ISSUE 1 MAY 1992 £3.95 ST REVIEW – AN ALL-NEW EMAP IMAGES PUBLICATION

ATARI ST REVIEW

WHAT'S NEW, WHAT TO BUY, WHAT TO PAY

INSIDE **ST BUYERS GUIDE**
100 PRODUCTS TESTED

BURSTING THE BUBBLE

TOP 10 BUBBLE PRINTERS UNDER TEST



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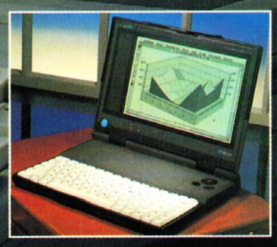
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DISK 2

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ATARI'S LATEST HARDWARE:
ST BOOK AND FALCON 030



ON DISK BRILLIANT NEW MUSIC ARRANGER DISK FANZINE CREATOR TWO WHOLE NEW GAMES INSIDE DIY: STOS TUTORIAL
BUY AN UPGRADE FOR NEXT TO NOTHING TESTS: TOP 50 GAMES TOP 30 CHEATS TOP 30 EDUCATION PROGRAMS

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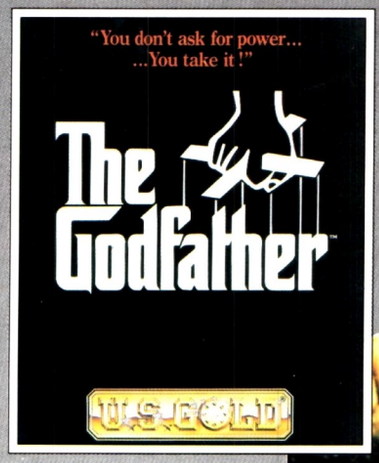
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- *Armed with impressive lazers and a missile guidance system.*

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Only one obstacle stands in their way - Indy!

- *9 lavishly detailed action packed locations.*
- *Dazzling 3D isometric world - click from one camera angle to the next.*
- *Awesome animation, music and sound effects.*

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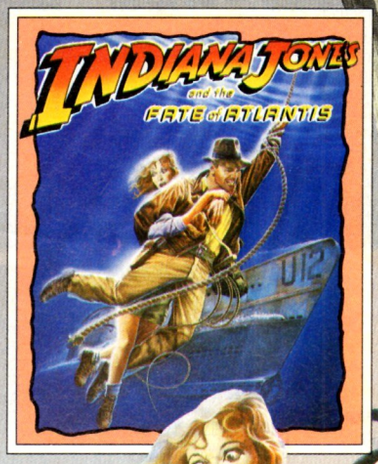


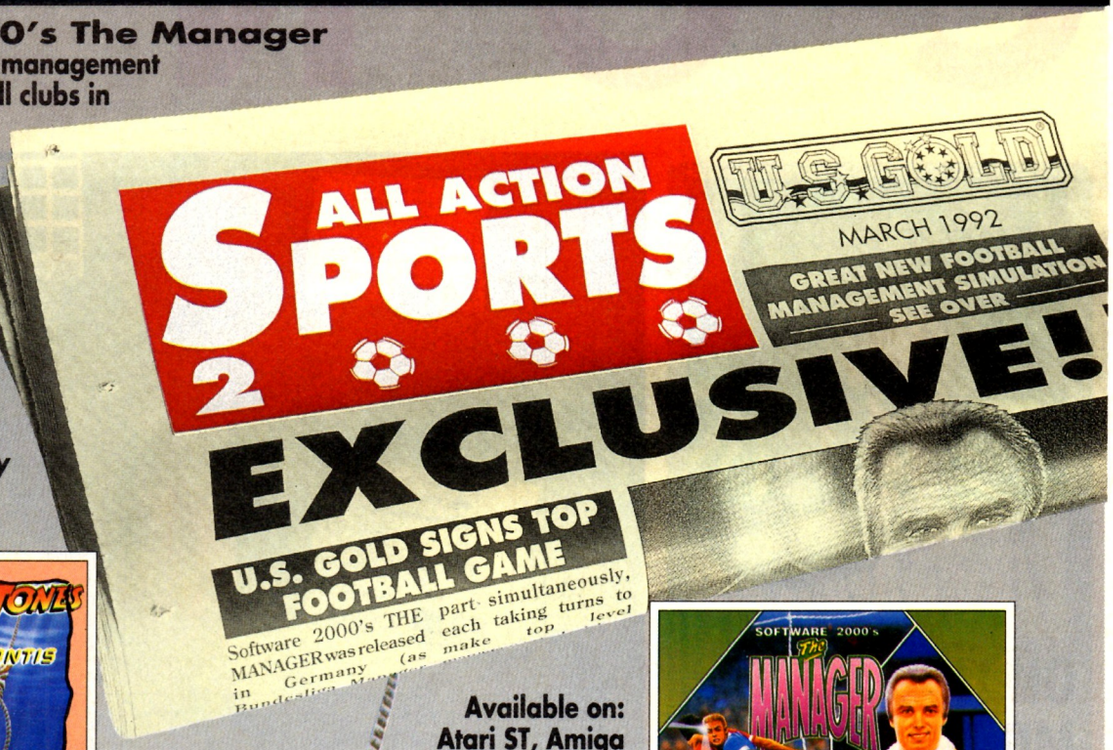
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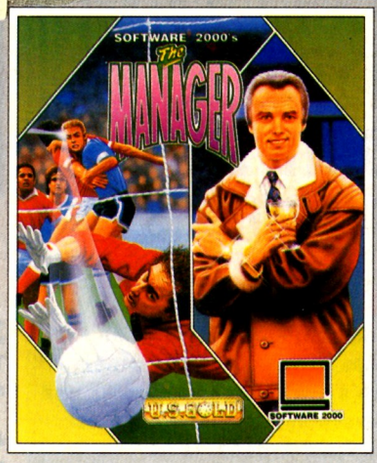
- *Select your team and choose from a 1 year, 3 year or unlimited game.*
- *3D animation sequences let you watch highlights of your team in action.*
- *Manage your money as well as a team.*







Available on:
Atari ST, Amiga and PC (VGA only)
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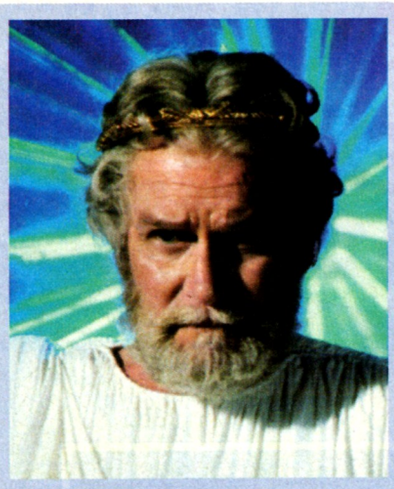
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CONTE



ON THIS MONTH'S COVERDISKS

THE FOOD OF THE GODS

Load and enjoy the inspiration for the likes of Populous and Utopia!

There's a whole game on disk one — Powerplay, specially commissioned from Arcana, is an isometric chess 'n' trivia game that's based around warring Greek gods.

So get back to the Parthenon, sharpen your wits, and then pit yourself against the finest that Fate has to offer. . . .

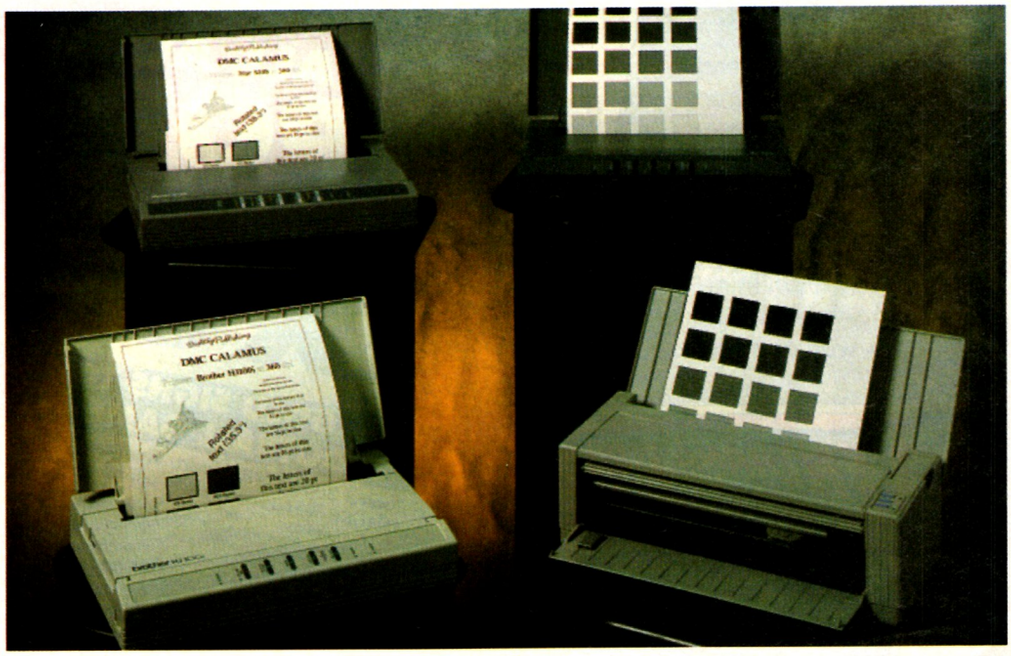
AND ON OUR SECOND, "SWINGING" DISK

SWING to the sounds of Feeling Partner, with our useable demo of the much-awaited music arranger from MPI. . .

SWING your bat and be hit for a six by the canny little sports sim, International Cricket. . .

AND THERE'S MORE. . .

Spread the word – and have masses of fun in the process, by learning how to create your own magazine, adding pictures and sound, with ST-Zine, the latest Fanzine Shell. It's exclusive to ST Review.



FEATURES

38 TURNING A NEW LEAF
The ST Book, Atari's latest portable, falls under the spotlight. Is it more than just a tool for musicians?

42 BURSTING THE BUBBLE
The top ten bubblejet printers are subjected to test. Which is the one for you?

54 BOOST YOUR PERFORMANCE
For very little expense you can fit extra memory and greatly enhance the performance of your machine.

122 CHOOSE THE RIGHT SEQUENCER
Our head-to-heads continue with benchmark tests of Fractal Music Composer and the latest from Ladbroke, MIDI Studio Master, and a comprehensive buyers guide follows.

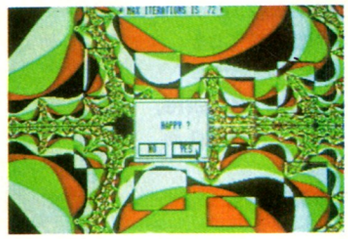
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138 THE TOP 30 EDUCATION PROGRAMS
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147 WHERE IN THE UK CAN MY ST BE REPAIRED?
In need of a quick fix? Repair your ST and get everything in order with a quick trip to one of these dealers.





UPGRADE YOUR 520 BY UP TO TWO MEGS STARTING AT THE RIDICULOUSLY LOW PRICE OF £15.50, INCLUDING POSTAGE AND PACKAGING. THERE'S NO CATCHES, YOU WON'T FIND A BETTER OFFER ANYWHERE! TURN TO PAGE 59 FOR DETAILS NOW!!

N T S





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20 COVERDISKS
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99 LYNX GAMES
If you've got to have a handheld, get one from Atari.

110 PD ZONE
Welcome to the PD Zone, where you'll find tests, tips and techniques that relate to the growing world of freeware, shareware, licenceware and public domain.

122 PRODUCT TESTS
This time round it's the serious stuff, with reviews of the latest in hardware and productivity software.

SCREENSCENE

What's hot and what's rot in the world of computer games?

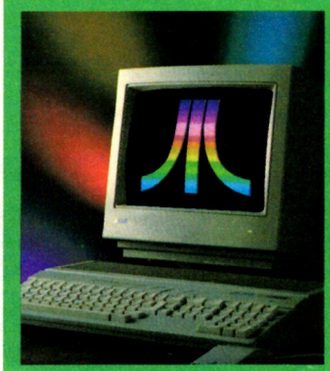
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The mag within a mag that's brimming with information for the serious user

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ST REVIEW ISSUE 1 MAY 1992



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GUIDE TO ICONS



This icon denotes text-based adventures, that are played by entering commands in the form of an adventure parser. Examples include Wonderland and Operation Stealth



Games which are similar in content to adventures, but are graphics-based and rely on little or no keyboard input.Heimdall and Mercenary III are good examples.



A breed unto itself, racing games involve getting into some sort of speed machine and seeing how fast it can go. Classic racing games involve Lotus 2 and Stunt Car Racer.



Any game that lets you compete in a physical contest. The best of these are so realistic that after a game you are left exhausted and needing a shower These include Kick Off 2, Microprose Golf etc.



Strategy - Involves pure brain power and a planning to win, with little emphasis on physical reaction. Populous II and Sim City fit into this category.



The Grand-daddy of all video games is still used as inspiration for new products. Remember, the smash-hit Arkanoid. . .



For all those little brain busters and quick thinking, why not take a glance under this icon, where you'll find games like Lemmings and Tetris



This is where all the pure action games hang out, usually arcade licenses. An adrenalin pumpin' blast, would have this icon put with it. Turrican and Final Fight



Role Playing - Role Playing games differ from adventures as your character has the ability to grow with experience. True RPG's include Bard's Tale titles.



Anything that lets you climb into the cockpit of a plane, tank or boat, and take on real enemies. F-19 and M1 Tank Platoon are the sort of thing you'll find here.



Platform games are those horribly addictive scrolling games that have you leaping from level to ledge. Harlequin and Robocod explain what we mean.



Arcade Strategy - For games that tax the brain cells as well as joystick reactions, look no further. Midwinter and Elite are arcade strategy games.



Not so much games, as full flight trainers. These games are highly sophisticated and include classics like F19



Everything you ever needed to know about Communications on your Atari. From Electronic mail, to sending faxes and networking



If a review has anything to do with music or your Ataris MIDI ports, whether we're reviewing a music package or a musical



Program - Articles on programming, different languages, operating systems in fact anything that pertains to programming.



Look out for this icon if you want to read a eature that lets you know which add-ons are worth buying and how to use them. . .



The icon to watch for. We mean to help the buyer in you so ST Review will be synonymous with the words value and fairness.



If a package covers clip art, photos, scanners or is anything to do with drawing/art packages, then you;ll see this sign.



Utilities are not given a lot of space in other mags but we will. Well, without them, an ST is almost naked.



One of the most popular uses for Ataris is as word processors and so printers are important buys for everyone.



Broad-based interest articles will carry this logo. Articles on software houses, products, groups or even repairing your machine.



Want something that will help you to title that family video? Any program that can be utilised for video gets this icon.



You'll see these in the Game Tips section - they are the STR rating of just how difficult we think the game is. one is easy, ten is hard.

Here at ST Review we believe in making things simple — not patronising, but accessible and easy-to-understand. That's why we colour code our sections, and that's why we introduce articles with the icon system. . . .

When we review a game, we pride ourselves that we know enough ablout computer games to be able to make a balanced, informed and accurate assesment of the actual entertainment value of the package.

For every game that is reviewed we provide a series of easy-to-understand icons, symbols and scoring systems to provide you with an immediate and easily digestible method of rating the products.

GUIDE TO PRODUCTIVE SOFTWARE

At ST Review, we believe in giving readers choices. That's why when we review non-game programs, we never review then alone. We believe in comparative reviews – so that new products can be reviewed alongside established ones. Giving the reader every chance to draw a comparison between programs and products that they know and don't know.

NEWS

LETTER FROM THE EDITOR



"As Editor of a new magazine I'm supposed to do what's trendily known as setting out my agenda. I've got to nick a few phrases from the marketing department, blow a large trumpet and trot out a few well-worn prejudices.

Well, I won't have any truck with that sort of thing – except, perhaps, to trot out a well-worn but, I think, perfectly justifiable complaint about the type of magazine that ST owners haven't been getting. How many times have you traipsed along to the newsagent only to be faced with indifference: indifference to the need for clear and accessible tutorials; indifference to your needs as a buyer. . . I hope that issue one of ST Review will satisfy the need that readers have shouted loudest about – namely not having a magazine that gives you the right editorial mixture of information, interest and insight.

From leisure and pleasure to number-crunching and databases, we intend to look at all uses of the ST and evaluate the wealth of available software in each category. We'll look, learn and test them to destruction while comparing them with similar programs. And once we have the results, we'll hand them all onto you in a format that means something.

Starting on page 31 there's a comprehensive questionnaire – and soon we'll be inviting readers to the office for a chance to tell everyone, from the Staff Writers up to the head of the company, just exactly what they want from us. . .

Which brings me to my final point. I hope that we will succeed (my instincts are that we will). And I trust that you will help us. . .

But nothing will speed us toward success more quickly than your opinions, your thoughts and your letters – they'll be one-thousand percent fresher and more useful than any sort of sales pitch or agenda"

Garth Sumpter, Editor.

THE FALCON HAS LANDED

Amid a wealth of rumours and speculation, the Falcon 030, Atari's top-secret Amiga-bustin' home computer was finally unveiled to a select few in Hanover at the CeBit show. ST Review was there to welcome the new machine...

Atari has finally unveiled its amazing new machine, the Falcon 030. Hailed by a spokesman for Atari US as "An Amiga-buster that's gonna kick some Commodore ass", the Falcon has been the working title for Atari's development of the machine, based around the 80030 series chip that the company has used for the TT. But Atari bosses have refused to release further details of the new machine, which has led to growing speculation in the British press about its specification.

The machine has been seen by ST Review however. It was shown during the CeBit show to "friends of Atari" and German software developers. By the time you read this, the developers will have received the first machines in order to begin developing business and utility software for it.

Britain has also been recognised by Atari for its expertise in software development, especially games, with companies like Electronic Arts, DMA and Images all expected to be at the forefront of games design for the new machine – games that utilise all the new technology used in the Falcon.

ATARI COMPUTERS

Price reductions across the whole range of Atari computers have just been announced. . .

Atari UK has announced a series of price cuts which will effectively reduce the price of every machine in its existing product range.

The ***STE520 Discovery Extra Pack*** which is bundled with four games will drop £30 in price. Atari maintains that reductions in production costs have enabled the price cuts.

Right now Atari seems to be gearing up for a long, tough battle, with the company taking on new staff for key marketing roles. It's rumoured that further prices cuts and rebundling of the ***Family Curriculum*** pack could be expected before the release of the new Falcon computer.

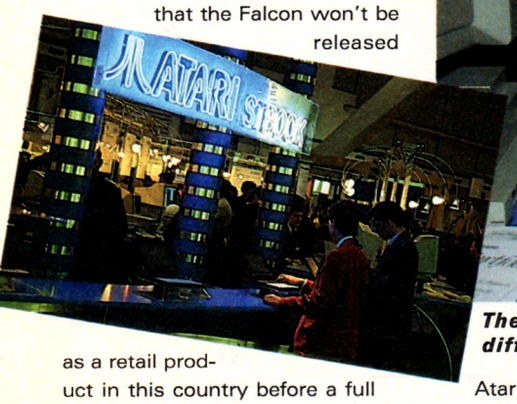
Atari is now looking to raise the profile of the range of business machines which have been subject to the largest price cuts. The entry-level Mega STE with one megabyte of memory sees its price fall to £499 excluding VAT.

The TT range will also see some large price cuts and will now become more widely available in Britain thanks to "overcoming international production constraints". The entry level TT 030/2 can now be bought for £995 excluding VAT bringing the cost of the entry-level machine to a new, less-than-£1000 price tag.



Atari computers – the cost is down but further price reductions are expected.

The expected release date was quoted by Bill Rehbock, the Director of Applications Software at Atari US as being "late fall" but this is expected to be only for American and German specification machines. Atari UK maintains that the Falcon won't be released as a retail product in this country before a full range of peripherals and software have been developed. They do not anticipate the machine being released before early 1993.



The price is still the subject of some conjecture, with Atari reluctant to name a price, but in an interview with ST Review at the Hanover show, Dr Hans Riedl of Atari Germany said that the new machine was to be "consumer-priced" to compete with the Amiga. This would put the top price for a basic machine at around the £600 mark. This price should dispel some of the rumours about the machine being based around the new, prohibitively expensive 80040 chip.



The Book and the Portfolio - different machine for different markets but both attacted large crowds at CeBit.

If the specification remains the same as the machine that ST Review saw in Germany, and Dr. Riedl's "consumer price" is competitive, then Atari will have a graphically blistering machine that should put the A600 into second place as a games machine and pave the way for the next generation of home computers.

COULD THIS BE THE FUTURE OF ATARI COMPUTING?

Thanks to sources close to the project, ST Review can now reveal just what the technology of the machine is expected to be once it is finally released in the UK.

- **A fully multi-tasking version of TOS**
- **An MC68030 processor running at 16 Mhz but switchable to make it compatible with ST and TT software and an optional FPU**
- **A digital signal processor (DSP) with full stereo in/out ports.**
- **High density, 1.4 Megabyte disk drive (3.5 inch)**
- **Up to 16 Megs of memory**

Unfortunately, reliable information about the graphics display was not available at the time of going to press.

GO DOWN

SLASHED!

Atari UK is cutting the costs of their products, and here's how it'll affect you (all prices exclude VAT)

PERIPHERALS	
SM144 mono monitor	£127.65
SC1435 colour monitor (stereo)	£221.27
SLM 605 laser printer	£699.00
MEGA MACHINES	
Mega STE1	£499.00
Mega STE 2	£599.00
Mega STE 4	£694.00
Mega series hard drive (50 Meg)	£195.00
TT MACHINES	
TT030/2	£ 995
TT030/4	£1245
TT030/8	£1595
TT 50 Mb hard drive	£195
TT 80 Mb hard drive	£395
TT 210 Mb hard drive	£895
FTM 144 mono (VGA) TT monitor	£149
PTC 1426 colour monitor	£345
PTM 194 19" mono VGA monitor	£599

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FOOTBALLING IN THE FUTURE

US Gold are now getting pretty excited about the forthcoming release of *Software 2000 – The Manager*. Due for release at the end of April, it's a full football management simulation. Up to four players can play simultaneously – managing their teams and even giving instructions to their team manager. Full graphic representations of matches are shown and the program even goes as far as to putting players on the transfer market, and even upgrading your stadium as you hopefully take your team to the top.

The Birmingham-based giants are also set to release *Indiana Jones and the Lost Kingdom of Atlantis* from the film-cum-software company Lucasfilm.

DIARY DATES

your-at-a-glance-guide to forthcoming events. . .

THE THIRD MIDI SHOW MUSIC SHOW

Dates: 24 - 26 April.
Venue: Novotel, Hammersmith, LONDON.
Organiser: Westminster Exhibitions.
Tel: 081 549 3444.
Event: One of the biggest MIDI events in Britain for musicians and ST enthusiasts alike.

ALL FORMATS COMPUTER FAIR

Dates: 16 May.
Venue: Sandown Exhibition Centre LONDON.
Organiser: Bruce Everiss.
Tel: 0225 868100.
Event: One in a line of regular small market-like gatherings. The car boot sale of computing. Lots of hardware and software bargains to be had.

SPRING COMPUTER SHOPPER SHOW

Dates: 28–31 May.
Venue: Olympia, Kensington, LONDON.
Organiser: Blenheim.
Tel: 081 742 2828.
Event: Large-scale gathering of hardware manufacturers with a big market feel, but with seminars and product demonstrations.

THE COMPUTER SHOPPER SHOW

Dates: 28-31 MAY.
Venue: Olympia.
Organiser: Blenheim Online.
Tel: 071 373 8141 (box office).
Event: Everything for the 16-bit crowd under one roof – including an ST Review stand.

DÜSSELDORF ATARI MESSE

Dates: 21-23 August.
Venue: Düsseldorf Messe.
Tel: 01049 211 350505.
Event: The huge Dusseldorf show acts as a magnet to French, German and Dutch Atari users.

VROOM

- 3D perspective of the racing track
- Arcade and competition levels
- Controls: mouse or joystick
- Possibility of practice laps and qualifying rounds
- Save option available for championship races
- Possibility of being connected to another computer









AVAILABLE ON AMIGA AND ATARI ST

Vroom offers you supreme arcade-action and assures you of a racing game of exceptional smoothness and speed!
Unique graphic environments and realistic sound effects are combined with incomparable control...

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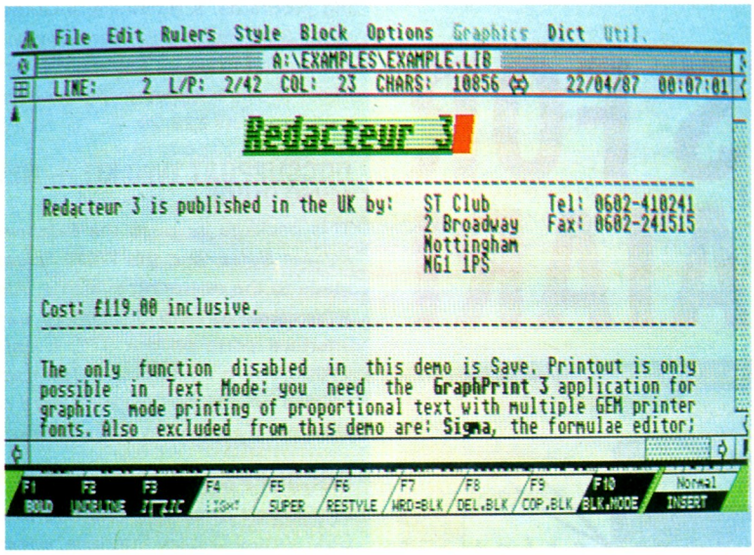
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WHAT'S NEW?

You need to know what's new and we want to be able to tell you all about it. So, send all the details on latest products to the ST Review News Desk. . .

ALLONS Y, ALLONS Y...

France's most popular word processor for the ST, Redacteur, is now available in an English version.



The package allows you to display up to four documents at a time, and gives a wide choice of paragraph styles, editable fonts, and other features such as spell-check and mailmerge. Options are displayed through a series of cascade menus. ***Redacteur*** can read and save in 12 different word processor formats, including the most popular.

An unusual feature is the ability to analyse text in terms of its composition, showing, for example, how often a particular word has been used in a piece. The spell-checker works at a staggering 800 words per second.

The package is designed to handle a wide range of graphics to complement its text handling options – Images can be imported in 18 different formats, and can be cropped, scaled and converted to IMG or P13 files. Graphics mode printing is handled by the separate ***Graphprint 3*** program.

The package also contains several smaller applications, including a RAM disk, font compacter/decompacter, and an anti-virus program. It is distributed by the ST Club, and costs £119.



OF MICE AND TODDLERS. . .

Logitech has just unveiled a new mouse that's been designed exclusively for children. Called the KIDZ mouse, it's aimed at five to 11 year-olds and is shaped just like a mouse.

Logitech's research and development claim that the scaled-down mouse will fit snuggly into the palm of a child's hand. It's out now at £35 plus VAT from Logitech.

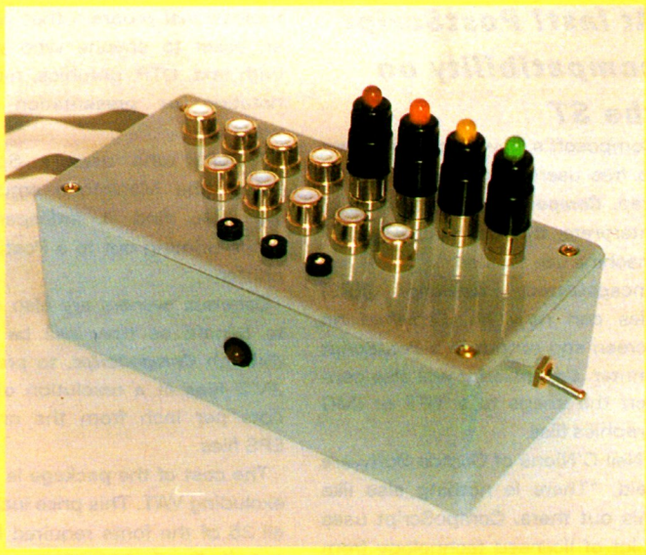
NEW TOS FOR OLD

The Enhanced Operating System (EOS) is now available on ROM – supplied with hardware-based accelerator boards. The EOS, which can also be supplied as a software version, can replace all versions of TOS older than version 2.0. The developers of EOS claim that they have documented eighty bugs in the old versions of TOS — and this means that EOS will be of benefit to up to 300,000 users.

EOS on ROM is available at £99.95 (£39.95 on disk) from the Atari Workshop on 071 252 7775.

THE ST LIFE CONTROLLER

This switched-on box of tricks can even draw your curtains. . .



Switchsoft's imaginatively named Input/Output box, which the company claims will allow your ST to interact with the outside world, now has eight extra inputs. This means that there are now 13 outputs and eight inputs. The input/output box acts like a switching unit which you can control from simple basic programs written on your ST. You can therefore use it to turn on/off electrical switches, control bugler alarms and even act as a controller for a robot. Should you want to pursue any of these activities the hardware will cost you £26.95.

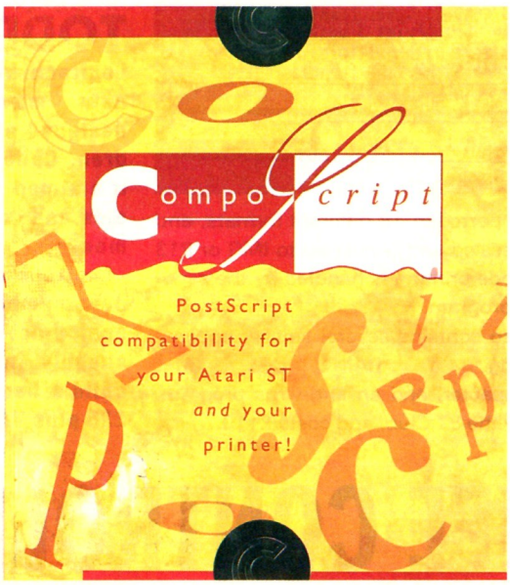
DTP NEW INCENTIVE

Electric Distribution is dangling a great big carrot for everyone who is thinking of buying *Timeworks Publisher* 2.0 in April or May – a free copy of *FirstWord Plus* which is fully-compatible with the DTP program. The package has been put together to promote the latest version of *Timeworks* which, whilst having all the standard features of the original, includes automatic text flow, up to 999 pages per document, text wrap around irregular documents and a text import facility that is specific to First Word Plus text files.



The recommended retail price for the package is £110 plus VAT.

PS, IT'S FOR YOUR ATARI



Composoft claims to have beaten the PostScript trap with Compo-Script

At last! PostScript compatibility on the ST

Composoft's new program is set to free users from the PostScript trap. ***CompoScript*** is a PostScript interpreter that lets your ST or TT machine use PS files.

Encapsulated PostScript (EPS) files can now be displayed on screen and output to a PostScript printer. ***Composcript*** will also convert the image to a TIFF or IMG graphics files.

Neil O'Nions of Compo Software said, "There is nothing else like this out there. CompoScript uses a lot of licensed technology from other areas in order to produce a professional program that will be an asset to anyone who works with text, DTP, graphics, musical notation or presentation software".

Anyone who uses a Spectre setup (the Macintosh emulator) will also find it indespensible when printing out to a PostScript printer.

Calamus owners are also going to benefit as they will be able, through ***CompoScript***, to produce .IMG files at a resolution of 600 dots per inch from the original EPS files.

The cost of the package is £199 excluding VAT. This price includes all 35 of the fonts required by all today's PostScript printers.

ATARI DEV KIT

Atari has released the full documentation of the ST, previously only available to programmers buying the full developers' kit.

The ***DocSupport*** series consists of four modules, aimed mainly at budding programmers, and has been released alongside a new version of the ProSupport ST/TT Developers' Kit, which lets programmers create applications for all configurations of the Atari TOS, from the earliest 520ST up to the recently released ST Book.

DOCSUPPORT ONE KIT – GEMDOS & GENERAL PROGRAMMING

The main element of this pack is the ***Atari GEMDOS Reference Manual***, which describes the way GEMDOS works on the ST. It also includes the Pexec cookbook, which tells you all about starting and terminating programs, a Hitchhiker's Guide to the BIOS, and guides to the AHDI 3.00 standrd for hard drives, as well as notes on Line_A functions, the Intelligent Keyboard Interface, and the CHKDSK3 program. There is also a leaflet giving information on the MIDI Association. The package costs £29.99.

DOCSUPPORT TWO KIT — NEW MACHINES PROGRAMMING GUIDE

This package includes the ***Rainbow TOS Release Notes***, the ***STE TOS Release Notes***, and the ***TT030 Release Notes***, describing the changes made to the operating systems. Also included are the ***STE Developer Addendum***, to help developers use the new graphics, sound and interface ports on the STE, a hardware reference manual for the TT030 and a document VME expansion. Also included are a set of utilities on disk for use with hard drives, ***Rainbow TOS*** and ***STE TOS***, along with a program demonstrator. ***DocSupport Two*** is £29.99.

DOCSUPPORT THREE — GEM VDI & AES

DocSupport Three contains two elements. The first is a guide to the GEM Virtual Display Interface, covering the use of VDI functions from within your own programs and including a full library of C-language files. The second introduces the concepts behind GEM AES, and is designed to enable you to write GEM applications. The package costs £49.99.

DOCSUPPORT FOUR

At £99.99, this consists of packs one, two and three together.

DOCSUPPORT FIVE — HARDWARE & CHIP SPECIFICATIONS

This package is basically a guide to the ST's hardware characteristics. It also includes application notes on the Atari Computer System Interface and documentation on the MC6850, MFP68901, AY-3-8910 PSG, WD1770 and Blitter chips.

CALLIGRAPHER WRITES UP

Working Title has re-jigged its Calligrapher range of document processing software.

The full featured version, *Calligrapher Professional*, now sports a series of new features. With 700k the dictionary will now load automatically, and, as long as you have a hard drive, you can now save to the standard ST clipboard. The new version also allows you to retain the file directory during a work session.

Printing options have been improved, with the addition of a series of new printer drivers and 26 new typeface disks available. The best news though, has to be the fall in price of the program. *Calligrapher Professional* will cost £119.

There are three new add-on Packs at £25 each. The deal includes an Interactive Formula Editor which lets you create and edit formulae. There are also a Zebra industrial label printer and a Barcode Pak.

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AMIGA SCREENSHOTS

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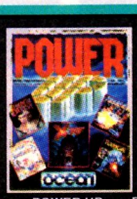
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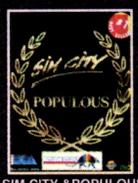

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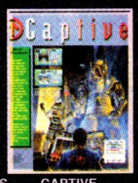

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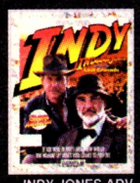

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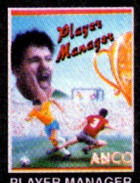

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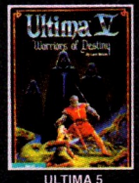

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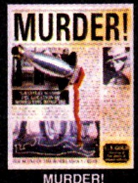

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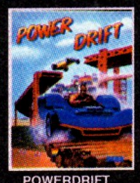

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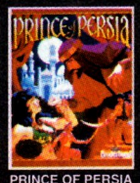

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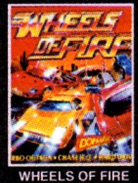

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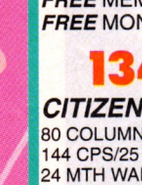
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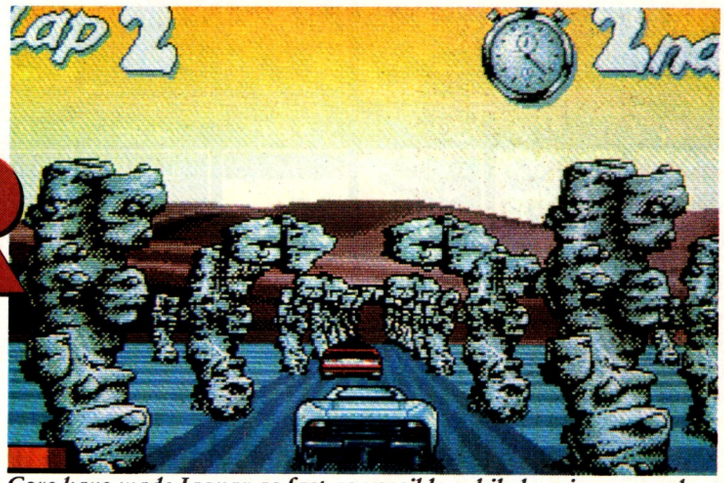
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FIRST IMPRESSIONS

ST Review dusts down its crystal ball for a gander at the games that are soon-to-be-released. . .

JAGUAR

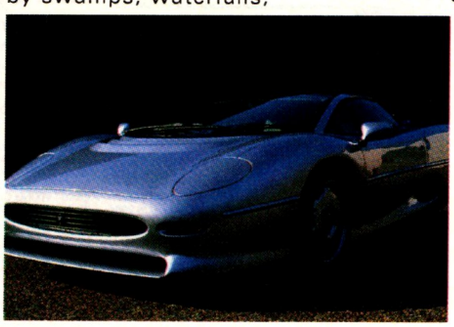


Core have made Jaguar as fast as possible, while keeping as much roadside detail as the processor will allow. The result is one of the fastest race games the ST is ever likely to see.

Core switch into top gear

GAMEPLAY:

Adding to the myriad of race games that grace the ST, Core's ***Jaguar*** licence is a multi-stage affair, sending you careering across several continents for prize money and glory. Seated behind the wheel of Jaguar's luxurious XJ220, the game is a lap affair, with the player racing toward the finishing line. Progress is hindered, though, by swamps, waterfalls, canyons and other obstacles which slow down the unwary competitors and damage cars' chassis.



Start the game with money used to pay for entry to any of the races on offer. The further away the race is, the greater the fee, so it's wisest to compete in local races. Once the circuit has been chosen, laps must be completed against a number of computer-controlled cars, and your final ranking determines how much cash you have to spend on your next race. Fare badly and your racing days are over.

PLUS POINTS:

If there's one thing that can be said about ***Jaguar***, it's that it's FAST. The roadside objects are massive compared to those of, say, ***Lotus II*** and the ***Outrun*** games, and they move past the car at an astonishing speed. They're varied, too, with the assorted countries boasting treehouses, massive oak trees and glittering waterfalls, and, of course, the tunnels and hairpin bends. The cars themselves are small but detailed with neat little touches, such as the brake lights. Core have got the most important thing, the control of the car, just right, and although it responds to the joystick, it doesn't oversteer.

BEHIND THE SCENES:

There will be two versions of the Jaguar game: one will be vector-based and the other will be arcade-style. Mac '***Thunderhawk***' Avery is behind the arcade game's wheel. Apart from Core's superb Helicopter sim, Mac has previously worked on the road scrolling system for Gremlin's ***Combo Racer***, which is obvious when the Jag starts to zip along. The game is currently five months into development, has all the important routines up and running, and the final graphics are being added. Mac is attempting to make the game as realistic as possible, and has even managed to code picket fences which line the road — even round the corners!

FIRST IMPRESSIONS:

Obviously, Core have got stiff opposition in the shape of ***Lotus II***, but ***Jaguar*** certainly has the all-important speed element in its favour. During development, Core asked several games players to submit ideas for the game. On the basis of these notes, the final game is likely to include ramming, skids, and more roadside obstacles than any other game. If it can live up to its promise, they could be heading for pole position.



Mac has incorporated as many 'novel' features as the already tight memory will allow. Consequently, he has added fences which line the roads, cascading waterfalls, and the Jag even has brake lights!

ZOOL

Gremlin go Super-Sonic

GAMEPLAY:

Obviously influenced by the Megadrive's blue-spiked hero, ***Zool*** stars the eponymous 'space ninja' as he runs, jumps and somersaults his way through several worlds of strange beings. Each of the worlds follows a particular theme, with Zool making his way through areas made up of musical instruments, confectionery, and tools, and the nasties within are also level-related. The basic aim of the game is to explore each level in search of the exit point, whilst collecting as many bonuses as possible. Obtain these goodies by jumping on enemy sprites or shooting them. Zool also has access to a series of magic spells which bestow the stick-legged hero with smart bombs, a secondary 'self' with which to take some of the oncoming flak, or extra weapons for his hidden gun. At the end of each world is a larger 'boss' creature. You must hit it before access to the next stage is granted.

PLUS POINTS:

Bright and colourful, ***Zool*** is a treat to look at and it's obvious that Gremlin are

THE ADDAMS FAMILY

Ocean are altogether Ooky...

THE GAMEPLAY:

Virtually ignoring the film's scenario, ***The Addams Family*** follows the adventures of family-leader, Gomez, as he attempts to rescue his kidnapped family from the evil developers planning to demolish his house. The kidnappers have stashed Morticia, Wednesday, Puggsley, Lurch and Granny in distant wings of the massive building, and Gomez must tackle each section before they can be sprung. The game is a ***Mario***-style platform romp, with all manner of spooky and kooky creatures ready to be stomped on as Gomez gathers bonuses and family members. Other cutesy additions include a Fez-Copter which sends our squat hero flying into distant parts of the house, and other useful utilities, such as temporary invincibility and larger jumping powers.

Huge guardians stand between you and the stricken family members: they must be bounced on a number of times before they can be sent packing and Morticia and company rescued. So, with the kitchens, the gardens, and even the stove awaiting Gomez's attentions, he's going to be very busy...

PLUS POINTS:

If there's one game that ST owners have been begging to be released for their machine, it has to be ***Mario***. However, in the squat, moustachioed figure of Gomez, Ocean have a more-than-worthy successor to the Brooklyn Plumber's crown. All the features which make Mario's games so great have been incorporated into ***The Addams Family***, ranging from guardians to little touches, such as secret rooms and complete control over the main sprite. The game is large, too: the eight-way-scrolling house occupies hundreds of screens, all filled with weird creatures from the programming team.



Gomez must surely rate as one of the most athletic sprites of all time...

BEHIND THE SCENES:

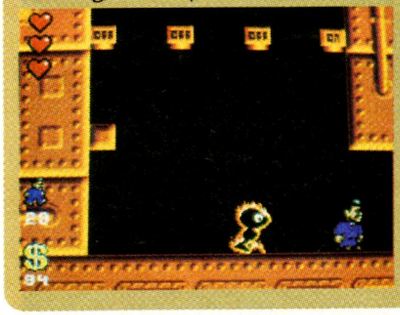
It had always been Ocean's intention to produce a 'Mario Beater' and the decision to make Addams that game was taken as soon as Gary Bracey acquired the film's script. Since the project was started eight months ago, the game has evolved a great deal. The main reason for this is that Ocean's team of in-house coders were drafted to produce a Famicom version of the game, so they took a break from working on the 16-bit versions. During this time, though, they worked on what made for a decent console game, and put all their ideas into a steadily revamped game. Everyone at Ocean's Mancunian offices is very excited about ***Addams***, and think it's their best film licence yet.

FIRST IMPRESSIONS:

Quite simply, ***The Addams Family*** is the nearest thing to ***Mario*** that an ST owner is likely to get — and that's not meant to put it down in any way. It has cute sprites, engaging gameplay, and all the touches you expect to see in a Nintendo game.

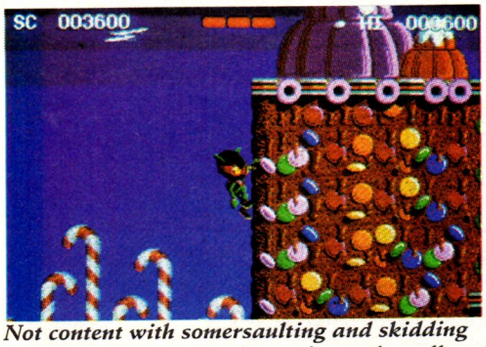
A lot of care has gone into the finer aspects of control and sprite detection, and this will set it apart from its many potential cutesy competitors. In all, this is an excellent game, and could well be a classic in the making.

There are pleasant touches throughout Addams. Not only are the graphics superb, with all manner of weird creatures patrolling the sprawling building, but they all tie in with the levels' themes.









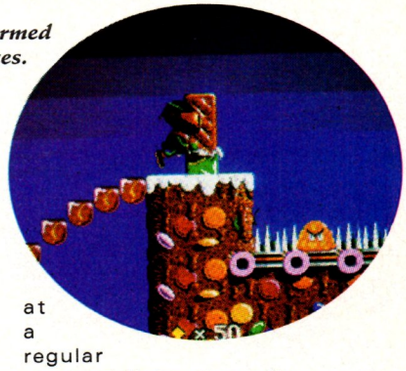
Not content with somersaulting and skidding from zone to zone, Zool can also scale walls to reach the higher levels.

after ***Robocod***'s crown as 'Best ST Console Game'. The programmers have extended the screen's borders for a larger on-screen play area, and this makes the game look more packed than it actually is.This degree of variety is echoed in the waves of creatures, too, which appear at random and are eager to sap Zool's energy.

BEHIND THE SCENES:

Zool is the pet project of ex-***Switchblade II*** coder, George Allen, who came up with the idea shortly after ***Switchblade*** was finished. Although there are some similarities, he stresses that copying ***Sonic*** wasn't his intention and that "if anything, ***Robocod*** had more of a hand in its design." He also wanted to answer the critics who argued that ***Switchblade II*** didn't have enough sprites on-screen to make it a constant challenge. Supplying the graphics is Ade Carrs, who's creating the graphics on an Amiga with ***DPaint***, then using Allen's Snasm-based system to convert them to the ST. Sixteen colours are being used for the palette, and it's hoped that the ST version will be as fast as its Amiga cousin.

The little 'Space Ninja' is also armed with limited magic resources.



FIRST IMPRESSIONS:

If Gremlin can ensure that the on-screen nasties appear at a regular rate and if they keep the gameplay trotting along nicely, then ***Zool*** will quite easily earn its crown. The sprites are massive, and the 'Space Ninja' is an able-bodied fellow who can scale walls and somersault with ease. The game's look is excellent, too, and the assorted worlds are nothing short of stunning. Expected to be released in July or August, ***Zool*** could be another major feather in Gremlin's cap.

