to an interrupt routine. This unfortunately ignores any data from the joystick ports.

It is easy to tell the keyboard to send joystick data, but the trouble comes when your program tries to spot it. I tried PEEKing the ACIA port directly, but this does not work.

I then got ambitious and tried to write a totally new interrupt routine but this crashed every time. Disabling the interrupt also failed.

The solution is an interrupt routine

JOYSTICK CONTROLLER ASSEMBLY LISTING

```

movem.l D0-D7/A0-A6,-(A7)
move.b $ffffc02,D0
cmp.b #$ff,D0
bne.s check
move.b D0,128
bra.s done
check:
move.b 128,D1
cmp.b #$ff,D1
bne.s done
move.b D0,129
clr.b 128
done:
movem.l (A7)+,D0-D7/A0-A6
move.l 140,-(A7)
rts
end

```

Better than Basic

Steve Holloway offers a routine to improve joystick control

inserted before the original routine. This works because there must be a specific exit from an interrupt routine.

First the registers D0 and D1 are saved then a byte is read from the ACIA. If this is the joystick header it is stored in location 128, a spare location in ram memory. Otherwise a check is made to see if the last byte was hex FF.

If it was the data is stored at location 129 and location 128 is cleared. Finally the registers are restored, and the address of the original interrupt routine is put on to the stack and jumped to.

A few things need to be done in Basic to use this routine. The first is to put the machine code into an accessible place - I have chosen a string. Then VARPTR is used to find the routine's address.

The contents of hex &H118 is the interrupt pointer for the keyboard. This is found with a PEEK using a double length variable and held as *oldint*. This is then POKED into location 140, which is another spare location in ram for use by my interrupt routine MYINT.

The address of the new interrupt is POKED into location &H118 and the key-

board is told to send joystick data and location 128 is cleared of any spurious data.

Now the keyboard is inaccessible so when the program finishes everything must be put back - *oldint* is POKED back into location &H118 and the keyboard told to resume normal operations.

Listing 1 is a simple demonstration of using a joystick from Atari Basic. The fire button exits the program. If the program exits through an error you will not regain keyboard control, so it may be worth leaving line 6 in until the program works properly.

It would be simple to rewrite the assembly routine to use keys instead, as long as you have the information on how the keyboard sends data. □

LINE BREAKDOWN

- 5 Defines variables.
- 6 If there is an error, the program will branch to line 150.
- 10 Branches to the subroutine which reads in the machine code.
- 20-40 Determines the current screen resolution and sets maximum x and y values.
- 50 Fills and clears the output window.
- 60-110 Sets the amount of movement and the circle's start position.
- 150-610 Resets the interrupt pointer and exits.
- 1000 Checks joystick button.
- 1010-1040 Checks for the four possible directions.
- 1050-1120 Moves the circle appropriately.
- 1140 Checks that the circle has not reached the screen's edge.
- 1150-1190 Draws the circle.
- 10000-10050 Machine code for the interrupt.
- 10060-10090 Reads machine code into the mac\$ string.
- 10100-10170 Reads old value of the pointer, POKEs in new value and returns to main program.

```

1 REM Joystick Controller
2 REM (c) Atari ST User
5 def seg=0:deftbl s
6 on error goto 150
10 gosub 10000
20 if peek(&h44c)=512 then maxx=640:m
axy=400
30 if peek(&h44c)=256 then maxx=640:m
axy=200
40 if peek(&h44c)=0 then maxx=320:ma
x=200
50 fullw 2:clearw 2
60 incx=maxx/160:incy=maxy/100
90 x=10:y=10:pdire=1
100 poke 128,0
110 goto 1000
150 poke s,oldint:out (4),8
160 end
610 return
1000 js=peek(128)and 255:if js=128 then
150
1010 if js=1 then pdire=4:goto 1050
1020 if js=2 then pdire=2:goto 1050
1030 if js=4 then pdire=3:goto 1050
1040 if js=8 then pdire=1
1050 on pdire goto 1060,1080,1100,1120
1060 nx=x+incx:ny=y:goto 1140
1080 nx=x:ny=y+incy:goto 1140
1100 nx=x-incx:ny=y:goto 1140
1120 nx=x:ny=y-incy