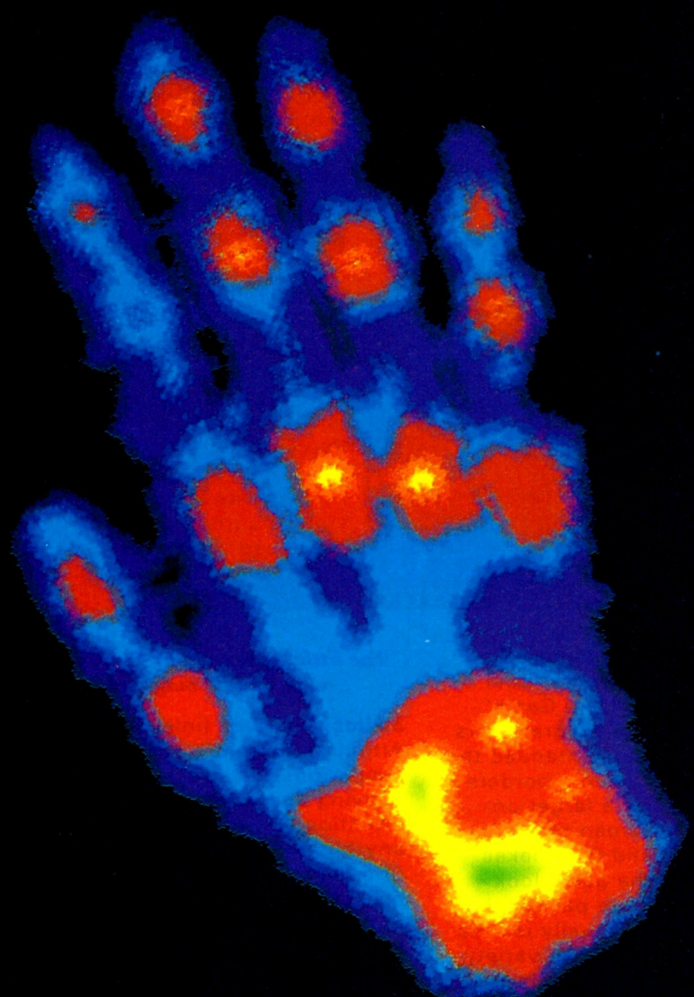
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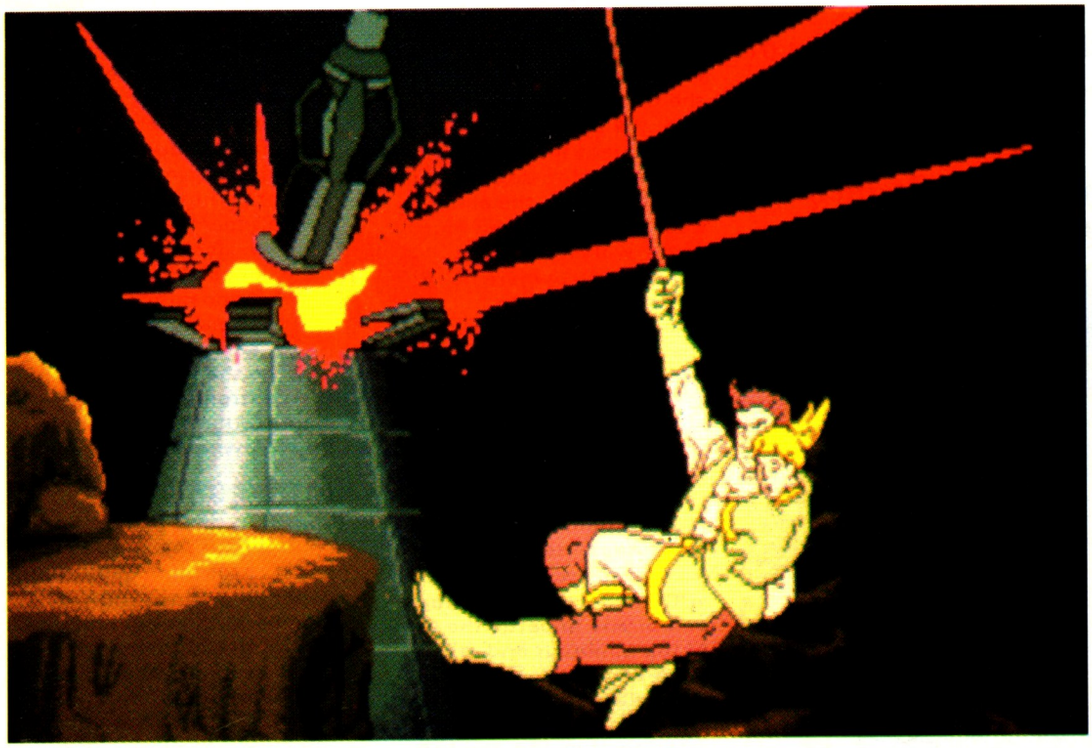
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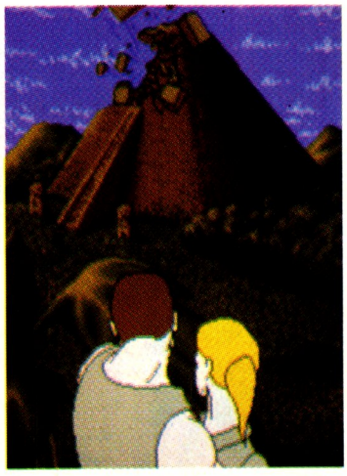
THE BITMAP BROTHERS

GUY SPY

Can Readysoft teach an old dog?



The animations between the 14 sub-games are used to progress the plot.



THE GAMEPLAY:

Guy Spy is Readysoft's answer to James Bond. He's a suitably suave and rugged hero, always ready for action. His adventures are set to take him on the most dangerous mission he's ever likely to encounter, as an evil Mr Big (there's so many of them – it must be a blood trait!) attempts to gather the crystal for a massive supergun. Guy's travels take him to the wintry waste lands of Switzerland where the only après ski activities are a bout of fisticuffs with one of Big's cronies. Using the same style of graphics as ***Dragon's Lair*** and ***Space Ace***, the main difference, boast Readysoft, is in the game's control method. Whereas Ace and Lair only allowed the player the briefest of control, Guy is fully controllable, with the player actually guiding him within set limitations.

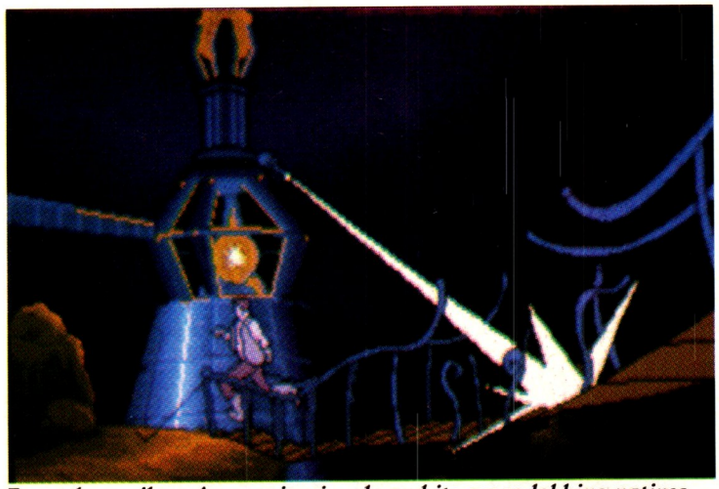
Guy must tackle 14 stages, including a downhill ski section where he must avoid collision with assorted obstacles, and a battle against spear-lobbing natives in the Amazon. Guy's life energy is shown by a picture of his body, upon which bullets holes are sprayed whenever he takes a hit — and when he is suitably impaired, it's 'Adios, would-be hero.'

PLUS POINTS:

Guy isn't fully interactive by any stretch of the imagination (he can only perform six moves within each level), but he is as controllable as, say, Gremlin's Harlequin in that he responds when the player wishes – but only for a few moves. Graphically, the game is stunning, too, with ***Space Ace***-style intro screens paving the way for the actual levels. This gives the game a film-like look and makes it another step nearer an 'interactive cartoon'.



There's no doubting that Guy Spy is a massive advance in gamestyle...



From the perilous Amazonian jungle and its spear-lobbing natives, Guy eventually moves on to the snowy, and deadlier, climes of Switzerland – complete with a cable car chase!

BEHIND THE SCENES:

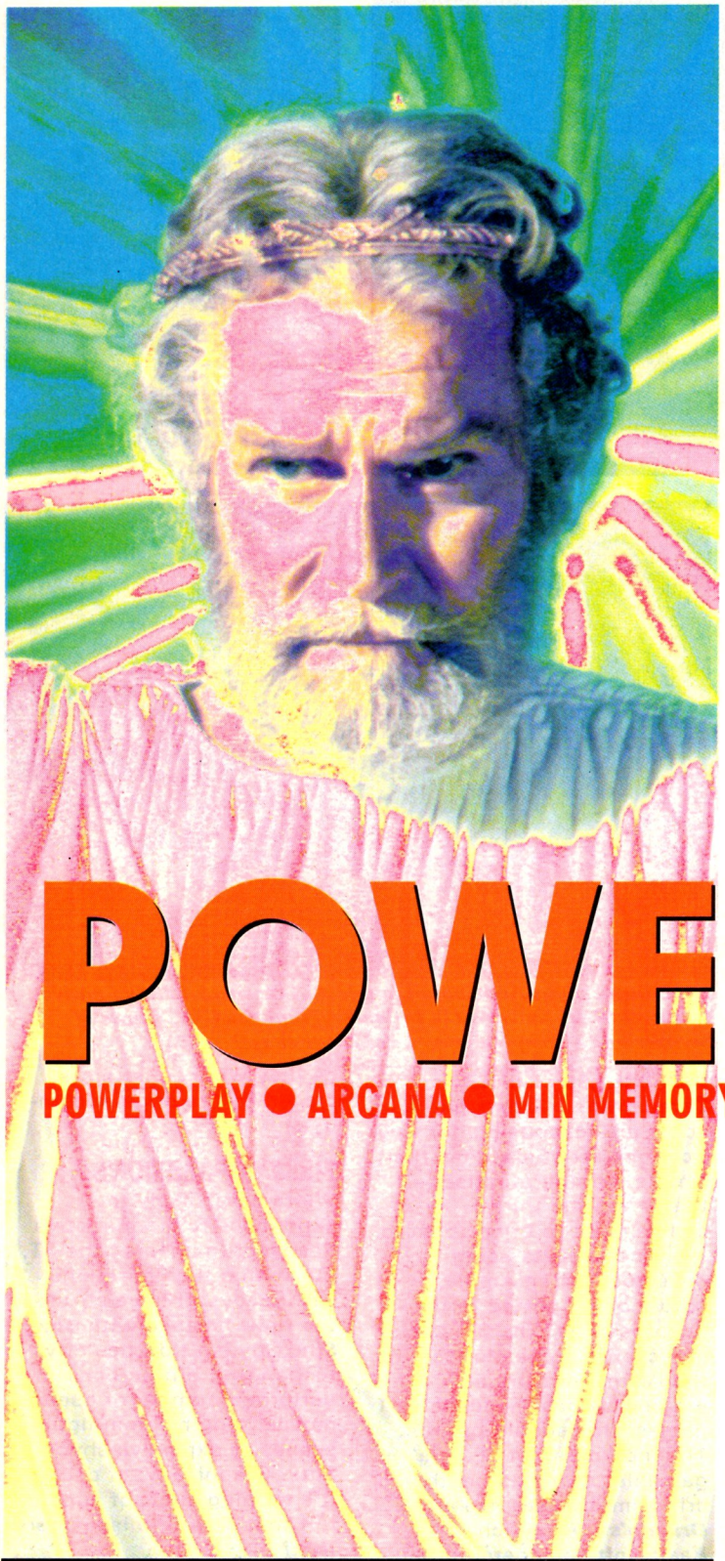
Three graphic artists and a coder are responsible for Guy Spy: one artist sketches the events, another digitises them, and the third collaborates to bring them to life. The game is being developed on an Amiga, before being ported to the host machine. The ST version is reckoned to be identical to the Amiga version, and judging by past Readysoft ST games, this should be true. The incorporation of 'true' gameplay followed continued criticism of ***Space Ace*** and ***Dragon's Lair***, which Readysoft considered unfair as they were constraints placed by the original coin-ops.

FIRST IMPRESSIONS:

We're never likely to experience fully interactive Readysoft games on the ST, but within the limitations set, Readysoft have struck the right balance with ***Guy Spy***. Guy isn't particularly responsive, but he does perform a number of useful moves, ranging from fight scenes to explosive shoot-outs. Graphically, of course, it's nothing short of superb, but that's not the issue here is it?

COVER DISKS

More games and fabulous utilities than you can shake a very large stick at, as ST Review's first brace of cover disks unveils the like of Powerplay, Feeling Partner, ST-Zine and International Cricket.



Before Populous, the Gods battled using the power of their minds. ST Review harks back to those days in a specially-commissioned update of Arcana's Powerplay - The Game Of The Gods...

POWERPLAY

POWERPLAY ● ARCANA ● MIN MEMORY 512K ● JOYSTICK, MOUSE OR KEYBOARD

THIS MEANS WAR...

High atop Mount Olympus, the Gods are again at war. Of late, the battles have become so frequent that the Pantheon has decided to do something about it. Thus, the almighty Zeus has summoned four of the warring Gods to his chamber, where he has split them into two groups ready for the ultimate test. Each of the Gods must select key team members to support him in his trial, and these teams must feature a heady balance between agility, strength and might. Famous names, such as Apollo, Hermes, Hecate and Aphrodite are summoned with their selected Cyclops and Sirens to battle the likes of the Minotaur and other Zeus-created horrors.

A multi-coloured courtyard has been chosen for the meeting of minds, but the action swaps to other parts of the heavens when a final battle for a playing piece takes place.

The players can only move one square at a time, but white transporter squares can send a brave contestant directly into the fray. Because the Gods are invincible, they cannot be hurt, even though their teams can be gradually destroyed. However, once all members of an opposing team have been wiped out, the survivors are deemed to the victors, and the controlling God is proclaimed the "Wisest And Most Powerful God Of All!".

GETTING STARTED..

Your first task on loading is to choose your team, and each has its pros and cons, depending on the individual members' strength and powers. Listed opposite are the Gods' team members, with the weakest at the top of the list, graded down towards the most powerful. Once selected, your team will use whatever they possess until victory is attained.



Starting in their chosen corners, the team members can move one square at a time, until they eventually battle for possession for one.

BY THE GODS

HOW THE TEAMS BREAK DOWN

APOLLO:
Heracles – Son of Zeus
Atlas – Holds Heaven and Earth apart
Cyclops – Has the strength of many men
Minotaur – Massive power

HERMES:
Orpheus – Poet whose music can charm virtually anything
Prometheus – Powerful Titan who gave fire to man
Talos – Living bronze statue
Pan – Half man, half goat

HECATE:
Maenad – Wine goddess
Nereid – Mystical sea nymph
Siren – Deadly sea creature
Scylla – Dog-headed man-eating beast

APHRODITE:
Persephone – Dwells in Hell
Pandora – Guardian of the box
Eros – Archer
Iris – Winged goddess









LET THE GAME BEGIN...

As soon as the credits have either been viewed or bypassed using the Esc key, the game is ready to play. ***Powerplay***'s many options are all accessed via a series of menu screens, with the spacebar switching between the options, and the return key moving on to the next. Once you are happy with your choice, pressing Esc will set the decisions.

The options allow selection of the number of players (between one and four), and the game's difficulty level – which determines how long you get to answer each question. However, if you are playing the game on your own, there is also a practice mode available. Following these screens, you are then asked how you wish to control the game, and there are options for the mouse, a joystick or good old-fashioned keys. All that remains then is to select your

CONTROLLING YOUR HEROES

As the question boxes appear, simply move the joystick or mouse in the relevant direction to select the necessary option. However, if you prefer to use the keyboard (you old-fashioned thing, you), then go for the numeric pad.



"Cruise for a Corpse was murderously good, The Secret of Monkey Island sent everyone ape, but now 'point and click' graphic adventures are set to undergo a REVOLUTION"

{AMIGA FORMAT}

...All real change must come through revolution...

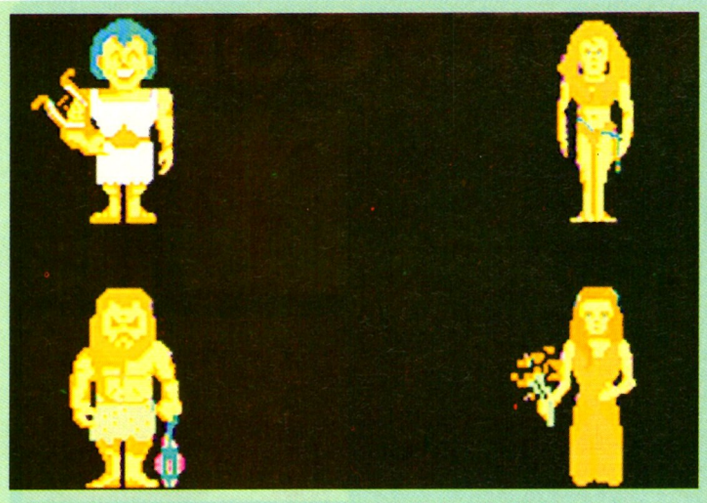
Anon

BACK TO BASICS

Each player starts the game with four pieces, each placed in one of the four corners of the arena. To avoid confusion, the teams are also given individual colours, and these match the squares on the arena's floor: blue, red, green, and yellow. To begin with, your characters will indicate their readiness for battle by moving up and down on the spot. Using your control device, you can cycle through your characters until you have selected the one you wish to control.

During the game, the players take turns to select one of the pieces. Depending on which colour square you land – blue for general knowledge; red for sports and leisure; green for science and technology; and yellow for history and geography – a question will then appear at the bottom of the screen, with four possible answers shown next to a directional arrow. By using your control device to select the answer you feel is correct, you must make the decision before the timer expires. Failure to answer correctly allows the next player a go, whilst a right answer will add to your player's wisdom rating – and if 25 wisdom points are attained, your character can be upgraded, or mutated to a more forceful hero. This is especially useful as upgraded characters cannot be killed outright when challenged.

Following each successful answer, the character can then be moved one square in any direction. However, should you try to move onto a square currently containing one of your opponent's characters, a battle will begin.



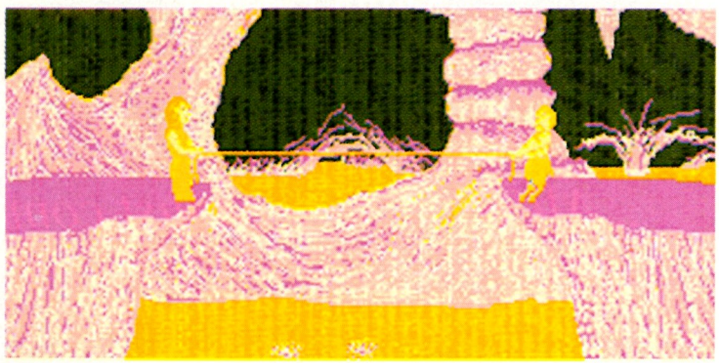
Shown here are the team members in all their individual glory. Each family contains creatures with whom you can team up.

deity and associated army, and it's time for the battle to begin.

THE CHALLENGE...

On attempting to move onto a square inhabited by an opposing team member, you are effectively challenging the occupier of the square to a duel. From here, the action then switches to a specially-prepared area, where each must answer a series of questions until one is destroyed - or, if they are suitably powered-up, mutated down to a lower power figure.

On entering a challenge, the players will be asked how they wish to control the challenge (if both players wish to use keys, one will use the cursor keys and the other the numeric keypad). Basically, a challenge is a series of quick-fire questions, which the duo must attempt to answer correctly before their opponent. Whoever replies correctly will swing the balance in their favour, depleting their opponent's energy, as shown beneath each each character, by one point. The first to be fully depleted is consequently destroyed or reduced in power. After each battle, the surviving contestant or contestants become reunited with the board.



MUTATING

Every time a question is answered correctly, the currently-selected character is rewarded with a wisdom point. On collecting 25 of these, they are then entitled to upgrade their status to a more powerful entity. Although it isn't compulsory, a mutation can be initiated by pressing the spacebar, your mouse button or the joystick's fire button. The game will then pause slightly as your character is transformed ready for his or her next move. The main advantage of mutating to a higher character is that your sprite can be defeated in a challenge without being destroyed outright, and so live to fight another day. The only drawback with this is that any questions asked get harder with each upward mutation.

SECONDARY OPTIONS

One of the nicest features of ***Powerplay*** is the "irritability factor". If, for example, the player concentrates on using the Minotaur to fight all the battles, the result will be that other team members will get a little disgruntled. If this happens, then they will start to move about on their own, using up your moves in the process. Thus, a bored character may manoeuvre you into a challenge just for something to do. As a matter of both tact and self-determinism, it is best to use each of the characters in rotation.



Bad move. A rather weedy human prepares to engage the mighty Minotaur in battle. Several defeats will be needed before it is regressed to a weak enough state to kill it.

IF YOUR DISK WON'T WORK

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LOADING POWERPLAY

Pop your Powerplay into the ST's drive and then turn the computer on. The game will auto-boot and an introductory sequence will appear, which can be quit via the escape key

DISK TWO

WHAT'S ON DISK TWO?

- FEELING PARTNER – An exclusive, useable demo of the latest and, many say, greatest music arranger. . .
- ST-ZINE – Create your own disk-based fanzine with this easy-to-use Shell. . .
- International Cricket – Do the perfect googlie as you wiggle away with your joystick. . .

FEELING PARTNER

FEELING PARTNER • MPI • MINIMUM REQUIREMENTS: ONE MEG PLUS KEYBOARD • MOUSE-CONTROLLED

Turn yourself into a music maestro with our cover demo of this innovative and flexible package. . .

Feeling Partner is a sequencer-come-arranger for musicians who want to create their own musical arrangements. Once you've grasped the basic principles it's very easy to use, so that, after a little practise, even novices should be able to use some of the more advanced features which are of serious interest to professional musicians.

The great strength of ***Feeling Partner*** is that you can build up a complex song using various predefined elements. If you like, you can then add your own tracks, making the arrangement even more sophisticated. Finally, you can use the special harmony function to generate harmonies from the melody or chords you are playing – in realtime. This last feature sets it apart from other arrangement software.

Feeling Partner also interacts with other MIDI software, thanks to its ability to save and load MIDI pattern files.

This cover disk contains a practical demonstration of the main program's functions. It is only intended as an introduction to the software's capabilities – you will find out more by experimenting. By following the steps described on these pages, you'll be able to create a pattern which will play through your own MIDI devices.

This demonstration disk comes with four default configurations, including Roland MT32, Roland Canvas and Korg M1. If you have different

CHECK LIST

This is what you'll need to use the program. . .

- ❒ ATARI ST WITH AT LEAST 1MB RAM
- ❒ MEDIUM (COLOUR) OR HIGH RESOLUTION (BLACK AND WHITE) MONITOR
- ❒ MIDI-COMPATIBLE MULTITIMBRAL DEVICE

"Looks set to become Britain's answer to Sierra and Lucasfilm"

{Paul Presley • PC Review}

...All wickedness is but little to the wickedness of a woman...

The Bible • Apocrypha Ib.25:19

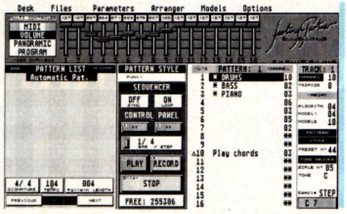
instruments in your setup, you will have to modify the configuration file accordingly, using the fourth General Standard configuration (GS).

A number of features have been disabled in this demonstration version. These include the MIDI file Save and Load functions, the Save Pattern, Song and Drum configuration options, the Create Track Driver function, the Create, Delete and Save New Model functions, the Relative Mode and Extended Driver functions and the Track Edit function.

LOADING THE PROGRAM

Load ***Feeling Partner 1.52*** by powering up your ST and from the desktop, open drive A: and double-click on DEMOFP.PRG.

The main screen appears displaying a default song, consisting of one pattern (Automatic Pat.).

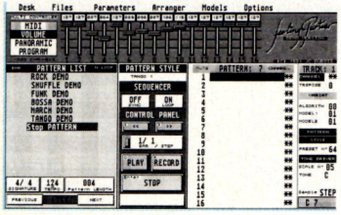


Here's the default, one pattern song.

To show off ***Feeling Partner***, we are going to load and play a song. This means configuring your system to work with ***Feeling Partner***. To start with, open the Files menu and select Load Song. A box appears showing a selection of songs named after popular multi-timbral devices: Roland MT32, Roland Canvas and Korg M1. Click on the one which corresponds to your own equipment, or else choose GS.FP_.

The following screen will appear:

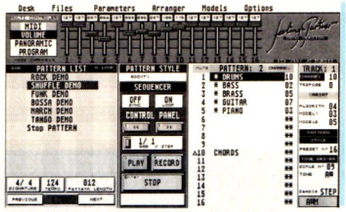
Now go to your multitimbral device and specify the following channels:



10, 2, 3, 4, 5, 6, 7.

If you're not using one of the configurations supplied, you'll also need to define the sounds. You do this from the MIDI mixing board on-screen.

Return to ***Feeling Partner*** and click on Shuffle Demo in the Pattern List window.



The instrument window. . . .

The instruments are addressed as follows:

Instrument	Channel
Drums	10
Bas	02
Piano	03
String	04
Brass	05
Muted guitar	06
Classical guitar	07

CLICK ON PLAY

Click on Program in the multi-controller (next to the MIDI mixing board): the little numbers above the faders will change to match your channel setup. The number underneath each fader on the MIDI mixing board corresponds to the channel; the number in the little window above is the sound number. To change the sound or a particular channel, click and drag the relevant fader button, or left-click/right-click on the number above it (left-click to increase, right-click to decrease).

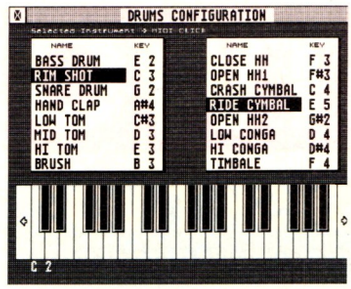
Click on Play, to make sure the instrumental voices are being addressed correctly. To listen to each track individually, left-click on a track number (the left-hand number next to each track in the Pattern window): this will mute the track. To switch off Mute, simply left-click on the number again.

Once you are happy with the instrumental sounds, you must make sure your drum kit is properly configured. Open the Files menu again and select Load Drums Configuration. If your device is not shown, choose GS.DFP. Click Play to test it. If your configuration is still not perfect, follow the instructions below.

DRUMS CONFIGURATION

Open the Parameters menu and click on the Drums Configuration option. A dialogue box will appear, showing the 16 percussion instruments available and a keyboard. If your MIDI device is not one of the three mentioned above, you will need to match the drum sounds on our keyboard to the instruments displayed in the dialogue box.

Example: Right-click Bass Drum. You'll hear the sound which the software has



The drum configuration menu.

assigned to the bass drum. It may sound wrong – but this means you have to find the right sound for the bass drum by clicking on the keyboard in the dialogue box. This represents the percussion instrument assignments on your master keyboard.

Left-click on keys at random until you find a bass drum sound. When you find it, move your mouse pointer to the key description next to the bass drum entry (the key is described as a letter plus number): right-click on the number. The sound associated with the last key you left clicked will be assigned to bass drum: the key description will change to match. Repeat this operation for all 16 percussion instruments, until they're configured to your satisfaction.

Once you are happy with your configuration, close the dialogue box (by clicking on the command button in the upper left-hand corner). The full version of the program allows you to save your drums configuration; in this demonstration version, you have to reset it every time.

SETTING UP YOUR SOUNDS

This is where we discover why ***Feeling Partner*** is the ultimate arranger for the Atari ST series.

You can select sounds:

• from your MIDI device(s) – i.e. synthesiser, expander, drum machine etc.)

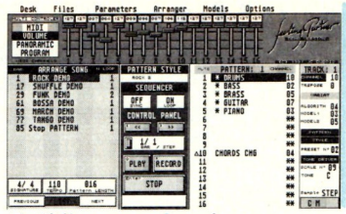
• or from the MIDI mixing board available in Feeling Partner.

Once you have set up your sounds correctly, you may want to change the volume. Do this by clicking on Volume in the multi-controller. The mixing board will display the volume settings for each MIDI channel. Move the relevant fader up or down until the volume for that instrument is at the right level.

MAKING MUSIC

This demo contains seven patterns, which are listed in the Pattern List window. Click on the title Pattern List.

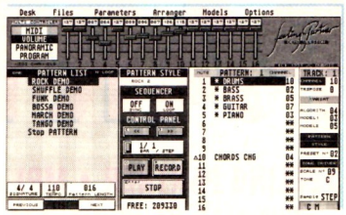
The name of the window will change to Arrange Song. Press Return once, and then press '0' on the numeric keypad to play the song. Each pattern contains a selection of predefined ("automatic")



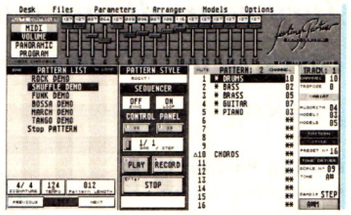
Building up a complex song.

instruments, over which you have total control, thanks to the models and algorithms described below.

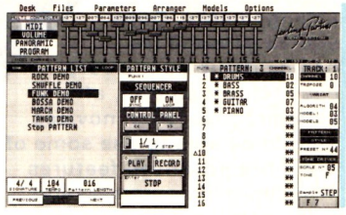
As the song plays, each pattern in the Arrange Song window is highlighted in turn. As each pattern gives way to the next, the instru-



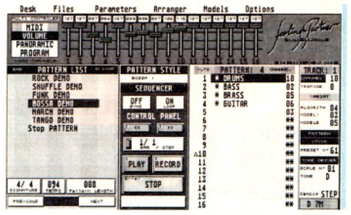
Rock Pattern



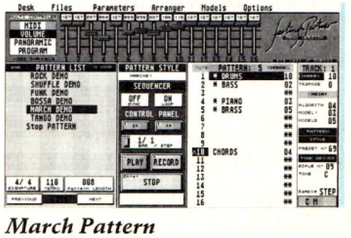
Shuffle Pattern



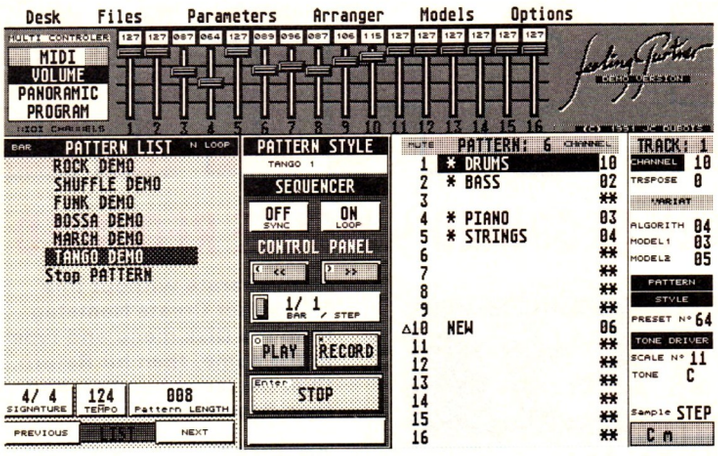
Funk Pattern

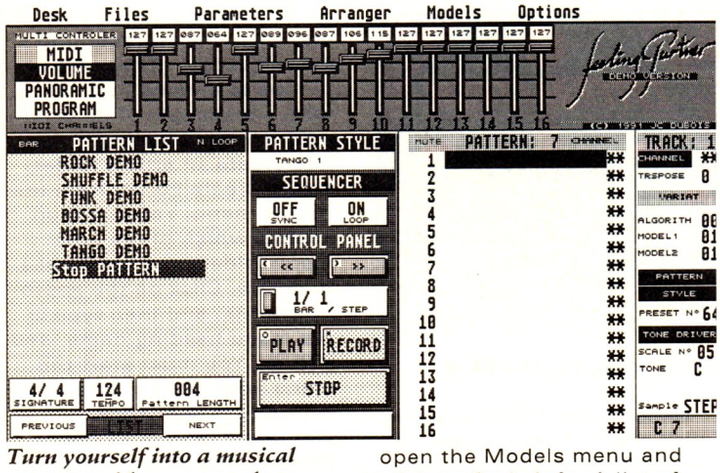


Bossanova Pattern



March Pattern





Turn yourself into a musical maestro with our cover demo.

ments shown in the Pattern window also change accordingly, as shown below.

When the song is over, click on Stop, then switch back to the Pattern List window by clicking on the title Arrange Song. Now click on the pattern you are interested in and take a look!

MODELS AND ALGORITHMS

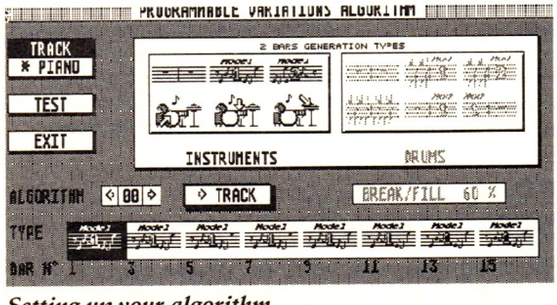
Models are two-bar sequences, which can be combined within a pattern. Each music style has a different library of models. First of all, take a look at the music style library by clicking on the Pattern Style window. A list of pattern styles will appear. Click anywhere outside the window to make it disappear again.

Now select Shuffle Demo in the Pattern List window, then open the Models menu and click on Style Info. A list of the different models available for each instrument playing the Shuffle is displayed.

Select Piano in the Pattern window by clicking on it, then open the Models menu and select Taste Model. A small dialogue box appears with a piano model number, and you'll hear the model playing. To hear a different model, change the number (by left/right-clicking on it).

Move to the Variat window and change the model numbers to match those piano ones you prefer.

You can choose two model numbers at a time combined by the algorithm. So, for example, change the number next to Model 1 to '04' and the number next to Model 2 to '06'. Now combine your models using an algorithm. Open the Parameters menu and select the option Set up Algorithm. A large dialogue box appears. The length of your pattern is shown at the bottom of the Pattern List window: in this case a whole 12 bars. . . .



Setting up your algorithm.

"Acclaimed as a revolution in game design, Revolution Softwares' goal is to change the conventions of role-playing games forever with..."

{GAMES X}

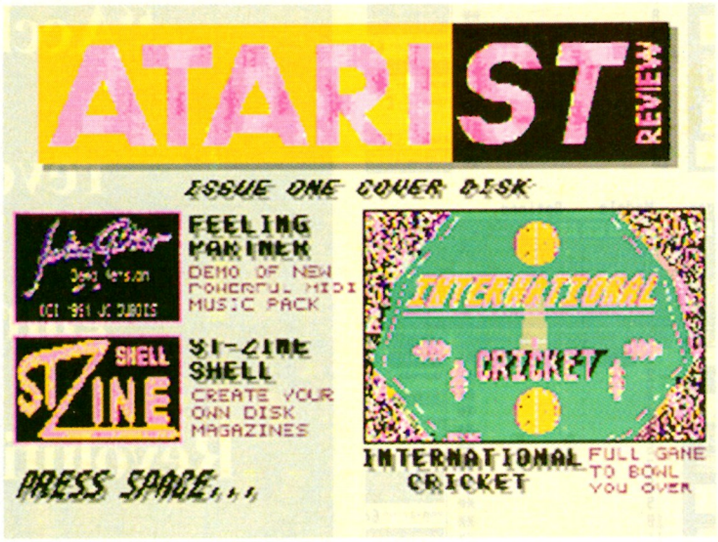
...Art is either a plagiarist or a revolutionist...

Gaugin

ST-ZINE SHELL

• ST-ZINE SHELL • SHAREWARE • 512K REQUIRED • MOUSE REQUIRED

Have you ever dreamt of being an electronic publisher? Stop dreaming and start writing now. Creating your own disk magazine is easy with ST-Zine Shell. . .



The whole of cover disk two has been built using ST-Zine Shell.

This disk-magazine development kit is designed as a simple way of mixing text, pictures and music. It enables you to publish a magazine as simple or as complex as you like.

An ***ST-Zine***-based disk-magazine is simply a collection of text files (called Articles), low or high resolution graphics files (Pictures) and a music file (Tracker Module), all grouped together inside folders. The Shell program then reads these files when it loads. An additional file, the Nametag, tells the Shell the name and issue number of the magazine.

Despite being called a disk-magazine kit, ***ST-Zine Shell*** works perfectly well from a RAM disk or hard drive, and also from inside folders. It can operate without pictures or music, but it does require a minimum of one article. You'll need a TV or colour monitor to play Tracker music.

CHECK LIST

The minimum requirements for creating a disk mag with ST-Zine Shell are:

- ❒ **ANY ATARI ST OR STE COMPUTER WITH 512K OF RAM AND A SINGLE-SIDED FLOPPY DISK DRIVE, PLUS ANY SUITABLE SCREEN.**
- ❒ **A COPY OF THE ST-ZINE SHELL DISK. MAKE A BACK-UP, TOO.**
- ❒ **A BLANK DISK TO PUT YOUR MAGAZINE ON.**
- ❒ **A BASIC WORKING KNOWLEDGE OF HOW TO USE THE ATARI ST/STE.**
- ❒ **YOUR TEXT FILES, PICTURE FILES AND TRACKER MODULE ALL READY.**

PREPARING YOUR DISK

Your magazine must be created on a floppy disk in drive A:, although you can move it on to a hard disk when completed. Format a work disk before you try to create a magazine on it: how you choose to format your work disk is up to you — but remember that there are still a few single-sided drive users around. You could use a program such as Dualform by M. Murray (available from most PD libraries) to create a double-sided disk, the first side of which can be read by users of single-sided drives. And unless your disk magazine is for 1Mb+ machines only, you should be able to fit all the components of an ***ST-Zine Shell V3+*** disk mag on a single-sided disk: it's also worth remembering that formats of over 81 tracks or 10 sectors can cause errors on worn disk drives.

Once you've formatted your disk, you'll need to copy the Shell program onto it. If you can't find it, try looking inside the Auto folder. If you have one on your disk, place the shell program inside it — the magazine will automatically run when you switch on and insert the disk.

THE INSTALLER PROGRAM

The installer program is used to install text, pictures and music onto your work disk. Most of the time, it guides the user through its functions with on-screen prompts; but if you're using more than one disk drive or a hard drive, you may find that some of these prompts do not apply to you.

The first thing you should do is decide what you are going to call your disk magazine. ***ST-Zine Shell*** allows names of up to eight characters, plus an issue number of up to three digits.

To name your magazine, you need to create a file on your work disk called a Nametag. The Shell program can't operate without this file. Select Create Nametag from the Disk menu and type in the name, then hit Return, then the issue number, and then Return again.

ARTICLES

All articles are stored in folders, each one representing a menu heading. There are up to nine to choose from, each with a maximum of 20 characters in the heading.

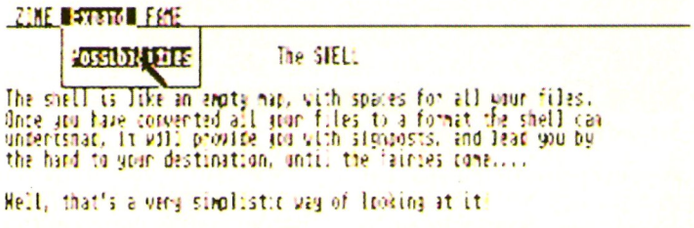
To create an article folder, select Create Folder from the Article menu. You can then choose which of the nine menu folders you would like to create. Click on the appropriate one, and then type in the menu heading name, and Return. You must start the menu with number one and continue in sequence, or you'll find later ones get deleted. The actual folder names created on the disk will be ST-ZINE.SZ1 through to ST-ZINE.SZ9. If you change these folder names, the Shell will not be able to find your articles.

You will need to have created at least one article folder before you can install any text articles. All the text articles you wish to install should be saved from your word processor or text editor in ASCII format.

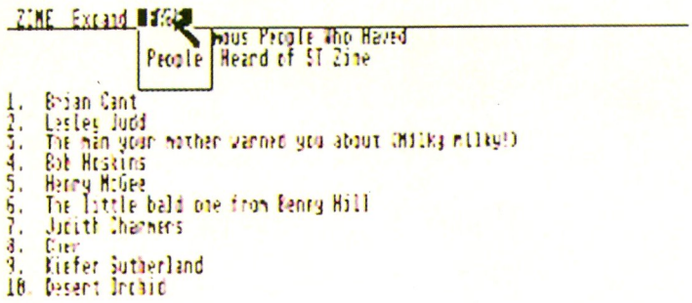
Returning to the installer program, select Convert ASCII from the Articles menu, insert the disk containing the ASCII file and follow the on-screen prompts. You can then choose a menu heading and a name for your article.

THE FANCIES FOLDER

"Fancies" is the term the author uses to mean pictures and music. You will need to create a Fancies folder to store all your pictures and music. Do this by selecting



An ST-Zine-based disk mag is simply a collection of text files.



Just one of the lighter items in our own Zine creation.

Create Folder from the Fancies menu, and following the on-screen prompts.

ST-Zine Shell has a maximum capacity of nine colour pictures and another nine mono pictures.

The Shell can only display colour pictures on a TV or colour monitor, and mono pictures only on a high-resolution monitor.

With your Fancies folder, you can begin installing pictures. The Shell can use ***Degas*** .PI1 and ***Neochrome*** .NEO pictures with TVs and colour monitors, and ***Degas*** .PI3 files on mono monitors.

To take up less memory, the installer program will pack your pictures while it installs them. They are then unpacked only when the Shell wants to display them, so keep your originals if you think you might want to change them.

To convert a picture to ***ST-Zine Shell*** packed format, select Convert .PI1, Convert .NEO or Convert .PI3 (depending upon which format your originals are in) from the Fancies menu, and follow the on-screen instructions. You will eventually be asked which picture you would like to install, ranging from 1 to 9. The Shell will display the pictures in order. As with articles, if you miss a number out, then all pictures after the missing one will be ignored.

TRACKER MUSIC

Tracker music is only available to colour users, because the timing of the music is worked out from the speed of the display, and mono monitors run half as fast as colour monitors. Tracker Modules contain both samples and notation, and hold all the information needed to make the music.

If you don't want to make up the music yourself, you can get disks full of other people's modules from most PD libraries.

The ***ST-Zine Shell*** uses ***STOS Tracker*** .ABK format for its modules. If the worst comes to the worst, you can use the popular ***Noisetracker*** .MOD format, but it is not advised. ***STOS Tracker*** .ABK Files can be copied directly into your Fancies folder without having to convert them.

So all you have to do is copy the file into the ST-ZINE.SZ0 folder. The Copy File option from the Disk menu will copy files for you.

TESTING YOUR MAGAZINE

Once you've created your magazine, you'll want to check that it will work on everybody else's computers.

- If you've got a colour 512K ST/STE, then you'll be well aware of any memory problems. Providing your magazine works on a colour 512K ST/STE, then you have no worries about it working elsewhere.
- Users of larger memory machines can use the supplied MAK512.TOS program to limit their machine to 512K. Switching your ST/STE off and then back on brings back full memory.
- You can find out how much free memory you have to play with by running the Shell program, and selecting Quit from the article displayer. Then click on the right mouse button (anywhere) to bring up a free RAM value. Click again to return to normal.
- To really test it, use MAK512.TOS, load up your longest article from the Shell and then check the free RAM value. If you're using Mono and have a tracker file installed for colour users, remember to deduct the size of the module. Similarly, don't forget to take into account the fact that colour and mono pictures are unlikely to be the same size. After all that maths, if you've got over 10K free then you're safe.

Now
let the game commence...

LURE OF THE TEMPTRESS

...I can resist everything except temptation...

Oscar Wilde

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Howzat! International Cricket offers all the thrills and spills of a good afternoon at Lord's and a chance to participate in the favourite English summer pastime of wearing bright white trousers and staining them with a red ball. All that's missing is the radio commentary. . .

MENU OPTIONS

On the main screen, clicking on batting or bowling averages brings up any scores that have been recorded so far. Clicking on Instructions brings up on-screen help with any of six topics, whilst a tap on Play takes you to the game options menu.

Choose one or two players, by clicking on the faces next to the team names. To change the teams, click the left mouse button on one of the map icons to choose team one, and click with the right to choose team two. It's that simple.

You can adjust the difficulty level by clicking on the box marked Beginner and clicking on play to go into the game itself.

Throughout the game, whenever you are asked to make a choice, such as selecting batsmen or bowlers, use the left mouse button to select and the right to accept.

BATTING INSTRUCTIONS

When batting, take hold of your joystick and prepare to swing wood against ball. You can decide for yourself which shot you want to try, but you should attempt to make out the bowler's style and the ball's direction before you select. We know this doesn't give you a lot of time to make your swing, but that's cricket.

BOWLING INSTRUCTIONS.

From the opposing batsman's point of view, your bowler is, of course, the greatest threat on the field. To get the most out of him you need to follow a few simple rules.

The first thing to take note of is the style of bowler you are controlling. Is he a spin or a speed player?

Speed bowlers are marked as either slow, medium or fast – all of these terms relating to the velocity of their throw.

Controlling their bowling action involves watching a swinging arrow, and clicking the left mouse button when it's centre. The computer does the rest. On top of that, there are some keyboard controls too:

"■": Makes the bowler throw a bouncer. Only one bouncer per over is allowed.

"✚": Makes the bowler throw a yorker. Only one yorker (a full toss ball that bounces very near to the bat) per over is allowed.

"☆": If you are controlling a fast or medium bowler, pressing this makes him bowl a slow ball, to confuse the batsman.

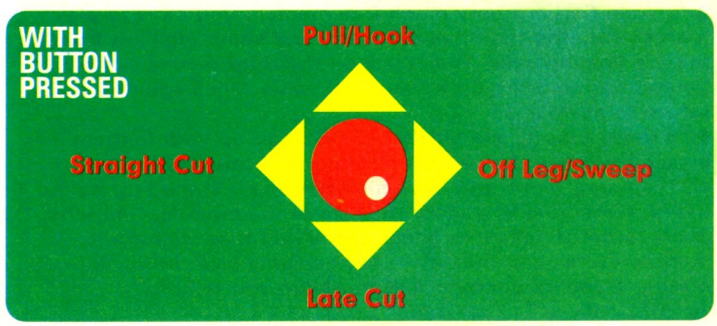
If you are controlling a spin bowler, then "■" and "✚" determine whether he bowls a short or full-length ball.

The rest is up to you – keep practising and you might get an invitation to the West Indies.



Ah, the sound of leather hitting the willow. . .





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Kingston Upon Thames
Tel: 081 546 9575

Atari Business Centre
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Tel: 0602 810009

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DAILY SPORT

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ST REVIEW QUESTIONNAIRE

READERS SURVEY

It's not often a new magazine gets launched into an established market against competitors that have been around for some time. Unless the competition is doing something wrong. We believe we're doing something right but we need you, the readers, to help us...

WIN! £2,000 worth of free software!!

It's always a risk to bring out a new magazine. It's risky being the first journal to cover an area of consumer interest: Will you get your market right? Is there enough interest to support the magazine? Who will buy it? Will we cover the right subjects? These are all questions that any publisher asks themselves when working on a new venture, but how many of them ask their readers? And of the ones that ask, which ones actually listen?

This is why ST Review's first issue has a three–page questionnaire. And not only do we want you to fill it in and return it to us, but we also want you to know that every single questionnaire that we receive will be read by the ST Review team, before being put onto computer (ST naturally), where all the results will be correlated. And then, by issue three, strange things will happen to the magazine. We'll be using your thoughts, your comments and your scrutiny to determine the direction that the magazine will take in the coming year.

And just to make it that little bit more interesting, we'll be giving away a 40-Meg hard drive to one lucky person in our prize questionnaire draw – we also have over £2,500 worth of software to give away to the next 99 people out of the hat.

HOW TO ENTER

Please try and answer every question. If you're stuck for an answer to any particular question, simply miss it out and go on to the next one. Most questions simply require a tick in a box, but some require more extensive answers – again, please try and complete as much of the questionnaire as possible. You can either tear out this form and send it in, or a photocopy is just as acceptable. You can even write out your answers on a sheet of paper – we're not worried about neatness just data! Once you've filled everything in, send it to: ST REVIEW CONSUMER SURVEY, PRIORY COURT, 30-32 FARRINGDON LANE, LONDON, EC1R 3AU. Entries to arrive not later than June 1st, 1992

IMPORTANT: Where appropriate, please tick the relevant boxes to indicate your answer. All information given in this questionnaire will be treated in the strictest confidence and individual details will not be given/sold to any other organisation.

1. About You

Name:. . . . . .

Address: . . . . . .

. . . . . .

. . . . . .

. . . . . .

. . . . . .