```

```

1140 if ny<1 or ny>maxy or nx<0 or nx>m
axx then 1000
1150 color 0,0,0:pcircle x,y,16
1160 x=nx:y=ny
1170 color 1,1,1:pcircle x,y,16
1180 for i=1 to 100:next i
1190 goto 1000
10000 data &h48,&he7,&hff,&hfe,&h10,&h38
,&hfc,&h02
10010 data &h0c,&h00,&h00,&hff,&h66,&h06
,&h11,&h0c
10020 data &h00,&h80,&h60,&h12,&h12,&h38
,&h00,&h80
10030 data &h0c,&h01,&h00,&hff,&h66,&h08
,&h11,&h0c
10040 data &h00,&h81,&h42,&h38,&h00,&h80
,&h4c,&hdf
10050 data &h7f,&hff,&h2f,&h38,&h00,&h8c
,&h4e,&h75
10060 for i=0 to 47
10070 read byte
10080 mac$=mac$+chr$(byte)
10090 next i
10100 addr=0:addr=varptr(mac$)
10110 s=&h118
10120 oldint=peek(s)
10130 s=140:poke s,oldint
10140 s=&h118:poke s,addr
10150 out (4)

```


MEGAPAC

520 STFM SYSTEM BY A.S.&T.

The new 520 STFM from ATARI has been an instant hit since its announcement. The design has gained from experience with earlier ST and STM machines and the result is a practical and superbly engineered computer that will easily find its place in your home as well as in your business.

MEMORY:

The basic 520 STFM has 192K bytes of ROM, an optional 128K bytes of plug-in ROM cartridges and 512K of RAM. The MEGAPAC 520 STFM has bigger memory — a full ONE MEGABYTE of RAM, like the 1040 STF.

DISC DRIVES:

The basic 520 STFM has a built-in single-sided disc drive. The MEGAPAC 520-STFM comes with two drives, one internal and one external. The latter is double-sided, offering twice the capacity (720K) of the built-in drive (360K). Your disc bill can be cut by almost half when compared with that of basic 520 STFM users.

PROCESSOR:

The Central Processor unit (CPU) is a Motorola 16/32 bit 68000 chip, running at a clock speed of 8 MHz. It is further enhanced by Atari's own custom ICs providing a Direct Memory Access (DMA) channel for fast data transfer with other peripherals such as the ATARI SH204 Winchester drive or the Atari Laser printer (available soon) and a real time clock.

DISPLAY:

The 520 STFM can display 40 or 80 column text on any domestic TV or colour monitor such as the Philips CM8533 or the dedicated ATARI SM125 high resolution monochrome monitor. Graphic is 600 x 400 pixels on the SM125, 600 x 200 pixels in 4 colours or 320 x 200 pixels in 16 colours on a colour monitor or TV. The colour palette contains 512 possible colours. Some ATARI software indeed uses the exceptional display hardware to produce stunning graphics with up to 256 colours at once.

MIDI INTERFACE:

The 520 STFM has 3 programmable sound voices and a Musical Instrument Digital Interface (MIDI) to allow direct connection to a wide range of musical organs and synthesizers such as the Casio CZ230S.

MOUSE:

The 520 STFM has its own dedicated mouse as part of its standard hardware.

PERIPHERAL CONNECTORS:

The 520 STFM can be easily expanded by plugging in 'add-ons' through its ports. They will accept printer (Centronics port), Modem (RS232 port), musical instruments (Midi port), sensors (joystick port) and fast intelligent devices such as network, Winchester, laser printer etc (SCSI port).

BUILT-IN SOFTWARE IN ROM:

The 520 STFM has 192K bytes of permanent software in ROM. This comprises GEMDOS, the disc operating software which is now becoming the dominating standard for 16 bit computers, and GEM, the Graphic Environment which uses pictures and drawing instead of cryptic messages to communicate with the user and the electronic Mouse in place of the keyboard to enter the user's commands.