Age:

Sex: Male ☑ Female ☐

Tick the following box if you would like to participate in an ST Review reader's review

Yes ☐ You can phone me at home ☐

My telephone number is: .....

2. What do you do for a living?

At school ☑
Sixth Form ☐
Further Education ☐
University/Poly ☐
Full-time work ☐
Part-time work ☐
Unemployed ☐

3. What's your income per year?

£2,000 or less ☑
£2,001–£6,000 ☐
£6,001-£10,000 ☐
£10,001-£15,000 ☐
£15,001-£20,000 ☐
£20,001-£25,000 ☐

CUT ALONG LINE

£25,001-£30,000 ☐
£30,001 plus ☐

4. You use your Atari for..? (Tick more than one box if needed)

	Regularly	Sometimes	Never
Music/MIDI	☐	☐	☑
Graphics	☐	☑	☐
Programming	☐	☑	☐
DTP	☐	☑	☐
Games	☑	☐	☐
Word Processing	☑	☐	☐
Education	☐	☑	☐
Comms	☐	☐	☑
Business	☐	☑	☐

5. What type of Atari do you own?

520ST ☐
520STF ☐
520STFM ☐
520STE ☐
1040STFM ☐
1040ST E ☑
MEGA 1 ☐
MEGA 2 ☐
MEGA 4 ☐
TT ☐
LYNX 1 ☐
LYNX 2 ☐

Other. . . . . .

6. In the next 12 months, are you interested in purchasing any of the following items?

ST Book ☐
Falcon ☐
CD Rom ☑

7. Do you have any of the following upgrades?

0.5 Meg ☐ 1 Meg ☐
2 Meg ☐ 4 Meg ☐

8. What type of software do you want on the disk?

Application programs ☐ Utilities ☑
Game demos ☐ PD games ☑

9. Which of the following peripherals do you own?

	Own	Intend to buy this year
Monitor (Atari Hi-Res mono)	☐	☐
Colour Monitor	☑	☐
Television	☑	☐
Disk Drive	☑	☐
Hard Disk	☐	☐
Printer	☑	☐
Genlock	☐	☐
Sound sampler	☐	☐
Modem	☐	☐
MIDI interface	☐	☐
Scanner	☐	☐
PC Emulator	☐	☐
Accelerator Card	☐	☐
24-Bit Graphic Card	☐	☐

10. How much time per week do you spend using your Atari?

less than 2 hours per week ☐
2-5 hours per week ☐
6-10 hours per week ☑
11-15 hours per week ☐
16-20 hours per week ☐
Over 20 hours per week ☐

11. How much money do you spend on your Atari per month?

Less than £20 ☑
Between £20-£30 ☐
£31-£40 ☐
£41-£60 ☐
£61-£100 ☐
More than £100 ☐

12. What percentage of your answer to question 11 is spent on games software?

25% ☐
50% ☐
75% ☐
100% ☑

13. What other computer magazines do you regularly buy?

ST Format ☑
Atari ST User ☐
ST Applications ☐
ST Action ☐
C&VG ☐
Zero ☐

14. How important is the content of a magazine's coverdisk in influencing you to buy the mag?

Not important ☐
Occasionally influences me ☐
Major influence ☑

15. Where did you buy this copy of ST Review from?

Local Newsagent ☑
Subscription ☐
Chain Store ☐
Computer Store ☐
Didn't buy it ☐

16. How many other people will read this copy of ST Review?

0 ☐
1 ☑
2 ☐
3 ☐
4 ☐
5 ☐

17. If there's one thing you could change about ST Review to make it better, what would it be? (Please use a separate sheet of paper if there isn't enough space for your answer).

.....

.....

.....

.....

18. How many copies of ST Review have you bought in the last year?

1-3 ☑
4-6 ☐
7-9 ☐
10-12 ☐

19. How do you rate the following sections in this month's issue?

	Very Good	Fair	Poor
News	☐	☐	☐
Coverdisk pages	☐	☐	☐
Lead Comparative test – Bubblejet Printers	☐	☐	☐
First Imps	☐	☐	☐
Game Reviews	☐	☐	☐
VFM	☐	☐	☐
Music/MIDI Reviews	☐	☐	☐
PD coverage	☐	☐	☐
Buyer's Guide: Education	☐	☐	☐
Buyer's Guide: Joysticks	☐	☐	☐
Ask the Experts	☐	☐	☐
Buying Secondhand	☐	☐	☐
STOS Tutorial	☐	☐	☐
Desktop Tutorial	☐	☐	☐
Music Supplement	☐	☐	☐
Comms Coverage	☐	☐	☐
Education coverage	☐	☐	☐

20. Have we the right balance between our technical and games coverage?

Yes ☐ No ☐

21. If you answered 'No' to question 19, how should we change our coverage?

More technical coverage ☐
More games coverage ☐

22. Does ST Review give you enough information to make a purchasing decision?

Yes ☐
No ☐

(If 'No', what could be done to improve our reviews/comparative tests?)

.....

.....

.....

.....

23. Do you buy Public Domain software?

Never ☐
Occasionally ☑
Regularly ☐

24. Which sort of PD are you most interested in? (Tick more than one if necessary).

Demos ☑
Music ☐
Slideshows ☐
Games ☑
Animations ☐
Utilities ☑
Virus Checkers ☐

25. From the following list, please indicate how you rate ST Review's design?

	Yes	No
Attractive	☐	☐
Gives enough info	☐	☐
Easy to read	☐	☐
Too serious	☐	☐
Not serious enough	☐	☐
Just about right	☐	☐

26. Which of the following Buyer's Guides would you like to see appear in the magazine over the next 6 months?

Hard Drives	☐	Accelerator Cards	☐
Modems	☐	Animation packages	☐
Memory Expansions	☐	Emulators	☐
Digitisers	☐	24-bit graphics	☐
Word Processors	☐	Public Domain	☐
Business software	☐	Mice/Trackballs	☐
Printers	☐	Games	☐
Cam-corders	☐	DTP	☐
Genlocks	☐	Programming Languages	☐
Databases	☐	Education	☐

27. Would you buy ST Review produced merchandise, including videos, book guides, binders, games and utilities?

	Yes		Yes
Videos	☐	Disk-boxes	☐
Books	☐	Mouse mats	☐
Binders	☐	T-shirts	☐
Games	☐	Binders	☐
Utilities	☐	Mugs	☐

Phew! That's the lot. Thanks for taking the time to complete this questionnaire. Only with your help can we make ST Review YOUR magazine.

"Try the Turbo 20/25 from Atari Workshop. It's unbelievably fast - three times ST performance. Screen updates are actually faster than on a TT."

Andrew Wright, Technical Editor, ST User

Running at a clock speed of 25 mHz, the remarkable new Turbo 20/25 is very nearly as fast as, and much more software compatible than, other accelerators costing almost twice the price.

It comes bundled with the very latest "wafer" 68000 CPU. New technological advances mean that this new processor handles much faster clock speeds than the old type supplied by Atari.

And, because this new 68000 chip is 100% compatible with the old chip, you'll have new speed without the software problems associated with 68030 processors.

The Turbo 20/25 works like a dream with Spectre GCR and, additionally, you can toggle between 25 mhz and true 8 mhz at the flick of a software switch.

But the speed story doesn't end here. Now there's new nVDI.

As a stand alone program, or with Turbo accelerators, nVDI boosts some graphics/windows functions to up to 25 times faster.

It also has a built in mouse accelerator plus a fast and robust, easy to configure, GDOS.

These are just two of the dozens of new products we've got for ST and STe computers. Ring us on **0753 832212** or write today for more information.

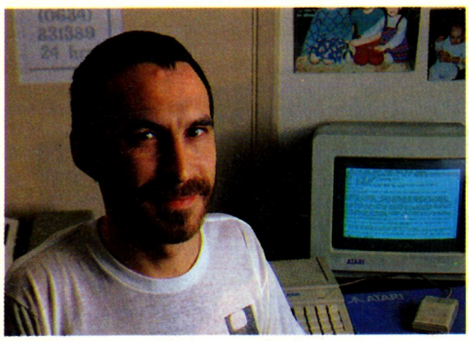
The remarkable new Turbo 20/25 new accelerator board is available only from Atari Workshop and costs just £299. DIY or workshop installation. Its superb software companion, nVDI, is just £39.95. All prices include VAT but exclude post and packing.

Atari Workshop, Suite 47/8, Windsor Business Centre, Vansittart Road, Windsor, Berks SL4 1SE. Tel: **0753 832212** Fax: **0753 830344** Prop: Brandt Fernandes (Europe) Ltd

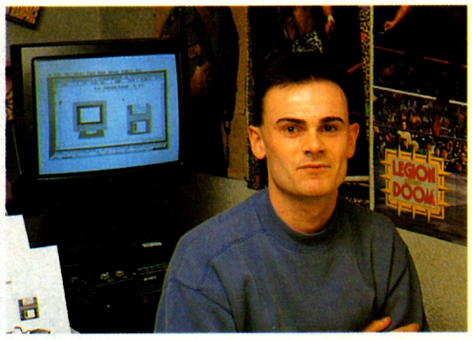
ATARI
WORKSHOP

NEXT MONTH

COME ON AND JOIN THE CUSTOMER CLINIC!







Buy the next issue of ST Review and read about a brand new way of testing hard and software. . .

What do Kit Watson, Mark Bryant, Greg Russell, Dave Burns, Caroline Price and Carole Witts have have in common? As part of our belief in punter power, next month all six readers will be joining our customer clinic and evaluating six word processors and desk-top publising systems.

Our testers have a variety of occupations, ranging from teaching, running a PD company to hairdressing and freelance journalism — and all of them use DTP or WP programs as part of their day-to-day lives.

First and foremost, each of our testers will evaluate the programs from their own points of view — just how useful are they? But, most importantly, they'll be letting us know how they think each program will go down with ST owners countrywide. And if you'd like to join a future customer clinic, don't forget to fill in the relevant part of our reader's survey, starting on page 31.

Continuing our theme of desk top publishing, brace yourself for the clash of the Titans, with a head-to-head comparison test of ***Calumus SL*** against ***Didot***. You won't find more in-depth coverage in any other ST magazine.

PLUS THERE'S MORE. . .

● **Our totally comprehensive round-up of the hard drives available — which one should you buy?**

● **A world exclusive test of Multi-Gem 2, the latest and allegedly greatest utility to allow multi-tasking. It's German and so ought to be reliable — but will it live up to its promise?**

● **Turbocard from Fast Technology will be getting the ST Review treatment — we'll measure its performance against other hardware accelerators.**

AND THERE'S GAMES, TOO

● **Head-to-head link-up games. Linking up your ST to a friend's means double the excitement — we'll let you know which games you can do this with and rate them. . .**

● **Plus how about this for a line-up? First rate reviews of Bonanza Brothers, Ninja 3, Tornado, Epic, Fire and Ice and – we're keeping our fingers crossed for this — Sensible Soccer. . . .**

WE'LL GUARANTEE YOU QUALITY AND VALUE-FOR-MONEY

YOU'D BE MAD TO MISS OUT. . .

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CHECK OUT
the games arena experience and be the first to put the very latest software to the test.

TAKE
a strole down Console Alley and get the feel of the latest consoles on the games market.

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and take advantage of FREE technical and buying advice from Computer Shopper Magazine's team of experts and the CU Amiga clinic.

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The show is taking place at Olympia Exhibition Centre, Hammersmith Road, Kensington, London W14 and can be easily reached by TUBE: Olympia - District line, Circle line, Picadilly line and Metropolitan line. Or by BUS: No's 9, 10, 27, 29, 91.

BOOK NOW: Complete and return the following coupon to: Spring Computer Shopper Show, Earls Court and Olympia Ltd, Earls Court Exhibition Centre, Warwick Road, London SW15 9TA.
Closing date for ticket applications 22 May 1992.

Spring Computer Shopper Show
28-31 May, National Hall, Olympia **Pre-registration form**

Name _____

Address _____

_____

_____ **Postcode** _____

Please send me _____ **adult tickets @£4.50 and** _____ **child tickets @£3.00**
☐ **I enclose a cheque made payable to Computer Shopper Show for £**_____
☐ **Please debit my ACCESS/VISA account**

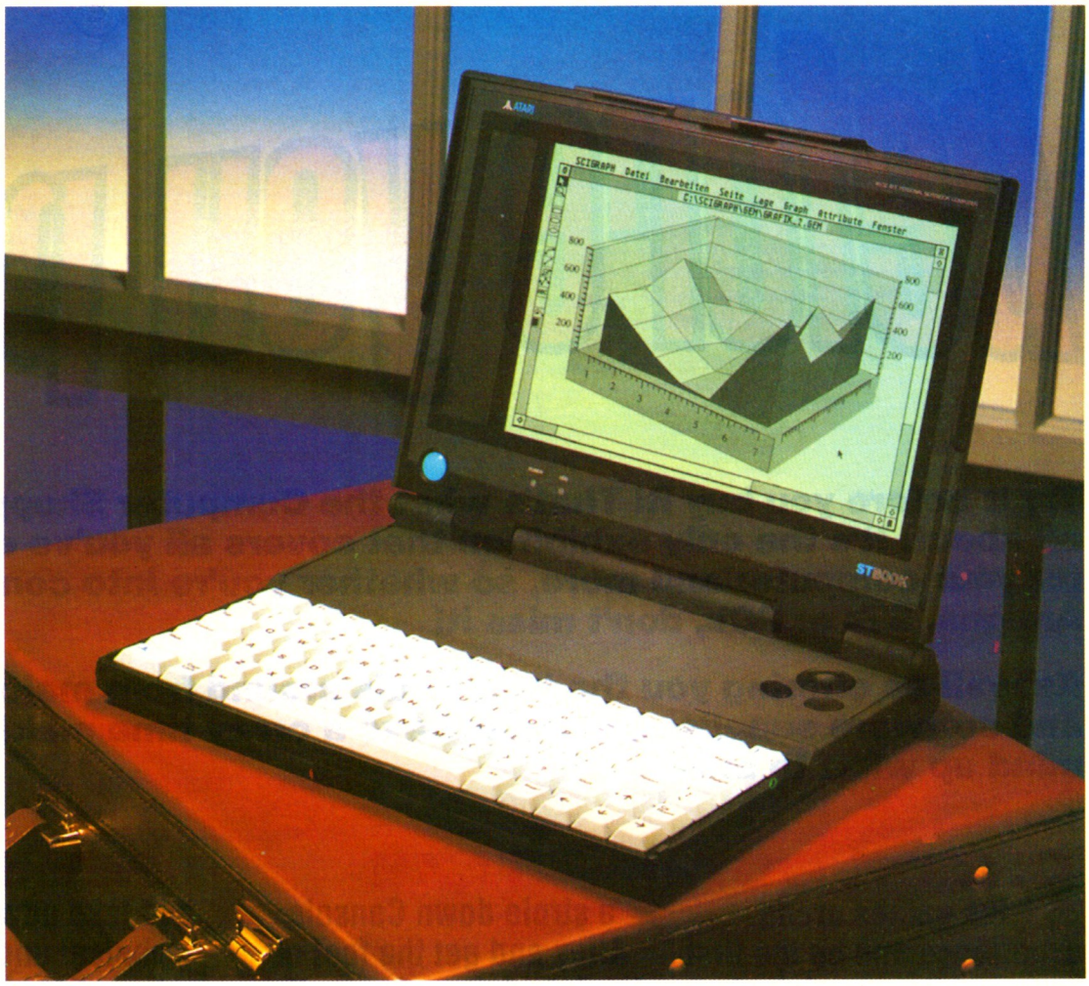
No. |___|___|___|___||___|___|___|___||___|___|___|___||___|___|___|___|

Expiry date _____/_____ **Signature** _____

Which of the following are you interested in at the show?

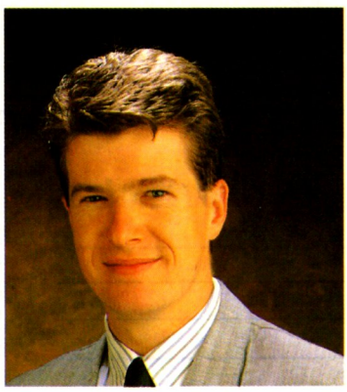
☐ Amiga ☐ ST ☐ Printers/Other Peripherals
☐ PC ☐ Games Software ☐ Other Software

OPPER LIVE · CON



Will the ST Book provide the next chapter in the Atari story or will the firm's latest portable just lift a faded page from the Portfolio's sorry saga? ST Review looks at what's gone before and how Atari plans to make amends...

TURNING ATARI'S NEW



" The Book should fully adopt the position that STacy should have attained" — Darryl Still, Product Marketing Manager, Atari.

There was a time when computers came in two sizes – 'I'm important' and 'I'm VERY important'. "Big is best," echoed the marketing bods and desks bowed under the weight of the new technology with footprints the size of King Kong's dainty size 77s.

In recent years, however, the fashion has been for computers to shrink whilst prices have grown inversely. This increase in technology, public awareness and profit has led to the computer world scraping around for new names to convey the petiteness of their machines.

In fact, the list of adjectives reads like something from a thesaurus. We had: Notebook, Desktop, Laptop, Portable, the familiar sounding Portfolio, Compact, and lastly the Book. The ST Book, in fact.

Atari has a chequered history of micro technology. Its first portable machine was the ill-fated STacy which, when launched over 18 months ago, was aimed squarely at the as-yet-infant, but potentially gob-smackingly lucrative, portable computer market. This was just beginning to take off, with proper computing power at last coming down to a truly portable size.

Unfortunately the STacy missed its biggest market in this country – the young, yuppie and aspirational, all of whom presumably preferred to keep their cash in off-shore securities rather than tie it up with a portable machine that had a serious problem in terms of battery life. But the STacy still sold: to a group of people for whom portability is a must – musicians with attitude – the



The three-hour battery life of the STacy had shocking effects.



The vector pad, whilst not a new concept, is a tricky one to get to grips with. The two top buttons are used as normal mouse buttons whilst the pointer's movement around the screen is down to the circular "vector pad". Pushing down on the pad moves the pointer in the required direction. Movement is speeded up by pressing the disk nearer to the edge – although the faster movement is far from perfect at the moment as the pointer, as on so many LCD screens, disappears or "submarines", making it impossible to see. There is a software solution currently being programed that has the buzzword "mouse droppings" – a term for a trail left behind the pointer so that the motions of the mouse are easier to follow.



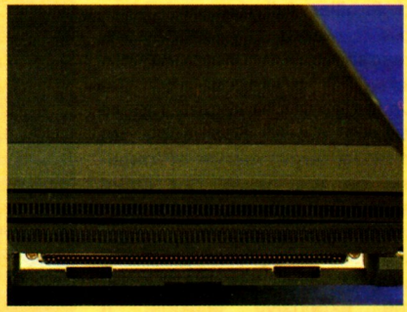
The vector pad is removeable for no apparent reason, but on closer inspection...



...There is the provision for a dedicated modem plug-in to be inserted. Atari has speculated that it may even fit a standard telephone jack.



Sneakily tucked away is this connector, which is, suprisingly, destined for a second keyboard or an Atari mouse. Neither of these plug-ins have yet been sighted, but watch this space...



Behind yet another neat sliding cover lies a 120-pin extension bus providing direct access to the CPU. An optional 120- pin adapter will allow you to plug in existing ST cartridges or dongles. This means that the true compatibility of software across the ST range is not impaired – even with plug-in dongles.

A NEW LEAF
ST BOOK

attitude that the ST was the best music computer around. The STacy gave them the ST's power in a portable form, even though they had to run it from the mains to get more than three hours of use. This wasn't truly portable...

CHAPTER ONE

The ST Book is, without doubt, very portable. Weighing in at a very healthy 2Kg (that's just two bags of sugar) and having some very sweet vital statistics (215 x 290 x 37mm), the Book certainly looks pretty sexy with a full, qwerty keyboard, a peculiar yet workable vector pad, and boasting a very reasonable entry level specification that seems to show that Atari has learnt from the failings of the STacy. For example, there is no battery-eating backlit screen, and the matt black casing is very pleasing to the eye and gives an overall impression of solid construction and more than just a passing thought about design. These, of course, are all superfluous details, but if ever a machine looked right then the Book does.

Of course, the real area where the Book will score above any competition is with the users themselves, and it's here that Atari has defined its market. The company has an existing user base within an already ebullient ST market. As the Book is fully compatible with the full range of "serious" ST software and will also accept ST data direct via the included internal communication package, it makes it a very easy machine onto which to download existing software. There is one market which, above all others, will need this facility, and Atari is targetting it first and foremost.

MUSICIANS ON THE MOVE

Atari argues that its immediate market for the Book rests, as it did for the STacy, with musicians on the move. Darryl Still, the UK marketing manager said, "There were perceived inherent problems with the STacy to do with battery life. This [the Book] corrects all those problems. The STacy was a very nice machine in concept. The Book should fully adopt the position that the STacy should have attained".

Whether the Book reaches that position remains to be seen, but with the cost of buying the hardware, it's reasonable to assume that only some end-users will be able to justify the price tag – luckily musicians are used to paying out high sums for their music hardware, and so the bitter pill should be far easier for them to swallow.

MADCAPS AND STUDIO MEN

Atari states that 3,000 to 5,000 STacys were sold in this country – to either musicians on the move or "madcap enthusiasts" and it is to this market that the company hopes to address itself once more with the ST Book.

Darryl Still, says he knows what the primary markets will be. "Musicians and music studios will be the primary markets until the ST becomes fully established as an all-purpose, word processing, database type of machine, which is happening quite quickly at the moment."

He also says that Atari is looking at the Book to make some inroads into the pre-press market, although the difficulties of running this memory-intensive software with its inherent problems seem to make the Book a very unlikely candidate. With the limitations of a 640 x 400 high res, LCD screen and only 512K of RAM, the best it could do is just a little playing around with medium-range DTP packages.

Exclusive: First Pictures Of The New ST Laptop

What Atari seems to have with the ST Book is a well-balanced product that looks like it will come into a musical consumer market – at a price that will be easily absorbed by its audience. The most comforting thing though, is that unlike the STacy, the Book will be able to compete with some of the mainstream portables, thanks to some rethinking and low-voltage circuitry. The improved battery life, coupled with the existing wide range of professional ST software, means that business-based mono programs can be used on it.

With the ability to use existing and familiar fully-featured high-end word processors, spreadsheets, databases and low-level DTP packages and the advantage of integral mouse operation the ST Book may not just hit its target market of 'musicians on the move' but could possibly even attract buyers from more commercial circles.

Atari seems to have produced the Book after having learned some expensive lessons. It remains to be seen just how expensive a lesson was learned by those that bought the not-so-portable STacy. Hopefully, they've not been too deeply scarred by their experience as the ST Book is without doubt an eminently portable ST.



THE PORTFOLIO – JUST FOR THE RECORD

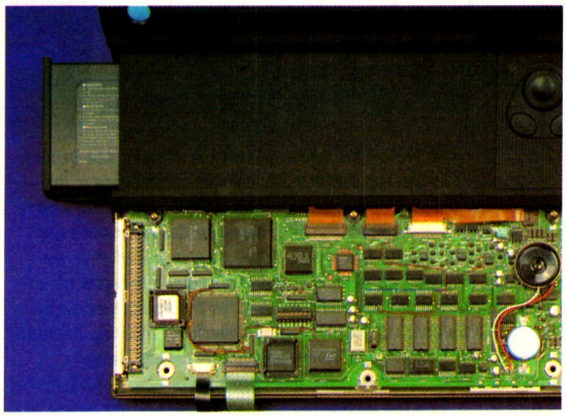
Atari is adamant that the Book shouldn't be branded an electronic organiser, as this is a market that it has already tried to address in this country, with limited success. The Atari Portfolio is the company's personal organiser and is a major departure from the ST range in that it runs MS DOS-style commands that you'd normally associate with PCs.

The reason for this is that when Atari decided to address the electronic filofax market, against stiff opposition from the Psion Organiser, it aimed it at the established business users who invariably needed compatibility with their workbound PCs. The Portfolio therefore came complete with five standard software packages – an Address Book, Text Editor, Calculator, Worksheet and Diary.

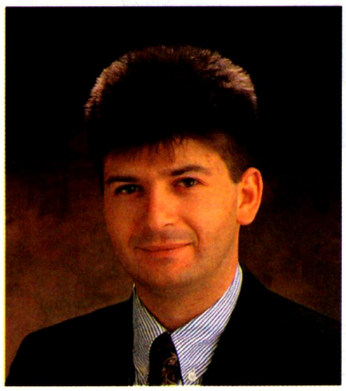
Packages that are built into the Book's chips will include: ST Trans – the transfer facility; battery management system (power off); and a desk accessory that will include a full-function scientific calculator and an electronic diary with alarms.



The power lead, RS 232 serial interface, parallel printer port, ASCII DMA port for external 3.5 floppy or hard disk and the all-important sub-miniature MIDI in / MIDI out ports.



The brain of the machine, and more controversially, the power-house in the top left houses the seven batteries – or in this case the NiCad rechargable batteries.



"The ST Book is beyond state-of-the-art for notebook computers. The emphasis on providing ST power in a machine small and light enough to be carried anywhere. Its portability and longer battery life make it ideal for people who need computing on the move." – Bob Katz, Software Development Manager, Atari.

THE ST BOOK

Although the Book will be available in several different configurations, this is the proposed specification for base-level models:

Processor:
Motorola 68HC000 running at 8MHz

Memory:
1 Mb (4 Mb memory will be available on higher specification models)

ROM
512K

Hard Disk:
40Mb, 19 ms access

Display:
Liquid Crystal monochrome (unlit)

Sound:
Three voices

Keys:
Standard qwerty plus 10 function keys

Mouse:
Built-in pressure-sensitive vector pad plus socket for planned optional Atari mouse.

Ports:
RS 232 to modem
Parallel printer port
Sub miniature MIDI in /MIDI out
ASCII DMA port for external 3.5 floppy or hard disk
120-pin expansion bus which means you can design your own hardware to fit it and use it to add peripherals; or by using a 120 to 40 converter you can plug in existing cartridges that use the cartridge port on the STs

Power:
9V Rechargeable NiCad battery pack supplied as standard which will run the Book for up to 10 hours depending on frequency of hard disk access. Complete with auto voltage-sensing powerpack which will fully recharge the batteries during two hours of use

Built-In Programs:
Scientific Calculator, Diary/Appointments, Address Book and ST Trans – a transfer utility for moving data via parallel ports between any of the ST family and even the TT.

Cost:
£1,299 including VAT

CITIZEN

DOT MATRIX INK JET AND NOTEBOOK PRINTERS

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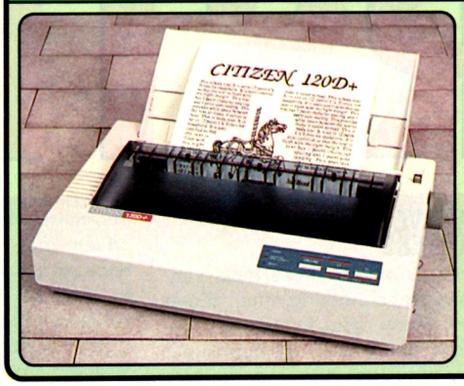
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- *4K Printer Buffer + 2 Fonts*
- *Parallel or Serial Interface*
- *Graphics Resolution: 240 x 240dpi*
- *Epson and IBM Emulation*
- *Pull tractor & bottom feed*
- *FREE Silica Printer Starter Kit*

£115
+VAT= £135.13 ref: PRI 2120

RRP £199
SILICA STARTER KIT £25
TOTAL VALUE: £224
SAVING: £109
SILICA PRICE: £115

The Citizen 120D printer comes supplied with a parallel interface as standard. If you require a serial interface instead, please state ref: PRI 2125 when placing your order with Silica.

9 PIN PRINTERS



300 CPS **80** COLUMN

- *Citizen Prodot 9 - 9 pin - 80 column*
- *300cps Draft, 60cps NLQ*
- *8K Printer Buffer + 3 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 240 x 240dpi*
- *Epson and IBM Emulation*
- *FREE Colour Kit*
- *FREE Silica Printer Starter Kit*

RRP £189
COLOUR KIT £41
SILICA STARTER KIT..... £25
TOTAL VALUE: £255
SAVING: £66
SILICA PRICE: £189

£189
+VAT= £222.08 ref: PRI 2319

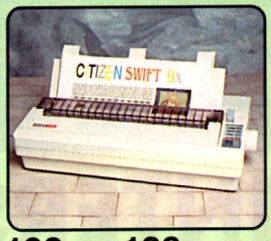


192 CPS **80** COLUMN

- *Citizen Swift 9 - 9 pin - 80 column*
- *192cps Draft, 48cps NLQ*
- *8K Printer Buffer + 3 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 240 x 240dpi*
- *Epson and IBM Emulation*
- *Colour Option available*
- *FREE Silica Printer Starter Kit*

RRP £239
SILICA STARTER KIT £25
TOTAL VALUE: £264
SAVING: £75
SILICA PRICE: £189

£189
+VAT= £222.08 ref: PRI 2209



192 CPS **136** COLUMN

- *Citizen Swift 9x - 9 pin - 136 column*
- *192cps Draft, 48cps NLQ*
- *8K Printer Buffer + 3 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 240 x 240dpi*
- *Epson and IBM Emulation*
- *Colour Option Available*
- *FREE Silica Printer Starter Kit*

RRP £329
SILICA STARTER KIT £25
TOTAL VALUE: £354
SAVING: £105
SILICA PRICE: £249

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+VAT= £292.58 ref: PRI 2309

24 PIN PRINTER



PRINTER + SOFTWARE + COLOUR

- *Citizen Swift 24e - 24 pin - 80 column*
- *216cps Draft, 72cps LQ*
- *8K Printer Buffer + 6 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 360 x 360dpi*
- *Epson, IBM & NEC P6 Emulation*
- *FREE Colour Kit*
- *FREE Silica Printer Starter Kit*
- *FREE Lotus AMI 1.2 Word Processor and DTP package*
- *FREE Adobe Type Manager V1.15*

RRP £369
COLOUR KIT £38
SILICA STARTER KIT £25
LOTUS AMI 1.2 WP/DTP PACKAGE ... £95
ADOBE TYPE MANAGER V1.15 (Fonts) £79
TOTAL VALUE: £606
SAVING: £337
SILICA PRICE: £269

£269
+VAT= £316.08 ref: PRI 2544

24 PIN PRINTERS

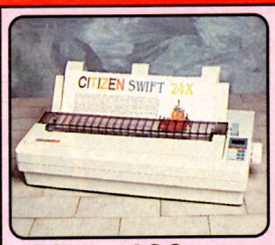


192 CPS **80** COLUMN

- *Citizen 224 - 24 pin - 80 column*
- *192cps Draft, 64cps LQ*
- *8K Printer Buffer + 4 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 360 x 360dpi*
- *Epson and IBM Emulation*
- *Colour Option Available*
- *FREE Silica Printer Starter Kit*

RRP £269
SILICA STARTER KIT £25
TOTAL VALUE: £294
SAVING: £95
SILICA PRICE: £199

£199
+VAT= £233.83 ref: PRI 2484



192 CPS **136** COLUMN

- *Citizen Swift 24x - 24 pin - 136 column*
- *192cps Draft, 64cps NLQ*
- *8K Printer Buffer + 4 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 360 x 360dpi*
- *Epson, IBM and NEC P6 Emulation*
- *Colour Option Available*
- *FREE Silica Printer Starter Kit*

RRP £489
SILICA STARTER KIT £25
TOTAL VALUE: £514
SAVING: £165
SILICA PRICE: £349

£349
+VAT= £410.08 ref: PRI 2574

INKJET PRINTER



360 CPS **80** COLUMN

- *Citizen Projet - inkjet - 80 column*
- *360cps Draft, 120cps NLQ*
- *50 Nozzle Head - Whisper Quiet 47dB(A)*
- *8K Printer Buffer + 3 Fonts*
- *Optional HP Compatible Font cards*
- *Parallel Interface*
- *Graphics Resolution: 300x300dpi*
- *HP Deskjet plus emulation*

RRP £496
TOTAL VALUE: £496
SAVING: £137
SILICA PRICE: £359

£359
+VAT= £421.83 ref: PRI 2090

NOTEBOOK PRINTER



64 CPS **80** COLUMN

- *Citizen PN48 Notebook Printer*
- *Non-impact Printing on Plain Paper*
- *53cps LQ - 4K Buffer + 2 Fonts*
- *Rear and Bottom Paper Loading*
- *Parallel Interface*
- *Graphics Resolution: 360 x 360dpi*
- *Epson, IBM, NEC P6 & Citizen Emulation*
- *Powered From Mains, Battery or Car Adaptor*
- *FREE Silica Printer Starter Kit*

RRP £325
SILICA STARTER KIT £25
TOTAL VALUE: £350
SAVING: £101
SILICA PRICE: £249

£249
+VAT= £292.58 ref: PRI 2100

FREE STARTER KIT WORTH £25 +VAT



FREE!

This starter kit will help you to get you up and running with your new dot matrix or notebook printer when you buy it from Silica Systems.

- *3½"Disk - Amiga & ST Drivers*
- *3½" Disk - Driver for Windows 3*
- *2 Metre Parallel Printer Cable*
- *200 Sheets of Continuous Paper*
- *100 Continuous Address Labels*
- *5 Continuous Envelopes*

ACCESSORIES

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PRA 1200 **120D** £71.38
PRA 1215 **120D/224/Swift 9/24** £88.70
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SERIAL INTERFACES
PRA 1189 **120D+** £56.45
PRA 1209 **Swift 9/9x/120D/224** £32.25
PRA 1709 **Swift 24/24x/24e** £26.38

32K MEMORY EXPN
PRA 1753 **120D/224/Swift 24** .. £13.10

PRINTER STAND
PRA 1242 **120D/224/Swift 9/24** £24.83
PRA 1274 **Swift 9X/24X** £30.66

ORIGINAL RIBBONS
RIB 3520 **120D/Swift 9 Black** £2.91
RIB 3949 **Swift 9/9x Black** £7.15
RIB 3924 **120D/Swift 24 Black** £4.70
RIB 3936 **224/Swift 9/24 Colour** £15.63
RIB 3248 **PN48 Single Strike** £3.61
RIB 3348 **PN48 Multi Strike** £3.61

COLOUR KITS
PRA 1236 **224/Swift 9/24/24e** .. £35.25
PRA 1240 **Swift 9x/24x** £35.25

PN48 ACCESSORIES
PRA 1148 **PN48 Battery** £51.70
PRA 1155 **PN48 Cable Extn** ..... £ TBC
PRA 1162 **PN48 Car Adaptor** ..... £ TBC

All accessories prices include VAT and free delivery

SILICA SYSTEMS OFFER YOU

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Before you decide when to buy your new printer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or help and advice. And, will the company you buy from contact you with details of new developments and products? At Silica Systems, we ensure that you will have nothing to worry about. We have been established for over 12 years and, with our unrivalled experience and expertise, we can now claim to meet our customers' requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest Free literature and begin to experience the "Silica Systems Service".

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LONDON SHOP:	Selfridges (1st Floor), Oxford Street, London, W1A 1AB	**Tel: 071-629 1234**	
Opening Hours:	Mon-Sat 9.30am-6.00pm	Late Night: Thursday until 8pm	Extension: 3914
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Address: .....

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Tel (Home): ..... Tel (Work): .....

Company Name (if applicable): .....

Which computer(s), if any, do you own? 55E

E&OE - Advertised prices and specifications may change - Please return the coupon for the latest information.

BURSTING T

Looking for a bubblejet printer, but don't know which one to buy? John Mallinson tests out a range of printers for all pockets. . .

HOW WE SELECTED THE PRINTERS

Buying a printer these days can be a pretty confusing affair: there are so many types to choose from – from dot matrix to bubblejet, daisy wheel to thermal transfer – and when you add to that the huge variety of features on offer and the vast differences in prices, it's not surprising that many consumers don't even know where to begin.

Our comparison test is designed to bring you practical, objective information on bubblejet printers, which are increasingly popular because of their high print quality, lack of noise and general value for money.



The printers we've selected are divided into three price bands. These are based on the manufacturers' Recommended Retail Prices and are intended as a rough comparative guide. If you shop around, you can expect to pay at least a third less.

Each printer was tested with several programs to gauge how well it worked with standard ST software, its ease of use, speed and print quality. For normal text output we used the popular ***First Word Plus*** and ***Protext*** word processors; suitability for desktop publishing was assessed with a test page from ***Calamus v1.09***; Marian's picture was scanned and printed with the ***ReproStudio*** graphics program.

BUDGET PRINTERS – UNDER £400

Inexpensive portable bubblejets can handle good quality word processing and home-based DTP. We check out the four most popular models





CANON BJ10EX

The "original" inkjet is still great value for money

When it was released in 1990, the BJ10e was the first really high-quality portable printer, and it hasn't been beaten yet. The 10ex (with Epson LQ compatibility) went on sale this year. A modified version of the original, it uses a 64-nozzle print head which produces 360 dots per inch (dpi).

Neat, sleek, and cleverly designed, it is just over A4 size and two inches thick, so it fits easily into a briefcase. Its normal working position is sitting flat on the desk; the top opens to reveal the paper-feed slot for single sheets and to provide a rest for the paper as it emerges. It can also stand vertically, supported by a flip-out foot, so that you can attach the optional sheet feeder or print envelopes through their own direct feeding slot. Envelope printing works very well: although the feeder only takes 30 sheets, it really is essential for any but the most occasional user.

You can run the machine from the external transformer which comes with the printer, or from the (optional) rechargeable battery pack which fits internally. Battery life is good for about 40 sheets after a 10-hour charge.

PUSH BUTTON

There are five push-buttons on the front to control paper positioning, print quality and size. Some have two sets of functions, so it can be confusing finding out which set is operative – a few more indicator lamps would help here.

The printer has two basic emulation modes: Canon Bubblejet (BJ) and Epson LQ, and with the former you can select either

HE BUBBLE

Canon or IBM compatibility. The printer works well in either mode, but there are significant differences – especially when you come to print graphics.

You make print mode changes and various other settings with DIP switches inside the machine. Unfortunately, the manual, like most, fails to explain the use of these properly.

The two print qualities, High Quality and Economy, are produced at the same rate, but the second uses less ink. Both produce good-looking and legible print. There are four built-in typefaces, but you can't use all of these at the same time. If the machine is set to BJ mode, you get Courier and Prestige, while in Epson mode you get the more attractive Roman and sanserif faces (the latter are functional faces, like the one used on these pages).

BJ mode allows two unusual features: printing in reverse (white characters on black), and printing onto a shaded background; but for reasons best known to Canon you can't print in italics. In Epson mode you can print outlined or shadowed characters and italics, something that most printers allow.

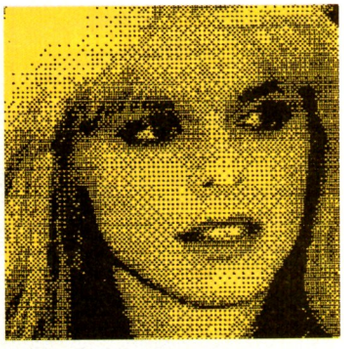
To the naked eye the print quality looks almost professional, and it's only with a magnifying glass that you can see that character outlines are a little irregular.

Graphics printing and DTP output in Epson mode are disappointing; here, BJ mode is distinctly superior in speed and quality.

This is an amazing little machine, especially when you remember that a couple of years ago a dot matrix printer with much inferior print would have cost about the same. ■



The Canon BJ10ex produces good quality Courier and sanserif typefaces and undistinguished proportional Roman. Adequate for letters, there's probably not enough variety for longer reports.



Excellent quality graphics mode printing from the BJ10ex. While it's good enough for small-scale DTP work, it's too slow for major productions.

PRICE (RRP ex VAT) : £345.00
INK CARTRIDGE (700,000 CHARS) : £17.99
RECHARGEABLE BATTERY PACK : £39.99
SHEET FEEDER (30 SHEETS): £54.00

"The first of its kind, and still not surpassed"

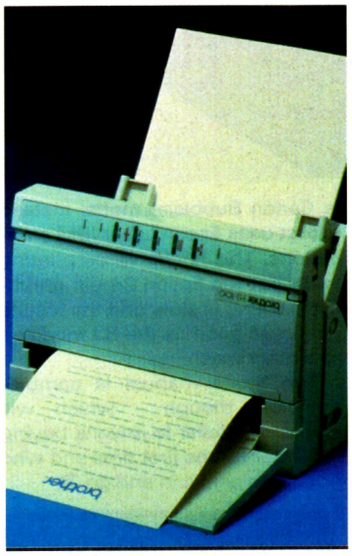
NAME: CANON BJ10 EX
COMPANY: CANON (UK) LTD
CONTACT: 081 773 3173

DESIGN	✪✪✪✪✪
CONSTRUCTION	✪✪✪✪✪
EASE OF USE	✪✪✪✪✪
PRINT QUALITY	✪✪✪✪✪
SPEED	✪✪✪✪✪
FLEXIBILITY	✪✪✪✪✪
INSTRUCTIONS	✪✪✪✪✪
VALUE FOR MONEY	✪✪✪✪✪

OVERALL **75%**

BROTHER HJ100I

Brother's compact printer rivals the BJ10ex for quality and performance

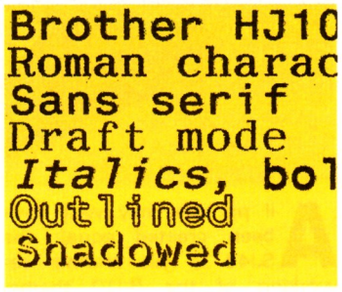


This is near identical to the BJ10ex. Whether you buy this or the Canon really depends on your taste in colour: the Brother comes in a cream casing, while the Canon is battle-ship grey. The switches on the control panel are also slightly different.

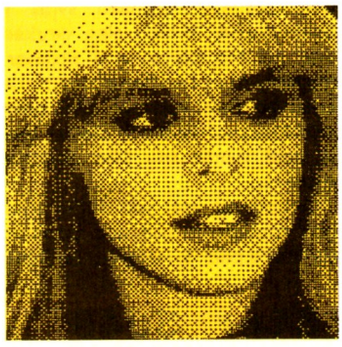
Its printer emulations are the same, although the Bubblejet mode on the Brother is called HJ100i mode. The internal typefaces have been changed, and the Brother's Roman typeface is more pleasant than the rather blocky Canon version.

The Brother also allows a small print size which gives a maximum of 160 characters across an A4 page as against the Canon's 136 – a feature which is useful for spreadsheets).

As you might expect, overall print quality and speed are exactly the same as the BJ10's. The manual is obviously based on Canon's but is differently arranged and easier to read. ■



The Brother HJ100i's Courier and sanserif faces are identical to the BJ10ex; the Roman is better formed, though still rather cramped.



The HJ100i's graphics are excellent and are indistinguishable from the BJ10ex.

PRICE (RRP ex VAT) : £345.00
INK CARTRIDGE (700,000 CHARS): £17.99
RECHARGEABLE BATTERY PACK : £39.99
SHEET FEEDER (30 SHEETS): £54
CARRYING CASE : £39.95

"Get this or the Canon, its a matter of taste"

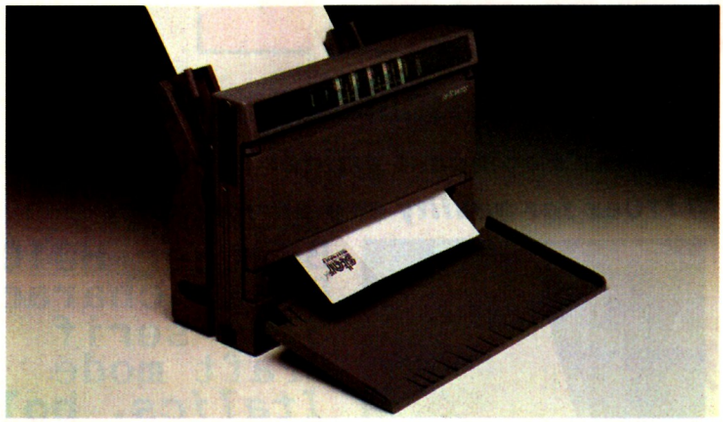
NAME: BROTHER HJ 100i
COMPANY: BROTHER (UK) LTD
CONTACT: 071 387 5060

DESIGN	✪✪✪✪✪
CONSTRUCTION	✪✪✪✪✪
EASE OF US	✪✪✪✪✪
PRINT QUALITY	✪✪✪✪✪
SPEED	✪✪✪✪✪
FLEXIBILITY	✪✪✪✪✪
INSTRUCTIONS	✪✪✪✪✪
VALUE FOR MONEY	✪✪✪✪✪

OVERALL **75%**

STAR SJ48

Star, the dot matrix printer experts, enter the bubblejet market. . .



All printers may well have been created equal: the SJ48 is yet another re-working of the BJ10 theme, although Star has given the SJ48 a slightly different control panel and a paler shade of grey.

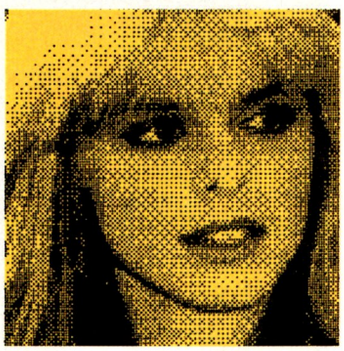
This was the only machine that was actually supplied with a sheet feeder, which also worked well on the Canon and Brother. It's easy to fit and has a slot in the back so that you can still print envelopes while it's in place – this is well worth the £54 optional extra tag.

Something that will ruffle your hair though, is the odd decision on Star's part to not give the SJ48 a Canon Bubblejet mode: instead it just uses Epson LQ or IBM emulations. This is fine when printing text, but the Epson 24-pin graphics printing is slow and the results aren't as good as the BJ mode on the other machines.

The Star's manual is comprehensible though – which will come as a relief to anyone buying a printer for the first time and who wants to plug it in and go. ■



The Star SJ48 offers only two typefaces. The roman and sanserif are very similar to the BJ100i's.



The SJ48's graphics and DTP print-outs are disappointing compared to the other two Canon-type machines, they were slow, with clogged-up grey tones.

PRICE (RRP ex VAT) : £345.00
INK CARTRIDGE (700,000 CHARS): £17.95
RECHARGEABLE BATTERY PACK: £39
SHEET FEEDER (30 SHEETS): £54.00

"Let down by graphics printing, otherwise excellent"

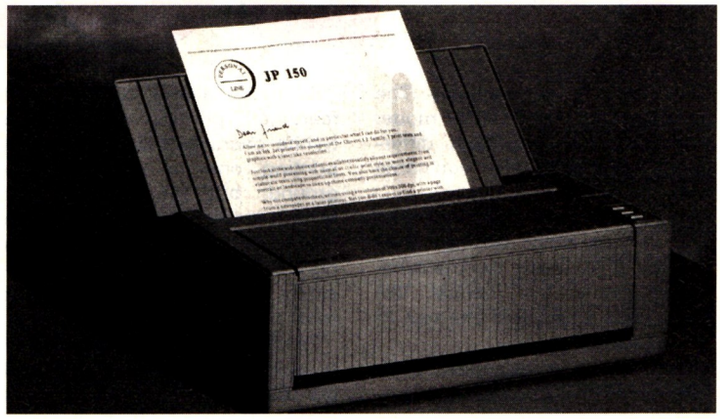
NAME: STAR SJ48
COMPANY: STAR MICRONICS UK LTD
CONTACT: 0494 471111

DESIGN	✪✪✪✪✪
CONSTRUCTION	✪✪✪✪✪
EASE OF USE	✪✪✪✪✪
PRINT QUALITY	✪✪✪✪✪
SPEED	✪✪✪✪✪
FLEXIBILITY	✪✪✪✪✪
INSTRUCTIONS	✪✪✪✪✪
VALUE FOR MONEY	✪✪✪✪✪

OVERALL **70%**

OLIVETTI JP150

It does seem rather dull – but looks can be deceptive. . .



Quite a different machine from the others in this group. If you sawed the print trays and control panel off an HP DeskJet you would end up with the JP150 – a slightly oversized grey shoe box based on the Hewlett Packard print engine.

The top of the box opens up and extends to form a paper rest. The front flips down to make a rather inadequate shelf for loading single sheets, which you poke in through a slot. As with the Canon BJ300 there's only a single paper guide here, so it's fairly easy to put the paper in crooked.

The machine seems very underpowered in terms of flashing lights with only a power switch and three control buttons. But just wait until you look inside. There, in a row across the machine, are 33 (count 'em) selectors – all much bigger and easier to use than other printers' DIP switches which they replace. My initial reaction was one of horror, but on second thoughts this arrangement actually makes the printer simpler to use than most. There is a fashion to have lots of buttons and flashing lights on printers nowadays (as on hi-fi systems), but many of them are unnecessary and just confuse the user.

The JP150 has three typefaces, Courier, Times Nordic, and Letter Gothic (sanserif) which are handsome examples of their kind. The Courier can be used in either portrait or landscape orientation, but only at one size (12 point), the other two can be printed at six or 12 points.

ESSENTIAL EXTRA

There is one slot which accepts cards for extra fonts, memory, or added emulations. Another more essential extra is a cut sheet feeder which holds 70 sheets and fits under the machine – unfortunately several urgent calls to Italy didn't get one for us to test.

The Olivetti's HP emulation makes it work with any ST application that has a DeskJet or LaserJet printer driver. In best quality printing mode it's slightly slower than the other three in our budget group, but has a useful draft mode which is much faster.

PRICE (RRP ex VAT) : £339.00
INK CARTRIDGE (700,000 CHARS) : £14.50
RECHARGEABLE BATTERY PACK : £69.00
SHEET FEEDER (30 SHEETS) £90.00
FONT CARDS : £61-90
128/256k RAM CARD : £TBA

"Strong competition, although less neat. Needs its optional sheet feeder"

NAME: OLIVETTI JP 150
COMPANY: OLIVETTI
CONTACT: 081 785 6666

DESIGN	✪✪✪✪✪
CONSTRUCTION	✪✪✪✪✪
EASE OF USE	✪✪✪✪✪
PRINT QUALITY	✪✪✪✪✪
SPEED	✪✪✪✪✪
FLEXIBILITY	✪✪✪✪✪
INSTRUCTIONS	✪✪✪✪✪
VALUE FOR MONEY	✪✪✪✪✪

OVERALL **80%**

When printing from ***First Word*** there was a 30-second delay before anything happened. However, this did not occur with ***Protext***, so it must be a problem with ***First Word***'s printer driver, rather than with the machine .

Easy to use, despite the clumsy single sheet feeding arrangements, this printer is very compact and quiet. Don't be put off by its rather dull external appearance. ■



The Olivetti JP150 offers the best typefaces in this price range. A large range of extra font cards makes it pretty versatile, but at over a minute a page it's still slow.



The graphics from the Olivetti printer are of very good quality, generally outperforming most of the competition, but it's too slow for serious DTP work.

GROUP SUMMARY

None of these four are heavy-duty printers, nor are they fast: they're excellent for letters and so on, but not designed for long print runs or lengthy documents. Print quality is good enough for small amounts of DTP work.

Canon recommends a work rate of 100 pages a month, and the ominous sounding MTBF (mean time before mechanical failure) is reckoned to be 6,000 pages. This would apply to the Brother and Star too. Olivetti gives an MTBF of 10,000 pages. By comparison, a laser printer at five times the price is designed to cope with 16,000 pages a month!

All three Canon-type machines are very compact and portable, cheap and good value for money. The differences between the Canon and Brother are very minor: the former looks more handsome, the latter has a better Roman font. The Star is disappointing, slower and not-so-good at graphics printing; even having a manual that I could understand doesn't make up for those deficiencies.

The Olivetti shoebox is small enough to be moved around easily but isn't a truly portable printer. Single sheet feeding isn't as easy as with the others. It has the best internal typefaces, a landscape printing option, and lets you expand its internal memory and add more fonts. Although graphics printing is at 300, rather than 360, dpi the quality is as good as from the others, although output is slower.

MID-RANGE MODELS – £400-£500

For this sort of money you'll get a bubblejet that's suitable for small office work. Unsurprisingly, all of these printers, bar the Canon, are based around the Deskjet. . .





HP DESKJET 500

Hewlett-Packard's mid-priced bubblejet offers excellent value-for-money. . .

I first bought a DeskJet in 1989. Along with the Canon BJ10, it has been responsible for popularising bubblejet printers. The 500 model is faster than its predecessors, has better fonts and improved graphics printing.

The DeskJet is inexpensive for what it offers, and the price has fallen to half what it was when I bought one. Another good thing about it is that you can use all the major programs on the ST with it. In fact, if you can't find a DeskJet printer driver, you can use one for the LaserJet (a very different machine, but it understands the same commands).

'Architectural' is the word that springs to mind with this printer. The bottom storey is the cut-sheet feeder, the first floor is the tray for collecting paper, and the attic houses the print mechanism. Power and printer cables plug in underneath – awkward to do, but nothing sticks out at the back. Conveniently placed on the front

are the on/off and DIP switches. The control panel has eight buttons and lights to show you what is happening.

The print quality is superb, both from the internal fonts (Courier, Letter Gothic, Times) and when printing in graphics mode. Rasters (areas of even tone) often turn out stripey on inkjets and dot matrix printers: the DeskJet was the best in this respect, although Marian came out better on the Fujitsu and Citizen. ■

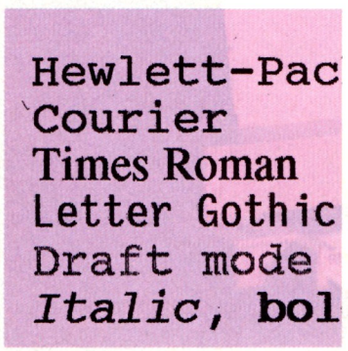
PRICE (RRP ex VAT) : £449.00
INK CARTRIDGE (500,000 CHARS) : £13.00
INK CARTRIDGE (1,000,000 CHARS) : £21.00
EPSON/IBM EMULATION CARTRIDGE : £60.00
FONT CARTRIDGES : £60-£106.00
128K RAM CARD : £134.00

"Fast, good value printer with excellent results"

NAME: HP DESKJET 500
COMPANY: HEWLETT-PACKARD
CONTACT: 0344 360000

DESIGN	★★★★★
CONSTRUCTION	★★★★½
EASE OF US	★★★★½
PRINT QUALITY	★★★★★
SPEED	★★★★½
FLEXIBILITY	★★★★½
INSTRUCTIONS	★★★★½
VALUE FOR MONEY	★★★★★

OVERALL **90%**



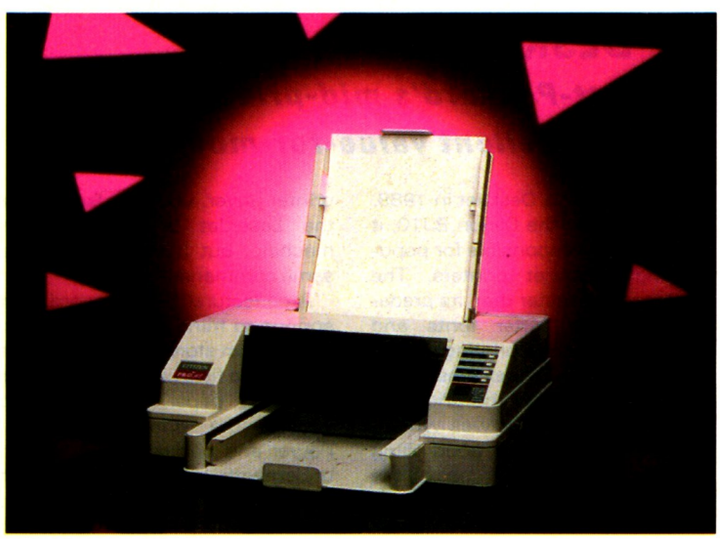
The Deskjet 500's Courier, Times and Letter Gothic are the same as with the other four Deskjet-based machines. The DJ500's Times looks better than the others, but there's very little in it. The print is fast enough for most work, and it has a superb range of font cartridges.



The Deskjet 500's graphics printing is excellent overall, although it is slightly more striped than the Projet and B200. If you need better quality than this, you have to pay three times as much and get a laser printer.

CITIZEN PROJET

This Citizen printer aims to be versatile...



Citizen has a good reputation for its cheap but excellent dot matrix printers and so it's clear that the company can't go far wrong by choosing to model their first bubblejet on the DeskJet.

The sharp lines of the DeskJet have been rounded and squashed to give a less angular appearance. Its clean look is broken up by a paper-loading cassette sticking out of the roof. This is ungainly but practical: the paper exits into a tray at the front (as with the DeskJet).

As optional extras you can fit a tractor feed mechanism or a second, cut-sheet bin underneath the printer – neither were available for testing on this or the Fujitsu which has the same arrangement. There are two slots for plug-in memory, emulation or font cards.

The control panel has four buttons and a four-position selector switch, giving four sets of functions to each button – not a DIP switch in sight.

When you move the selector, the labels against the buttons are changed so that their new functions are obvious. I like this simple way of doing things.

Simplicity even permeates the three printing qualities and speeds: letter quality, draft and high-speed draft.

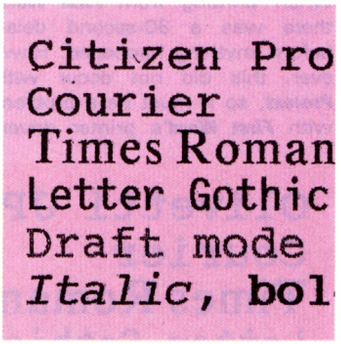
All of these are fastest when used with the Projet's internal typefaces – Courier, Times Nordic, Letter Gothic, and a special font for the high-speed draft mode – these are all clean and good-looking.

Font selection is from software or from the control panel, and you should have no difficulties with software incompatibility.

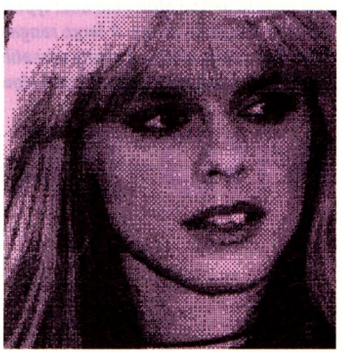
The Citizen gives good quality print and is adequately fast. In addition, the sensible and versatile paper feed arrangements and a well thought-out control panel make this an easy and enjoyable mid-priced printer to use. ■

In appearances the Citizen Projet is a rounded version of the Hewlett Packard DeskJet 500. Its simplicity makes it a treat to use.

PRICE (RRP ex VAT) : £446.00
INK CARTRIDGE (500,000 CHARS) : £14.50
SECOND SHEET FEEDER : £125.00
TRACTOR FEED: £80.00
EPSON/IBM EMULATION CARDS : £TBA
FONT CARDS : £60-£106.00
128/256K RAM CARD : £134.00



The Citizen Projet has very good internal fonts and a useful high-speed draft mode. Its host of extra font cards makes it an incredibly flexible tool, suitable for most types of work that you'd expect a printer of this price to do.



Graphics printing on the Projet is significantly slower than on the DeskJet, making it reasonable for everyday use, but areas of even tone are less stripy. Nevertheless, the overall quality of output from this machine is superb, making it one of the best buys of all in this month's consumer tests. . .

"Fast, good value printer with excellent results"

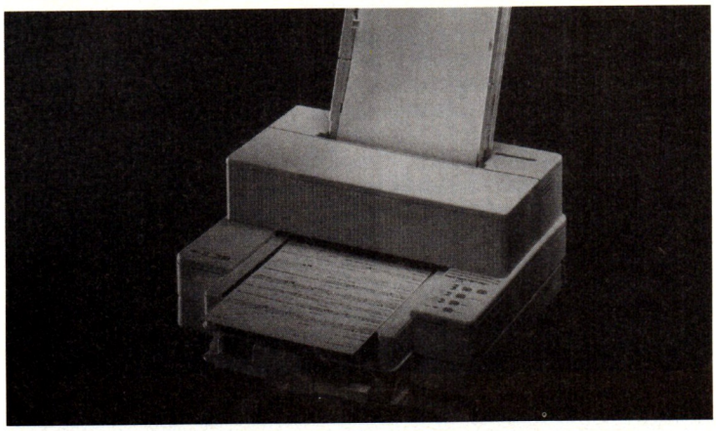
NAME: CITIZEN PROJET
COMPANY: CITIZEN EUROPE LTD
CONTACT: 0895 272621

DESIGN	★★★★½
CONSTRUCTION	★★★★½
EASE OF US	★★★★½
PRINT QUALITY	★★★★½
SPEED	★★★★½
FLEXIBILITY	★★★★½
INSTRUCTIONS	★★★★½
VALUE FOR MONEY	★★★★½

OVERALL **86%**

FUJITSU B200

Fujitsu has produced a Projet clone. . .



B200 – could that stand for Bubblejet 200 perhaps? No. 'B' here stands for 'Breeze' and whilst it may be poetic in Japanese, in English it sounds more like a cleaning spray than an excellent printer.

This machine is very similar to the Citizen – essentially looking like a DeskJet with its corners rounded off.

The paper feed arrangements are the same, in fact all the optional extras seem identical. The only significant difference is in the design of the control panel: the B200 uses a layout like the DeskJet's but with odd little rubber pimples for switches. The B200 boasts four slots, two of which are obviously for font cards, but the other two of which remain a mystery. The Fujitsu and Citizen are identical in fonts, performance and print quality.

This is an excellent machine, with good-quality output and reasonably priced accessories, but there's little more to say – I've said it all before when describing the DeskJet and Citizen! ■



The Fujitsu B200 produces the same fonts as the Projet and the Olivetti JP150.



The B200's graphics are of exactly the same quality as the Projet.

PRICE (RRP ex VAT) : £499.00
INK CARTRIDGE (500,000 CHARS) : £13.00
SECOND SHEET FEEDER : £115.00
TRACTOR FEED: £70.00
SERIAL INTERFACE: £70.00
EPSON/IBM EMULATION CARDS : £90
FONT CARDS : £61.00
128/256K RAM CARD : £180-£125.00

"Near-identical to the Projet — look at them both"

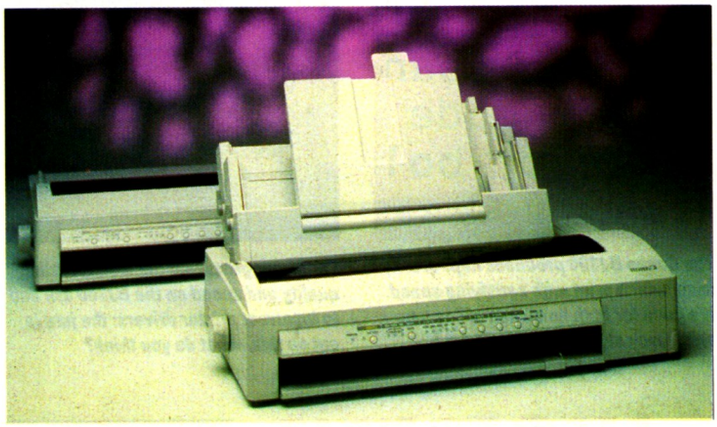
NAME: FUJITSU B200
COMPANY: FUJITSU EUROPE LTD
CONTACT: 081 759 0005

DESIGN	✪✪✪✪✪
CONSTRUCTION	✪✪✪✪✪
EASE OF USE	✪✪✪✪✪
PRINT QUALITY	✪✪✪✪✪
SPEED	✪✪✪✪✪
FLEXIBILITY	✪✪✪✪✪
INSTRUCTIONS	✪✪✪✪✪
VALUE FOR MONEY	✪✪✪✪✪

OVERALL 85%

CANON BJ300

A very happy mix of speed and quality. . .



After the DeskJet this machine looks distinctly conventional, but it is nicely styled and well-made, featuring emulation modes for the IBM Proprinter and Epson LQ series.

The control panel sits along the front; below it is a slot for loading single sheets, and you also get a tractor feed device for continuous stationery.

A cut sheet feeder (which we haven't tested) is an optional extra: it sits on top of the machine and you can add a second bin so that you can swap between different types of paper at the press of a button.

The ink reservoir is not part of the print head as you would usually expect, but instead it fits in a chamber in the body of the printer. This allows a larger ink volume and cheaper cartridges, which should in theory make printing costs cheaper than on the HP-type machines.

Paper position, typeface and size can all be adjusted with the control buttons, whilst an extra button (which is only effective in Proprinter mode), entitled "Lock out" locks any font or size settings that you make on the panel. This prevents your word processor from over-riding them – a particularly useful feature.

This printer has three built-in typefaces (Courier, Prestige and Gothic) which can be printed in a variety of styles, including outlined and shadowed, reversed and shaded - all these extra styles are very useful, but you need to make sure that your word processor will let you use them.

Normal text printing is fast and there is a high-speed mode which gives excellent quality at the rate of three pages a minute.

Graphics printing and output from ***Calamus*** are disappointing, though – the results don't match the standards of the baby Canon, and it has the added disadvantage of taking longer to print. I discussed this at length with Canon who blamed the printer drivers that I was using. They were probably right.

The BJ300 is an excellent, well-made machine which prints text fast and well, but I was disappointed that I couldn't get better DTP and graphics performance.

Nevertheless, it's useful for both home and office work, and if the delays we encountered were caused by the printer drivers, performance would be improved. ■

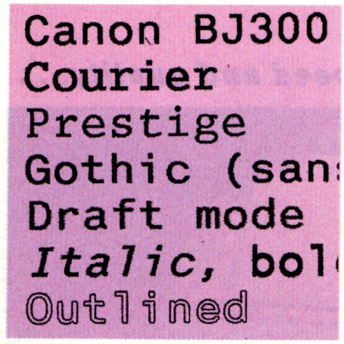
PRICE (RRP ex VAT) : £499.00
INK CARTRIDGE (1,000,000 CHARS) : £13.00
SHEET FEEDER : £135.00
SERIAL PORT: £100.00
FONT CARDS : £95.00
128K RAM CARD : £170

"Fastest text printing at its price but with questionable graphics printing"

NAME: CANON BJ3OO
COMPANY: CANON (UK) LTD
CONTACT: 081 773 3173

DESIGN	✪✪✪✪✪
CONSTRUCTION	✪✪✪✪✪
EASE OF USE	✪✪✪✪✪
PRINT QUALITY	✪✪✪✪✪
SPEED	✪✪✪✪✪
FLEXIBILITY	✪✪✪✪✪
INSTRUCTIONS	✪✪✪✪✪
VALUE FOR MONEY	✪✪✪✪✪

OVERALL 88%



The Canon BJ300 produces high-quality fonts which print with satisfying speed. It's good for both home and office use, with many styles to choose from.



Canon suggests that the disappointing quality and speed on the BJ300 are due to incorrect printer drivers: the jury is out on this, what do you think?

GROUP SUMMARY

The BJ300 is the fastest of the group when it's just a question of churning out text, but it's let down as a general-purpose machine by its poor graphics printing.

Hewlett-Packard really makes life difficult for its competitors. The DeskJet is the fastest machine for complex DTP output, second fastest in the group for text. Moreover, although our prices don't show this, you'll probably find that it's the cheapest to buy in the shops as good discounts are to be had. HP's ink is cheaper too, but you can fit the HP cartridges to the other machines.

Choosing between the Citizen and Fujitsu is largely a matter of visual taste. I liked the look of the Fujitsu better, but preferred the Citizen's control panel arrangements. Their only advantage over the DeskJet is that you can fit a second cut sheet feeder or tractor feed, a vital feature if you're planning to use it for really long printing jobs.

HIGH END PRINTERS – £600 AND OVER

When the going gets tough, you need to spend more money on a more robust printer. . .



BROTHER HJ770

The only large printer on test



Testing this machine was not a pleasure. It took an hour of staring at the manual before I could understand how to change the DIP switch configurations and the innumerable settings that can be made from the control panel. A poorly written manual did not help: in fact I was surprised to find that the machine is quite straightforward to use once everything is set up.

This printer has a whole host of options: four different emulations (HP DeskJet, Brother, Epson LQ and IBM), six internal typefaces (Roman 1 & 2, sanserif 1 & 2, Brougham, Letter Gothic) and numerous print enhancements (shadowed, reversed, outlined, shaded). Unfortunately, you're unlikely to find printer drivers that can really make the most of these fonts. ■

The HJ770 is a wide carriage (A3) printer, the only one tested – this explains its high price. It comes with tractor feed and single sheet arrangements, and there is a cut sheet feeder available. There are two slots for memory or font cards.

360 into 300 doesn't go – at least that is my conclusion after using this machine in its DeskJet mode. The HJ770 is a 360dpi printer, while the DeskJet produces 300dpi: for the one to emulate the other takes some mathematical jiggery-pokery in dot positioning which doesn't really seem to work .

All my DeskJet mode graphics printouts had what looked like tartan patterns on what should have been even areas of tone. The Epson mode graphics were better, and the text was fine.

Brother HJ7
Courier
Letter Gothic
Brougham
Draft mode
Italic, **bold**,

The Brother HJ770's text printing is very high quality and fast. It has nice internal fonts, but you won't find the printer drivers to use many of them.



Graphics printing on the HJ770 is fast, but even experimenting with the various emulation modes didn't produce the expected good results. This actually highlights a problem with STs. When buying a printer you must make sure that the software that you will be running has printer drivers that are compatible with either your printer of the various emulation modes available.

PRICE (RRP ex VAT) : £749.00
INK CARTRIDGE (1,000,000 CHARS) : £13.00
SHEET FEEDER : £145.00
SERIAL PORT: £100.00
1MEMORY CARD : £170
FONT CARDS : £95.00

"Fast and good value, but not a pleasure to use"

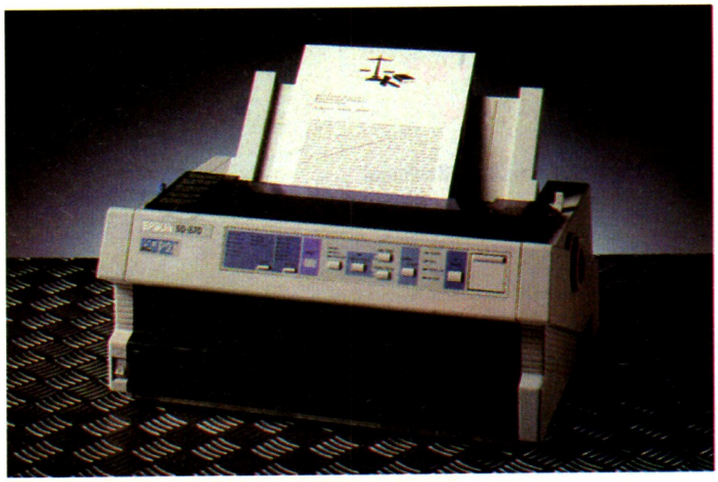
NAME: BROTHER HJ770
COMPANY: BROTHER (UK) LTD
CONTACT: 071 387 5060

DESIGN	✪✪✪✪✪
CONSTRUCTION	✪✪✪✪✪
EASE OF USE	✪✪✪✪✪
PRINT QUALITY	✪✪✪✪✪
SPEED	✪✪✪✪✪
FLEXIBILITY	✪✪✪✪✪
INSTRUCTIONS	✪✪✪✪✪
VALUE FOR MONEY	✪✪✪✪✪

OVERALL **70%**

EPSON SQ870

This one comes with scalable fonts and is simple to use



This is a monumental beast: big, heavy and impressive — and is certainly the noisiest machine tested. It is plainly designed as an all-purpose office machine, with tractor and single sheet feed, optional second tractor and cut sheet feeder.

I had no problems in setting up and using it: the small collection of DIP switches is conveniently placed on the front, as is the on/off switch – by the way, why do so many computer and printer manufacturers think that we enjoy groping round the back of their machines to get at the main switch?

The control panel is clearly laid out with ample indicator lamps to show what is happening: typefaces and print pitch can be selected from here.

The printer has an impressive range of internal typefaces – Courier, Prestige, Orator, Roman, sanserif, and two scripts (italic fonts). Most of these are only available in one size, but the Roman and sanserif can be used at any size between eight and 32 points.

Scalable fonts have been available for laser printers for some time, but not, until now, for inkjets. The printer fonts on the other machines are in one or two fixed sizes only; a scalable font should print perfectly at any size within the specified range.

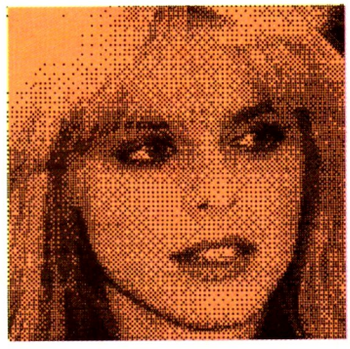
What this means is that the Epson SQ870 provides a very flexible and versatile system. There is only one real drawback, at least as far as ST owners are concerned, and that is that there is no word processor at present which can access the SQ's scalable fonts – the printer drivers are not available.

This printer is fast, both for text and in graphics mode. Its large print buffer also means that when printing text the computer is free sooner than any of the other machines. This is an important consideration, particularly in an office where there may be other people queuing to use it.

Although the text quality is very good, the graphics output doesn't really measure up. As it stands at present you can't realise anything like the full potential of this printer with an ST, which is a shame. ■

Epson SQ870
Roman
Sans serif
Courier
Prestige
Script
ORATOR

The Epson SQ870 produces a superb range of internal fonts, including two scalable faces. It's very fast, but at present it's inadequately supported by printer drivers.



The SQ870's graphics printing is quick, but not of the highest calibre.

PRICE (RRP ex VAT) : £659.00
INK CARTRIDGE (: £29.00
SHEET FEEDER : £189.00
SERIAL INTERFACE: £36.00

"Fast, simple-to-use, very well engineered, and with excellent fonts"

NAME: EPSON SQ870
COMPANY: EPSON (UK) LTD
CONTACT: 0442 61144

DESIGN	✪✪✪✪✪
CONSTRUCTION	✪✪✪✪✪
EASE OF USE	✪✪✪✪✪
PRINT QUALITY	✪✪✪✪✪
SPEED	✪✪✪✪✪
FLEXIBILITY	✪✪✪✪✪
INSTRUCTIONS	✪✪✪✪✪
VALUE FOR MONEY	✪✪✪✪✪

OVERALL **82%**

GROUP SUMMARY

Impressively fast and full of functions, these machines are designed for the office. Although the Brother performs well and is cheap for what it offers, the SQ870 is better designed and much easier to use. It is also relatively more expensive – the wide carriage version of the Epson (the SQ2250) costs nearly £200 more than the Brother. (The cheapest wide carriage bubblejet is the Canon BJ330 – a stretched BJ300).

Consider one of them if you need to produce page after page of invoices with little fuss. If you want to do DTP work, a laser printer won't cost much more and will achieve better results.

BUYERS GUIDE

At the end of the day how do the ten bubblejets compare?

Printer	Canon BJ10ex	Brother HJ100i	Star SJ48	Olivetti JP150	HP DeskJet 500
Size in cm (h,w,d)	4.75, 31, 21.6	4.75, 31, 21.6	4.75, 31, 21.6	11.5, 34.2, 14.7	20.2, 44, 37.7
Weight (kg)	1.8	1.8	1.8	2.9	6.5
Resolution	360dpi	360dpi	360dpi	300dpi	300dpi
Memory	37K	37K	37K	8K	16K
Emulation [1]	EP, I, C	EP, I, C	EP, I	HP, EPX*, I*	HP, EPX*, I*
Typefaces	4	4	4	3	3
Paper feed [2]	SS, SF*	SS, SF*	SS, SF*	SS, SF*	SF
Interface [3]	P	P	P	P	P, S
Memory cards	-	-	-	128/256K	128/256K
Font cards	-	-	-	15	13
Speed (cps) [4]	83	83	83	80/160	120/240
A4 text page	1'23"	1'21"	1'22"	1'06" /44"	49"/34"
DTP page	3'35"	3'15"	7'47"	4'09"	1'40"
Graphic	1'04"	1'05"	1'14"	1'03"	58"

Printer	Citizen Projet	Fujitsu B200	Canon BJ300	Epson SQ870	Brother HJ770
Size in cm (h,w,d)	14.7, 42.5, 45	14.7, 42.5, 45	13.7, 45.8, 34.7	20.5, 49.2, 32.5	13.7, 59.2, 34.7
Weight (kg)	9	9	6.9	9.5	9
Resolution	300dpi	300dpi	360dpi	360dpi	360dpi
Memory	8K	8K	30K	128K	64K
Emulation [1]	HP, EPX*, I*	HP, EPX*, I*	EP, I	EP	EP, HP, I
Typefaces	4	4	3	9	6
Paper feed [2]	SF, TR*	SF, TR*	SS, TR, SF*	SS, TR, SF*	SS, TR, SF*
Interface [3]	P, S*	P, S*	P, S*	P, S*, L*	P, S*
Memory cards	128/256K	128/256K	128K	-	128K
Font cards	14	15	4	-	1
Speed (cps) [4]	120/240/360	120/240/360	150/300	200/550	150/300
A4 text page	1'01/44"/36"	55"/43"/35"	31"/18"	34"/18"	46"/36"
DTP page	2'40"	2'32"	5'8"	1'43"	1'20"
Graphic	1'15"	1'04"	1'01"	56"	58"

* optional extra

1 HP=Hewlett-Packard DeskJet/LaserJet, EP=Epson LQ, EPX=Epson FX, I=IBM Proprinter, C=Canon Bubblejet

2 SS=single sheets, SF=sheet feeder, TR=tractor

3 P(arallel), S(erial), L(ocaltalk)

4 manufacturers' rating

WHICH ONE IS THE ESSENTIAL BUY?

There are no duds here, and the quality of printed text is very good across all of them

- Cheapest – baby Canon/Brother/Star. (The Olivetti has the lowest RRP but isn't discounted quite as much.)
- Best budget printer – baby Canon/Brother, Olivetti JP150
- Fastest – Epson SQ870
- Best built – Epson SQ870
- Most portable – baby Canon/Brother/Star
- Most convenient (without buying optional extras) – HP DeskJet 500/Citizen Projet/Fujitsu B200
- Best for word processing – HP DeskJet 500/Canon BJ300
- Best for DTP – HP DeskJet 500
- Best all round - HP DeskJet 500

SOFTWARE

The software mentioned in this article is available as follows. . .
First Word Plus from GST on 0480 496666
Protext from Arnor on 0733 68909
Calamus from Halco on 0734 441525
ReproStudio from System Solutions on 0753 832212
Fontswitch from the ST Club on 0602 410241

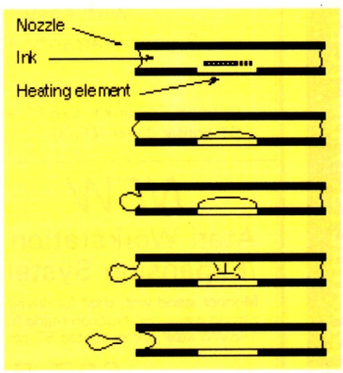
Bubblejet and dot matrix printers (DMPs) both produce copy as a series of very small dots on the page. A DMP does this by firing needles from the printer head at the paper through a ribbon, the bubblejet by spitting out minute ink droplets. . .

The story goes that a scientist in Canon's labs in the early '70s touched a hypodermic needle with a soldering iron and noticed that ink splattered out of the needle. 15 years later, this led to the first thermal bubblejet printers.

The print head has a vertical row of up to 64 nozzles, each finer than a human hair, fed from an ink reservoir. In the wall of each nozzle is a resistor which heats up to 300-400°C when a pulse of electricity is sent to it. The ink vaporises (1) to form small bubbles, which merge into a larger one (2, 3), and set up a pressure wave that forces a blob of ink out of the end of the nozzle (3, 4, 5). The vapour bubble contracts as it cools and more ink is sucked from the reservoir into the nozzle. This cycle can repeat itself about 4,000 times a second with no moving parts to slow things up. Compared to older bubblejet printers, this 'thermal bubblejet' technique (called 'Bubblejet' by Canon) is faster and much more precise. Most machines have a single unit which contains both the ink reservoir and print head, so both get replaced at the same time.

Bubblejet manufacturers used to make claims such as "Laser printer quality at dot matrix price". I haven't seen that written for a while, which is probably because it's not true. The print quality of these machines is very good indeed, but not as fine or sharp as on a decent laser. The print resolution (number of dots per inch) may be the same or higher than on most laser printers, but the dot size is larger and the edges of characters or lines are slightly rougher.

Inkjets used to need special paper. They don't these days, although it's still worth experimenting with different weights and surfaces.



Blowing bubbles. . . how a bubblejet works. . .

ARE BUBBLEJET PRINTERS BETTER – OR JUST DIFFERENT?

Compared to the older and more widely used dot matrix printers there are advantages and disadvantages with bubblejets. . .

- Because it is firing pins at the paper the DMP is noisy. Bubblejets are 'non-impact printers' and much quieter, although they're not silent, as some ads would have you believe.
- The dots produced by an bubblejet are smaller than those of a DMP so that, on the whole, they produce finer print.
- Several bubblejets have a built-in cut sheet paper feeder, which is very convenient.
- Bubblejets have fewer moving parts so may be more reliable.
- Bubblejets cost more to run (typically about 3p per page), as their ink cartridges are more expensive than a DMP's ribbon.
- DMPs can be used with multi-part stationery, or to make carbon copies – bubblejets can't.
- Most inkjets use water-soluble ink which may smear if it gets wet. (Hewlett-Packard produces a waterproof ink).
- There are many different arguments both for and against bubblejets – they have a mixed use. Yet manufacturers see bubblejet sales increasing at the rate of half a million machines a year in Europe, and this will be largely at the expense of dot matrix printers.

PLUG IN AND GO

We all want a printer that we can bring home from the shop, take out of its box, and connect to the ST with the minimum of fuss. There are a couple of considerations...

WIRING IT UP

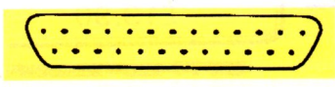
You can make the actual computer-to-printer connection in two ways. On the back of your ST are two sockets marked 'Printer' and 'Modem'. These are also known as the parallel (or Centronics) and serial ports; either can be used to hook up a printer, although many printers these days only have a parallel socket. The internal connections of these ports are different, they work in different fashions, and they need different cables.

In a parallel cable there are eight wires for transferring data –. eight 'bits' of data can be sent to the printer at the same time (in parallel). Only one wire is used for data in the serial connection, so the transfer is limited to one bit at a time and is correspondingly slower. This difference is especially significant where large amounts of information have to be sent – for example when printing graphics.

The disadvantage of parallel connections is that if the cable is longer than one and a half to two metres the signals may become weak or corrupted. Serial cables can be much longer (up to 30-40 metres), and they're a little cheaper.

Apart from slower data flow, the problem that people have with serial connections is in trying to get the computer and printer to talk to each other properly. You have to make a variety of settings with your ST's Control Panel accessory and the printer's DIP switches to adjust the rate of data transfer and how it is controlled ('handshaking') - they can be troublesome to get right.

It's best to avoid serial printer links. The parallel route is much simpler to use, and cables don't need to be specially made up for the ST.



The parallel (or Centronics) port: 25 pins for sending and controlling the flow of data, although many are not needed.

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KXP1170 9pin	134
KXP1124i 24pin	227
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Star

LC10 Mono 9pin	135
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LC24200 Mono 24pin	219
LC24200 Colour 24pin ..	275

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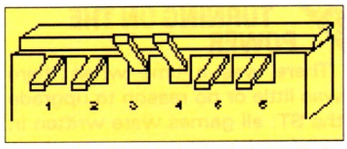
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DIPPING YOUR TOE IN

I've always harboured a deep hatred for DIP switches. They are the little switches that are sent from hell to ruin your day. They're invariably hidden in the most inaccessible part of your printer which is devilishly annoying as they are used to set up your printer's operations. They are more properly known as 'dual in-line package switch assemblies', hence DIP. If you ever have to spend half a day trying to find them you may have your own little 'pet' word for them.

Usually there is a bank of about a dozen, sometimes more and this is what they look like in their earthly guise.



A set of DIP switches, known optimistically as a bank.

Printer manuals are generally very bad at explaining in clear English what they do. Typical gobbledygook is: 'DIP switch 1 has eight data switches and eight bits are assigned to these switches (bit 1 through bit 8)'. This is a serious problem: your printer may have lots of clever functions that you can never discover because you simply can't understand the manual.

Typically, DIP switches control the printer emulation, use of the parallel or serial port, character set, paper length, sheet feeder on/off, the codes sent to signal the end of a line of text, and more. My advice is 'don't fiddle'. Try out the printer and, if it doesn't do what you think it should, then refer to the manual (or your dealer, or the printer manufacturer's help line) to fathom out the necessary changes. Several of the printers reviewed here have done away with DIP switches – I regard that as a great step forward.

EMULATION IS THE SINCEREST FORM OF FLATTERY

Your printer can transform itself into another make. . .

The major printer manufacturers (Canon, HP, IBM, Epson) have set standards that others follow. If you read that a printer has 'Epson emulation' it doesn't mean that its physical design is based on an Epson model; it is able to receive and understand the language that is sent to an Epson printer.

When a word processor is sending a file to your printer it has to send not only the characters of the text, but also other special sequences of characters which tell the printer how it should be printed. By sending these sequences you can switch bold or italics on and off or change to a different type size . You sometimes see these codes referred to as 'Escape' codes – 'Escape' being one special character which often comes first to tell the printer that what follows is a command rather than something to be printed.

It would be too simple if there were one standard set of codes. An Epson printer (or one that uses Epson emulation) will use different codes from an HP printer to do the same thing .For example: to change letters to italics, the Epson control code is Esc 4, while the HP control code is Esc (s 1 S.

Fortunately, not every manufacturer has invented its own code system: most use or modify standards set by the big four. But it can still be difficult to match your software to your printer.

Your word processor, graphics or DTP program will come with a selection of printer drivers. The driver is an additional piece of software that translates what the program wants the printer to do into codes that it can act on. Word processor printer drivers are usually text files which you can modify yourself; the necessary codes will be found in the reference or programming section of the printer manual.

CHECK LIST

SEVEN POINTS TO GET YOU GOING

- ❑ Read the 'Getting Started' section of the printer manual.
- ❑ Unpack the machine, carefully removing all the sticky tape and polystyrene bits.
- ❑ Fit the ink cartridge.
- ❑ Release the print head (if it has a lock).
- ❑ Plug into the mains; hook up to your ST, preferably using the parallel connection.
- ❑ Turn on the printer, then turn on your computer. The DeskJet and Canon BJ300 need to be switched on before the ST: if not the computer may not recognise them.
- ❑ Take a test drive. You could print a text file by double-clicking it on the Desktop, or load your word processor, select the correct printer driver and print out a file.

All's well? Good. If not, I'm afraid you'll have to read the manual. The most common problems are with incorrect DIP switch settings or with printer drivers.

If you keep having difficulties, get advice from the shop where you bought your printer – one reason for buying from a dealer who knows the ST and the printer, rather than a box-shifting mail-order outfit.

EXPANDING YOUR PRINTER

Here's how to get into some really advanced printing

All of these printers, as the various tables show, have a variety of optional extras – a sheet feeder being one of the most useful of these. I certainly prefer a sheet feeder, and if you're using the printer for business then it is an absolute must.

There are several things you can do if you don't like the internal fonts on your printer, or want a special typeface. The simplest, but not the cheapest, option is to buy a plug-in font card or cartridge. Most cards have several additional typefaces which you can use either by changing settings on the printer or by sending commands from your word processor. The two problems here are that your word processor may cancel font changes you make on the printer's control panel, and it may not have the special printer drivers to let you change fonts from within the program. Make sure that you will be able to use them fully before buying what could be a fairly expensive white elephant.

A cheaper way is to 'download' fonts to your printer. Fontswitch is the best known program for doing this on the ST. The additional fonts are stored on disk and the program lets you send one from there to be stored in the printer's memory and used instead of the usual printer font. The advantage of this system is that Fontswitch is an inexpensive utility and the range of public domain fonts that you can use is large, cheap and constantly growing.

You'll have noticed that many printers have optional memory expansion cards. There are two reasons why you might want to get one: to increase the available room for downloading fonts and to enlarge the print buffer size. When data is sent to the printer it fills up the printer's memory area (known as the buffer); as printing proceeds the memory gradually clears, leaving room for more data to come from the computer. With a large memory buffer in your printer, your computer will be able to finish sending the data long before the printer has had time to print it. You will be able to get on with something else and the printer will go on happily churning out the contents of the buffer till the job is done.

Although a big buffer will free up your computer more quickly when printing text, it will have no effect when printing graphics or DTP work because the volume of data to be sent is so enormous. You would need a buffer of several megabytes to make a difference here.

Don't rush to buy more printer memory just because it's there. Many word processors are able to use an area of the computer's memory as a buffer, and there are accessories which will let you do this if your WP doesn't.



It's all very well having the power of the ST at your fingertips but with increasingly sophisticated programs utilising more and more memory, isn't it about time that you finally took the plunge and brought yourself up to the magic Megabyte minimum?

So you've always meant to upgrade your machine, haven't you? But you've never got round to flexing your ST's muscles because you've never felt the inclination to wing your way around the motherboard with a red-hot soldering iron, i case something goes horribly wrong.

Well, the good new is that these days it's much easier to upgrade your ST, without having to worry about ruining your whole computer.

The latest memory upgrades are just about the cheapest they've ever been. While 520STFM half megabyte upgrade kits still cost around £60 – because they have to include pieces that enable them to be fitted to a range of models – the news for STE owners is much better.

Thanks to a general fall in the price of RAM chips, plug-in upgrades for the STE are much cheaper than for the STFM and start at around £20 for the first 520K upgrade supplied on two 256K boards.

TURNING ON THE POWER

There was a time when there was little or no reason to upgrade the ST; all games were written in 520K and word processors all ran comfortably within that space, with some room to spare for even the biggest of dictionaries.

Times have changed though, and with the speed, sophistication and power of contemporary software, most programs are now asking for one megabyte of memory – the best games now seem to demand more memory, and all reasonable DTP programs either run only on 1024s or have a reduced amount of font sizes and/or facilities in order to run on 512s.

THE MEMORY MAN

There are many manufacturers of memory boards, so prices can vary enormously across a range of sizes and specifications. If anyone tells you that all memory upgrades are the same, don't take their word for it.

Some boards may be cheaper than others, but if you're fitting the extra memory yourself, you will need to be sure that there will be useful technical back-up and no-nonsense money-back guarantees.

In our short-term project, we've used a Frontier Xtra-RAM board, which is one of the best boards available for the ST, and more importantly one of the easiest to fit with all the necessary bits and pieces supplied along with technical back-up.

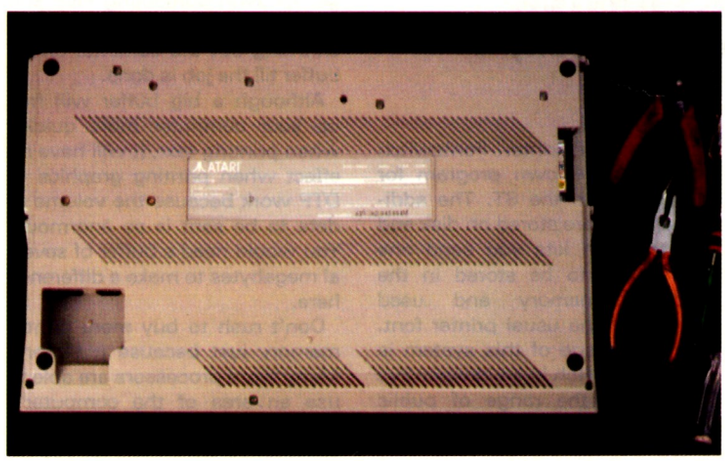
So if you're really serious about using your machine to its full capacity, follow our simple step-by-step guide and upgrade now!

BOOST YOUR PERFORMANCE

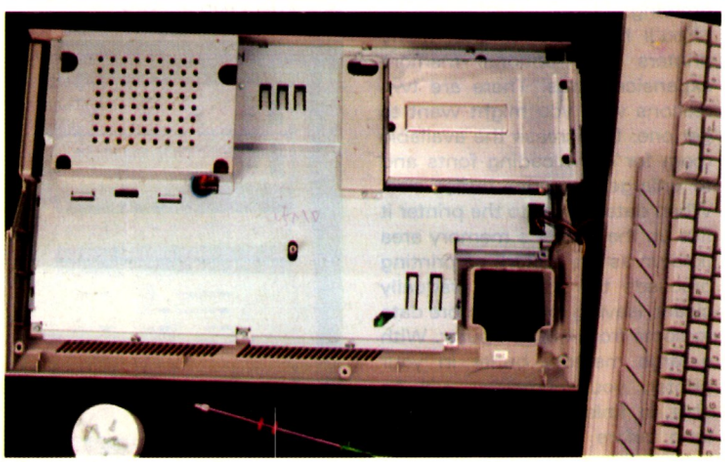
CHECK LIST

Before you start opening up your machine, here's a list of things that'll make your job just a little easier. . .

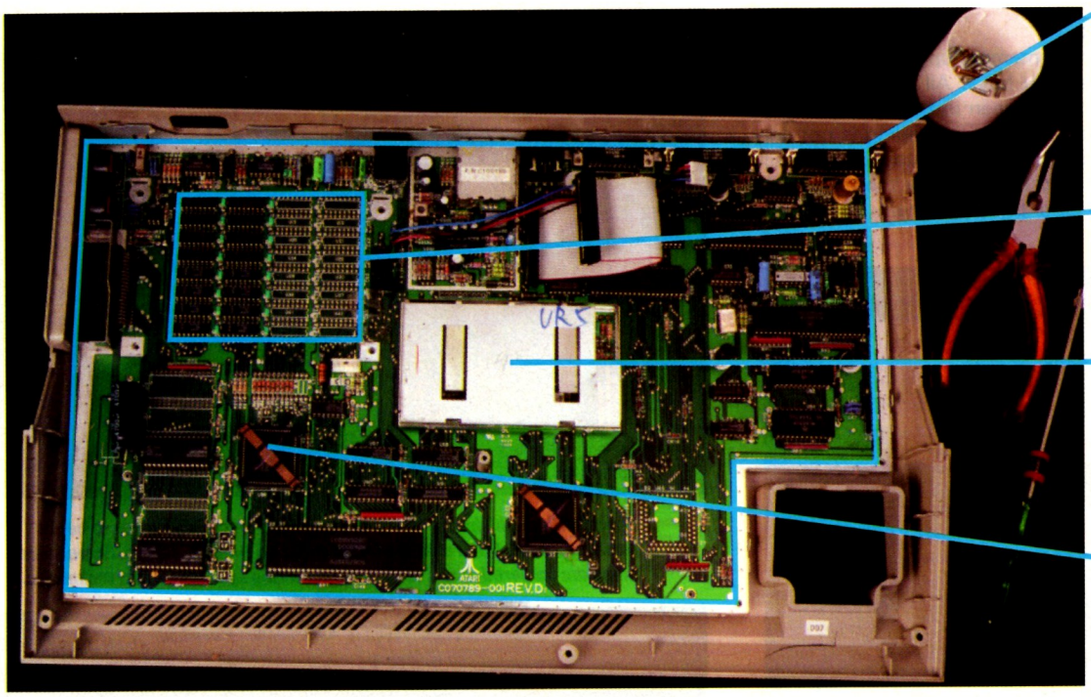
- **a crosshead screwdriver – we used one that holds the screws to the head; useful when putting screws back into awkward places. A magnetic one would be okay too but be careful not to touch any chips with it. . .**
- **a pair of fine-nosed pliers**
- **some wire cutters or strong scissors**
- **a container to keep removed screws in**
- **a well-lit, flat surface to work on**
- **a little bravery. It's really not that hard a job to do – a bit of confidence and good instructions are all you need**



1 To start with, just turn over your ST. On the back of the machine are 10 screws, three of which are larger than the rest in the top left-hand corner of our photograph. Remove the seven smaller screws and then carefully turn the computer over again. You should be able to remove the lid now by lifting up the left-hand side and then carefully wiggling it over the disk drive button. Make sure that there's no disk in the drive when you do this as the button sticks out further, making removal more tricky. Lifting the lid away from the base leaves the keyboard loose on top of the metal casing.