SOFTWARE ON 5 DISCS:

The MEGAPAC 520 STFM comes with 5 discs, containing an impressive collection of software by any standard:
Disc number 1: contains the BASIC language.
Disc number 2: contains LOGO, + DOODLE + MEGAROIDs, and STWRITER a WORDPROCESSOR program.
Disc number 3: contains Neochrome, a painting program and demo pictures.
Disc number 4: contains CPM utilities.
Disc number 5: contains the CP/M emulator.

FULL ONE YEAR GUARANTEE

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ATARI COMPUTERS:

1 520 STFM computer keyboard, external PSU, 512K RAM, 5 s/w discs and mouse	£265.00
2 520 STFM computer keyboard, internal PSU, internal single sided (360K) disc drive, 512K RAM, 5 s/w discs	£371.00
3 520 STFM with monochrome (SM125) monitor	£464.00
4 520 STFM+ computer keyboard as above but with 1 MB RAM	£439.00
5 520 STFM+ with monochrome (SM125) monitor	£533.00
6 MEGAPAC 520 STFM	£539.00
7 MEGAPAC 520 STFM with monochrome monitor	£633.00
8 1040 STF computer keyboard, internal PSU, internal double-sided (720K) disc drive, 1 MB RAM, 5 s/w discs	£556.00
9 1040 STF with monochrome monitor	£649.00
10 MEGAPAC 1040STF (twin double sided drives)	£655.00
11 MEGAPAC 1040 STF with monochrome monitor	£749.00

MONITORS:

1 SM125-12" high resolution (600 x 400) B/W monochrome	£135.00
2 SC1224-12" medium resolution (600 x 200) colour monitor	£372.00
3 Philips CM8533-14" medium resolution colour monitor	£299.00
4 NEC Multisync-14" colour monitor, can replace SM125 and SC1224 to display hi-res monochrome and colour	£699.00

DISC DRIVES:

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2 SF314 double-sided disc drive with PSU, 720K	£185.50
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4 Stand-alone PSU for the above if required (eg 520 ST)	£25.00
5 Twin 1000C with PSU for 520 ST	£199.00
6 A.S.&T. 1000F - 5 1/4", double-sided disc drive, 720K, alternative choice to SF314 or A.S.&T. 1000C but with 40/80 track switch for IBM PC and compatible discs	£124.00
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8 SH 204 - 20 Megabyte hard disc (Winchester)	£640.00
9 SH 204 - 40 Megabyte hard disc (Winchester)	£1,149.00

PRINTERS:

ATARI SMM 804 printer, 80 cps	£199.00
2 STAR NL-10 compatible printer, 120 cps in draft mode and 30 cps in near letter quality (NLQ). All control codes are EPSON FX compatible	£269.00
3 STAR NX-15 compatible printer, 120 cps wide carriage	£385.00
4 STAR NB-15 compatible printer, 300 cps draft, Near Letter Quality and Letter quality printer. Top of the range. Special offer for limited period (you save £243.00)	£699.00
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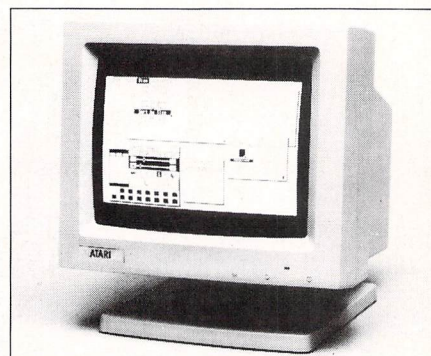
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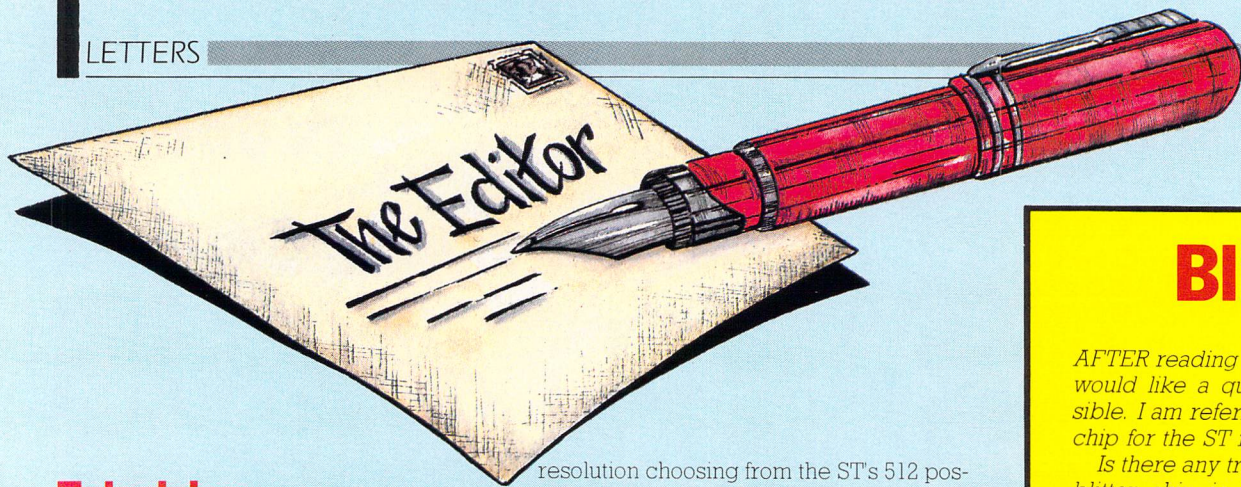
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Television resolution

I AM hoping to buy an ST within the next few months (as soon as I've sold my BBC Micro system) and was thinking of the 520STFM.

I would like to know if my Ferguson TX Moviestar television would be able to display low, medium and high resolutions?

Also do you know if Defender of the Crown will require 1Mb of memory? Lastly do you know when the new sound, graphics and blitter chips will be available? – **Robert Welch, Derwent.**

● The two ST models with built-in modulators (the 520STM and 520STFM) will display low and medium resolutions on any television.

However on some older televisions the 80 column text of medium resolution may well be difficult to read. The small 6 by 6 font (which is used to label disc icons) is usually totally unreadable on any television.

As far as we know, Defender of the Crown and all other ST games currently available do not require 1Mb of memory. Most software companies simply aren't willing to provide a better game at the cost of having a smaller number of possible sales.

The new graphics and sound chips are in the early stages of development and are unlikely to make it into the market place during 1987. The blitter, which speeds up most ST graphics operations, should be available for around £70 in the early summer.

Colour selection

I HAVE read in many books, magazines and manuals that the ST can only display 16 colours on screen at once in low resolution mode, so how are 225 different colours (208 in the window at the centre of the screen, 1 in the mixing palette and 16 in the colour palette) displayed at the same time in Neochrome?

I have also been trying to find the Atari 50cps ST thermal printer which costs £139. Silica Shop told me that it was supposed to be released in June 1986, but doesn't know when or even if it will be released. Can you help? – **N. Raza, Derby.**

● Normally you can only use 16 colours in low resolution or four colours in medium

resolution choosing from the ST's 512 possible colours.

However, using a technique called raster scan interrupt, you can get the ST to display a different set of colours on each scan line. This is achieved using machine code to change certain memory locations which control the ST's colour palette.

This is done in the time that it takes for the raster scan, which draws the entire screen image every 50th of a second, to move from the end of one scan line to the beginning of the next and this is why machine code must be used – Basic and other languages are simply too slow.

As far as the printer goes, Atari tells us that it has dropped plans for the time being to produce the ST thermal printer and that your best bet is to use the Atari SMM804 dot matrix printer which sells for around £200.

1st Word footnotes

I'VE noticed a small problem with 1st Word. When deleting files, you can point to the target file and double click, instead of using the OK box. This is nice and quick, but dangerous.

The Delete box opens again after you delete a file in case you want to delete something else. If the mouse happens to be resting in the listing window, it sometimes is interpreted as a double click and whichever file it happens to point at is also deleted.

The little beast will gobble quite a few files before you can react. Luckily I've had backups on other discs.

As a solution, I always use the OK box for the second click and move the mouse off the delete window box during deletion.

While using 1st Word, I've also picked up a trick for producing double columns quickly. Basically you run the paper through the printer twice, once for the first column and again for the second.