2 Remove the keyboard by carefully unplugging the connecting lead. When you remove the connecter, hold it by the plastic base and pull evenly – don't twist. Next, remove the small metal panel to the left of the disk drive, to uncover the power lead and ribbon connector. Carefully turn the computer over and remove the last three screws – they're the biggest ones and hold the floppy drive. Support the disk drive from the other side and turn the computer over again. Unless you have a single-sided drive, it should be a simple case of removing the small power clip and ribbon cable from the end. You can now remove the disk drive.



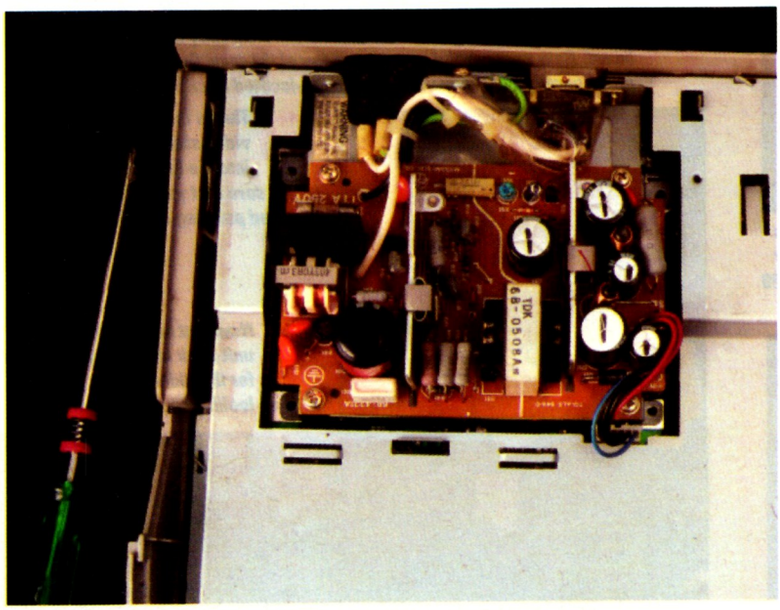
4 *The Motherboard. This is basically the whole of the Printed Circuit Board board (PCB) into which all of the various chips plug in. As all the circuits are surface mounted, scratching the board with a screwdriver is always a bit of a no-no.*

And here are the guts of an STFM 520. You can see the memory chips in the top-left of the board in two banks of eight. The space to the right would be filled too on a 1040.

The interesting place for us, though, is the bright, shiny box with UR5 written on it. This houses the video shifter which takes the information from the Random Access Memory chips and converts the information into something that you can understand on screen.

This is the MMU chip (memory management unit) upon which you will have to attach a 'piggy back' new chip.

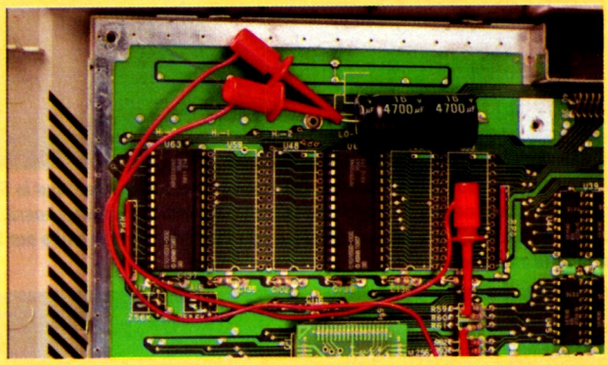
A STEP-BY-STEP GUIDE TO ADDING EXTRA MEMORY

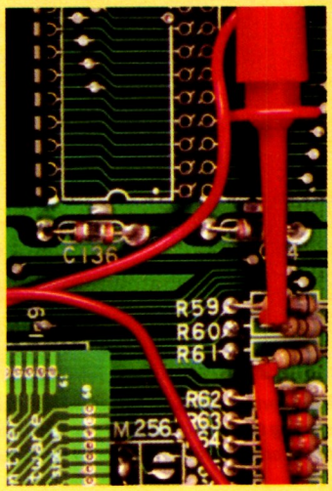


3 *Now we move to the power transformer or power unit – which is found at the top-left of the computer, housed within a metal casing. Take this off by removing the two screws and then bending the metal lugs. Now take out the power unit by removing the two screws bottom-left and right. DO NOT REMOVE the other two crosshead screws on the board. The powerboard is now only held in place by two L-shaped feet, located top-left and right of the board. The best way to remove these is by using a normal screwdriver. Put the flat edge of the screwdriver under the board and lever it upwards, pulling out the L-shaped feet from the board in which it is located. Now the whole transformer needs to be wiggled out of its hole. Special attention should be paid to the power lead port which has to be pushed back into the case before the powerboard will come out. Now straighten all the metal lugs that hold the metal cover on and then lift the metal cover off.*

If you want to upgrade your STFM beyond that magic Megabyte, you'll probably have to cut a couple of wires...

Once you break open your ST, it's worth remembering that if you have an STFM, and if you want to populate the machine memory beyond one Mb, it will require a little wire cutting. The ST's memory controller looks for two banks of Random Access Memory chips labelled 0 and 1. Depending upon which MMU you have, the two banks either have to be balanced (ie have the same amount of memory in them) or not.



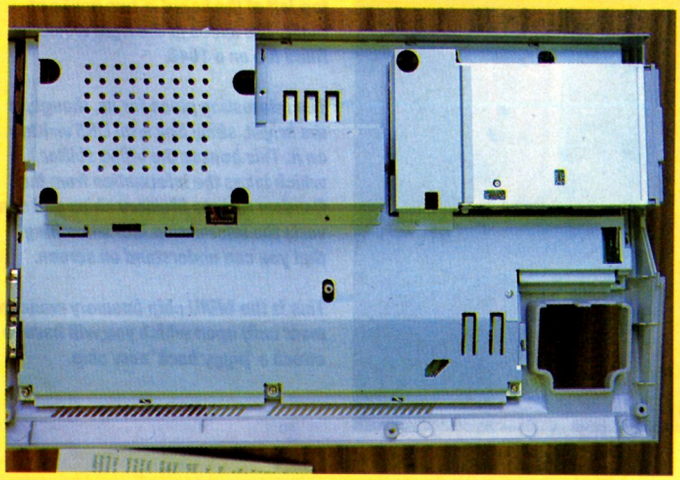


Because our Frontier board had a full four Mb board we had to put the 512K bank of chip "to sleep". This is done by using leads (as supplied with our board) which attach easily to correct bits. These are the imaginatively named R60 and R61.

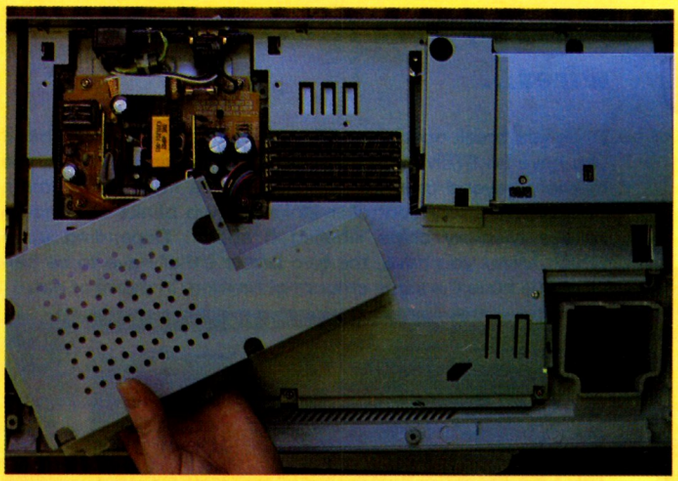
In the mandatory close-up (left) you can see where the cutting is done. If you have any doubts when it comes to snipping, get in touch with the supplier of your upgrade – a phone call now could save you a heavy repair bill later.

EASY UPGRADES FOR THE STE...

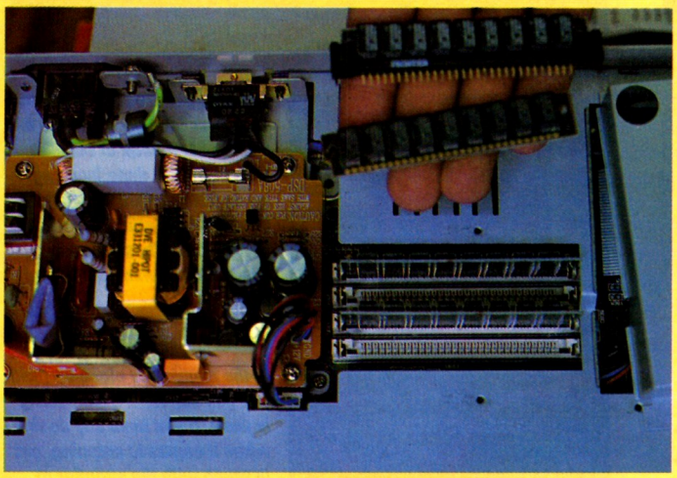
There are two types of chips used in ST memory upgrades depending upon what version of the computer you have. All STFM machines involve a certain amount of headache as seen in the 'Step-by-Step' for STFMs. But, for the lucky owners of STEs, upgrading is not only cheaper, but also very straightforward. Memory is supplied on easily plugged-in boards – all you have to do is to specify the amount of memory you want, buy the chips and then slot them in. Nothing could be easier.



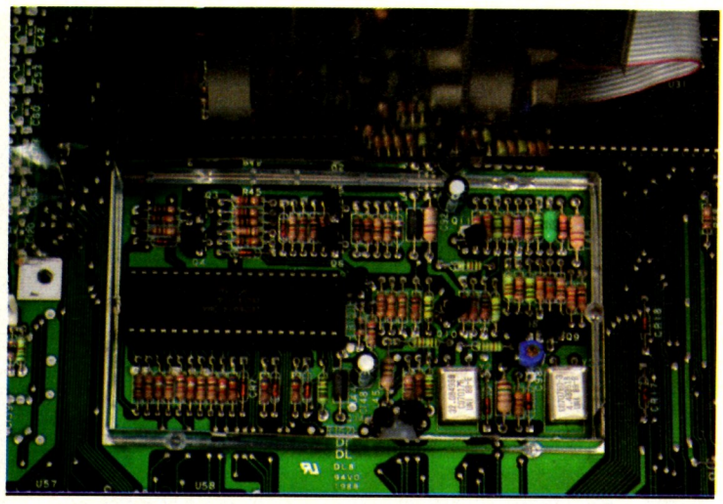
An STE with its clothes off looks very similar to its baby brother the STFM. But the differences become apparent once you remove the strange, L-shaped power unit cover...



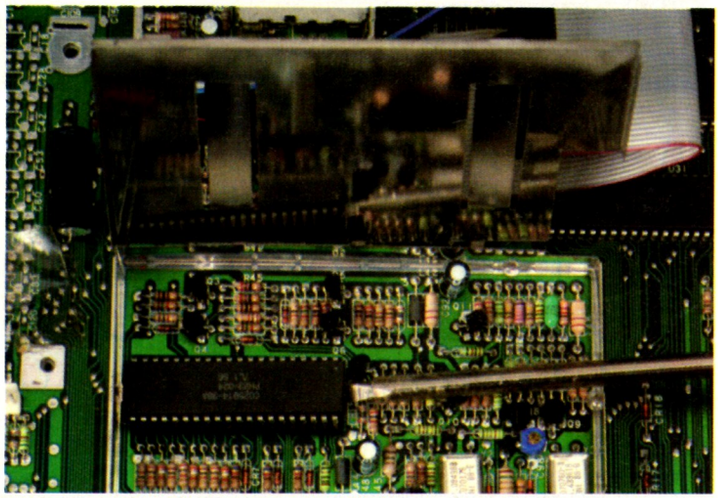
This is the most obvious difference. Memory sits not on the board but in SIMMs chips that come on slot-in boards that simply plug into the existing board. In our photo, we've fitted two extra 256K chips into the spare slots to make our STE 520 a one Mb machine.



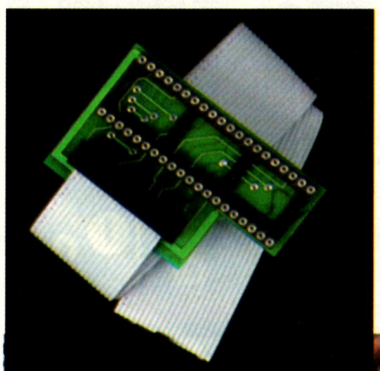
Two empty slots and two 256K SIMMs cards to fit in. We removed the disk drive cover to give us more room when slotting the new cards in. If you have a 520 STE, we can supply these two cards for only £15.50. See page 59 for details...



5 *Open the lid of the box to reveal the video shifter chip. This has to be removed and re-fitted onto the board supplied (picture seven). Some video chips are soldered in and require de-soldering by a competent technician.*

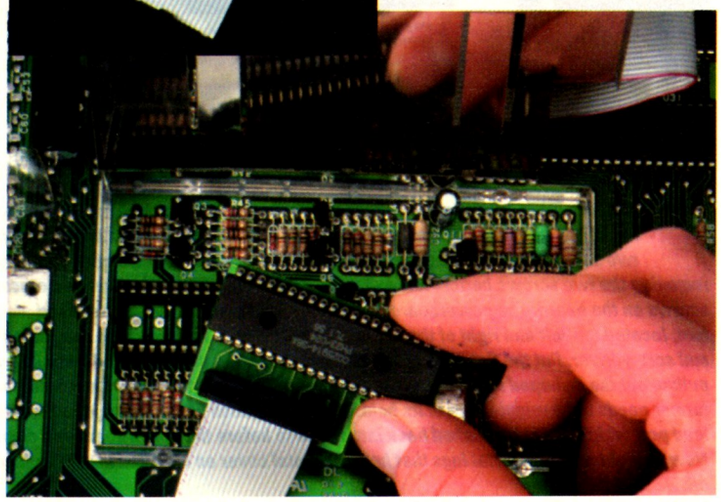


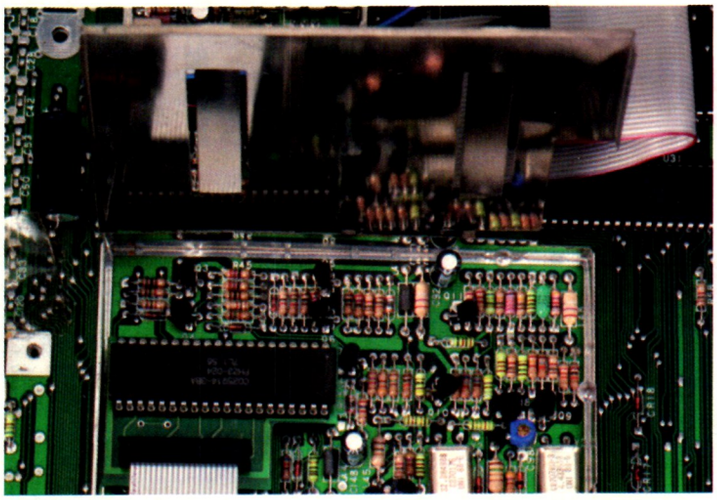
6 *Note the video shifter chip's orientation before gently levering it out of the board. Bew very careful not to bend any of the legs. Once attached to the new board (picture seven), it must be re-located back here as it was.*



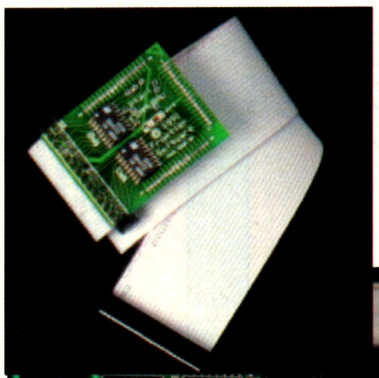
7 *This is the new home for the video shifter chip. It plugs into the holes on the board (make sure that you fit it with the ribbon lead pointing down).*

8 *Now just replace the whole unit back in the original space for the video shifter so that it ends up looking like picture nine...*



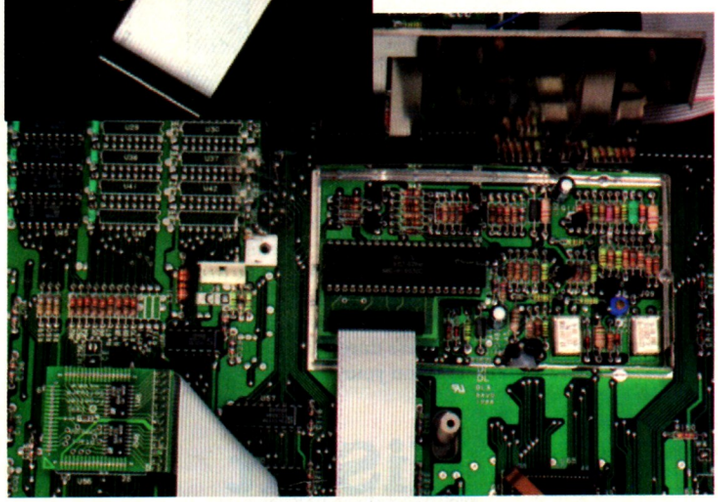


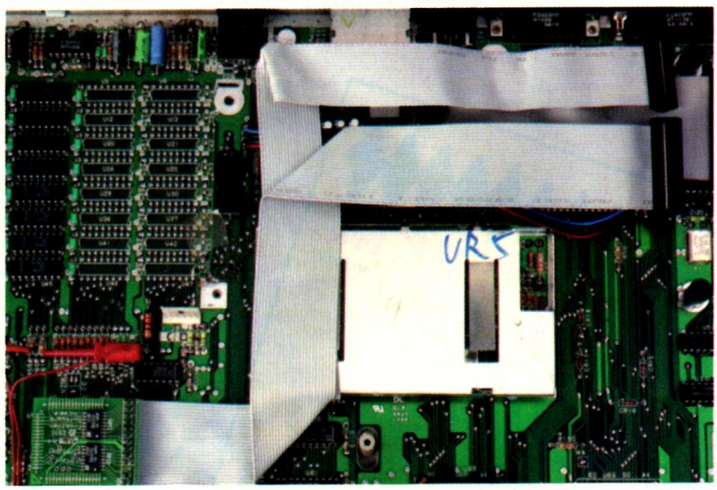
9 ...the new unit in place. The video shifter chip should have exactly the same orientation as it had before. The only difference is that the new circuit board is in place between the motherboard and the original video shifter.



10 This is the piggyback chip – you simply plug this chip in over the old one. In this case, you just align the number '1' on the new chip with the '1' on the ST's motherboard.

11 With everything plugged in the right way around it should end up looking like this.





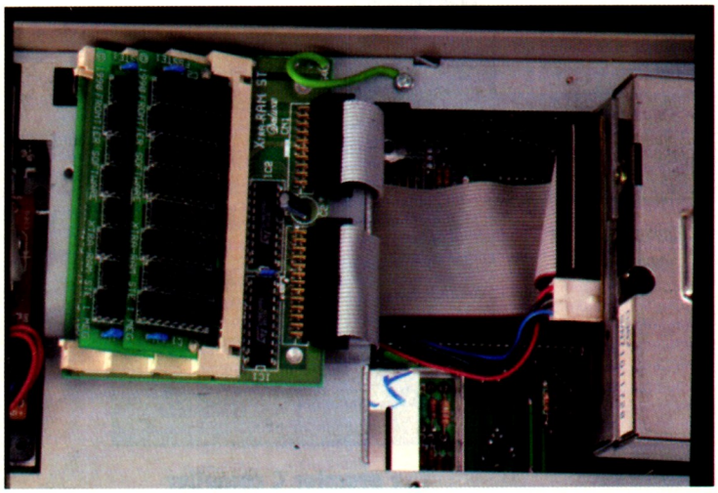
12 This is the best way to route the cables. The narrower lead from the video shifter chip has been folded back on itself and over the metal box that houses it. Route the cable so that it passes to the right of the two screw holes, then fold it through 90° without turning the ribbon over. The wider lead from the MMU chip should be folded twice to run underneath the narrower, video shifter lead so that both of the ribbons will plug easily into the memory board.

SUPPLIERS

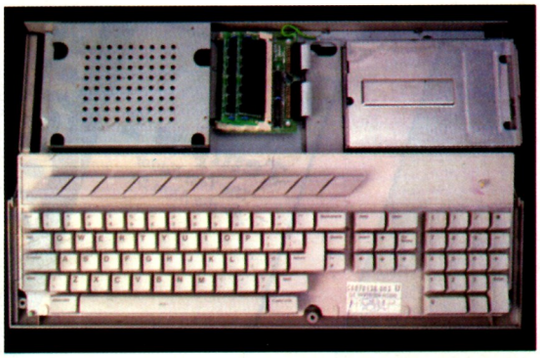
Here are the suppliers for extra memory and their prices

COMPANY	TEL	UPGRADED TO...	PRICE:
Softmachine:	091 510 2666		
Deluxe (upgradable SIMMS boards)		STFM 1.0 Mb	£ 59.99
		2.0 Mb	£ 99.99
		4.0 Mb	£159.99
Standard (non-upgradable)		STFM 1.0 Mb	£ 44.99
		STE 1.0 Mb	£ 29.99
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		4.0 Mb	£169.99
		STE 1.0 Mb	£ 44.99
		2.0 Mb	£ 89.99
SOFTWARE SOLUTIONS	071 252 7775	STFM 1.0 Mb	£89.95
		2.0 Mb	£129.95
		4.0 Mb	£199.95

(Software Solutions prices include fitting, VAT and Frontier boards).



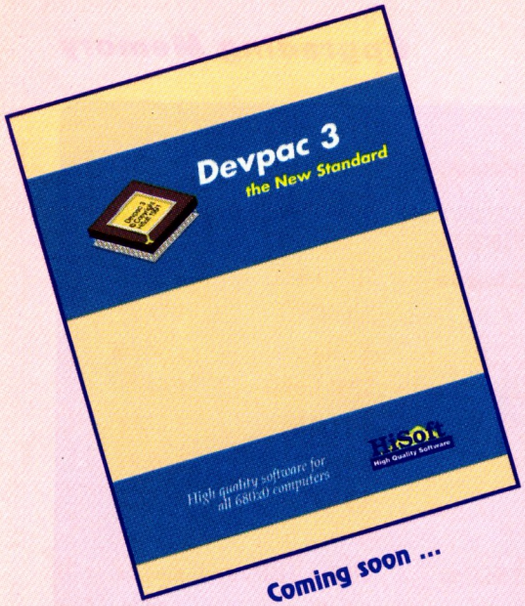
13 And here is the memory board. The Frontier board that we use has four lovely SIMMs slots and the board that we had supplied was populated with two Megs.



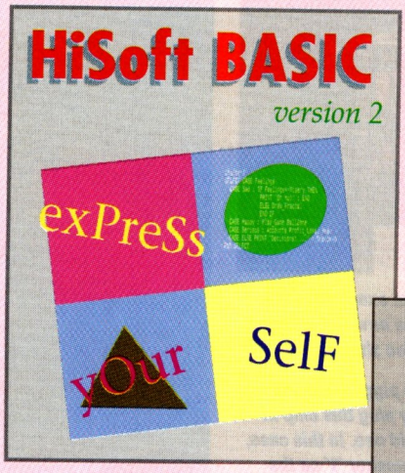
14 And here we are, with everything back in place. The SIMMs module nestles rather neatly between the disk drive and the power unit. It's a good idea to fix it here permanently with some handy adhesive pads.

Thanks to Frontier who supplied the X-Tra RAM board for the STFM and the SIMMS chips for the STE. Special thanks also to Karl Brandt of Software Solutions for fitting the extra memory.

Some reasons to be cheerful



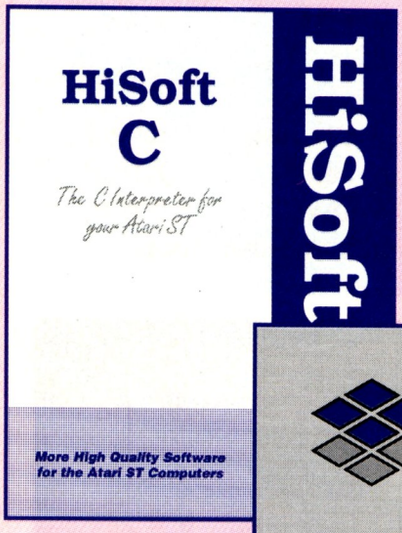
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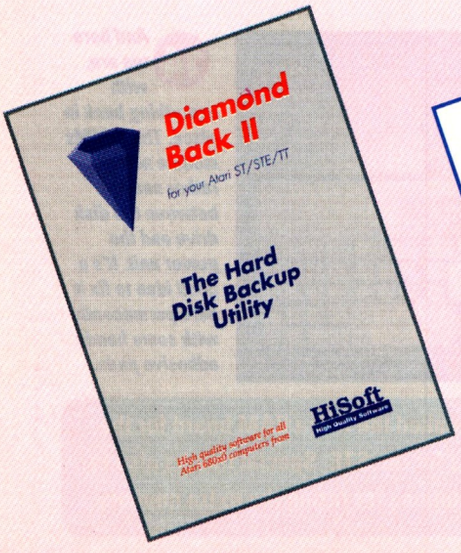


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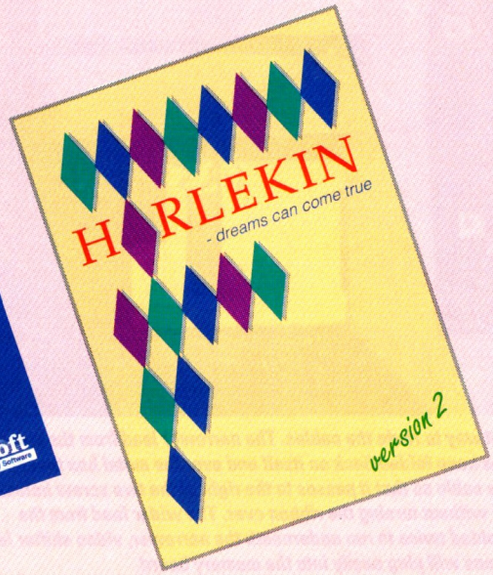
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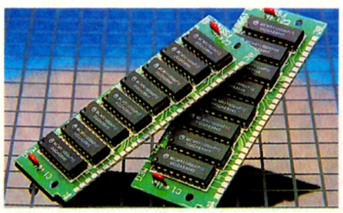
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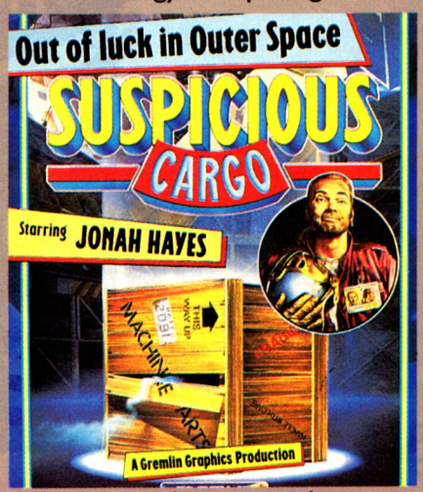
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wizard Morcar. 'But beware, the unlit tunnels hold many dangers!

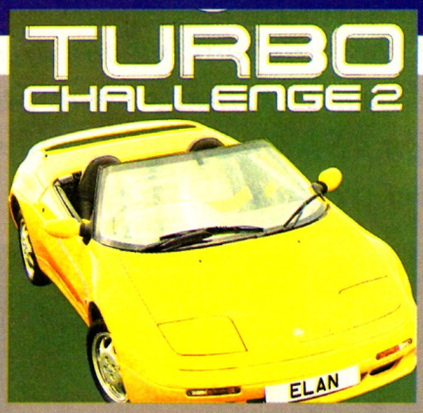
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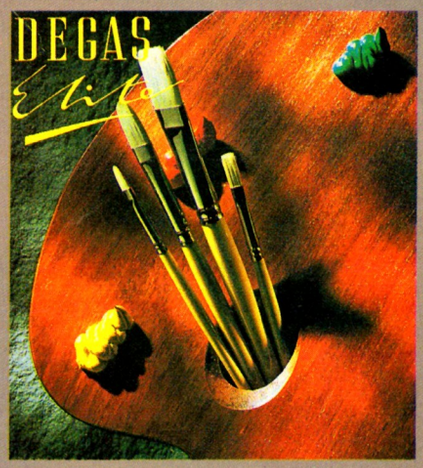
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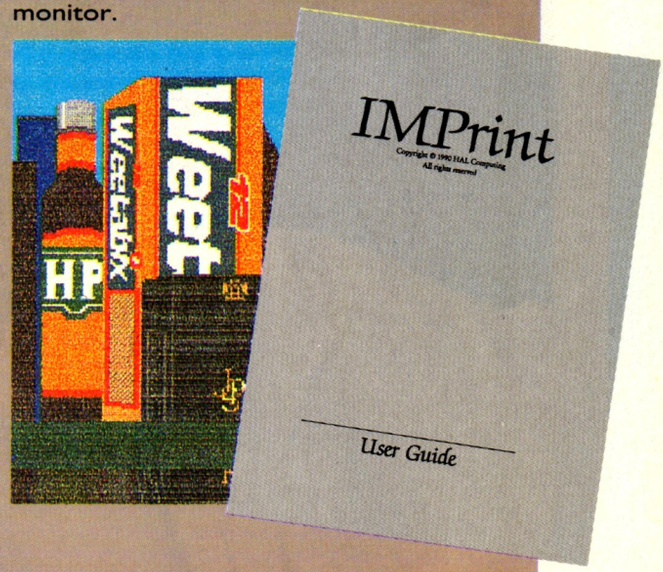
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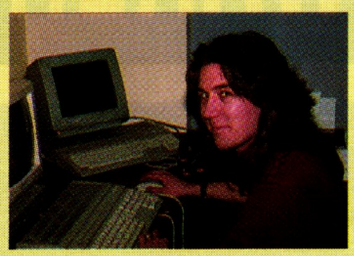
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SIMON PHIPPS –



Simon Phipps: the Derby-based coder/artist has been involved with computer graphics for five years.

Creating the perfect arcade blaster is one thing, but what goes into making one arcade game better than the rest? Monsters, that's what. Steve Merrett spoke to Core Design's Simon Phipps to pinpoint what makes the perfect creature



Simon's work has been extremely varied. From Rick Dangerous, he moved on to Switchblade, then wrote Virgin's brilliant Monty Python, before supplying the graphics for the now-scrapped Retro. "I wouldn't have bothered if I'd known," he groans. The reason for Wolfchild was to prove that a fast-paced beat-'em-up could have loads of nasties on screen at once: both Simon's Switchblade and Gremlin's home-grown sequel were criticised for their lack of moving inhabitants.

Simon Phipps is one of the better monster makers. Responsible for the creatures which inhabit ***Monty Python***, ***Wolfchild*** and both ***Rick Dangerous*** games, his range of nasties make an invaluable addition to his games. And, let's face it, all games need baddies.

Just as any low-budget horror film needs the obligatory man in a rubber suit to get things going, a computer game isn't complete without its alien equivalent. With the exception of sports and flight sims, virtually every game ever to grace a monitor has had more than its fair share of bad guys. Starting back in

"By keeping your sprites large and tenacious you're halfway there"

the days of ***Space Invaders***, when those evil monochromatic Martians made their first appearance, the bad guy's role has expanded out into all forms of gamestyle, ranging from Pacman's spooky pursuers to Mario's debut against the can-slinging ***Donkey Kong***. The computer game monster can take virtually any form, and whilst the likes of ***Rainbow Islands*** and ***New Zealand Story*** don't exactly feature the most horrendous-looking nasties, their potency is, without a doubt, up to the standard of anything ***R-Type*** or ***Ghouls 'n' Ghosts*** can throw at you.

CREATE A BETTER MONSTER

But what makes one game's creatures better than another's? "It's hard to say as it's a number of things. It's a combination of look and action, but no matter how they look, they have to

MONSTER MAKER

appear menacing," offers Simon. "First of all, they have to be tidy and well-defined, as there's nothing worse than loose pixels in what is supposed to be, say, an arcade-quality game. In general, though, animation is equally essential. If your amazing sprite moves badly it's going to be wasted. However, style and originality also make a massive difference. In terms of style, don't rush it as it shows, and as far as originality goes – stay well away from another Arnie sprite!'

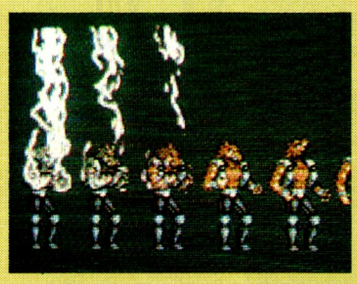
FLOPPY FRINGE

Programmers and graphic artists often suffer from a public misconception that they are all acne-ridden members of the local train-spotters society, or that they are the binary equivalent of long-haired, know-all art students. However, Simon is one of the rare breed who both program and design graphics, and the floppy fringe or fur-hooded coat are conspicuous by their absence. Simon has been with Core for four years: he started his career with Gremlin, producing code and

"Your sprites should fit in with the gamestyle or you'll have huge jellies or something which don't respond properly if you hit or shoot them"

graphics for the likes of ***Skate Crazy*** and ***Masters Of The Universe*** – real classic stuff! It was here that he met Core supremo, Jeremy Smith, who left his position in marketing to set up the company. With the arrival of Core, and with the advent of the 16-bit machines, Simon made the transition to a larger palette quickly and easily, and ***Rick Dangerous*** was his first ST and Amiga release. "Rick was basically the platform game I'd always wanted to do," Simon starts, "there's nothing particularly original or taxing about it, but it all seemed to hang together well. Graphically, it's certainly nothing special as the colours are muted and hardly stretch the palette. They do, I think, add to the game's atmosphere and offer a nice 50s feel which is integral to the game."

One of the major assets of ***Rick Dangerous*** are its devious level designs and the baddies which patrol its five stages. However, when compared to ***Wolfchild***, ***Rick***'s nasties come across as rather primitive. "It's not really fair to compare the two," says Simon, "as Wolfchild is a far more blast-orientated game, whereas Rick was more platform-based." Yes, but ***Wolfchild*** was far more demonstrative of Simon's prowess, wasn't it?. "Yeah," he admits, "we (Simon and John Kirkland, his partner on



In all, Simon had roughly 80K per level for his Wolf sprites, the equivalent of two pages of graphics. Luckily, with each load he could attempt a change of palette, and this is where the game's much-needed variety came into play. The metallic airboat gives way to forests and cave systems, bringing with it completely new aliens.

CLASSIC MONSTERS OF OUR TIME

In the ST's relatively short history, it has produced more than its fair share of decent baddies, whether they're sickeningly cute or made up of enough mechanical components to keep Zanussi going for another few years. Here for your delectation are a selection of the more memorable baddies

WALLY THE WALRUS – NEW ZEALAND STORY



This guy got off to a bad start as soon as the scenario had been trotted out. Wally, it transpires, has a bit of a thing about kiwis and has stolen a bundle for his tea. As the game progresses, little Tiki, an escapee from the walrus's tuck-bag, has to endure being eaten by a whale, avoiding airborne cats and freezing his little wings off in Ice-Land, before the walrus finally gets his comeuppance.

BORF – SPACE ACE



Borf, from the Don Bluth games, is the software version of the pantomime villain. This unjolly blue giant has made two appearances to date, although he gets his just deserts in the second game. Not only does he try to feed Ace and Kimberly to man-eating plants and monsters, he treats the player equally badly by forcing him to endure one of the most restrictive control systems to date.

DOCTOR MAYBE – JAMES POND/ROBOCOD

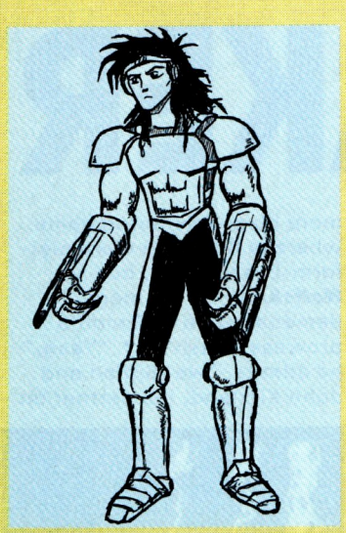


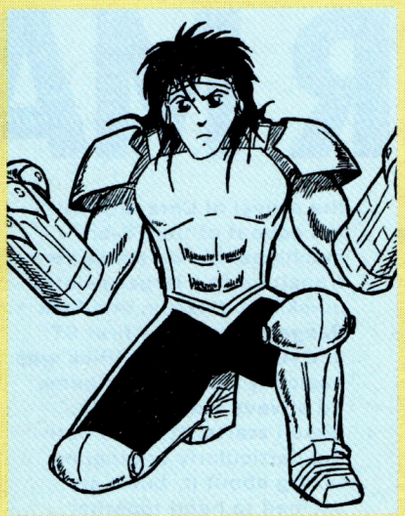
To be a good baddy (if that's not a contradiction in terms), you have to be persistent, and Maybe is soon to embark on his third outing in Millennium's ***Splash Gordon***. Rarely seen, Maybe is an evil genius who is to Pond what Ernst Stavro Blofeld is to 007. There's no limit to how low he will stoop, from contaminating water to kidnapping Santa. For his next feat, Maybe will steal the moon's cheese.

MR BIG – YOU NAME IT, HE'S IN IT



Such is the limited imagination of some game designers that no matter what shape or form their end-of-level guardian appears in, they all share the same monicker. Whether they're related is open to debate, or perhaps it was just a family of bad pennies. This particular end-of-level thug actually comes from ***Double Dragon***, although bruisers of this type are staple fodder in beat-'em-ups.





Wolfchild's sprites went through several transitions. Simon's original sketch of the main sprite is far removed from the final hero. For Wolf, Simon was keen to use as many metallic and spiky objects as possible, but was limited by the ST's 16 colours. If he was to create a metal-clad sprite, he would need both flesh tones and metallic hues, so eventually he had to use eight for each. Rather than repeat the sprite, Simon simply broke it into limbs which he then replaced onto the main torso and saved out as individual frames.

Wolfchild) had a good idea of how we envisaged the game looking. Basically, we felt that large sprites were the order of the day: we also wanted a series of looks and Wolf's five levels made this easier to implement. However, the real problem is coming up with anything original. We came up with an idea for a metallic ship in the sky for the first stage, with all the baddies also airborne and metallic, but after that we kept coming back to the same old Mudmines of Rick, or a jungle similar to that of Impossamole."

NASTY LOOKS

So where does he begin when creating a nasty? "At Core we always get everything we want in a game on paper first. This makes it easier to both plan out where the memory will go, and how far we can feasibly go with a particularly memory-intensive idea. It also allows you to determine the look of the game early. It's all very well having a really meaty sprite, but it has to be workable within a game environment where you may only have 60-80K for your entire army, let alone end-of-level guardian."

In terms of look and behaviour, what makes a really mean nasty? "It depends," he says, "if it's a shoot-'em-up and it has, say, metallic levels, then it's normally quite nice to make the aliens tie in with it. Using real-life 'nasties' works quite well, too, especially if they are tied in with the theme." A perfect example of this is Storm's ***Saint Dragon*** and The Bitmap's ***Xenon II***. With the respective metallic and organic looks the games sport, the aliens aren't limited to large robots or primitive blobs. Midway through ***Saint Dragon***, the action slows down and gives way to a large bio-mechanical bull, while ***Xenon II*** boasts what appear to be tadpoles and crustaceans.

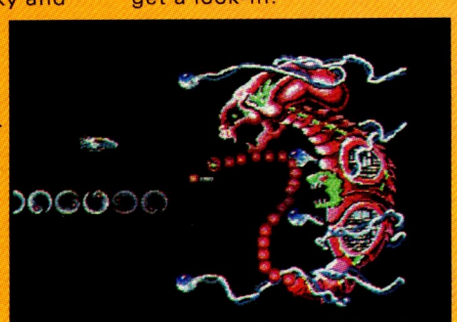
Once the look has been decided, a successful sprite needs to be intelligent. If you look at classics such as ***Rainbow Islands*** and even ***Pacman***, the reason they are so addictive is that the enemies offer a genuine challenge and are semi-intelligent. "A good variety helps, too," adds Simon. "Whilst it's all very well having a well-drawn main character, as far as bustling gameplay is concerned, it's a case of the more the merrier – and making sure they're bright." So it isn't just getting the sprite to look menacing then? "No, it's very difficult to pinpoint what makes a sprite evil or bad," he admits. "We all have our own ideas, whether it's snatching an idea from Giger or knocking up the best mechanoid since ***Robocop***. It's all down to personal taste – I personally like spikes and try to avoid using gore – and no amount of advice can really determine a style. However, by keeping them large and tenacious, you're halfway there."

THE COIN-OP CONNECTION

The origins of the end-of-level guardian

Believe it or not, end-of-level guardians have been around for nearly 10 years and started life on arcade machines. Moving on from the swarming ***Galaxians***, coin-op producer Bally decided that the next logical step was a 'Super Alien', and their ***Gorf*** machine was one of the first to boast one. A rather unimpressive start, ***Gorf***'s creature simply dropped bundles of lasers at you until you struck lucky and hit the alien pilot. ***Phoenix*** came next, with the larger 'Boss' creature necessitating several hits before he met his end: and from then on a shoot-'em-up wasn't complete without one of these larger bugs.

They aren't just limited to blasters, though: numerous platform games, from ***New Zealand Story*** to ***Mario*** now sport a larger 'Boss' and their influence is now so great that they're starting to grab larger starring roles in game. Not content with adorning the end of each stage, they're now appearing midway through a game – as seen in ***Xenon***. All this leads us to believe that soon the little guys won't get a look-in.



THE SPRITE STUFF

How to create a nasty

Simon has great difficulty defining what makes a good creature, but admits that preparation is everything. "It's vital to have a basis for your idea," he explains. "In Wolfchild, I opted for animals as this gave me a massive base to work from. I could then link the basic animal ideas with human bodies to create original mutants. As Wolfchild was a beat-'em-up, it was essential that they were humanoid: your sprites should fit in with the gamestyle or you'll have huge jellies or something which don't respond properly if you hit or shoot them – destroying the mood completely. With this in mind, you can then expand on your idea and give them key specifications – one who can do certain moves because of, say, a third arm, or one who can move faster because it has tentacles."

"Reference books are always useful," Simon continues. "On starting a project I always get loads of related books with pictures of my proposed subject. This allows for greater accuracy and means that smaller thing you may not normally notice can be added." For all his development, Simon uses his trusty Mega ST running OCP's ***Art Studio***. "It's the only true programmer's graphic utility," he enthuses. "Other packages are great if you're drawing a pretty picture, but Art Studio allows you to scale, cut and paste sprites with ease, and gives you useful grids to work from. Basically, if you're interested in graphics, this is an essential package."

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VFM

Before you pay out for that game you've had your eye on, why not check out what's currently the best Value For Money?

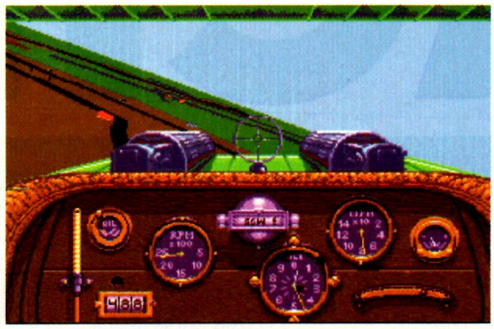
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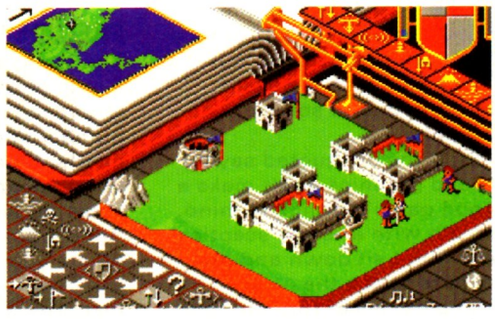
Tally Ho! Take off with Knights of the Sky.



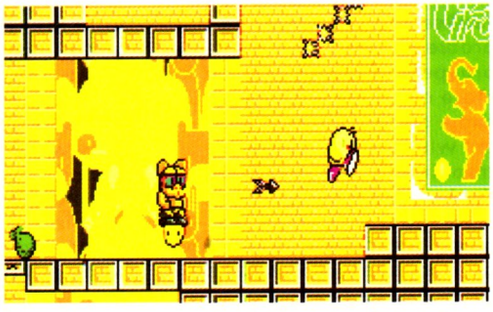
Out of the Window adventures – Wonderland.



On the grid. Race Drivin' roars onto the track.



VFM – Populous/Sim City packs quite a punch.

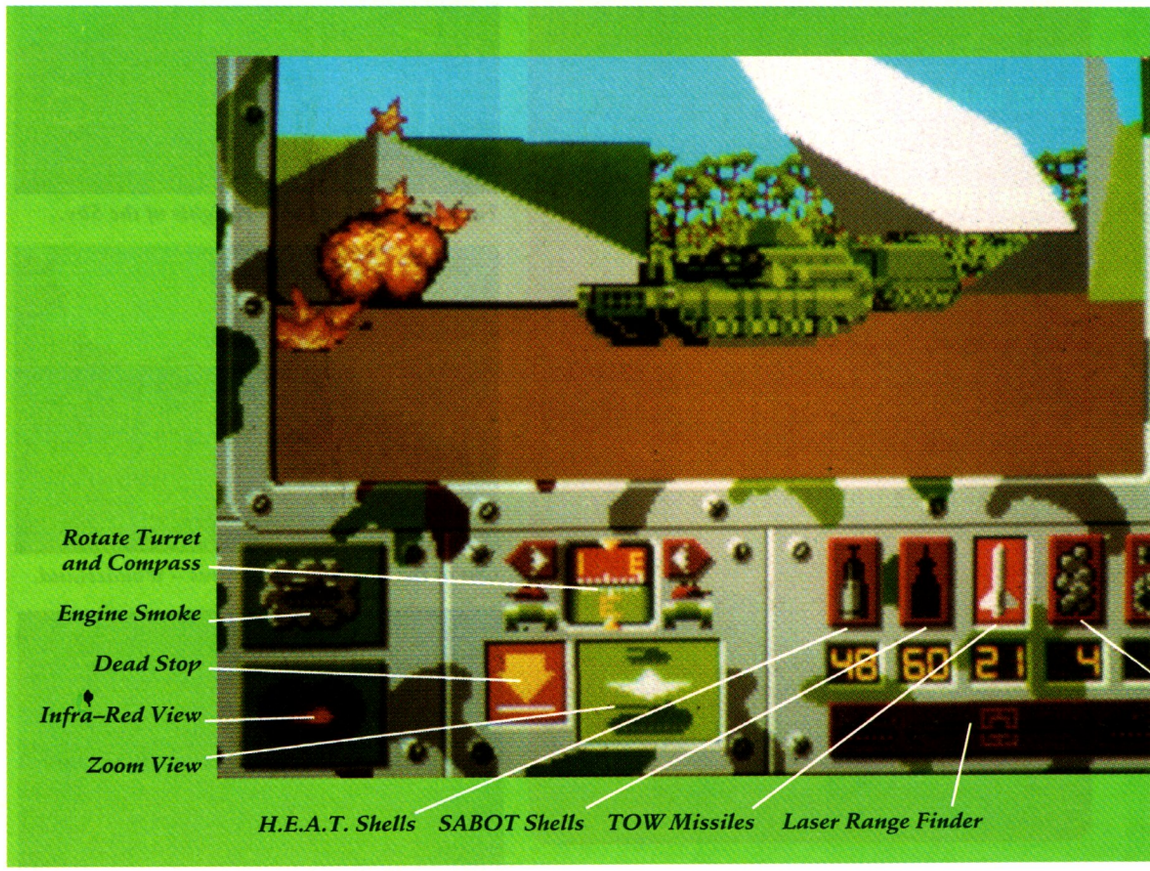


Kiwi cartoon capers with New Zealand Story.