Write the left hand column (on screen) with the right margin set at 27. Print this and feed the paper in again. In the second file, write the right hand column also with 27 characters per line.

Now change the LHMO in the Print dialog to 46. Print the second column which will start over on the right hand side of the paper.

Alternatively you can write the second column using the F9 indent command and

Blitter chip

AFTER reading Atari User from issue 1, I would like a question answered if possible. I am referring to Atari's new blitter chip for the ST range.

Is there any truth in the reports that the blitter chip is incompatible with some graphical applications that go below line-A level to access the graphics?

If so, I do not wish to load a translator disc every time I want to use a games program.

If any of this is true, why does Atari intend marketing a graphics chip that doesn't operate with present graphical applications, for example Major Motion, Psion Chess, The Pawn and Time Bandits?

I was also pleased to hear that Atari is reducing the price on my 1040ST by £150. I mean, what's £150 among friends?

Really, Atari is going to have to pull its socks up about advertising price cuts in advance, or it will find a drastic reduction

Reformat so that the column is on the right hand side of the screen, starting at the 38th space. Print the column normally and the left hand side of the paper will be left alone.

I usually set both files in separate windows next to each other on the screen, so that I can see what the final result will look like.

I appreciated the warning in your January Q+A column on using the underscore character in the directory line of the file selector. This happened to me and I couldn't figure it out.

Does anyone know how to add footnotes to 1st Word documents? – **Andreas Ramos, Denmark.**

● Thank you for the bumper bundle of 1st Word hints. Can anyone help Andreas solve his footnoting problems?

If you know of any other tricks which make working with any of the popular ST programs easier why not drop us a line?

Graphic data compression

HAVING read Mr. Williamson's article in the January issue of Atari User about text compression, I would like to point out that there is another form of data compression which works very well with graphics.

Pictures and diagrams are often made up of similar areas. This fact can be put into use by compiling graphic files into sets of pairs of numbers.

This is done by going through a file, counting the number of repetitions of each byte. Each repetition is then made

Compatibility

in potential and regular customers like me who might go somewhere else and buy a Commodore Amiga. – **S. Edmonds, Watford, Herts.**

● Atari tells us that the blitter can be turned off easily should its installation conflict with the proper use of some programs. You therefore won't need to use a translator disc.

Atari did indeed warn of the price cuts in the ST range so that dealers wouldn't be left with stock sold to them at old prices.

In the real world you can't really expect Atari to warn users as you would wish them to. You would have a situation where Atari would say "Don't buy our machines, because the price is coming down in six weeks' time". Not very practical. Falling prices are just something which we in the computer industry have to live with.

into a pair made up of the number of repetitions and the byte repeated.

In this way a 32k picture on the ST can be compressed into as little as three bytes – two for the number and one for the byte value.

But beware, it might be more economical to leave some pictures as they are – you must decide on a picture by picture basis. – **T. Brown, Lymm, Cheshire.**

Lack of communication

AFTER reading your helpful hints in Atari ST User, it occurred to me that you may be able to help me with a slight problem.

Here in Western Australia we have recently taken on an ST dealership. I now own a 520ST myself.

After much ranting and hair-tearing we still cannot get 1st Word to talk sensibly to our Eient Super 5 printer.

More specifically, we cannot get 1st Word to output text in A4 (70 line) format. The Super 5 is supposedly Epson MX compatible, but there seems to be no printer controls in any of the printer drivers that can be addressed by the Layout option in 1st Word.

The consequence of this is that, no matter what changes we make to the Layout menu, output is always formatted to 66 lines. Since the Australian standard business form is A4 (70 lines), it is almost mandatory that the printer outputs to 70 line format.

I hope you can shed some light on this

problem – we've tried just about every change that we can think of with the printer drivers, but to no avail.

It seems that no one here in Western Australia can help us. – **Steve Payne, Midland Computers, Midland, Western Australia.**

● We know of no one who has had any problems when printing out more than the normal 66 lines per page.

We suggest you read the article in last month's issue on 1st Word printer drivers and also check the printer's DIP switches for one which controls length of paper.

Karate champion?

MY father owns a 1040STF colour system and one of his games is ST Karate by Eidersoft.