Welcome to Screen Scene, where each month we'll be looking at the very best in entertainment on the ST. The hottest games in each issue will get the full ST Review treatment – up to four pages of lively and informed comment from some of the most respected games reviewers in the business.

We also reckon that we've got one of the best ratings systems, with all the information that you need in one at-a-glance box. And the Step-By-Step guides will run you through game sequences, giving you a real feel for the action. Add to this the easily digested Pros and Cons box and the coveted ST Review Essential Buy award and you're left with all the ingredients to make the right game purchase, first time, every time.

PACIFIC



Stealth bombers and jet fighters might be all right for some, but real wars are settled by the men on the ground. Paul Presley gets behind the wheel of a 63-ton tank

Sixteen 63-ton tanks, actually. Or eight 63-ton tanks, a couple of smaller M3 Bradleys, four M113 personnel carriers and two armoured anti-tank missile launchers. Or eight M113s and six M3s. You can have almost any combination of American military tracked vehicles in Empire's sequel to ***Team Yankee***.

That's not the only thing you get. You can take part in an entire military campaign, set over a series of islands (in the Pacific, no less), each containing a number of battles to be won or lost by you and your hi-tec hardware driving team. The scene is set nicely by the animated intro sequence which shows a couple of stealth bombers – bombing an island stealthily, and paving the way for ground troops to come in and start the battle in earnest. This is all topped off by one of the finest pieces of animation I've ever seen on an ST – a huge M1 Abrams tank moving over a sandy beach, its turret rotating in graphical splendour. It may be a short sequence, but it's certainly an excellent introduction to some great graphics.

Still, the oft-quoted saying 'Good graphics don't make a good game' springs to mind, so it's with a rather sceptical eye that I sit down and prepare to tackle the complexities of running four separate tank units at once. Having already played ***Team Yankee*** and remembering the problems I had with that, the prospect of facing over 40 more missions with much the same control method leaves me with a slight sense of trepidation. Not that ***Team Yankee*** was a bad game. No, it was just that when the going gets tough, the tough get very confused and end up catching the first train to Brighton. Or, like me, they find they can't remember exactly which unit was supposed to be doing what and where.

PRELUDE TO WAR

The setup screens start with a map of the current island with each island split into a number of coloured segments, blue indicating liberated areas and red ones showing where the enemy is. Apart from each battle, this is where you get the most control over the outcome of the war. You decide where to travel to: each area has a different effect on the enemy's strength. For example, if you go for a communications setup, the bad guys will be less alert in the other areas. If you choose a supply post, they won't be so heavily armed. The ability to influence the 'big picture' in this way is one of the improvements over the original game although ***Team Yankee*** was far more inflexible in play.

From the island screen it's on to the equipment screen where you get to outfit your platoons with tanks and ammo. As well as the fighting, you're also in control of financing the war. To be honest, I've never liked red tape

Long-lasting and very challenging

Good control system, once you're used to it

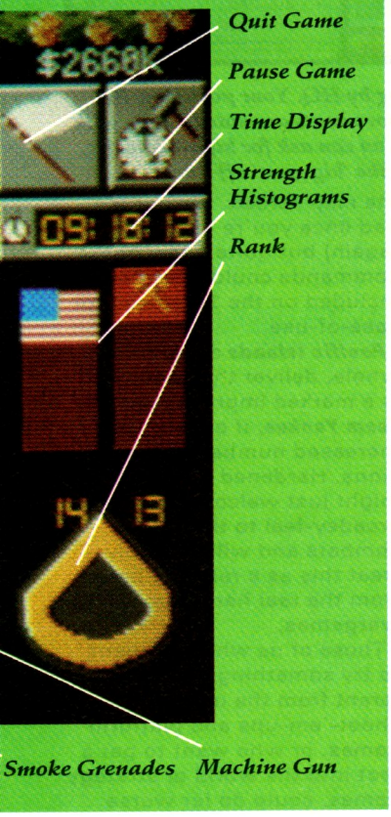
Generates bags of atmosphere and can become very involving

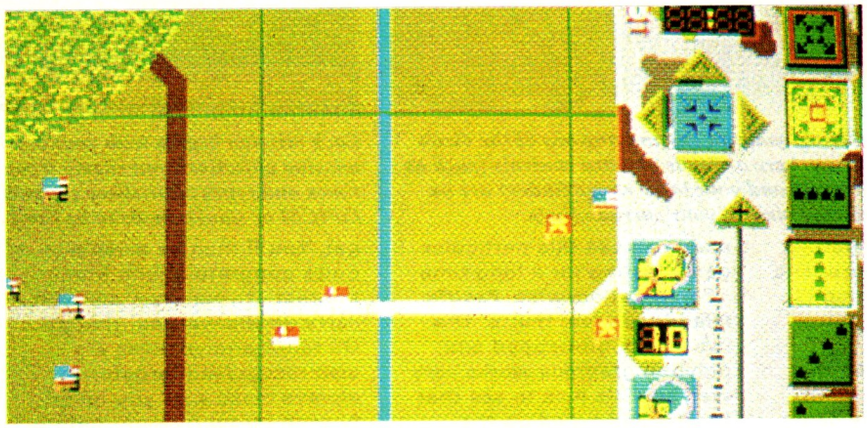
PROS AND CONS

Control over four units at once does become extremely difficult

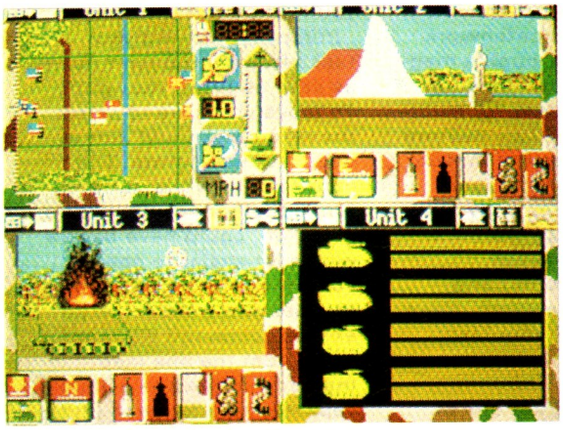
Difficulty level may put beginners off

ISLANDS





The map screen allows you to take a strategic look at what's going on. Enemy troops are only indicated if one of your units is able to see them, and of course, if you can see them.



The heart of the game is the simultaneous control of four platoons at the same time. This is achieved by the four–way split screen. Most of the controls are available to you from here.

and this is one area I could have done without. But as it is, you have to make sure you don't blow all the cash on the early stages of your campaign, leaving you short of equipment towards the end. The best bet is to go with the default setup and add ammo when you need it.

Next comes the briefing screen, comprising a map of the battle area and a list of the objectives. This is nicely done: the text is displayed on the pages of a notebook, with references to the map clearly marked by a flashing square. You also get to set your artillery support from here, a factor that can play a strong part in each battle. You could, for example, set a smoke screen for a specific time when you'll need to cross a particularly dangerous stretch of open land. Make sure your tanks are in position when the smoke grenades hit and – hey presto – instant cover. You could also set artillery to act as a diversion, pulling enemy forces in one direction while you sneak troops in from another. Planning the use of artillery is one of the best aspects of the setup screens, and allows you to develop some cunning plans even before things get underway.

READY TO ROLL

With the preliminaries out of the way, it's down to the grim realities of war: before you throw yourself into the melée of battle, you might want to try out the tutorial scenario to familiarise yourself with the mass of icons which are used to control the mass of armour. The tutorial works hand-in-hand with the manual, giving you clear instructions for each step. It's a fairly simple affair, but it does a remarkably good job of getting you used to how everything works, each step introducing a few more titbits to your tank of knowledge. Basically, you're told to take your tracks (the army nickname for tracked vehicles – tanks) around a circular road circuit, undergoing a series of encounters along the way. At various points you're ordered to leave one unit where it is and carry on with what's left, until finally, at a specified time, enemy forces make a four-pronged attack, allowing you to master the four-way control method.

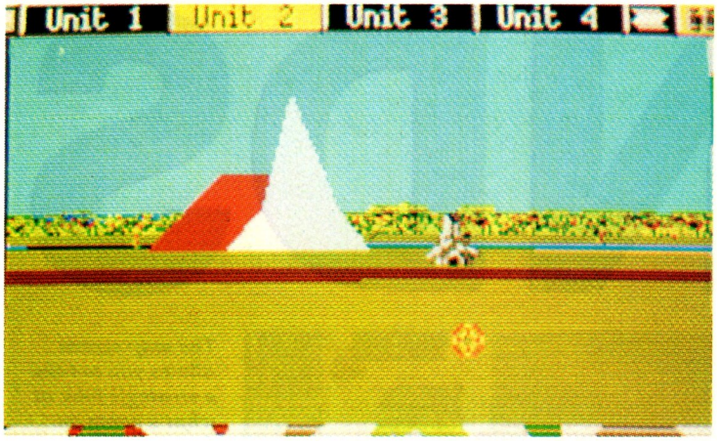
Unfortunately, the manual makes it sound a lot easier than it is. The trouble is that there is usually so much going on at once that the average Joe will have great difficulty handling it all, especially when the four-way display makes each unit's screen pretty small. Quite a bit of time and effort is required to begin to master it, and unless you're really prepared to work at it, you're just not going to get all that much out of the game. The tutorial does help you start to come to terms with it, but you can't help wishing that Empire had included the

INSIDE INFO

Harold Coyle's best-selling novel provided the basis for *Team Yankee*, *Pacific Islands*' prequel. This novel told the story of World War III through the eyes of Sean Bannon, Commander of a tank company based in Germany.

The game centres around the five major battles that Bannon's team was involved in: it takes the player from the initial defence of a small village to the final push on enemy lines at the River Saale.

Coyle's two other novels, *Sword Point* and *Bright Star*, also deal with tank warfare in both Afghanistan and the Middle East. All three books, praised not only by newspaper and magazine critics, but by other techno-thriller authors such as Larry Bond and Tom Clancy, are published by Penguin Books and are available at most good bookshops.



For a more 'hands-on' feeling, you can expand any one of the views to a 'full–screen mode'. From here a couple of extra controls (such as smoke screen, infra–red views and your laser range finder) are on offer, as well as an expanded view of your surroundings.



Each mission begins with your briefing by HQ. Your positions, the mission objectives and enemy troop movements are noted, along with times and types of artillery support. You can ask for high–explosive, DPICM or smoke shells to be fired by the 'big guns' off–shore.

option to put units under some degree of computerised control, thereby allowing players a more gentle introduction to the game.

Once you've mastered the tutorial, you're ready to hit the islands. This is the game in earnest and it works quite well. The first mission involves destroying a radar installation, a fuel dump and a runway, all of which are clearly marked on your briefing map. Your troops start to the north of a small village, on a road that leads down through a forest and across a small river. On the other side of the river lie the enemy, just waiting to turn your multi-million dollar tracks into pieces of multi-million dollar scrap. And what a good destruction job they do! They were ready for almost all of my cunning ploys and stratagems and wasted no time in wiping out every last one of my men.

I'll leave the details of my battle to the step-by-step panel, but it's fair to say that the computer is an enemy that commands real respect. With the prospect of 40 more of these missions in front of me, I can see this particular game lasting for a long time.

Presentation-wise, ***Pacific Islands*** has few faults. The mixture of bitmapped and polygon graphics works very well and it's nice to see that Empire has tidied up the graphics: close-up, they no longer resemble patchwork quilts viewed through a magnifying glass. Identification of tanks is pretty easy for someone who knows their military hardware (or has the manual close to hand). The night vision works effectively too, removing most of the background objects (trees, buildings and so on) and turning the enemy into green blobs, ready for your laser-range finder to lock on to them.

This technology is one of the nicer aspects of modern military warfare: each tank is equipped with a laser range-finder, which makes aiming and firing much easier than doing it manually. Move the aiming cursor over a recognised target and it'll lock on. All you do then is fire and, as long as a strong enough weapon is selected, a column of fire will erupt from the target. You'll then be given a quick congratulations from the rest of your crew and you carry on. Be warned, though: US tanks and vehicles are also recognised targets, so always make sure you identify each target by sight before you let rip with the cannon.

Ironically, moving your tanks from A to B isn't nearly as easy as firing your guns. To move you have to select the map screen and plot a couple of waypoints. The map screen, while perfectly functional for seeing what's going on, could have been a whole lot easier to control. For a start, as a tank commander you'd expect to be able to command all four units from the one map. Instead you have to call up a separate map for each unit, which makes quick movement and rapid deployment practically impossible.

It would also have been wonderfully simple to include some sort of movement controls on the 3D screen, other than the dead stop icon. Instead you have to control speed, direction, destinations, formations, distances and enemy observations from the map screen. It's not too bad once you're used to it (again) but quite a few of the commands could have been included on the 3D screen for ease-of-use.

Pacific Islands does, on the whole, deliver the goods and is a marked improvement over ***Team Yankee***, if only for the increased number of missions. Hardened strategists might just welcome the slight arcadey-feel to the actual combats and will probably treat this as a relaxing break from the real hard-core wargames.

Those of us who just want to try something a little different from the usual shoot-'em-ups and platform games, or who want to get a foot into the world of strategy games, could do far worse than get involved with the boys of the 1st or the 4th Armour Battalion.

BUYERS GUIDE

So how does *Pacific Islands* compare with other games of its kind? Our at-a-glance chart shows how we feel it stands up to the competition in the most significant elements.

	Gra	Sou	Cha	Rea	Eas	Mis	Overall
1 M1 Tank Platoon	9	7	8	5	9	n/a	90%
2 Pacific Islands	7	6	8	5	6	40	85%
3 Battle Command	8	8	7	8	3	n/a	83%
4 Sherman M4	8	6	6	7	6	n/a	82%
5 Team Yankee	7	6	8	5	6	5/25*	82%

*Team Yankee only contains five missions, each of which is played five times over, each time at a higher difficulty level.

Key: Gra = Graphics, Sou = Sound, Cha = Challenge, Mis = No. of missions, Rea = Realism, Eas = Ease of use

"Long-lasting strategy fare with just the right amount of action"

NAME: PACIFIC ISLANDS
COMPANY: EMPIRE
CONTACT: 0268 541126

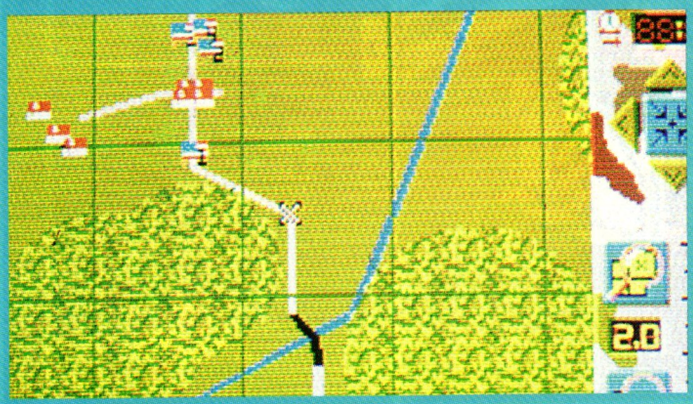
PRICE: £29.99
RELEASE DATE: APRIL
MIN MEMORY : 520K

GRAPHICS ★★★★☆
SOUND ★★★☆☆
VALUE FOR MONEY ★★★★☆
PLAYABILITY ★★★★☆

OVERALL **85%**

STEP BY STEP

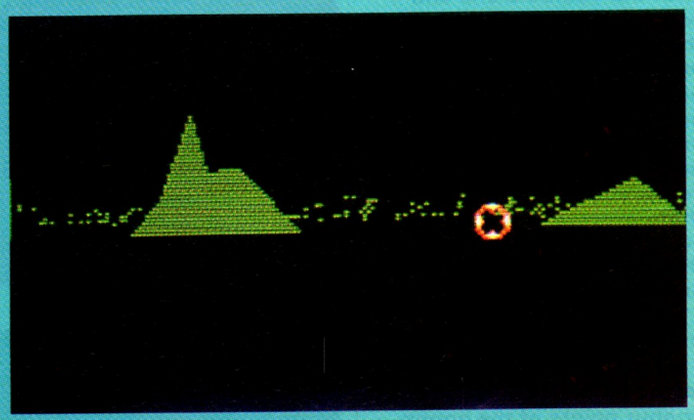
1 *My four platoons start out above a small town to the north. Intelligence reports that the enemy is situated in and around the runway towards the centre. My plan involves drawing the enemy's forces towards the clump of trees on the right of the stream: my main attack comes from the trees on the left. I start by sending unit one south along the road to the north edge of the trees. From there I can try to spot some of the enemy's troops and evaluate his strength.*



2 *My next step is to send unit two (comprising four M1s – the most powerful tank in my arsenal) around the edge of the western forest, to take up position right at the southern tip, just out of sight. Meanwhile, units three and four proceed directly through the trees towards the runway. Unit one has now identified several enemy units in the valley between the forests.*



3 *With unit two in place and units three and four almost at the edge of the treeline, I wait for my pre–planned artillery to start hitting. High explosive rounds start falling around the eastern forest while smoke starts impacting in the valley and around the runway. Unit one turns on his infra–red sights: he then manoeuvres into the valley and starts firing. Unit two heads out to the trees on the southern side of the runway, firing at the parked helicopters as he goes. Units three and four just wait patiently in place, not revealing themselves.*



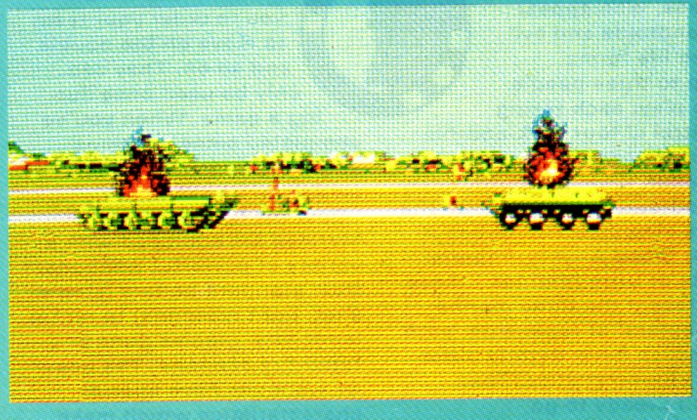
4 *Unfortunately for unit one, the enemy were thinking ahead this time. They'd moved a unit around the edge of the eastern forest and as my tanks moved out into the open, this unit started attacking. Unit one takes a hammering, but he goes down fighting and manages to take out the enemy tanks before he falls victim to the tanks which are now emerging from the smoke–filled valley.*



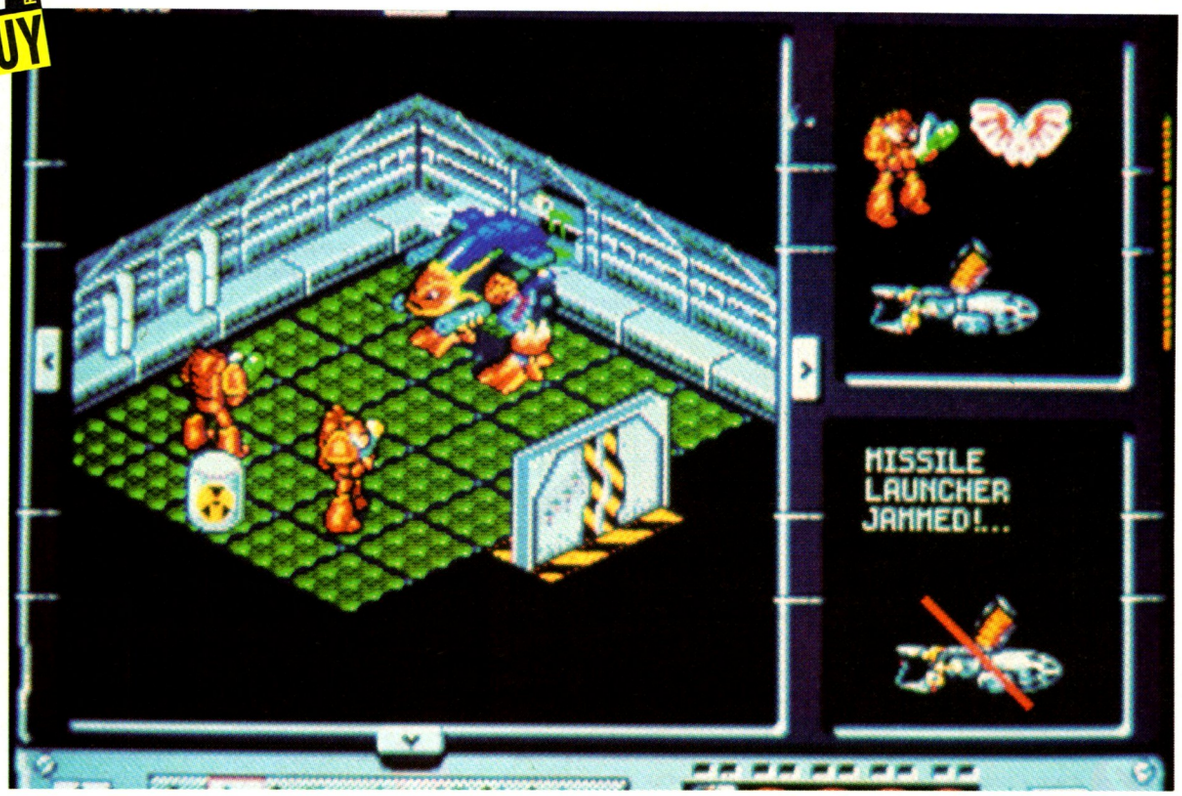
5 *Meanwhile, unit two has safely made it into the trees and is well hidden, ready for phase two of the attack. Moving up to the edge of the treeline facing northeast, towards the runway, and with units three and four facing southeast towards the runway, they wait for the enemy to show themselves. This is achieved by DPICM artillery rounds impacting in the valley, driving them back.*



6 *As the enemy tanks start to pour back in the direction of the runway, my units start firing from their positions in the trees. Unit three is firing into their flank, whilst unit four is hitting them from the side and unit two is attacking them from the front. They are soon defeated and all that now remains to be done is to destroy the objectives and watch for any more enemy units which might still be hidden away waiting to avenge their fallen comrades. The radar is situated just to the north of the runway and the fuel dump is over to the east.*



ATARI ST REVIEW
ESSENTIAL BUY



Two marines come face to face with a Dreadnought. Oh no, the rocket launcher has jammed. This isn't a very even match – the Dreadnought has three powerful weapons.

SPACE

Once again Gremlin makes a grand job of translating a tabletop board game to the ST. Alan 'chairman of the board' Dykes does the play test

Chaos, the wild force that has threatened mankind throughout its history, has been released from warp space, and is now set to wreak havoc. In ***Space Crusade*** you play the commander of one of four Space Marine units, clearing devastated space hulks of the agents of Chaos, who appear as androids and evil alien life forms.

Up to three people can play, each taking control of four rank-and-file marines and one marine commander. Choose a sufficiently blood-curdling name from the following selection of beauties: Blood Angels, Imperial Fists or Ultra Marines – these represent the three marine 'Chapters' or regiments, each of which have slightly different characteristics. Then you're ready to go.

STRATEGY

LOCK AND LOAD

First choose your weapons and equipment from the setup menu. To begin with, you can choose four from a total of eight equipment 'cards'. These include items such as photon grenades, scanners and targeters. Then choose two order cards – these enable you to order your team to move on the double and so on. They can only be used once during a game. When you've completed some missions and gone up in rank, more cards will be available.

Now the fun really starts. Marines are equipped with a variety of powerful weapons, from standard bolters (single-shot, light weapons) to rocket launchers, plasma guns and rapid-fire cannons. The heavier weapons have special characteristics which make them devastating, but unless you choose a mobility equipment card when setting up the game they will slow your Marines down.

As ***Space Crusade*** is based on a board game, everything is decided by the roll of a dice. But you don't have to physically rattle the ivory, as your ST naturally takes care of all the more mundane aspects.

There are two different types of dice. Light weapons use a six-sided dice, four sides of which are marked with zeros and the others with the numbers one and two respectively. The die for the heavy weapons, in keeping with their increased power, are also six-sided but only have three zeros plus a one, a two and a three. But, because there are so many zeros, you have a higher-than- average chance of scoring nothing. This means that your weapon has missed and you could be in trouble.

Two die are rolled every time you or an opponent use a weapon. If the sum of this roll adds up to more than the armour points of the opposing Marine or Alien, you take a life point from them. A score of two will take a life point from a rank and file marine or alien which, since they only have one, means that they're dead. Marine commanders and alien Dreadnoughts have six and three life points respectively, making them much more difficult to kill.

LURKING EVIL

There are six different types of enemy alien: Chaos Marines, Orks, Genestealers, Androids, Gretchin and

Plenty of lastability

Very detailed 3D or 2D graphics

Up to 60 enemies at any one time

Three players can play

PROS AND CONS

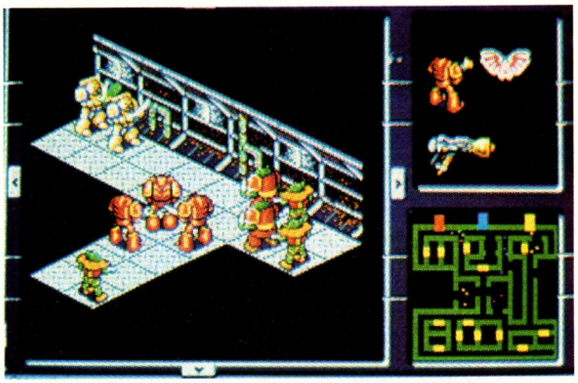
Takes time to set up



Time to run. This Space Marine has bitten off more than he can chew. There are three aliens in the area.



Chaos can suddenly come up with some very nasty surprises during its move. It can simultaneously control over 40 aliens, all of which can converge on one spot.



Surrounded again, but in control of a Plasma gun, one of the heavy weapons available.



The combat screen. The marine with the cannon has just scored a 'dice' roll of three and one. This means death for the alien in question.

CRUSADE

Dreadnoughts. They carry a wide variety of weapons, including those normally used by the Space Marines. Gretchin are usually the least dangerous foes, but by far the most dangerous are the Dreadnoughts. Massive droids, styled along ***Robocop 2*** lines, they have the highest armour rating of all the minions of Chaos. They are also equipped with three guns, a bolter, a rocket launcher and a cannon, all of which can be used in a single turn. However, if a Dreadnought loses one of its life points it will also lose one of its weapons.

Each game has one main objective and several secondary ones. A basic scenario has four Space Marines and their commander entering an abandoned space ship and fighting their way through swathes of aliens to destroy a command centre or disable a force shield. A nice touch to the game is that under certain circumstances you may well end up fighting against another player's Space Marines because a "there can only be one victor" order has been received from high command. Chaos is controlled by the computer, and I never realised just how mischievous an ST can be. It does an above-average-job for the forces of evil!



LOOKING GOOD

Colourful and well-defined graphics can be switched between 2D and 3D modes: although 3D is prettier, 2D provides a much better overall view of each character's position, which is essential for planning moves and fighting strategy.

Space Crusade is very faithful to the board game original. It has all the characters and all the excitement, since many of the slow, complicated rules and procedures which can be a problem in this sort of game have been taken over by the computer. It's a real pleasure to play, and you won't find a better board-based, role-playing game.

The 2D screen gives a much clearer overall view of the tactical situation. But it's not half as pretty!

"A well-executed, strategy board game conversion..."

NAME: SPACE CRUSADE
COMPANY: GREMLIN
CONTACT: 0742 753423

PRICE: £25.99
RELEASE DATE: MARCH
MIN MEMORY : 512K

GRAPHICS	★★★★★
SOUND	★★★★★
VALUE FOR MONEY	★★★★★
PLAYABILITY	★★★★★

OVERALL 90%



This Blood Angel has the option to use his rocket launcher or a Photon grenade. Both are lethal.



The imperial fists encounter a Dreadnought. This time their weapon hasn't jammed, so the chances of winning are good.



The highlighted icon at the bottom of the screen indicates that the marine is engaging in ranged combat. The icon just to the right is for hand-to-hand combat. When a Marine Commander is equipped with close-quarter weapons he may use this icon.



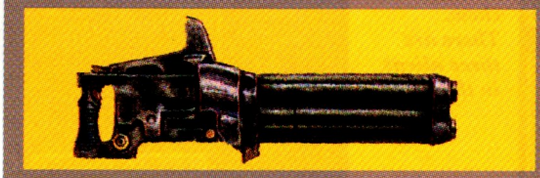
Time to use the Photon grenade again. These weapons release a stunning burst of light energy.



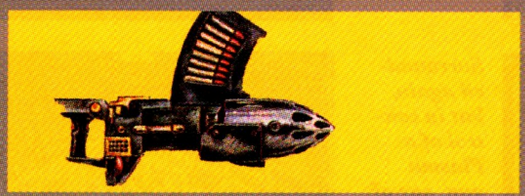
Open that door and step into a whole world of trouble! Six aliens and a Dreadnought are waiting outside!

REALLY HEAVY WEAPONS SYSTEMS

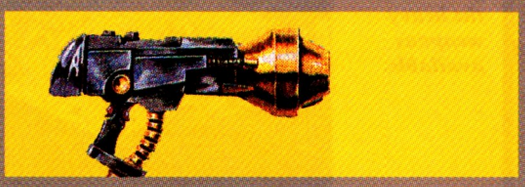
PACK UP YOUR TROUBLES IN YOUR OLD KIT BAG, PLUS A PLASMA GUN OR TWO TO DEAL WITH THE ENEMY



1 *Assault Cannon. This is a multi-shot weapon. If you score a high dice roll you can kill up to three aliens, provided that they're all within range.*



2 *Missile Launcher. This weapon directs fire at a set of squares. The central one receives the full brunt of the dice score but characters in adjacent squares will also incur damage.*



3 *Plasma Gun. A devastating weapon. Plasma beams shoot in straight lines and can only be stopped by walls or doors. In theory, if the whole alien army stood in a straight line you could knock them all off with one plasma gun!*



4 *Heavy Bolter. A special version of the bolter carried exclusively by marine commanders. Unlike standard weapons it uses the heavy weapons dice system, enabling a higher and more damaging score.*

There are two equipment cards which are almost essential for use with heavy weapons:
SUSPENSORS: Marines carrying heavy weapons are restricted to moving a maximum of four squares per turn instead of the standard six. Suspensors can be attached to heavy weapons to increase their mobility, allowing their operators to move six squares per turn once again.
TARGETERS: These are advanced weapons sights. In practice they allow you the option of rolling one combat dice a second time. If one of your die rolls as zero then you have nothing to lose by rolling it again. Conversely, if you get a half-decent score, rolling again can be a bit of a gamble as you may end up with a lower one!

THE PLOT

Time, space and the human race's long history of warfare form the basis of the ***Space Crusade*** saga. Many millennia ago, in a world far, far away (where have I heard that before?), during a period known as the Age of Strife a mighty diplomat and soldier, the Emperor of Human Space, fought to end the centuries of warfare which had threatened the very existence of humankind in the stars. To do this he assembled the greatest fighting force that ever existed, the Space Marines. Their mission: to boldly combat the hordes of Chaos, corrupt creatures and robots driven wild by centuries of isolation and imprisonment in warp space.

BUYERS GUIDE

So how does *Space Crusade* compare with other games of this type? Our table below gives you an idea of how well we feel it stands up to the competition.

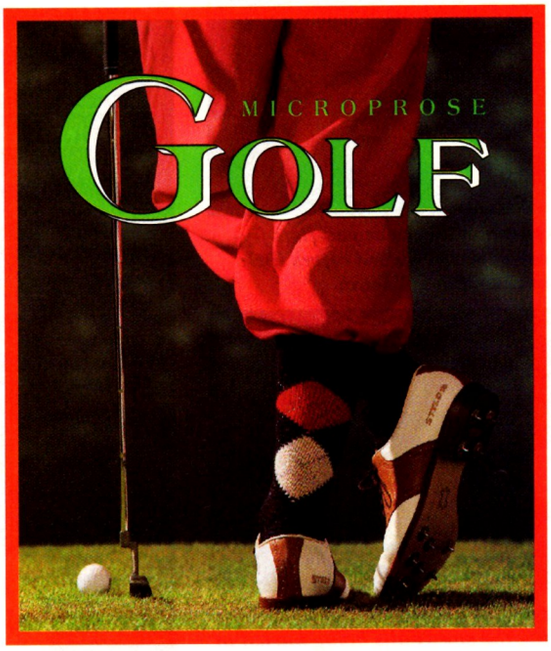
	Gra	Sou	Cha	Eas	Atm	Mis	Overall
Space Crusade	9	7	8	7	8	12	90%
Heroquest	7	6	8	8	7	14	89%
Shadow Sorcerer	7	6	5	7	6	N/A	72%
MB Space Crusade*	10	N/A	9	8	9	N/A	95%
MB Adv.Heroquest*	10	N/A	8	8	9	N/A	95%

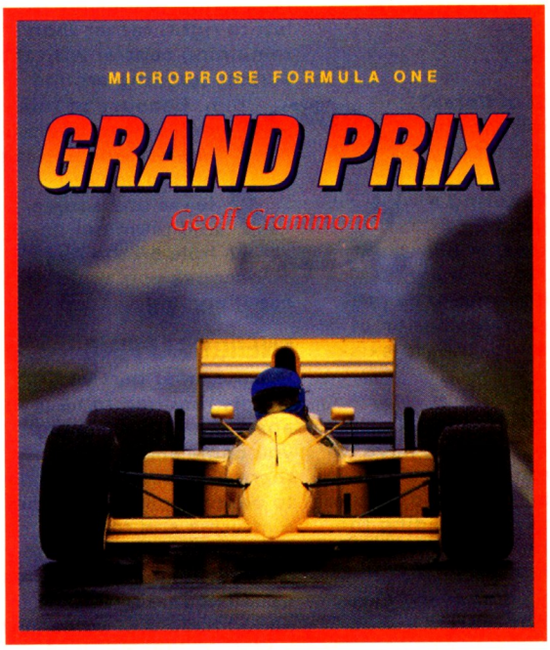
Note: *As both Space Crusade and Heroquest are based on board games the best way to capture the atmosphere of the game and literally make it last for years is to actually get the originals. Graphic scores for the board games are based on how well the game looks and are only provisional.

Key: Gra=Graphics, Sou=Sound, Cha=Challenge, Mis=Number of Missions, Eas=Ease of use, Atm=Atmosphere

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UNREAL

Ubisoft's Shadow of the Beast-style game wowed the critics on other formats, but how does it fare on the ST? Mark "careful with that axe, Ed" Patterson explores. . .

The plot of ***Unreal*** certainly won't win Ubisoft any prizes in the originality stakes: featuring a Barbarian in a loin cloth, a damsel in distress and the obligatory dark lord, it seems to be little short of an amalgamation of the oldest story-lines in existence.

ANNOYING GAMEPLAY

As the Barbarian, you have to journey through several different lands, fighting dragons and wizards and avoiding the hazards inherent in each specific terrain. All this is depicted by some really smart graphics, but there's a problem...

This has to be one of the most severely difficult and frustrating games ever. It drove me to the point of belting the ST and snapping the disks in sheer frustration. The problem is that joystick skill is of next to no use to you: it's almost entirely a question of luck, and the only approach is to hit the fire button as quickly as you can and keep your fingers crossed. You also seem to take variable amounts of damage from the same object, so you never know whether you're going to survive the next hit or not.

On top of that, the game is played out on single screens with the Barbarian having to journey from left to right, rather than remaining central with the screen scrolling around him. Because of this you're blind to ensuing hazards and it's all too easy to leave one screen and plummet down a hole on the next because you couldn't see it coming.

ENERGY SAPPING

For the most part you're simply required to hack apart every living thing you come across, but there are occasional trials to be overcome. There are platforms and rope swings which aren't too difficult to pass, but these usually come with an added hazard of some sort which resides on the far side of the screen and chucks energy-sapping objects at you.

There's a 3D sub-game between levels which has you careering across the world on the back of a dragon. The object behind these levels is to stay alive and collect bonus lives. Instructions flash up on the screen telling you when something worth collecting appears, or when to bank left or right, but everything happens so fast that you've missed the bonus, or collided with a hazard before you can read the message.

This game would look very appealing if you saw it as a rolling demo, but it really is almost unplayable. Leave it well alone.



This snowman comes at you fists flying: even your fire sword offers little resistance to this icy Titan.



Swing across the crevasse on the rope, avoiding the snowballs being hurled at you from the far side of the screen.



Barbarians can't swim in this game, so a series of well-timed leaps is called for to avoid ending up in the drink.

"Great graphics, spoilt by awful gameplay"

NAME: UNREAL
COMPANY: UBISOFT
CONTACT: 0252 860299

PRICE: £30.99
RELEASE DATE: APRIL
MIN MEMORY : 520K

GRAPHICS	★★★★★
SOUND	★★★★★
VALUE FOR MONEY	★★★★★
PLAYABILITY	★★★★★

OVERALL **31%**

Attractive graphics and nice effects

PROS AND CONS

- It's frustrating
- The controls are unresponsive
- Extremely difficult to advance
- Too much disk swapping
- Offers no incentive to play

STEP BY STEP

1 ***Power up your sword by striking the fire. Your combustible blade will burst into flame and it will do increased amounts of damage. This extra power only lasts for a limited time, though, so you need to use it sparingly.***



2 ***Hit the snowballs with your sword to release crystals. These can be collected for bonus points: they can be jumped over if you want to save your sword power, but you usually end up hitting one of the flying lizards.***



3 ***This wizard is easily dealt with, providing you time your jump right. Land just in front of him and chop his arm when he goes to cast a spell. If you touch him you bounce off and fall down the hole.***



PACFIC ISLANDS - THE SEQUEL TO TEAM YANKEE

Pacific Islands™



The year is 1995 ...

Disaffected Renegade Soviet communists, backed by North Korea, have invaded the Pacific atoll of Yama Yama. Your tank platoon, returning from the Persian Gulf, is the closest American unit to the scene. The burden has fallen on you to liberate this vital secret communications out-post.

Pacific Islands is a hectic race against time.

Unrivalled 3D

- Fast action, 3D real-time tank simulation using Empire's unique bit-mapped technology.
- Watch buildings explode as you make a direct strike.

Battle Selection

- All five islands on the Yama Yama atoll must be re-taken.
- You must decide how to attack each island.
- Full mission briefings before each battle.

Tank Battles

- Test your steel in over thirty nerve-quenching battles.
- Liberate villages, destroy ammunitions dumps, disrupt jungle supply lines, defend bridges.

Military Hardware

- T72s, BMPs, Hughes 500 Helicopters and SA9 Gaskins.
- $50,000,000 of equipment under your control.
- Infra-red imaging, laser range-finding. TOW missiles and DPICM artillery back-up.

Fund your Campaign

- Financial reward for destroying emeny installations.
- Fines imposed for collateral damage.

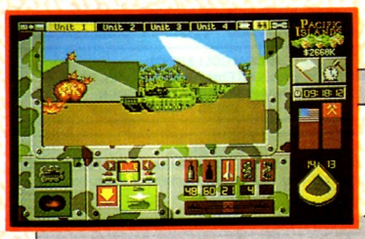
Communications Facilities

- Satellite dishes, radar towers, radio aerials.
- Spot opposition 'scout' vehicles before they give your position away.

Unique Control

- Scrolling battle maps and updated status reports.
- Call up artillery and lay minefields.

- *Simultaneous command of four tank units.*
- *View the battlefield from four perspectives.*
- *Control 16 different vehicles at once through an elegant yet simple control system.*



- *You must destroy all communications facilities as swiftly as possible. The longer you take, the more information the enemy have about your position and strength.*



- *Cope with multipile objectives - can you destroy an airfield, support a convoy, and make a reconnaissance within 40 minutes?*



- *Purchase all your equipment.*
- *Is there enough time and money to repair your damaged tracks and give the crews some rest?*



- *Eight different types of fighting vehicles modelled so that you even see the rivets!*
- *MI Abrams, M2 Bradleys, M113 APCs, ITVs.*

THE SCREENSHOTS ARE ONLY INTENDED TO BE ILLUSTRATIVE OF THE GAME PLAY AND NOT THE SCREEN GRAPHICS WHICH VARY CONSIDERABLY BETWEEN DIFFERENT FORMATS IN QUALITY AND APPEARANCE AND ARE SUBJECT TO THE COMPUTER SPECIFICATIONS. SOME FEATURES MAY ALSO NOT BE AVAILABLE DEPENDING UPON THE COMPUTER SPECIFICATIONS

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KNIGHTS OF THE SKY

After all the falcons, stealth fighters and gunships, MicroProse is this time turning its attention to the oldest of planes. Paul Presley straps on his goggles



As far as planes are concerned, if it doesn't have an afterburner switch I'm not interested. If you were to make me choose between a plane with an engine capable of roasting a pigeon in mid-flight or a rickety wooden propeller, I'd take the portable barbecue any time. At least I would have done before ***Knights Of The Sky*** came along.

Giving you the option to fly in almost any of the World War I bi-planes, MicroProse's latest flight sim combines all of the best aspects of its previous titles and adapts them perfectly to the era.

As far as flying goes, the WWI bi-planes are pretty tricky to control. This is by no means MicroProse's fault and it doesn't take anything away from the game: it's just an accurate representation of the planes themselves. Indeed, half the challenge is trying to keep the tricky blighters up in the air, while defending yourself against the hail of bullets coming in from the enemy.

The graphics, on the other hand, could be improved on. There's nothing really wrong with the overall look of the game, it's just that there's no real scenery to speak of (every good WWI film that I've ever seen always has a shot of a fighter swooping in on the enemy at a ridiculously low height - oh to do that in a flight sim) and the external viewpoints could do with a bit of an overhaul.

However, ***Knights Of The Sky*** is one of the best 'alternative' simulators around, from the jam-packed manual to the superb 3D graphics. You could do far worse than freeing yourself from the usual dangers of missiles up the exhaust pipe to try the all-new dangers on offer in the skies above the trenches. Let's face it, if you're going to be shot out of the sky, who would you rather did the shooting? The famous Red Baron, sneering at you as you go, or just some average fighter jock wearing a mask, talking about bogeys?

All cockpits look the same in Knights Of The Sky, no matter what plane you fly. The good news is that the actual instruments are authentic for the time.



There are a limited number of planes on offer. One thing you can't do is fly German planes, so there's always the chance you'll run into the Red Baron.



Because of the lack of decent sight from inside the plane, you can switch to one of the fixed external viewpoints.

Excellent graphics
Very authentic to the era
Long-term appeal

PROS AND CONS

Bi-planes are very tricky to fly
External views could be better positioned
Lack of scenery

"A refreshing change from the usual jet-burnt flight sims"

NAME: KNIGHTS OF THE SKY
COMPANY: MICROPROSE
CONTACT: 0666 504326

PRICE: £34.99
RELEASE DATE: NOW
MIN MEMORY : 520K

GRAPHICS	★★★★★
SOUND	★★★★★
VALUE FOR MONEY	★★★★★
PLAYABILITY	★★★★★

OVERALL 89%

BUYERS GUIDE

How does *Knights Of The Sky* compare with other flight sims? Our at-a-glance chart shows you how well we think it does.

	Gra	Sou	Rea	Eas	Exc	Overall
1 Falcon	9	8	8	7	9	92%
2 F15 Strike Eagle II	7	7	9	9	7	90%
3 F19 Stealth Fighter	7	7	9	9	7	89%
4 Knights Of The Sky	7	7	9	8	8	89%
5 Flight Of The Intruder	5	5	8	4	4	79%

Key: Gra = Graphics, Sou = Sound, Rea = Realism, Eas = Ease of use, Exc = Excitement

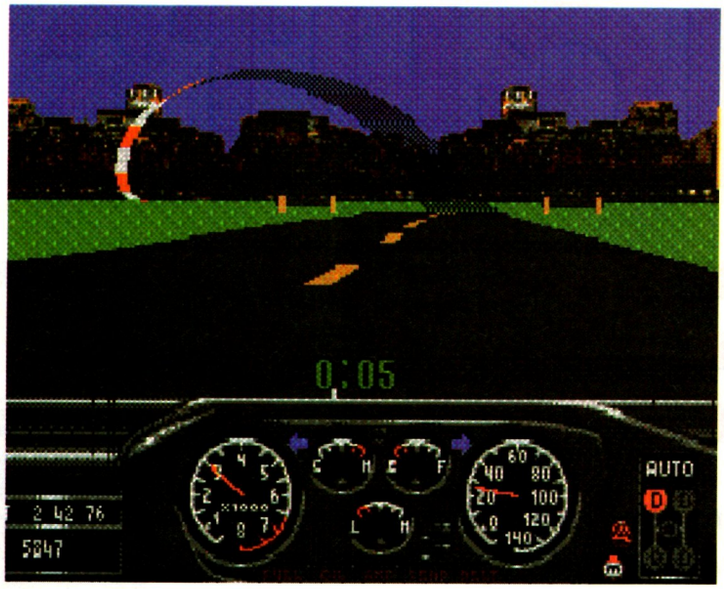
"For fans of the coin-op only"

NAME: RACE DRIVIN'
COMPANY: DOMARK
CONTACT: 081 780 2222

PRICE: £29.99
RELEASE DATE: NOW
MIN MEMORY : 520K

GRAPHICS
SOUND
VALUE FOR MONEY
PLAYABILITY

OVERALL **80%**



The most fearsome of the new stunts has to be the corkscrew. A razor-thin strip of road leaves the ground and twists through 720°. Keep your speed up on this one or even the seatbelt won't save you.



There are three courses to choose from, all of which are shown at the start of the game.



There are also three cars on offer, the roadster, the speedster and the stunt car.