It appears that middle-aged men are not as fast as the younger generation, because my father has not been very successful, while I (10 years old) have reached level 60 and scored 441200. Can any of your readers beat that? – **Alex Spencer, Lincoln.**

Writing arcade games

I AM quite new to Atari computing having brought my 520ST in October last year. Since then I have got on quite well with Atari Basic. I would like to ask your advice on writing arcade games on the ST.

I obviously can't use Basic, and have considered assembly language, but I admit to not knowing much about the use of other languages. What I would like to ask is would I be better to stick with assembly language? – **Dean Owen, Nuneaton.**

● Since you already know Basic, probably your best bet for developing games on the ST would be to use Computer Concept's Fast Basic cartridge.

You can even create stand-alone programs which don't need the cartridge to be present. Fast Basic also has a built-in assembler which will allow you to rewrite the slower parts of your games in fast assembly language.

WE welcome letters from readers – about your experiences using the Atari ST, about tips you would like to pass on to other users... and about what you would like to see in future issues.

The address to write to is:

**Mailbox
Atari ST User
Europa House
68 Chester Road
Hazel Grove
Stockport SK7 5NY**

Sound advice

NOW that you have split Atari ST User from Atari User I will no longer have to wade through pages of 8 bit Atari listings to get to the articles and letters about the ST.

When you cover software it would be particularly useful to know if it will run on an Atari monochrome monitor as well as colour. I expect that many people like myself use the ST for word processing and consequently are using monochrome.

This doesn't stop us from being interested in games and other packages. It would be useful to know whether a particular program will run without having to dismantle my system and find a television.

Secondly, I look forward to a more detailed coverage of Gem. While the odd article can be useful, a more structured approach would be welcome. My particular interest would be coverage of any differences between desktop accessories and normal Gem programs, together with any tips on how to make them more efficient as accessories rather than programs.

Finally, I wonder if anyone else has come across a problem when using the second and third sound channels under ST Basic.

All the examples in the manual involve the use of channel 1 only. When I tried using the other two channels all I got was a dull thud.

I eventually realised that this was due to the keyclick and bell being produced on channels 2 and 3.

When I enabled the sound generators on all channels using WAVE 7 I found that I could use all three channels.

Disabling the keyclick using the control panel, I found that I could even use them from immediate execution mode – until I used the bell.

The keyclick on the 520 STFM is controlled from bit 0 of address 1156 (decimal). The Control+G bell signal is controlled from bit 2 of the same address. Using these, I could turn off the keyclick and bell from within a program.

To disable the keyclick:

```
POKE 1155,65534 AND PEEK(1155)
WAVE 7 DEF SEG = 0
```

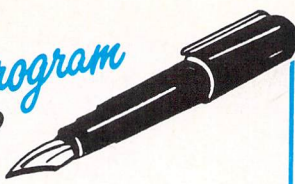
to re-enable the keyclick:

```
POKE 1155,1 OR PEEK(1155) DEF SEG = 0
```

For the bell, use 65531 in place of 65534 and 4 in place of 1. – **Mark van Ments, London N1.**

● You have a good point here, and we'll certainly try to include more information on the type of ST and monitor required by a software package.

Thanks for the sound information. Several articles are coming up shortly looking at sound and music on the ST.

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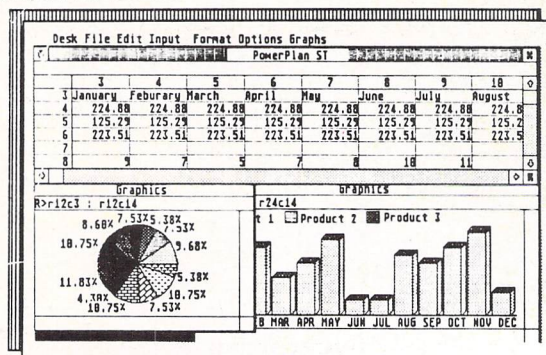
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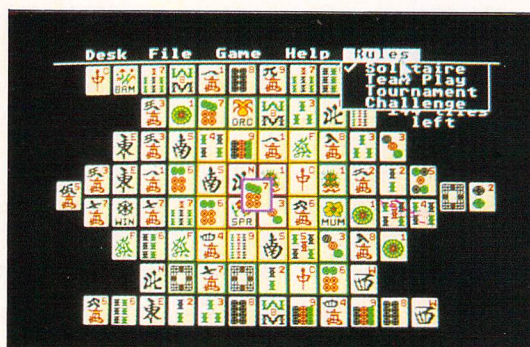
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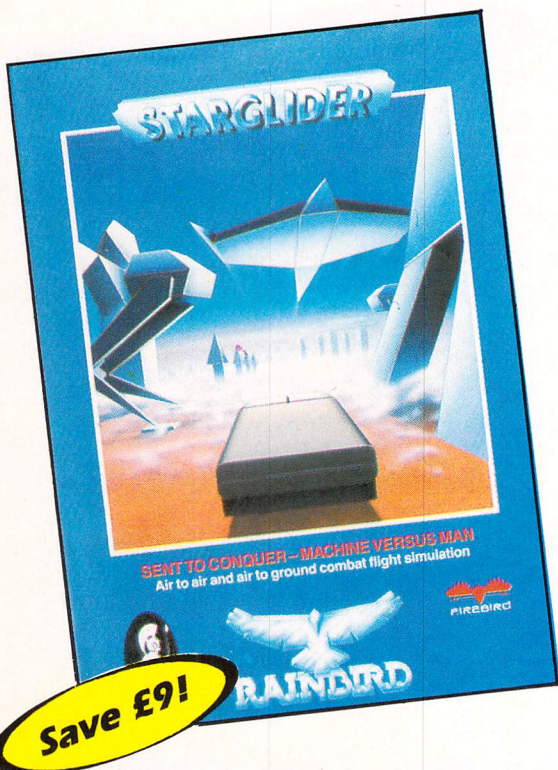
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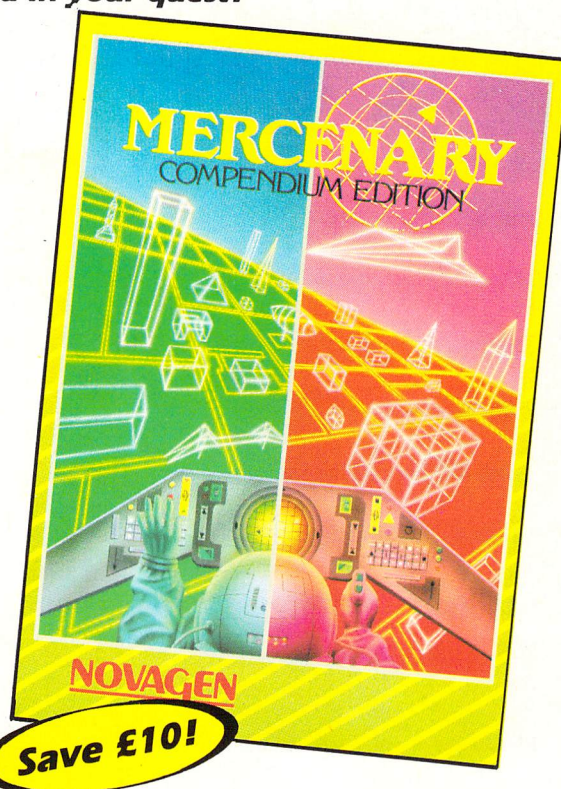
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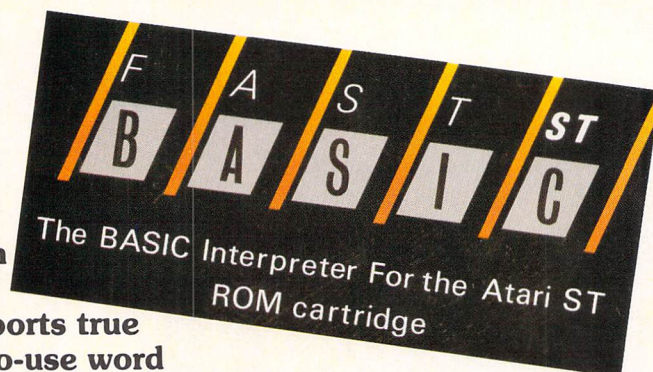
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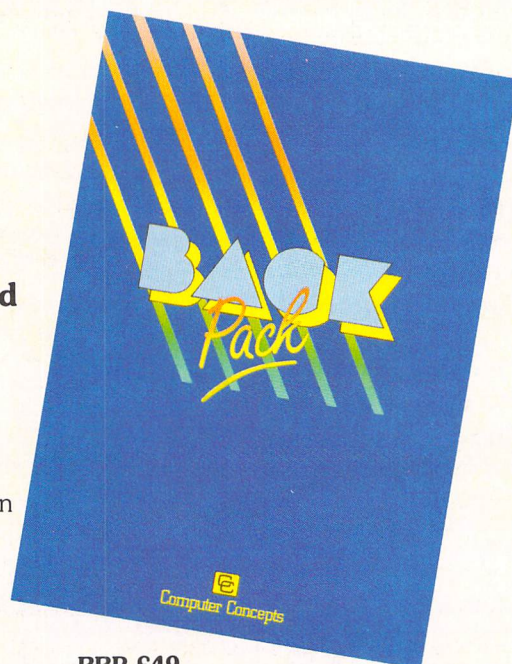
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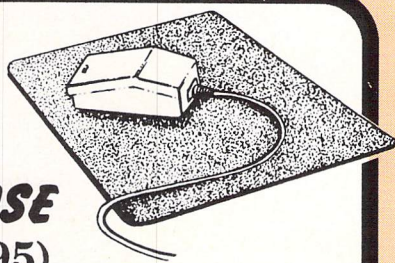
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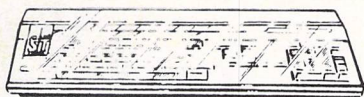
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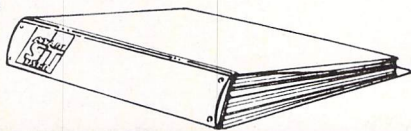
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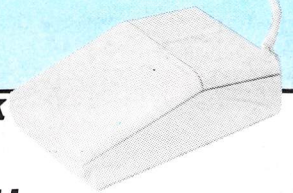
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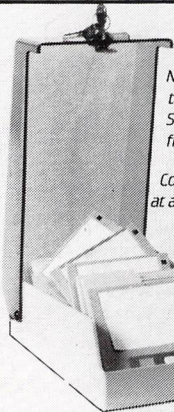
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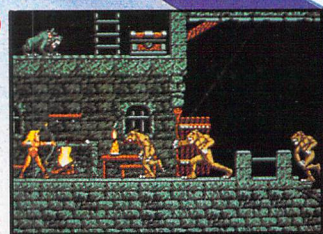
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Are you the warrior who can enter the fearful realms of the underground world of Durgan, a world terrorized by the evil Necron?

Can you handle the adventure, the frenzied attacks, the hidden traps, the gruesome death dealing monsters?...

Your quest; to destroy the lair of the accursed Necron. Your prize; the kingdom's crown.

Your task is awesome! You must live on your wits, conquer your innermost fears, use every skill and weapon available to you.

Hideous perils await. Can you survive?...

Are you Hegor the famous dragon-slaying, monster-mangling Barbarian?

512k colour versions available for Atari ST and Commodore Amiga - colour monitors only.



TERRORPODS

It's been a long watch...As the sun disappears over the horizon, the uninviting, grey bleakness of Colian becomes apparent. Following the intense heat of the day, the onset of night adds the bitterness of sub-zero temperatures to an already hostile environment, and the stark interior of the D.S.V. appears almost homelike.

Deep melancholy is suddenly smashed by the shrill scream of a siren. The status panel has gone crazy, an extraordinary array of lights flash uncontrollably. Good grief...what's happening?

Frantically, you turn to look at the command scanner, hunting through the mass of information before you, in a desperate attempt to decipher what has happened.

Your whole being freezes...It can't be! The Terrorpods...

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ARENA

The classic sports simulation.

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Become Kyne the earth scientist accused of genetic fraud.

DEEP SPACE

The ultimate interstellar war game.

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