RACE DRIVIN'

What better way to relax after a hard day's work than to take the car out for a spin – or a roll, or a corkscrew? Paul Presley gets behind the driver's seat of Domark's latest

Question: What goes 'Screech, screech, boom. Screech, screech, boom'? Answer: An average game of ***Race Drivin'***, Domark's 'official' sequel to the arcade hit of the late 80s. When you consider that this is a driving 'simulator' as opposed to a driving 'game' (such as ***Outrun*** and ***Lotus II***), you'd expect it to be difficult, but the problem is that the controls don't make any allowances for those of us who don't drive. It's hard to describe how best to handle it: suffice to say, treat this is a simulator instead of an arcade game and you should be okay (in other words, try not to take corners at 200mph and don't sling the wheel from one side to the other).

RACING SIMULATOR

VALUE FOR MONEY

Controls aside, though, ***Race Drivin'*** does offer some genuine thrills and spills, and it certainly offers good value for money. Thanks to the inclusion of the original tracks from ***Hard Drivin'***, you're essentially getting two games for the price of one. Add to that the inclusion of two new cars (both of which really do handle differently, rather than just being different paint jobs), the relatively unimpressive Autocross track and the mind-boggling Super Stunt Track and you're getting a game that's going to last for quite a while.

This is very much a 'specialist' product. It's not going to appeal to everyone – and people who are happiest racing from San Francisco to Miami in a gleaming red Ferrari with a beautiful blonde in the passenger seat, are probably going to shun it. Still, the arcade version does have a rather large following: if you're a fan who's after an accurate conversion you won't be overly disappointed, even if it does lack a steering wheel, gearbox and ignition key.

Faithful to the arcade version
Surprisingly good graphics
Inclusion of the Hard Drivin' courses

PROS AND CONS

Very difficult controls
The Autocross course is a waste of time



One of the stunts from Hard Drivin' is the raised bridge. Hit it at around 60–90mph and you should make a safe landing.

BUYERS GUIDE

How does *Race Drivin'* compare with other games of its kind? Our table below gives you an idea of how we feel it stands up to the competition.

	Gra	Sou	Rea	Eas	Exc	Overall
1 Lotus II	8	8	3	9	9	90%
2 'Vette	9	5	8	7	7	87%
3 4D Sports Driving	7	6	7	7	7	82%
4 Race Drivin'	7	7	8	4	6	80%
5 Hard Drivin'	7	6	8	4	5	78%

Key: Gra = Graphics, Sou = Sound, Rea = Realism, Eas = Ease of use, Exc = Excitement

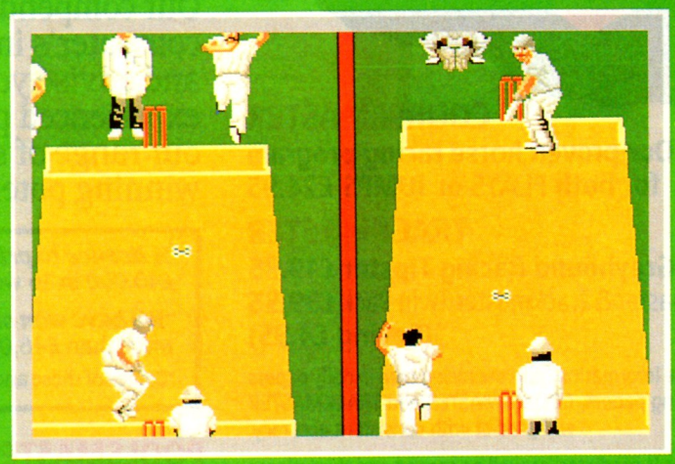
Ian Botham's CRICKET

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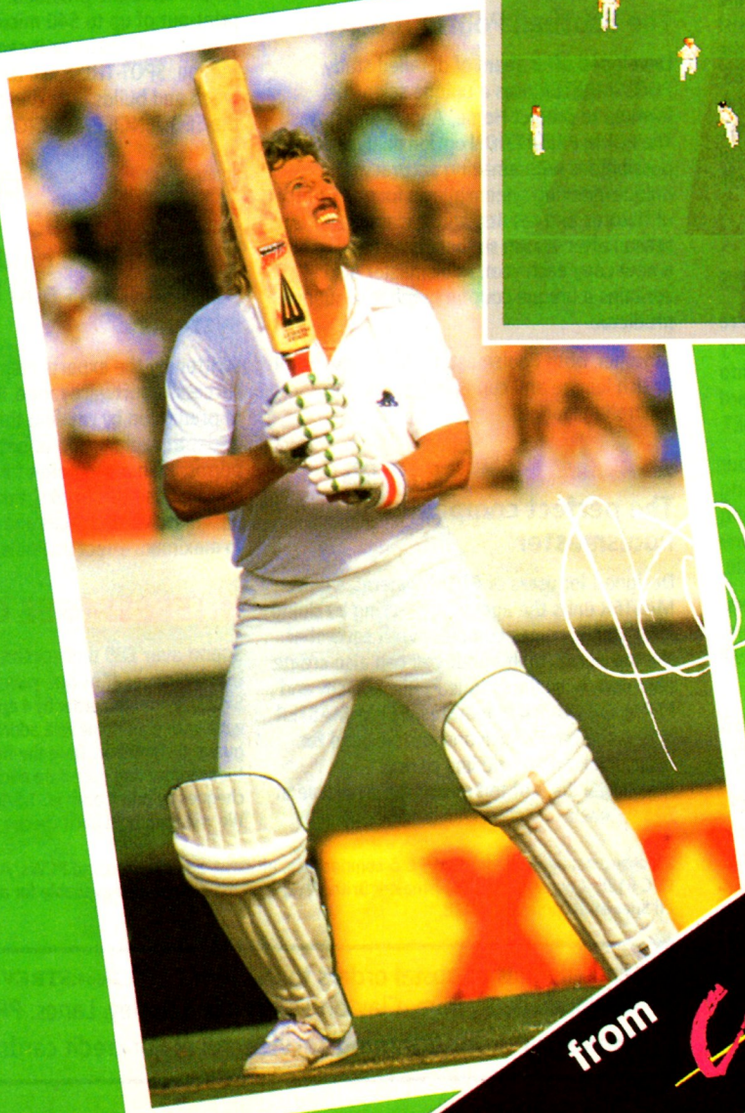
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WORLD CLASS RUGBY – FIVE NATIONS EDITION

After the World Cup, came the Five Nations Championship, and Audiogenic is making sure there are computer games to match: Tony Dillon tries out their latest

With the possible exception of football, rugby must rate as the national sport, particularly with the television coverage it's received over the last few months. Until now, though, there have been very few decent rugby computer games. Audiogenic's ***World Class Rugby***, and the new ***Five Nations Edition*** of that game, are changing all that.

World Class Rugby puts you in a player/manager situation, in charge of one of the international teams, or England by default. Once in place, you can take on any of the international teams in a friendly situation, or you can take your place in the Championships. This is where this version differs from the original: you can now choose between playing in the World Cup or the Five Nations Championships.

VITAL STATISTICS

Your managerial role is short but sweet. All your options are on a tree of menus that allow you to alter team details – from who's playing to how well they play, as well as all the game features – such as the style of replay, weather details and strength of the computer player.

Team control is very simple. Your players are shown as a list, with their main statistics – weight, speed, catching and kicking ability – displayed as slider bars. To change the statistics of any player, click on the bar for that player and drag it to the power you want. While it is possible to make your entire team full strength, be warned that the computer does adjust its own players' strength accordingly.

IN PERSPECTIVE

You can view the screen from above, ***Kick Off***-style: the camera hovers 100 metres or so above the pitch, so all the players are viewed from above, and the action scrolls around a pitch 12 times the size of the screen. The box scanner in the corner of the screen tells you where all your players are, and helps you pass the ball to areas you can't see on screen.

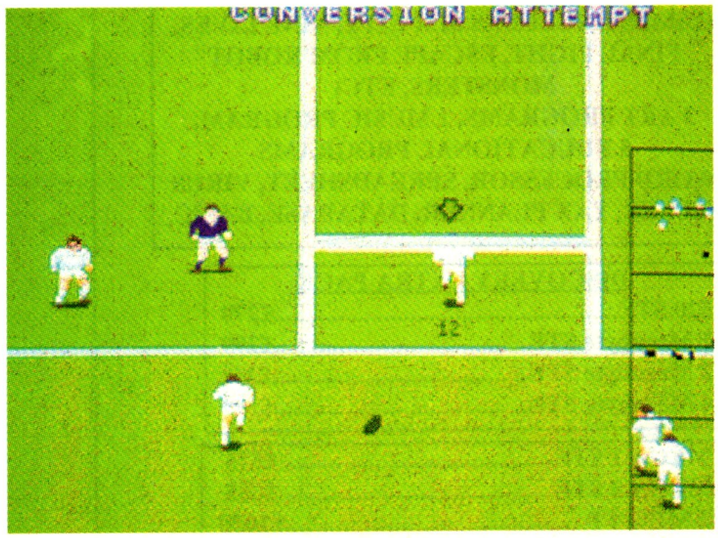
From here you can also view from blimp mode: you're still watching the action from above, only much higher so the players are smaller but you can see more of the pitch. There are also two 3D views, both normal and blimp, and these add a tilt to the playing area to give the impression you are looking along the pitch.

Rugby incorporates a huge variety of possible moves, and thankfully Audiogenic hasn't tried to emulate them all. What they have done is to take another leaf from Anco's book and come up with an intelligent control method. Pressing the fire button and choosing directions can have all sorts of effects, depending on what you are currently doing. For example, running up the pitch and pressing fire will pass the ball in a direction of your choice, whereas running near the try zone and pressing fire results in your player taking a flying leap over the score line. When you first read through the instructions, this seems very confusing, but once you get playing, you'll find that it's a very comfortable system.

Fast, smooth scrolling
Responsive controls
Wide choice of options
Two-player option

PROS AND CONS

Tackles are hard to control
Scrums are a bit of a joystick wrecker
Not enough teams for a lasting game



Attempting a conversion. It's never as hard as it looks, really. All you have to do is line up the crosshairs and away you go.

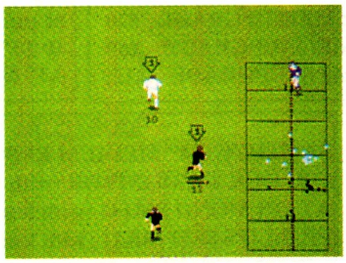
"Rugby gets the Kick Off Touch!"

NAME: WORLD CLASS RUGBY
COMPANY: AUDIOGENIC
CONTACT: 081 424 2244

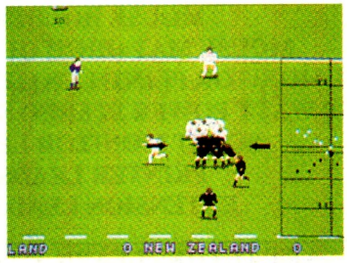
PRICE: £29.99
RELEASE DATE: MARCH
MIN MEMORY : N/A

GRAPHICS	★★★★☆
SOUND	★★★★☆
VALUE FOR MONEY	★★★★☆
PLAYABILITY	★★★★★

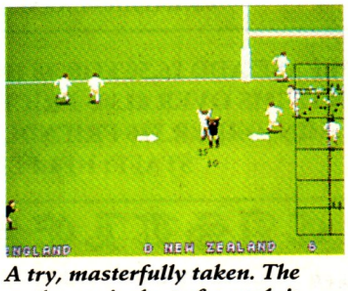
OVERALL **82%**



A solo run upfield. The marker above the players' heads denotes which player is currently under control.



Entering a scrum, it's all for one and one for all. Waggle your joystick furiously and you may gain possession of the ball.



A try, masterfully taken. The rugby equivalent of a goal, it counts if dropped or placed anywhere in the end zone.

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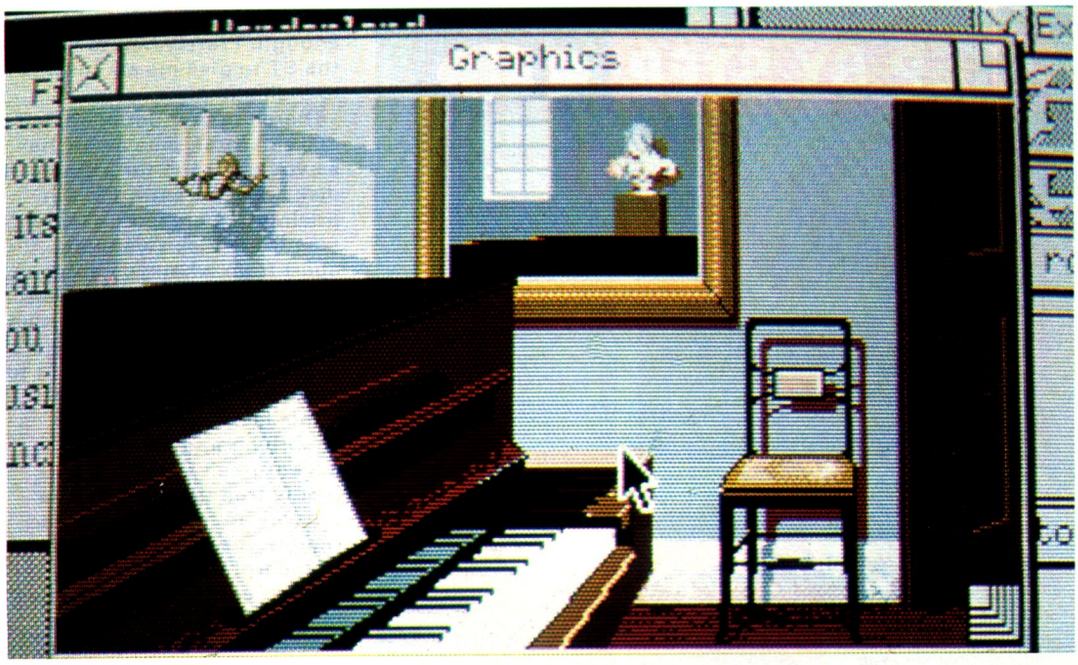
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The first puzzle occurs in the music room. There are two keys, one of which is in the piano. The only way to get it is to climb inside, but if you drink the shrinking potion you can't reach it. There are several chairs dancing around the room though – maybe they'll come in handy.



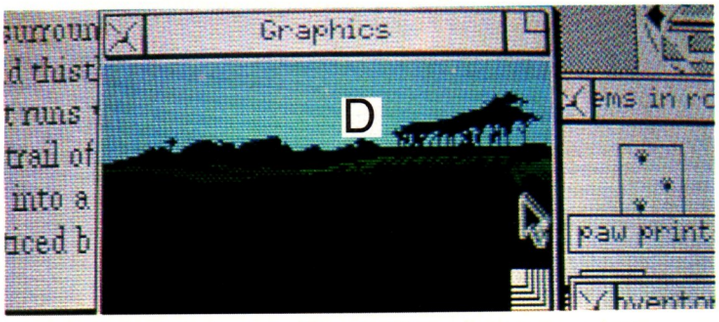
ATARI ST REVIEW
ESSENTIAL BUY

WONDERLAND

Alice in Wonderland is one of the classic English novels, and it's as popular today as ever. Now the book has undergone a major change. Mark Patterson embarks on a revolutionary adventure. . .

Magnetic Scrolls has been at the forefront of adventure gaming for several years now. Following early successes such as ***The Pawn*** and ***Fish***, they came under the wing of Virgin, where they've been beavering away on a system that they believe will change the face of adventure games.

The system is called Magnetic Windows. It works by breaking the game into separate parts for the text, graphics, compass, maps, inventory and room contents, to represent as much of the game's world as possible, while making it manageable for the player. The text window contains the information relevant to the plot, as well as location descriptions, dialogue and command cursors for typed commands. The inventory and room contents windows are icon-based and use a click-and-drag system. So if you want to pick something up you click on the object in the contents window, then drag it to the inventory. This also makes it easier to keep track of items.



Alice can talk to Emily, her sister, but if you waste too much time you'll miss the rabbit and that means game over.

PULL-DOWN WINDOWS

Exits are also easily located. All the routes that are open to you are highlighted in the compass window and all you have to do is click on the one that pertains to you. The map is another useful window: it's important to keep track of where you've been, and this is the way to do it. Each time you visit a location it maps your route and places an icon down that's relevant to the location you're in, so if you've found a particular object, the icon will represent that.

To make things even simpler there's a series of pull-down windows. When you activate the verbs window you get a list of available actions and the objects you can perform them on. The final window is graphics. In some ways this is both the most essential, and the worst part. The graphics throughout the game range from good to stunning and set the atmosphere for the game, but unfortunately they can also take quite a while to load in. If the graphics are too much, the window can always be closed.

As neat as it is, the control system is nowhere near as important as the plot, which is the element that's most likely to suffer in translation. Wonderland has most of the book's characters, such as the rabbit, Queen of Hearts, the caterpillar, the mad hatter and the March hare. For the most part the plot matches the book almost page for

INSIDE INFO

Lewis Carroll was born Charles Lutwidge Dodgson in 1832. His chosen profession was mathematics, which led him to become a lecturer in mathematics at Christ Church, Oxford.

From there he was ordained as a deacon, although he didn't pursue this career. His writings were based on mathematical illogic and paradox, which created bizarre worlds such as the one Alice inhabits, and the Hunting Of The Snark, which has recently been converted to a play in London's West End.

Good plot
Excellent command system
Smart graphics

PROS AND CONS

Slow loading of some graphics

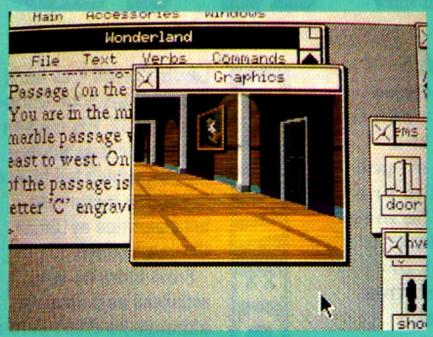
STEP BY STEP



1 ***Alice starts her adventure as it began in the book, lazing by a river. The only difference in the game is that this is where you set up your windows. You can hang around and wait for the rabbit to appear, but you're best off going to...***

2 ***...the wood. Take the pear and, in a flash of light, it turns into a lantern. If you wait here the rabbit will appear. Follow it straight away or you'll never find its hole and your adventure will be over.***





3 ***After plunging down the rabbit hole, Alice encounters a glass table, complete with potion on top. There's also a very small door, which the rabbit went through. Wonder what's supposed to happen next?***

page, although alterations have been made to incorporate the puzzles.

PROMPT AND CIRCUMSTANCE

The problems you're faced with all have logical solutions and can often be solved with a good knowledge of the book. Should you become hopelessly lost, there's a rather nifty help system to bail you out. Select the topic you want and you're presented with several levels of help, starting with cryptic and ending with the answer. Naturally you're asked whether or not you want more detailed assistance. Usually a prompt is good enough. I rarely had to rely on the ST to give me an answer to a dilemma.

There are four double-sided disks in total, plus a voucher so you can send for a single disk set at an extra £3. Surprisingly, there isn't a large amount of disk swapping, apart from when you enter a new stage of the game. ***Wonderland*** will run on a half-meg machine, but the music and a few graphics have been cut to make it fit.

This is one of the most absorbing and playable adventures I've seen. The plot is true to the book, the puzzles are manageable and there's very little need for the keyboard. There's little to fault it, apart from the subject matter which some people may find a little off-putting. Apart from that, this is a must buy.



INSIDE INFO

Wonderland boasts a neat text editing system. If you incorrectly enter a command you can scroll back through the text, highlight the offending spelling or instruction, type over it, and enter the correct command. All this, plus the windows system, is strongly reminiscent of the Apple Macintosh, which is designed to be almost idiot-proof. If that was Magnetic Scrolls' intention, then they've done a good job.

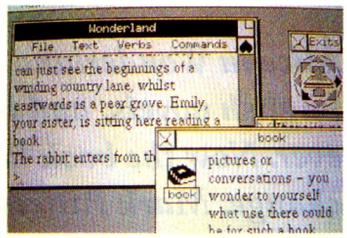
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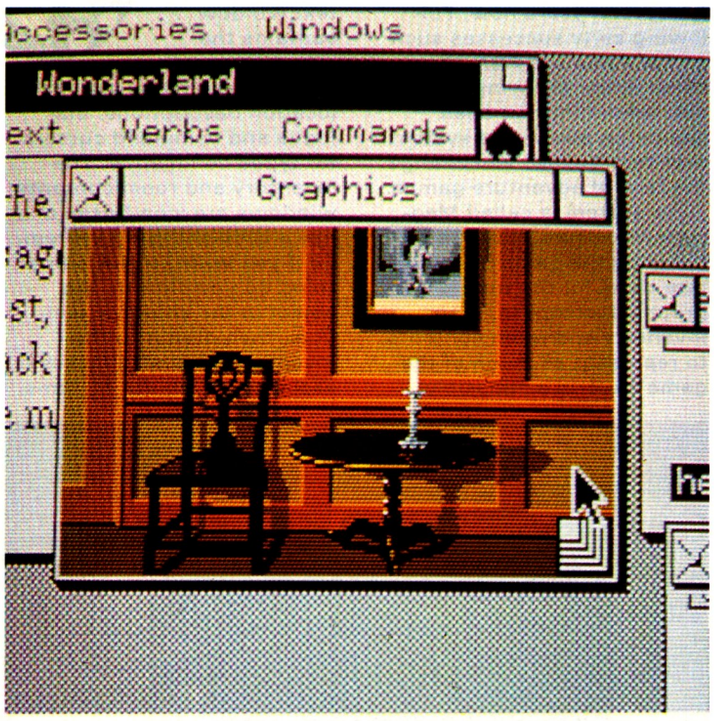
PRICE: £29.99
RELEASE DATE: NOW
MIN MEMORY : 512K

GRAPHICS	★★★★★
SOUND	★★★★★
VALUE FOR MONEY	★★★★★
PLAYABILITY	★★★★★

OVERALL 94%



The layout of the windows can be saved to disk, so you don't have to reposition them everytime you load the game.



There's a long drop in the rabbit hole. Fortunately, there's a pile of leaves to break Alice's fall. Search them and you'll find a key.

Storm Master

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AMIGA POWER 86%







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...in a world of

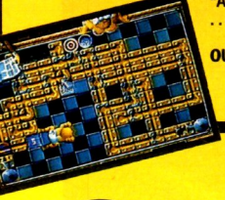
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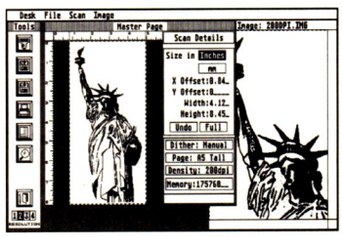
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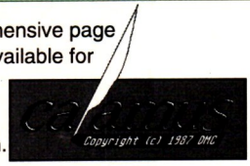


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VFM

From playing God to playing football, ST Review gives you the lowdown on what's hot and what's not in this month's crop of Budget label releases

POPULOUS/ SIM CITY PACK

Infogrames
PRICE: £29.99

'God sims' have been pretty big news over the last two years, and this pack unites two of the biggest.

Sim City, originally released by Maxis, casts you as an urban God. The object is to create a city, complete with factories, power stations, stadia, ports, roadways, police force, fire department and a stable economy.

The game requires you to develop two skills: those of a civic planner and an accountant. Finance is the single most important element: the city's income comes from its people, and you have to budget carefully. The police and fire departments need regular funding, roads need repairing and buildings need, well, building. If you run low on cash, the only way to top up your funds is to tax the hell out of the people. Just like real life!

Populous, on the other hand, pits you head-to-head with another God, and your objective is simply to wipe out all of your rival's people in a series of spectacular natural disasters.

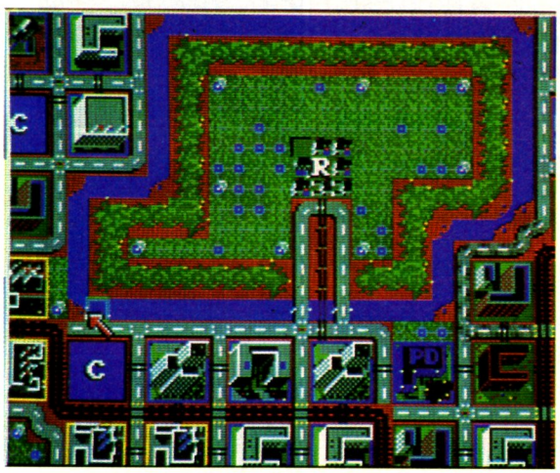
Both parties start the game with a small amount of uneven land and a handful of people. The first step is to command them to build. Once they have a roof over their heads they can reproduce: as your population grows, so does your power.

Your arsenal consists of floods, earthquakes, bottomless swamps, volcanoes, Armageddon (which instructs everyone to seek and attempt to destroy the enemy), and knight, which converts a mild-mannered human into a rampaging tin death machine.

You can use combinations of attack mechanisms: you could, for example, earthquake an area, then swamp the remaining land, a kind of heavenly low-blow.

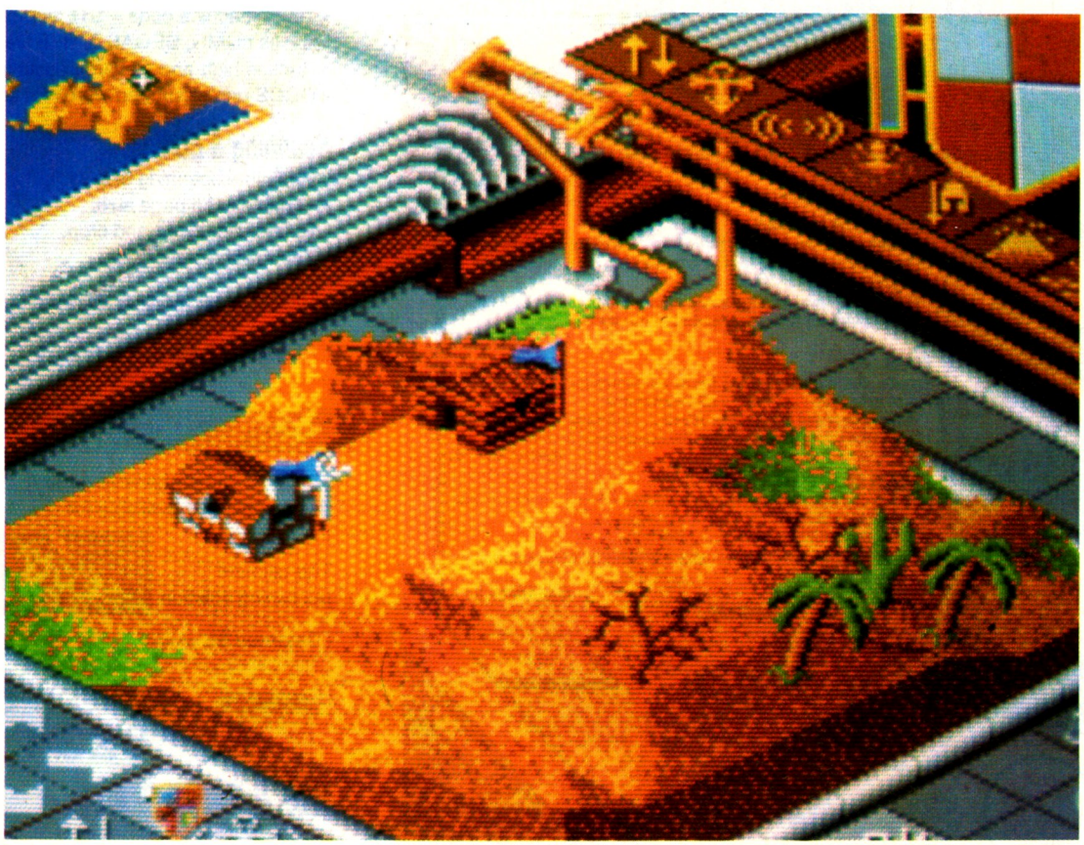
Sim City is one of those games that's a must for all collections, and while ***Populous*** is heavily out of date compared to its sequel, this compilation is well worth picking up.

RATING 80%



Sim City: a brilliant combination of gameplay and intellectual stimulus.

Populous: the grand-daddy of the so-called God sims.



AWARD WINNERS

Empire
PRICE: £25.99

This new compilation from Empire is a real mixture, covering everything from volcanoes to football.

The first is ***Space Ace*** from Readysoft, and it comes on a whopping four disks. Like its predecessor, ***Dragon's Lair***, it's a conversion of a Don Bluth laser disk coin-op.The object of the game is to defeat the villain Borf, who has kidnapped your girlfriend and seized control of the Infanto ray, which reduces people to children. Despite the impressive cartoon-style graphics, the gameplay is a real let-down. The joystick combinations before you leap into action take so long that, by the time you've got to grips with them, disaster has already struck. An attractive game, with little to offer in the gameplay stakes.

Next is ***Kick Off 2***, Anco's follow-up to the highly successful ***Kick Off***, the game that revolutionised computer football sims. Despite the small graphics, this is an extremely playable game, at its best in two-player mode.

Populous is the next offering: see the review of the ***Sim City/Populous*** Pack.

Last, but not least, is ***Pipemania***, an addictive puzzle game. The idea is to build a pipeline from a number of random pieces. As you're laying it, it starts filling up with liquid from the far end. If you've laid enough connecting pieces of pipe by the time the liquid reaches the end you advance to the next level.

This compilation provides a good variety of games, but it's a pity that ***Space Ace*** has been included instead of something more worthwhile.

RATING 86%



Pipemania: puzzle games had their renaissance 12 months ago, and this was one of the more popular.

Stunning to look at but ultimately shallow, Space Ace is a let-down gameplay-wise but has nonetheless sold in the tens of thousands.

RAINBOW COLLECTION

Ocean
PRICE: £19.99

The Japanese passion for 'cutsey' games caught on here in a big way, and this compilation from Ocean combines three of the best.

Bubble Bobble is the eldest of the trio, but it still manages to hold its own. The hundred levels are made up from single screens, each with the same objective – wipe out everything that moves. The heroes are two brontosauruses, Bub and Bob, who can defeat their enemies by trapping them in bubbles, then bursting them. There's also a great two-player option.

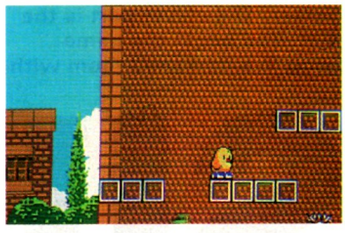
Next is the rather bizarre ***New Zealand Story***: you control a kiwi who's out to rescue his family from the clutches of a ravenous walrus. Armed only with a bow and arrow, the intrepid antipodean has to negotiate platforms, teddy bears that make Hell's Angels look soft, and a host of other hazards. This game may look very dated, but it's still challenging and playable.

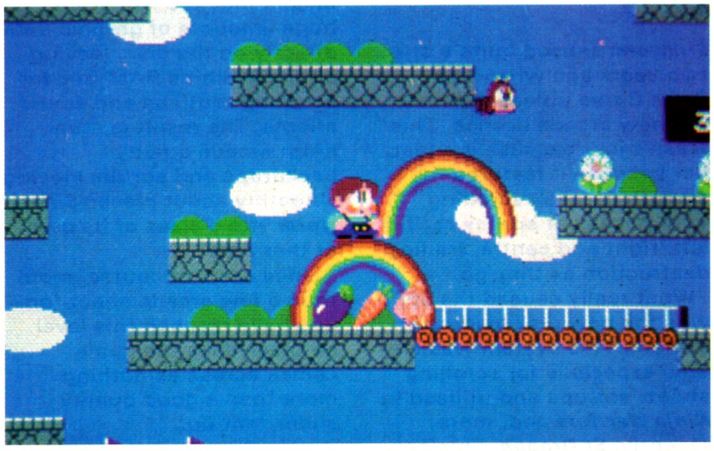
Rainbow Islands is the most colourful game in this collection, and it's also the most playable. Although it's the sequel to ***Bubble Bobble***, the hero has metamorphosed from a 20-ton brontosaurus to a small kid in dungarees. The levels all scroll vertically, their heights being reached by leaping from platform to platform. The kid's only form of defence is his ability to create rainbows: these can either be used as bridges, which he can jump on, or to destroy nasties. Plenty of colour and some excellent end-of-level guardians make this a winner.

This is a great compilation: the only drawback is that, featuring games of such quality, it's almost inevitable that most people will own one or more of them already.

RATING 87%

Sickly but superb: New Zealand Story's Kiwi hero is cute and conniving in turns.





When Rainbow Islands finally made it onto the ST, the great games buying public were in awe.

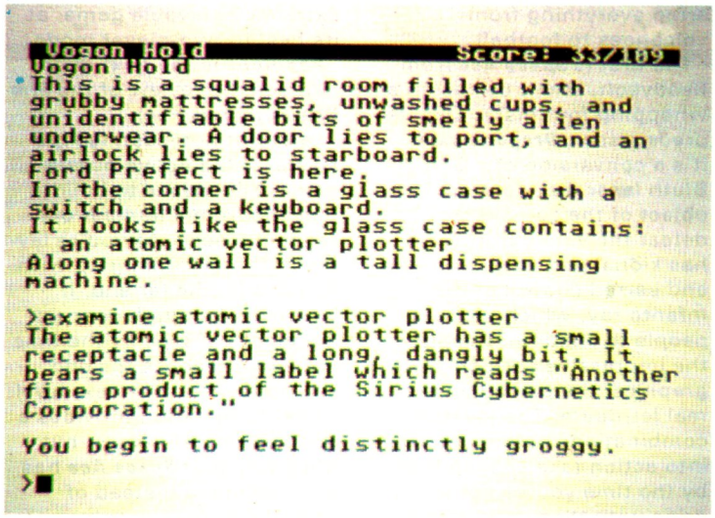
THE HITCHHIKER'S GUIDE TO THE GALAXY

Mastertronic
£9.99

This adventure game was co-written by Douglas Adams and based loosely on his best-selling books, the fifth of which should have just been released by the time you read this. ***The Hitchhiker's Guide To The Galaxy*** takes you on a journey through time, space and bad poetry with Arthur Dent and his friend of five years, Ford Prefect (who turns out not to have come from Guildford as he originally claimed, but from a planet close to Betelgeuse).

The adventure is, on the surface, a simple text affair with the traditional Infocom parser. The clever part is the plot. You begin the game lying in a darkened room with a splitting hangover. From here you have to stop your house being demolished, get off planet Earth before it's demolished, get off a Vogon Constructor ship without being demolished yourself and...well, if you really want to know, read the book.

I've always been a fan of Douglas Adam's work, and regard the ***Hitchhiker's*** trilogy in four parts as one of the great classics. However, I have to admit to being mildly disappointed with this game. Obviously, the text is sharp and humorous, and the story is a delight to read. As an adventure, though, it has some serious faults. To complete the game with maximum points, you have to follow a very narrow plot through many ambiguous situations. Most of the success you encounter in the game is more likely to come from trial and error than anything else. Luckily, Adams went on to better things with his next adventure, ***Bureaucracy***. ***Hitchhiker's*** is worth the tenner just for the read, but if you're an adventure buff, you'll probably want something a little more playable.



Infocom's guide to life, universe, parser and a tidy little text adventure.

RATING 71%

SILKWORM

16 Blitz
£9.99

Silkworm caused quite a stir two years ago when The Sales Curve unleashed their hot new arcade licence. This wasn't just because it's fast, nor because it features smooth parallax scrolling with dozens of sprites racing left, right and centre, trailing destruction as they go.

What really caused the stir was the new disk loading system. This system was created especially for scrolling shoot-'em-ups and utilised in ***Ninja Warriors*** and, more recently, ***St Dragon***. This new system allows sprites and backdrops to be loaded into the game as you're playing it, with no loss of speed. This means that you can store huge amounts of graphic data directly on the disk, leaving all the machine RAM free for scrolling routines and sound effects The result is stunning: arcade quality backdrops and sprites moving smoothly about placed ***Silkworm*** into a class of its own at that time.

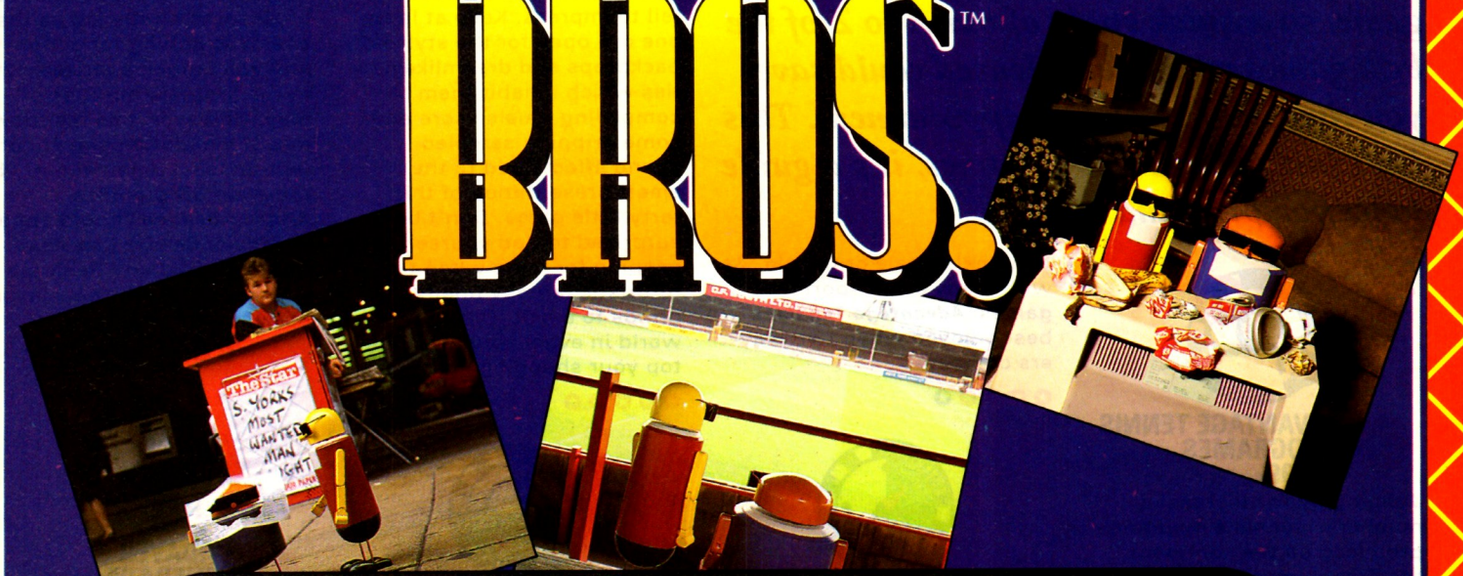
Since then, of course, more than a few arcade shoot-'em-ups have reached this level, so these days the game comes across as nothing more than a good quality shoot-'em-up.

RATING 80%



An all-time favourite here at EMAP Towers, nothing is faster and more furious than the almighty Silkworm.

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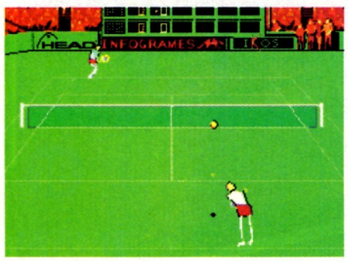
THE ALL-TIME TO

There's nothing worse than buying a bogus game, so a quick study of our A to Z of the best games ever to be released could save you time, money and disappointment. This isn't just another list of names, it's a guide to let you play and enjoy...



1 ADVANTAGE TENNIS INFOGRAMES £25.99

Judging by the increasing number of tennis simulations produced on the continent, the French must certainly have a penchant for this ever-popular sport. Until Infogrames joined the European tennis club frequented by publishers Loriciel and Ubisoft, the latter's ***Pro Tennis Tour II*** was considered to be the finest example. Nevertheless, most of the tennis



Game, set and match to this superb tennis simulation from France-based Infogrames.

titles have a superficially similar feel to them. Infogrames has long been a major supporter of the ST and has created such pioneering 16-bit computer games as ***Captain Blood*** and ***Purple Satin Day***. A beautifully simple control method sells ***Advantage Tennis***. The slightly overhead view of the court scrolls frantically from one side to another, while there's a satisfyingly quick response to those matchpoint-winning calls for high lobs, net shots and, for the die-hard poseur, a crafty smash through the legs of your opponent. John McEnroe would be especially proud of the tantrums displayed by losing racketeers. These can, thankfully, be a non-sexist male or female. As with many other sports games, ***Advantage Tennis*** is best enjoyed when two players compete

★★★★☆



2 ANOTHER WORLD DELPHINE (DISTRIBUTED BY US GOLD) £25.99

ATARI ST ESSENTIAL BUY

Eric Chahi, artist on a previous Delphine blockbuster called ***Future Wars***, toiled for more than two years on this unique arcade adventure-come-interactive cartoon. If only the conversions of ***Dragon's Lair*** and ***Space Ace*** from Sullivan Bluth and Readysoft were this good. Taking the role of Lester, an everyday wizkid scientist, you're hurled through time and space by a freak nuclear accident. Survival in this alternate dimension depends on cunning, speed and sharp senses. It's like ***Indiana Jones*** in outer space. ***Another World*** has an incredible aura of something new and exciting. This is due, in the main, to the novel polygon graphics developed by Chahi and his clever chums. The cinematic zooms, close-ups, pans and rotoscoped animation can't fail to impress. Keep at least one eye open for the stylised backdrops and dreamlike nasties which inhabit them. A compelling music score and some gripping sampled sound effects add to the smart presentation of this tarty little game. Don't be surprised to find yourself gasping for more when this futuristic fantasy finally grinds to a halt. Out of this world in every way, it should top your shopping list.



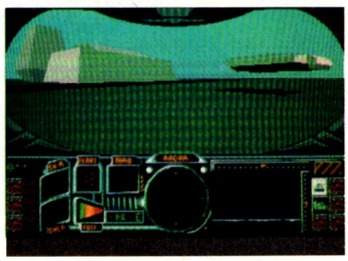
State-of-the-art and immensely playable — yet another top-class slice of Gallic game.

★★★★★



3 ARMOUR-GEDDON PSYGNOSIS £25.99

With a powerful intro reminiscent of the cult Japanese cartoon ***Akira***, ***Armour-Geddon*** was the first step into simulation software for publisher Psygnosis. Using equal amounts of brain and brawn, you must find and reassemble an ancient weapon to defeat the 'Sheltered Ones'. Authors Paul Hunter and Ed Scio previously chalked up a game for the Dragon 32 home computer, as well as ***Space Harrier*** on the Amstrad CPC and some of the most popular Microdeal products. The option to climb inside six different types of vehicle is the feature that makes this game so special — despite its awful title pun. Where else could you drive two types of tank, fly stealth bombers and cruise the battlefield in a hovercraft? Each one of these craft can be equipped with lasers, missiles, extra fuel tanks, teleporter pods and such like. There's no chance of sleeping on the job as the enemy is itching for action and will launch a strike within the first few minutes of play. However, this meltdown mix of simulation and shoot-'em-up is let down slightly by the plain 3D graphics. ***Armour-Geddon*** should appeal to fans of ***Carrier Command*** from Rainbird and Realtime Games. It's got a two-player option, too.



This powerful piece of simulation software should appeal to fantasy fans everywhere.

★★★★☆



4 CADAVER RENEGADE £25.99 (BUNDLED WITH SPEEDBALL II AND XENON)

ATARI ST BUDGET BUY

Players who started out with the Sinclair Spectrum micro will always have a fondness for adventures with isometric 3D graphics such as ***Knight Lore*** (Ultimate) and ***Batman*** (Ocean). Paying homage to these classic games, ***Cadaver*** marked a radical departure for the Bitmap Brothers — the famous programming outfit was then known only for its ability to produce fast and slick arcade games.

A treasure-hunting dwarf, you wander through a multitude of flick screens filled with the usual assortment of obstacles and tasty rewards. With 450 locations spread over five levels to scrutinise, the auto-mapping facility certainly comes in handy. Each level has anything between 600 and 1,000 unique objects. As only a limited



Last year witnessed a renewed interest in isometric arcade/adventures — and Cadaver was in the thick of it.

★★★★★

P 50 ST GAMES

PART ONE — THE FIRST 25

number can be carried, which ones should be kept or thrown away? Renegade reckons that a good player takes around seven hours to steam right through the game. Interestingly, ***Cadaver*** started life as a map making utility called ***Adventure Level Editor***. An expansion disk, ***Cadaver – The Pay Off***, was released with four new levels to tackle and improvements in virtually every department. ***Head over Heels*** (Ocean), the definitive Spectrum game, has actually been converted over to the ST since the introduction of ***Cadaver***.

★★★★★



5 CAPTIVE MINDSCAPE £25.99

In the early 80s, programmer Tony Crowther shot to fame for a most unusual reason: he was the guy who could write a game in a couple of weeks. But ***Captive***, one of the biggest games ever to have been produced, took him rather longer to code.

In this game you play the most evil guy in the galaxy. He's been cryogenically imprisoned for over 200 years, but now a computer malfunction allows him to escape from the huge fortress orbiting in outer space. With the help of a briefcase straight out of ***Mission Impossible***, this makeshift prison can be explored using four droids. These techno-toys come in kit form and have interchangeable parts so that they can adapt to different challenges, and useful gadgets, such as extra armour, can also be bought. Be warned, though, that many of these can hindder your progress, including dragons, dwarfs and the vindictive ED-209 robot from ***Robocop***.

Captive has been described as a sci-fi version of ***Dungeon Master***. Its most striking feature is its immense size — there are a staggering 6,000 missions to complete. Fast reflexes and a quick brain are essential credentials for success. The cover artwork was created by John Pierre Trevor who worked on ***Star Wars***.



This multi-coloured, multi-level adventure has won the hearts of gamers — and numerous accolades to boot.

★★★★★



6 CRUISE FOR A CORPSE DELPHINE (DISTRIBUTED BY US GOLD) £25.99

Reminiscent of a great Agatha Christie murder mystery, ***Cruise for a Corpse*** is the latest game to incorporate the celebrated Cinematique system. With it, Delphine produces graphic adventures that are of a standard comparable to ***The Secret of Monkey Island*** from Lucasfilm Games. The similarity doesn't end there either: both of these companies are renowned for being frustratingly late with their releases.



Super sleuthing and super software — graphic adventures don't come much better than Cruise for a Corpse.

Set aboard a luxury yacht during the roaring 20s, poor Inspector Raoul Dussentier doesn't have a hope in hell of enjoying a break from solving crimes. The millionaire host has been bumped off, and you have to question the suspects, search the boat for clues and, finally, confront the murderer. The nailbiting plot has plenty of twists and turns before the clues fall into place.

Cruise for a Corpse is blessed with exquisite scenery and characterisation. The combination of static bitmapped artwork and animated polygon graphics are a treat to behold, while close-ups and other cinematic techniques help to heighten the tension. This is first-class software sleuthing — few games come more highly recommended.

★★★★½



7 DEUTEROS ACTIVISION £29.99

In ***Millennium 2.2***, civilisation was rebuilt following a devastating planetary collision, and it's your job to do it all over again a thousand years later. Taking the shattered scraps of humanity and moulding a fighting force of space marines, backed by knowledgeable scientific researchers, isn't exactly a laugh per minute — and this overdose of strategy won't fulfil every player out there, although there will be many who adore it.

Deuteros is a resource management game. Your command process is activated via a selection of icons and screens pumping out the sort of information normally reserved for the pages of the ***Wall Street Journal*** or ***New Scientist***. Striving to balance factors such as technological advancement, the environment, production and energy is difficult.



Scoring higher than most in the IQ stakes, the basic aim is to balance the budgets and the environment, too.

Once the action has begun, orbiting factories can be constructed along with essential machines like space shuttles and cryogenic pods. This all leads, eventually, to interstellar travel and the first encounters with mysterious alien life. Expect to invest considerable time in this game before you get much out of it. If this sort of romp leaves you hungry for more, try ***Supremacy*** from Virgin Games.

★★★½½

★★★★★
Supreme. You'd be mad to miss out on this

★★★★½
Excellent. Blag the cash and buy it

★★★½½
Good. Purchase if you've cash to spare

★★½½½
Fair. OK if you're a fan of this type of game

★½½½½
Dodgy. Steer clear and save for something better.



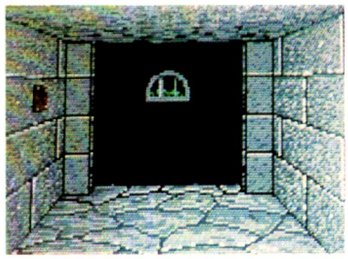
8 DUNGEON MASTER
FTL
£25.99

ATARI ST ESSENTIAL BUY

Widespread critical acclaim for ***Dungeon Master*** helped to establish the ST as a great games machine. Based in sunny San Diego, the coders at Faster Than Light nurtured business packages before games such as ***Dungeon Master*** and ***Sundog*** were a twinkle in their assemblers. ***Dungeon Master*** took the world by storm and quickly established a new genre. Journeying into the unknown domain of worms and underground catacombs, you and a select party of brave adventurers go forth and search every nook and cranny for magic potions and other splendid objects of desire. The game-style and distinctive, first-person perspective has been much copied since, and although imitation may still be the sincerest form of flattery, players are still yearning for a proper ***Dungeon Master II*** sequel. Rumours (or should that be folklore?) hint at this being a space opera rather than another traditional RPG. Lest anticipation causes you a nervous breakdown, perhaps you should sample ***Chaos Strikes Back*** or ***Oids***. All three FTL games may well be collecting dust in a friend's attic.



Often copied but never surpassed, Dungeon Master helped establish the ST. Even now it's still a red-hot favourite. . . .



★★★★★



9 ELITE
FIREBIRD
£25.99

Few computer games can stand the test of time but Elite is one of the exceptions. First appearing on the BBC micro in 1984, its near-perfect mix of space exploration, trading and combat made it a natural conversion choice when the ST was launched a year later. Arriving later than expected, and sporting only minor tweaks, some felt the ST conversion didn't go far enough. ***Elite*** is, nevertheless, a classic and deserves to be treated with respect.

Owning 100 credits and a Cobra Mk III spaceship armed with weak lasers and a paltry three missiles, the central idea is to amass a fortune, buy superior equipment, fend off the competition and reach the ultimate rank of Elite. Not that you're restricted to playing a goodie two-shoes Luke Skywalker-type. Anybody can trade in narcotics, slaves and guns. But the trouble is, the intergalactic version of ***Miami Vice*** quickly catches onto your illegal activities and takes severe counter-measures. Co-author David Braben recently signed ***Elite II*** over to Japanese video games giant, Konami. With the pre-release hype already starting to bubble and froth, press coverage on this long-awaited game will be in mouthwatering abundance.



The grand daddy of the trading games.

★★★★★

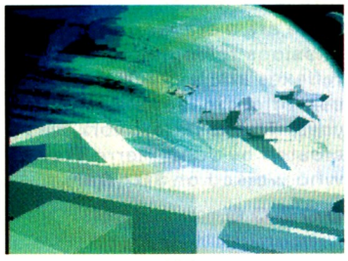


10 EPIC
OCEAN
£25.99

Rich in both anecdotes and delays, ***Epic*** began life as a 3D version of Microdeal's ***Goldrunner***, one of the first shoot-'em-ups available for the ST.

Goldrunner's most notable feature was its fast, vertical screen scrolling routines, but ***Epic*** is different. . . Microdeal suddenly pulled out of the games industry, and lucky programming team, Digital Image Design, sold a revamped proposal to Ocean. Heavily inspired by science fiction extravaganzas such as ***Star Wars*** and ***Battlestar Galactica***, ***Epic*** would be a spectacular shoot-'em-up on a grand scale. After finishing the award-winning action sim, ***F29 Retaliator***, Digital Image Design finally started work on ***Epic***, concurrently with ***Robocop 3***.

Epic is the nearest you'll ever get to the best-selling ***Wing Commander*** saga from Origin. The game is brimming over with big space battles, suitably zippy 3D visuals, dramatic camera angles, snatches of atmospheric classical music and carefully choreographed animation. Gamers will probably recognise a few of the starfighters in ***Epic*** from their favourite movies. In the first mission, you must fly through endless squads of enemy fighters, skim the surface of the planet, and blow away a giant dish like the one seen in ***Return of the Jedi***. A sequel is reportedly underway.



Probably one of the most original games to be released for the ST in the past year. . . .

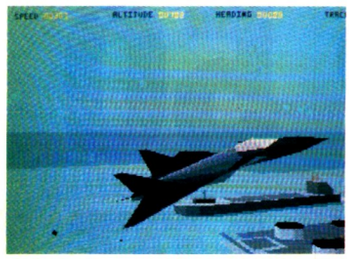
★★★★★



11 F15 STRIKE EAGLE II
MICROPROSE
£34.99

There's definitely no shortage of flight simulations available, so which one should you choose? Microprose's current ST showcase is aimed at those who lie between complete and utter rookie and top gun. Used with deadly effect in the Gulf War, the original design for the real F15 air-superiority fighter goes back 30 years.

In the game of the plane, desktop pilots can concentrate on airborne action without worrying about the hassles of everyday flying. For example, there's a lazy option to go for autopilot landings. The four levels of difficulty are divided into numerous missions set around the world including central Europe, Vietnam and the Middle East. Polished and playable, this outing runs on full afterburner for 99 per cent of the time. ***F15 Strike Eagle II*** has oodles of fast flowing 3D graphics and first-rate sampled sound effects. Although accurate flight dynamics and tactics are put into play, serious enthusiasts should almost certainly opt for ***Falcon*** (Spectrum Holobyte) or ***F19 Stealth Fighter*** (Microprose) instead. For more unashamed action, try ***F29 Retaliator*** (Ocean). But the coveted accolade of supreme ST flight sim could soon be passed over to ***Birds of Prey*** (Argonaut Software/Electronic Arts).



One of the best flight sims – F15 Strike Eagle II from Microprose.

★★★★★



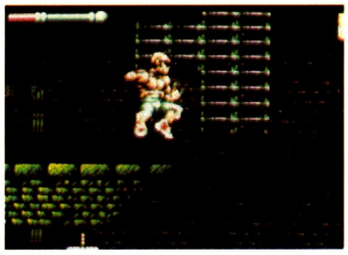
12 FIRST SAMURAI
IMAGEWORKS
£25.99

From the people that brought us ***The Last Ninja*** and ***Cybernoid***, ***First Samurai*** is an inspired fusion of the best of beat-'em-up and arcade adventure.

Revenge is the name of the game — and very few are tougher or more agile than the hero. This willing student of the martial arts is ready, willing and able to dispatch the neo-Tokyo thugs and bloodsucking bats who inhabit the gorgeous landscapes of the game. Once enough energy has been collected, a magical sword flies

into your hands from nowhere, and this sharp slasher makes life easy, provided you've got enough mystical power. Other weapons include daggers and axes, plus a wise old Wizard who will provide hints if he thinks you're getting stuck.

First Samurai has plenty going for it: the game strikes



If you basically like beat 'em ups but want your brain to be challenged, too, why not buy First Samurai?

the right balance between challenge and playability, and orchestral sound effects bring a touch of originality to the proceedings (for example, shouts of 'Hallelujah' are heard when much-needed food is eaten). All of the effort and care that has gone into this production shines through like a beacon. It's not often that you find a slash-'em-up with some substance. Thankfully, you don't need to be a budding Einstein or Bruce Lee to crack it, either.

✪✪✪✪✪

ARCADE ADVENTURE

13 FLAMES OF FREEDOM MICROPROSE £34.99

Even the most famous secret agent in the world, James Bond, would be proud to star in this massive action yarn from Mike Singleton of Maelstrom Games. Singleton cut his teeth on computer games before there was hardly any potential audience. The former teacher has a flair for ambitious projects. ***Midwinter*** was one of his most successful and respected releases, and ***Flames of Freedom*** takes the theme one step further. The specifications speak for themselves: ***Flames of Freedom*** has a playing area eight times bigger than the original, and it has over 4,000 individual characters with their own personalities and goals. The light-sourced three-dimensional graphics use fractal geometry to give a



Flames of Freedom an excellent sequel to the excellent Midwinter.

more realistic impression of natural phenomena such as mountains and coastlines.

The storyline is of epic proportions with players joining a suicidal mission to stop the mighty Saharan Empire expanding across the land, air and sea of over 40 islands. ***Flames of Freedom*** is so big, there's a choice of using three submarines or a zeppelin on your sabotage missions. ***Midwinter III*** seems inevitable.

✪✪✪✪✪

PLATFORM

14 GODS RENEGADE £25.99

A far cry from the dismal ***Magic Pockets***, ***Gods*** is an acclaimed platform puzzler with off-beat mythological and technological-looking aesthetics. Heavily influenced by the shakers and movers on Japanese console formats, ***Gods*** features a unique system that closely monitors the progress of the player and acts accordingly. A smart ass, for instance, can look forward to some troublesome obstacles or creatures to cut them back down to size. On the other hand, a trembling novice may find a few extra goodies to boost their confidence. The idea works remarkably well and is sure to make a return in future games from this respected development group. Of



Proving that puzzle games don't have to be cute to be fun, Gods provides atmosphere and challenge in equal measures.

course, being a Bitmap Brothers production, music plays an important part. John Foxx provided the thumping soundtrack. He used to front Ultravox before Midge Ure started to pose for music videos. If any criticism can be levelled at the game, it's that important objects frequently blend into the overly detailed backdrops. Even so, you'll keep coming back for more.

✪✪✪✪✪

PLATFORM

15 HARLEQUIN GREMLIN £25.99

You wouldn't believe the twisty little bits in this one, ladies and gentlemen. Pitched somewhere between ***Gods*** and ***Robocod***, ***Harlequin*** stars a hero more acrobatic than the great Sonic the Hedgehog himself.

After the pretty dubious offerings of ***HeMan*** and ***Mask***, Gremlin has produced some absolute corkers in the past two years — and this is yet another cracker. It's bright and colourful with a dark and



Harlequin is cute, although it does have a couple of nasty twists. Buy it, if only to savour its surreal inventiveness.

moody underbelly. Moreover, ***Harlequin*** is like playing a nightmare with chocolate flavoured coverings. Over 20 levels are packed full of groovy objects like ropes, slides, trampolines, unicycles, giant cogs, bubbles, jack-in-the-boxes, clock faces and space hoppers, the great 70s bouncy toy seen on ***Vic Reeves' Big Night Out***.

Harlequin is a smart trickster who can transform into a dreamy angel fish able to swim through the watery depths of the local sewer. And what's the link between a Buddha statue, lightning bolt, sand snake and scorpion? Yes, they're in here, too. By the way, does anybody remember the pop group Hohokam who had an underground hit in 1985 with ***Harlequin Tears***? This song incorporated samples from the movie ***Marathon Man*** starring Dustin Hoffman, Rod Steiger and Sir Laurence Olivier. Trivia lesson over!

✪✪✪✪✪

ARCADE ADVENTURE

16 HEIMDALL CORE DESIGN £30.99

Remember the rowdy drinking scene in the 1958 swashbuckling movie, ***The Vikings***, staring Kirk Douglas and Ernest Borgnine? You know, the bit where one-eyed Kirk drunkenly frees a girl by throwing an axe at her tethered hair. ***Heimdall*** starts just like it. Yes, it's a bit sexist. Vikings were like that.

This Nordic isometric roleplaying game boldy raids ideas from other genres and includes a few arcade sequences to get you in the



Thor he's a jolly good fellow — and Heimdall's not bad, either. This Nordic roleplaying romp features some stunning graphic effects and excellent gameplay: all-in-all you've got to have it. . .

mood. The graphics are superb. Animator Jerr O'Carroll worked for Sullivan Bluth in the past, the company responsible for the ***Land Before Time*** and ***Dragon's Lair***. After a stunning introduction, three arcade-style trials of life help set the tone.

Once the girl has been rescued from the stocks, you're asked to chase a greasy warthog around the farmyard; after that, you're in for a spot of close-quarter fighting on a rocking long-boat. Finally, you're ready for the game proper, so pillage and get up to other such Viking pursuits on ye olde quest.

If this is your sort of thing, then ***The Immortal*** from Electronic Arts would probably make another welcome addition to your software collection.

✪✪✪✪✪

17 HEROQUEST GREMLIN £25.99

When Milton Bradley toned down this board game, a best seller was born. Gremlin, too, has managed to tap into its potential.

Originally from the Games Workshop, kids loved the reworked cross between dungeons & dragons and a more conventional boardgame. It's a basic mishmash of fantasy fare with wizards, elves, dwarfs, barbarians, spells, magic potions, precious jewels and magical armour. One to four players can crowd around the computer for a good time and a few nerve-racking moments — and people seem to appreciate the lack of tiresome paperwork in the ST adaptation. There's also the one-player mode for those sad souls who lack any friends. Oh, we nearly forgot to mention some solid graphics and a catchy soundtrack.

Following a brief flirtation with computer games 10 years ago, the Games Workshop has stayed curiously clear of the market despite its wealth of material, much of which would make great on-screen entertainment. This is all likely to change from now. ***Heroquest*** – the computer game – has been a runaway success. And that's why Gremlin is touting an expansion data disk — and the sci-fi follow-up called ***Space Crusade*** has just arrived. Computerised boardgames have never been better.

★★★★½

18 IK+ SYSTEM 3 £9.99

ATARI ST REVIEW BUDGET BUY

Where else could you find the perfect game to accompany a season of Bruce Lee or Jackie Chan martial arts movies? Maverick programmer, Archer Maclean, unleashed this brilliant beat-'em-up in '88. There's no hold on the violence. Each 30-second bout between three karate-crazy chaps is filled with shin kicks, back-flips and digitised yelps. Seventeen moves are at your disposal, including a rather lethal head-butt and double head-kick for simultaneously knocking down the opposition. Two bonus sub-games ease the tension where time bombs are killed out of the way or a shield used to protect yourself against bouncing balls. These get faster and the bomb fuses



The ST Review crew fondly remember the hullabaloo created by the release of this classic martial arts game.

grow shorter. There's also the Maclean hallmark... humour. Pressing the 'T' key will drop the trousers around their ankles. Sir Brian Rix could bring the house down with a top class gag like this in his heyday. Even the pause mode is full of lively dancing fighters doing their nut. ***IK+*** is best experienced with another player, the computer taking control of the third man. Who can resist such a great bargain?

★★★★★

19 JIMMY WHITE'S WHIRLWIND SNOOKER VIRGIN GAMES £25.99

ATARI ST REVIEW ESSENTIAL BUY

Archer Maclean strikes again! Trying to recreate the hushed atmosphere of the matchroom doesn't sound like the most exciting way to spend your limited playtime, right? You couldn't be more wrong. ***Whirlwind Snooker*** is an unrivalled sports simulation with the sexiest 3D on show anywhere for the ST.

Surprisingly, Maclean actually started his career on ITV's ***World of Sport*** show hosted by Dickie Davies. Snooker and computers haven't really mixed before, but Maclean's inspired version stands head-and-shoulders above



Jimmy White's Whirlwind Snooker just goes to prove that, on the ST, the sport is more stimulating than it is on TV.

the competition. The control system never intrudes on your game; it's just like picking up a cue in real life and getting on with the job. . .

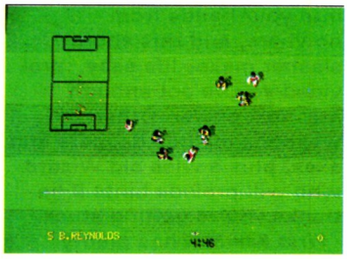
Nothing holds up the action. It's possible to see what's happening from every conceivable angle. There's no way a snooker shark can hustle cash out of you in this game — and as with the other Maclean classics, there are a few neat jokes, for instance the balls stick their tongues out and blow raspberries at anybody who takes too much time lining up a shot. ***Whirlwind Snooker*** just goes to prove how boring normal televised snooker really is. The game deservedly stormed the charts, you'd be a fool to miss out.

★★★★★

20 KICK OFF 2 ANCO £19.99

ATARI ST REVIEW ESSENTIAL BUY

Available on a number of compilations, ***Kick Off 2*** is still the only way to play an action game of footie on your ST. The seemingly endless range of features includes sliding tackles, aftertouch controls to bend or dip the ball, action replays, injury time, free kicks, throw ins, league and cup competitions with sudden death penalty shoot-outs. . . the list just goes on and on. In fact, a football hooligan is the only missing element! ***Kick Off 2*** is played on a frantic overhead view of the pitch battles. The ST version plays a lot faster than its Amiga counterpart, but is slightly less polished in the graphics department. ***Kick Off 2*** is fast, furious and tremendous fun. This sequel enjoys many improvements over its predecessor, the facility to load



If football games are what you're into, you'll never find a faster, more accurate and let's face it a better example than this.

Player Manager (Anco) teams and tactics being only one of them. Only ***Super Formation Soccer*** on the Super NES gives ***Kick Off 2*** any serious competition in the soccer stakes. Furthermore, the excitement can be extended with a series of add-on datadisks: ***Final Whistle*** (£15.99), ***Return to Europe*** (£7.99) and ***Winning Tactics*** (£7.99). ***Kick Off 3*** should be here in time for the European Championship in Sweden this year.

★★★★★

21 LEANDER PSYGNOSIS £25.99

Just like most of the people in the flash, Japanese console video games that are so in vogue at the moment, the main character in ***Leander*** looks like another actor from an episode of the cult TV series, ***The Water Margin***. And it's a case of rescuing the princess yet again (why doesn't she do something about it for once?).

Any would-be samurai warrior on a mission of mercy can expect to meet massive old monsters and beat them into submission. This playable hacking platform game incorporates big bold backdrops with wonderful waterfalls and other such items. On top of this, there's a whole bunch



Who needs a console when Psygnosis release Japanese-style software like this for the ST?

of interesting sprites lurking around. ***Leander*** is blessed with an oriental flavour from the word go. Even the animated title sequence would sit comfortably on a coin-op. Very high praise when you consider one of these Japanese wonder widgets is packed full of silicon wizardry to make life easy for games programmers. Feats of brilliance should always be commended and influences of ***Strider*** (Capcom) and ***Shadow of the Beast 2*** (Psygnosis) shine through. You won't go far wrong if you decide to give ***Leander*** a spin.

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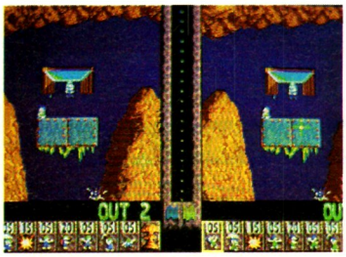
PUZZLE AND QUIZ

22 LEMMINGS PSYGNOSIS £25.99

ATARI ST ESSENTIAL BUY

Easily the best game ever from Psygnosis, ***Lemmings*** burst onto our screens last year. As far as the ST is concerned, this arcade puzzle game is superior even to the world-renowned ***Tetris***.

Lemmings are small and stupid creatures who rely on your quick thinking to save them from total extinction. The scene is thus set for a series of increasingly difficult screens where you must dig, climb and blast a safe passage and bypass all those ingenious traps. Some of the Lemmings must be sacrificed for the common good, although a set percentage must make their way through to the next stage.



Join the thousands of humans who've rushed, er, Lemming-like to buy this outstanding release.

Lemmings' most endearing feature is the overall cuteness of the concept, graphics and music. ***Oh No! More Lemmings*** brings 100 new levels of brain-teasing fun. This is available as a standalone game, or as a slightly cheaper data disk for owners of the original. Ocean has licensed a handheld version of ***Lemmings*** on the Nintendo Gameboy console for those of you who like to play on the run — and there's also talk of a coin-op, animated TV series and movie?!? ***Lemmings*** is a game which the whole family can enjoy.

✪✪✪✪✪

RACING SIMULATOR

23 LOTUS TURBO CHALLENGE II GREMLIN £25.99

Improving on the original belter was a tough task which Gremlin has, on the whole, managed with quite some style. Lotus Turbo Challenge is a racing game which works on a stage basis instead of laps. It's therefore reminiscent of the C64 classic ***Pitstop II*** (Epyx) and ***Outrun*** coin-op from Sega. This sequel is technically far superior with faster graphics, more detailed levels, full-screen view for single-player game and better control over the car. Despite this, the two-player game in the original still has the edge. As both games are immensely playable chart-toppers with the fastest pace on the circuit, who really cares? The introduction of bad weather conditions, especially fog, is particularly impressive. For gameplay, there's the usual assortment of road hogs, mad truckers and the rest of your everyday burning rubber competition.



Setting a new standard for race games, Lotus Turbo Challenge II raced straight for the top-slot when it was released.

With a smart, four-player mode if two machines are linked together, ***Lotus Turbo Challenge II*** should keep you occupied for ages. Things have certainly come a long way since the release of ***Night Driving*** on the old Atari VCS video games system. The third game in the series, again courtesy of Magnetic Fields, is scheduled for release later this year.

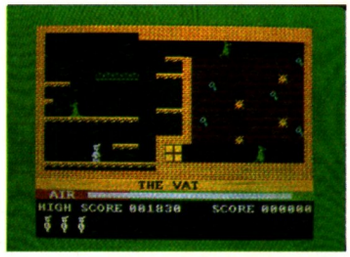
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PLATFORM

24 MANIC MINER SOFTWARE PROJECTS £9.99

A crazy platform caper, ***Miner 2049***, finally gave rise to ***Manic Miner*** on the Spectrum in the 80s. It was full of goofy sprites of Clive Sinclair and Eugene Evans, a whizkid game designer of the time, and it helped put the rubber key machine into many a home. Now those heady days are back for a bargain price.

An absolute nostalgia trip can be yours thanks to a thoughtful option to play ***Manic Miner*** with the original graphics and sound. They don't make them like they used to, do they? The sequel, ***Jet Set Willy***, is also available from Software Projects for the same price.



If you want to know what ST games used to be like, take a trip down memory lane with this budget game from Software Projects.

And if you're after another wonderful classic, try ***Paradroid '90*** from the now-defunct Hewson. One of the greatest ever shoot-'em-ups, Andrew Braybrook's ***Paradroid*** was originally released on the C64. It's a near-perfect mixture of action and strategy, as you wipe out the rogue robots that have taken over your fleet of space ships.

These re-releases and remixes could open the floodgates for a steady stream of more of these raves from the graves — which is good news for those of us who hunger for ST adaptations of cherished eight-bit games such as ***3D Ant Attack***, ***Beach Head***, ***Dropzone***, ***Lords of Midnight***, ***Pitstop II***, ***Rescue on Fractalus***, to name but a few.

✪✪✪✪✪

ARCADE STRATEGY

25 MEGALOMANIA IMAGEWORKS £30.99

Always looking for something different, Sensible Software (***Wizball*** and the ***Shoot'em-Up Construction Kit***) decided to make an action strategy game for those of us who simply can't handle the hefty demands of ***Powermonger***. ***Megalomania*** was the result of this daring experiment. This skilful fusion of wargame and action strategy is typically crazy with lots of mixed-up events and characters, such as cavemen in World War Two Spitfire fighter planes and flying saucers versus ancient Roman Centurion soldiers armed with nuclear bombs. That sort of off-the-wall, totally bizarre humour abounds in ***Megalomania***. Three computer-controlled opponents add yet another out-of-the-ordinary dimension to the game. . .



Megalomania is a funny and absorbing product.

Sound plays an unusually important role. Digitised voices were recorded in a music studio by talented computer sound specialist, Richard Joseph. Anybody who can't stand the complexity and detail of ***Powermonger*** should head straight for ***Megalomania***. These so-called 'God Sims' are all the rage at the moment, although in many ways, Sensible Software has poked fun at their pomposity. This is a masterpiece for the masses.

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WARNING!

Some games may refuse to work properly on updated models of the Atari ST. If in doubt, ask your dealer.

SOFTMACHINE

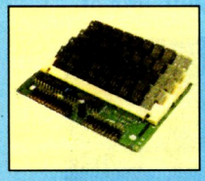
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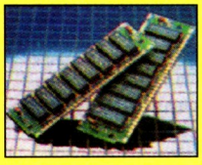


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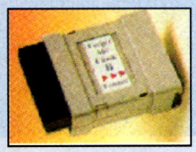


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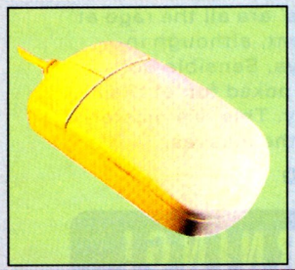
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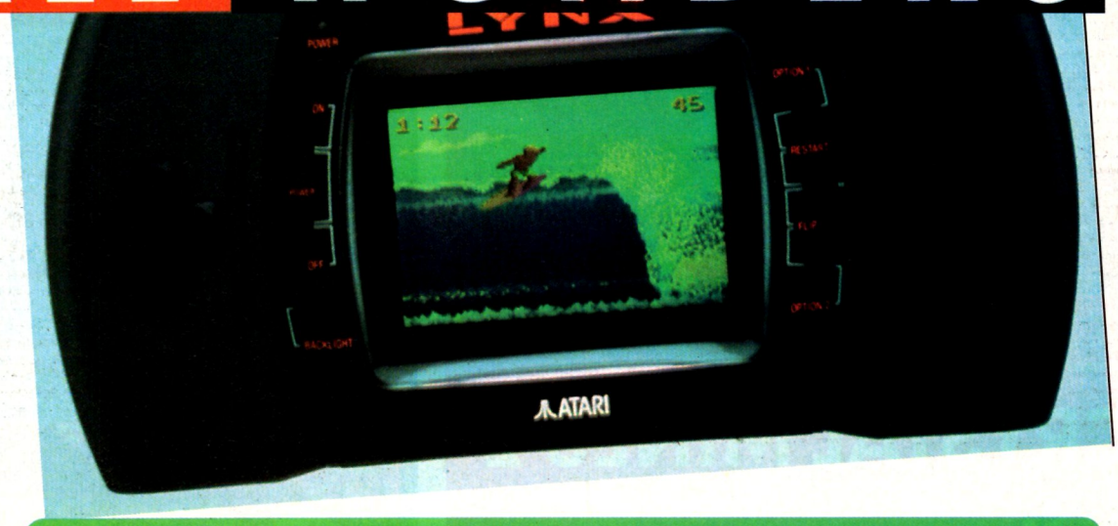
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SMALL WONDERS

With the Lynx gaining a strong foothold in the market place, Frank O'Connor takes a look at what's in the pipeline for Atari's hand-held



The Lynx has seen a dramatic increase in sales over the last year and Atari has been hedging a lot of serious financial bets on it. It appears that all the investment in marketing has, however, paid off, and the company is now planning to double production of the machine.

This kind of announcement should often be taken with a pinch of salt, but there does seem to be a genuine shortage of Lynxes in the shops. If Atari's figures are to be believed, the Lynx is actually slightly ahead of Sega's Game Gear — but it has a long way to go, though, before it catches up with the unprecedented success of the Nintendo Game Boy. With rumours rife about the imminent launch of a colour Game Boy, Atari will have a fight on its hands to stay ahead in the colour market.

DIRTY LARRY



Dirty Larry is a classic scrolling beat-'em-up with more than a hint of shoot-'em-up thrown in for good measure.

One of last year's success stories in the arcades was Capcom's ***Final Fight***. Atari's forthcoming release, ***Dirty Larry – Renegade Cop***, has much in common with that kung fu classic. It's a horizontally scrolling beat-'em-up, complete with bombs, guns and knives. From what we've seen, the action is pretty intense, with enough violence for anyone. Dirty Larry is an ex-cop turned vigilante who's decided to take the law into his own hands. He heads for the subways and seedy back streets of downtown New York in a one-man crusade against the drug lords and gang bosses. Abandoning all he learned at police academy, Larry decides that extreme violence is the best course of action. He starts practising his considerable martial arts skills on the enemy, and when this fails to achieve any results, he resorts to the use of a gun. The game certainly looks promising and it'll be the first of its kind on the Lynx.

KRAZY ACE



Krazy Ace sees you pootling around the bizarre world of Crazy Golf. Knocking the ball into this clown's mouth should earn you points and save you shots.

Real golfing fans will probably be familiar with ***Awesome Golf***, but if your idea of the game is restricted to a quick round of Crazy Golf on the promenade in Brighton, then watch out for ***Krazy Ace***. Instead of hitting a ball around a full-sized course, avoiding water and sand hazards, here you play on a surreal mini-landscape, avoiding such hazards as ramps, chutes and chasms. You can use various features of the landscape to take shortcuts and save your valuable and limited shots. As a game, it's more like pool than golf, but the danger-infested world does provide some fun. The graphics are clever rather than spectacular, but sampled sound gives the presentation a lift.

BIKINI BEACH VOLLEYBALL

The prevailing image of volleyball is one of handsome, tanned young men cavorting gracefully around on a beach. This game takes that image to the extreme in a side-on view of America's latest craze. Volleyball, for the uninitiated, is a little like badminton, without the rackets and with a big soft ball. The Atari implementation features all the best aspects of the game, including team-play, with the computer taking control of both the opposing team and your fellow player. You can serve, volley and smash the ball, but above all else, you have to look really cool.



Got a tan? Got rippling muscles and a pair of Ray Bans? Only supercool "Station" beach bums need apply for Atari's implementation of the sport.



The Crystal Mines are packed with evil robot killers. These are the least of your problems as the whole mine could collapse around you at any moment.

CRYSTAL MINES 2

PUZZLE AND QUIZ

This sequel to the classic ***Crystal Mines*** is due for release later this month and features more of the same, with you in control of a mining robot in a subterranean world full of danger. This game bears more than a passing resemblance to First Star's classic, ***Boulderdash***. As you creep around the mines, collecting crystals, one false move could spell disaster: move the wrong rock and the mine will collapse. The baddies who inhabit the mine can also make life difficult for you, and clever use of explosives can be the key to success. This game has so much classic content and such brilliantly colourful presentation, that it can hardly fail to please: ***Boulderdash*** fans will love it.

LYNX BASEBALL

SPORTS SIMULATOR

Baseball seems to be in vogue at the moment, with games available on almost every type of console. Now it's the Lynx's turn. The content of this game offers no surprises: you simply hit the ball and run around a big diamond. Fielding, of course, has you bowling and catching in much the same way as any other game of this genre. Clever use of scaling makes the game look impressive, and the music and sound effects, featuring some very nice sampled speech, are stunning. This is definitely one for fans of the sport and so far it looks set to be the best hand-held version around.

Everybody knows that baseball is just the Yankee version of rounders. It's a lot more exciting though, with all the glitz and glamour that goes with American sport.



TOKI

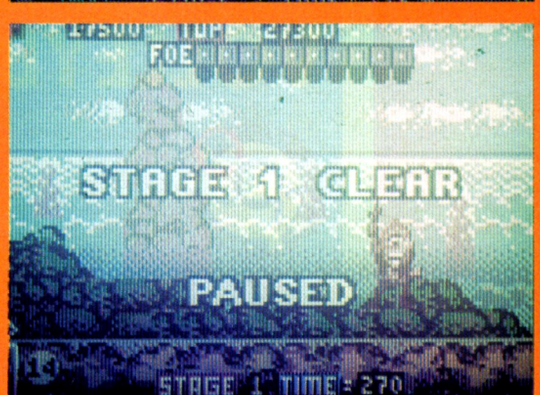
PLATFORM

One of the biggest hits in British arcades last year was the brilliant, if slightly odd, ***Toki***. It tells the story of an unfortunate caveman who, while on the way to visit his girlfriend, is turned into alarge monkey by an evil Stone Age magician. The magician kidnaps the girl and takes her off to his secret lair. Understandably upset by all this, our hero decides to take action. Having lost his natural cave man charisma and style, he has to resort to sheer animal strength and cunning to find his girl and overcome the multitude of hazards that await him.

Being a cave man, Toki hasn't really mastered the art of using weapons. He does, however, have one form of defence that should keep his enemies at bay. The monkey sprite spits out globules of sticky white fluid, which knock lumps out of any fiend unfortunate enough to get in the way. This amazing phlegm can be upgraded by collecting special spit tokens dotted around the landscape. In addition, his jumping abilities can be enhanced by wearing special trainers and he can protect his delicate skull with a smart American Football helmet.

This is a platform game in the classic ***Mario*** mould, with more than just a hint of humour. The baddies all take the form of prehistoric creatures: you can kill almost all of these by spitting at them, but some need to be jumped on to end their reign of terror. Using the heads of hapless baddies is sometimes the only way to reach certain objects and this can really boost your score.





The prehistoric goon gets himself in more trouble than he can handle in this spot-on conversion of an arcade classic. Use your brain as well as your brawn!

Every now and then, you'll come across a flock of, well, green things. Shooting these guys transforms them into coins and this is where the real points come from. The end-of-level baddies are imaginative and challenging and some of the platform problems are outrageously difficult.

Graphically, the Lynx version of ***Toki*** is almost identical to its arcade parent. The sprites are brilliant, the animation superb and the backgrounds amazing. The sound, too, is quite close to that of the original coin-op and succeeds in conveying the bizarre atmosphere. Considering how small the Lynx screen is, everything is remarkably clear and detailed, with none of the blurred vagueness that some Lynx titles unfortunately suffer from.

Gameplay is where this game really comes out on top, though: it has exactly the right learning curve, with the player progressing a little further every time he plays. If this game is an indication of the future standard of Lynx titles, then things are certainly looking good for Atari owners. This is one of the few essential purchases currently available for the Lynx.

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If you're still trying to find your way around Delphine's alternative dimension, take some advice from Rik Haynes

GAMES TIPS ANOTHER

DIFFICULTY 7 RATING

SECTION ONE: 'EDJI'

First swim to the surface, then proceed right into the next screen, where you'll find some unpleasant creatures squirming around the floor and roof. These are very easy to kill: simply kick them and they will disappear. After destroying these creatures, walk through to the next room and finish off the rest of them. Stay in this room and practise running and jumping: the next room will require you to do both. When you're ready, walk into the next screen, where a large dark monster will appear in front of you. Quickly sprint left through the screens you just came through. At the end of the path, jump off the edge of the cliff and land on the hanging vine. The vine breaks, swinging you into the screen you started from. Run right back to where you first met the monster, but this time keep running. You're now confronted by two hunters who take you captive.

SECTION TWO: 'HICI'

Using a slow and long left and right motion, rock the cage until it falls onto the guard below. Grab the gun from the floor and run to the right. Wait in the next screen for a guard to appear and shoot him as soon as possible. If you're not quick enough to do this, hold the fire button until a small, white pulsating globe appears, then release the button and a shield will be constructed in front of your gun. Holding the button too long will produce a larger globe that shoots a large energy beam across the screen when your trigger finger is released. Try not to use this function yet or you will soon drain the gun of all its power. When you shoot the guard you'll release a prisoner, who from now on becomes a useful friend. Continue right to find him trying to open some electronic doors. Stand just left of him and keep building shields until he runs through the doors: you should now turn and run too. Walk onto the lift and pull down, go all the way to the bottom of the shaft and walk into the next room: here you can see a thin energy line running up the wall. Shoot left and this will cut the power running to some more electronic doors. Proceed back up the lift shaft to the floor above and walk left. Blast through the doors by using large energy shots, stand above the hole and pull down, then walk left, stand under the next hold and push up, walk through the next door and wait for your friend to catch up. Now fall down the trap door he's just lifted.

SECTION THREE: 'FLLD'

Simply rolling in a few directions will get you past this part, first left until you drop, then right, right, left and right.

SECTION FOUR: 'LIBC'

Enter the energy chamber to your left. After a short burst you'll find yourself completely refreshed and the gun will work perfectly. Destroy the three doors to your right, walk past the next screen to your right and shoot the guard standing in front of you. Walk into the next screen and you'll see a large gap – you must land on the lower platform on the other side. You'll need a good run up and a long jump. Now, standing on the platform, destroy the solid wall of rock on your right and pass through.

SECTION FIVE: 'CCAL'

Fall down the first hole and then the next, run right into the next room and jump the spikes just after the bones. The next room has falling boulders: to get past these you'll have to run and jump all the way across. The next is pretty tricky: walk two paces forward, wait for a rock

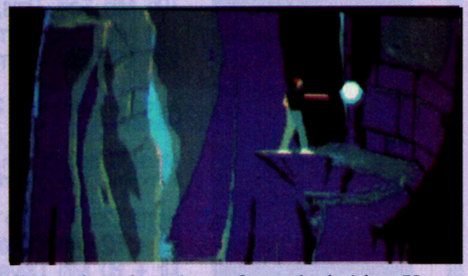
HERE'S HOW TO DO IT...



DO crouch beside the small creatures and perform a leg swipe for a good long kick: if you're too close stand back and try again.



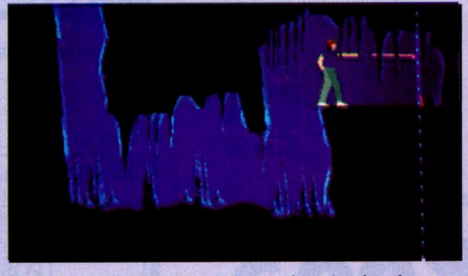
DO shoot the power supply to the doors: this will save you and your friend from certain death.



DO take a long jump from the bridge. You should land safely, ready to blast through a solid wall into a labyrinth of caves.



DO shoot the chain that holds the light in the room beneath your trapped friend. If he isn't rescued, you'll never complete the game.



DO shoot the powerline and swim back to the surface.



DO pull the lever when the guard walks into the middle of the room – this will incinerate him and you can make a slow getaway.

WORLD

in front of you to enter the screen, then run straight into the next screen. Run and jump across the first creature. Stand about a creature's length away from the next one and then push up on the joystick to jump across and continue into the next room. Kill the three hanging tentacles by using a large energy shot. You should see a tiny light blue dot just in front of the first creature: stand on it and then push up to jump. Push up again and you'll clear the other two. In the next room, stand on the edge of the hole, jump across the creature and run right until you hit a brick wall. Now destroy the wall which is on your right.

SECTION SIX: 'EDIL'

Walk left back to the last creature, stand behind the third spike from it and jump across both it and the hole. Walk into the next room and stand as close as possible to the first creature, jump across and jump again. In the next room stand about a length away from the creature and jump both, and then run and jump the last one. Run straight past the next screen and you'll see a red bird – shoot it and continue left. Stand at the edge of the cliff and jump towards the hanging rock. Push up so that you're at the top of the rock, then make your way across from one to the other. When you jump towards the edge of the screen you should land on the big rock.

SECTION SEVEN: 'FADK'

Jump down the left side so that you're trapped and shoot the base of the rock. Run up the rock to escape. Proceed right, jumping the holes as you go, until you reach the end of the tunnel. Shoot the wall at the end and make a dash left to escape the rushing water. This is a bit tricky, but you'll make it in the end. The water pressure will build up and push you to safety. Run right, shoot the wall and continue running.

SECTION EIGHT: 'KCIJ'

Your friend is trapped underneath. Run right into the next room and shoot the guard who appears. Follow the next guard who is running into the next room and stand just in front of the three doors. Make a shield and take one step forward. The guard will roll something at you: quickly step back and it will rebound and kill him. Continue right and use the next energy chamber. Walk right and crouch down: when the reflection in the globes stops in the middle shoot the large globe. Go back left and down the first set of stairs: when you're on the ground face left and make a shield. Kill the guard who enters, then run left and stand at the top of the stairs. Turn and shoot the hanging light – this will release your friend. Run right and you'll collide with another guard: when he grabs out, press the button to kick him, then run and dive for your gun and quickly shoot him. Walk right and crouch in the first full archway. Make a shield on the left then on the right, turn left and kill the first guard. Now turn and kill the other one.

SECTION NINE: 'LDCI'

Swim to the bottom of the water and left along the passage. First go up the second tunnel to receive some air, then down into the tunnel below. Shoot the power line and swim back to the start of the stage. Proceed right past the dead body.

SECTION TEN: 'LALD'

Jump down the hole and run right: quickly destroy the wall and keep running until you reach a dead end. On the roof of the passage there is a trap door. Keep using shields and killing the guards until your friend comes to save you. Run into the large black machine.

SECTION ELEVEN: 'KJIA'

You can now take you new wheels for a test drive. Press the bottom button to activate the rest of the controls. Press the lowest green button to your left and then the top green button which is also on your left.

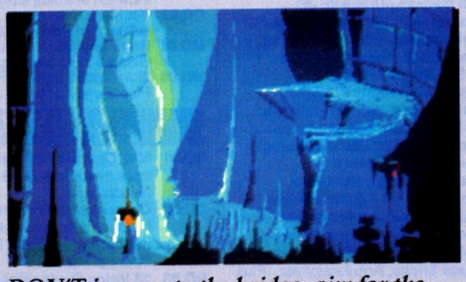
SECTION TWELVE: 'LFEK'

Run right into the next room and kill four guards, then continue right to catch up with your friend again. Keep running and then the ground will be shot from beneath you. Crawl right and wait by the levers until the guard starts to walk in your direction. When he is standing in the middle of the room, pull the first lever to kill him. Pull the next lever and start moving into the middle of the room. Don't stop if you get shot at – just keep moving.

AND HERE'S HOW NOT TO DO IT...



DON'T waste all the energy in your gun by taking random potshots. If you can't shoot the guard, give up and try again.



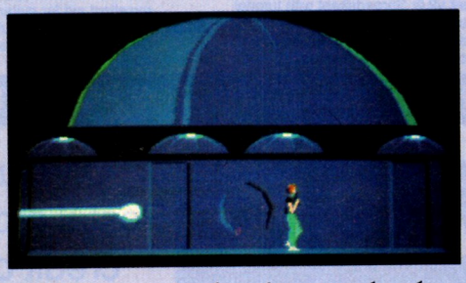
DON'T jump onto the bridge, aim for the ledge below.



DON'T leave this guard until last, you can see his reflection earlier in the game and kill him.



DON'T miss the air pockets. This section is impossible without the help of these life-saving oxygen cocktails.



DON'T waste time hanging around or the guards will eventually appear.



DON'T ogle at the naked females or you'll get your come-uppance for being a Peeping Thomas.

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BG.27 Strip Breakout; Knock out bricks to reveal a naughty picture.
BG.34 Assassin; Graphic adventure.
BG.43 Wizards Tower; Superb Text and graphics adventure written with STAC.
BG.45* Orbit II; Great Arkaniod copy.
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BG.66 Mystic Well; D.Master Style.
BG.67 Temon; SEUCK arcade action.
BG.68 Die Alien Blob; SEUCK shoot-up.
BG.69 Trax Quiz; Pub Trivia Style.
BG.70 Hac-Man; Great Pac-Man version!
BG.71 Pac-Man; Just like the orginal.
BG.72 Liamatron; Jeff Minter classic.
BG.73 Make a Break; Pub Triva game.
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BG.83 Hunt the Wumpus: Classic Game.
BG.84 Drop It on Em; Bomber version.
MG.01 BOLO; Arkanoid variation, bat can move all over screen! (col/mono)
MG.04 Bumper Jack; STOS platform game.
MG.05 Mars Maze; STOS platform game.
MG.08* Star Trek; Next Generation.

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BU.49 Typing Tutor; Includes lessons on Home keys, numbers, capitals etc.
BU.50 GEM Font Master; super font editing program, use 3 resolutions!
BU.53 Opus Spreadsheet + charting program - Quality shareware! (D/S)
BU.54 Amateur Radio; Utilities Morse tutor, Grayline calculator etc.
BU.56 Your second manual to the Atari ST, invaluable reference book on disk.
BU.57 ANI-ST (formerly Aegis Animator costing £79.90!) + GFA Raytrace demo!
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BU.61 ZX81 Programs; 100+ files, use with BU.59, 3D Defender, Pacman.....
BU.64 Fractal Landscape Explorer, Mandlebrot Show, Spriograph.
BU.67 Cardfile; Good name and address database with search facility.
BU.68 Magniwriter; ST Writer but with large text! Ideal for small children or people with reduced eyesight.
BU.72 STE Boot disk; Enables STE to boot up in medium resolution! etc.....
BU.73 Noisetracker; Version of Amiga PD music program + Sound modules.
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BU.81 Colour Emulator; use colour programs on your mono monitor.
BU.82 Colour Space; Jeff MInter light show generator. Formerly commercial!
BU.83* Typing Tutor; STOS produced.
BU.84 Mouse Tricks; Accelerator etc. Plus disk manager. (accessories)
BU.85 Shoot-Em-Up Builder Kit; Create your own games with this STOS utility.
MU.05 Sheet v2.0; Spreadsheet with tutorial Lotus Comp, 1280 X 280!
MU.07 Gemini; NeoDesk style deaktop.
MU.12 Hard Disk utilities; Invaluable.

EDUCATIONAL

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BE.03 Kidprogs; Kid Potato, Kids ABC, Kid Sketch, Kid Story....
BE.05 Colourbook; Fun for the younger child, an on screen colouring book!
BE.07 Word Exact; Word puzzle help Plus: Starchart; astronomy program.
BE.08* Geography Quiz; good educational game, plus Maths made easy.....
BE.09* Spelling made easy; with speech.
BE.10 Jigsaw; uses any Degas picture!
BE.11 KShapes and KShapes Plus; great Fuzzy felt style fun for youngsters.
BE.12 Shipwrek; answer sums in this fun game! + Guillotine Man; Hangman.
BE.13 Wolf nd 7 Kids; Multi-choice graphic adventure. Race cars. Great!
BE.14 Noahs Ark; Simple anagrams...
BE.15 Body Shop; Learn Human Anatomy! Build a skeleton and assemble organs. Dot to Dot; Join the dots to discover hidden picture, or design your own!
BE.16 Chunnel; English/French Vocabulary text game.
BE.17 Spanish Verb Tutor; Very good. Plus English verb conjugation.
BE.18 GCSE Maths; Tutorial/Revision.
ME.02 EZGrade; Teachers grading prog. Molgraph demo; 3D molecular display.
ME.04 Search ; Good historical study program created with STAC.
ME.05 Play Spell; 2 levels from this educational platform game. B.Spell; Spelling Game with digitised sounds.
ME.06 Kid Publisher Professional! Desktop publishing for youngsters! Plus: Super Kidgrid, Kid Painter.....

CLIP ART

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DC.04 Alphabets; Christmas Symbols, lots of eyes, happy, sad, wierd..
BC.08 Garfield, Beano Dandy pictures, Picwitch enables easy view and print!
DC.09 Viz Magazine; comic pictures, plus culinery; utensils, food..
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MA.02 Bards Tale Solution; Includes text files and maps of levels

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BD.26 Snowman; digitised animation!
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BD.34 What the Butler Saw; End of the pier style fun. Slightly naughty.
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BD.39 Teenage Mutant Hero Turtles; Good Turtles theme tune sample...
BD.40 Space Station; Cyber Studio produced animation. Excellent!.
BD.41 Monarch; Impressive animation with excellent graphics and music.
BD.43 Prisoner; Theme music from the classic Patrick McGoohan series.
BD.44 Acid Boss-Burn 2; for all you acid freaks, good sounds and graphics.
BD.45 Life's A Bitch by Lost Boys.
MD.15 Snowman; digitised animation and music. Brilliant! (MB)
MD.21* The Brilliant UNION multi demo colour monitor and joystick required.
MD.22* UNION Demo 2; The Cuddly demo! lots of amazing animations.
MD.28 Whataheck demo collection., by the Carebears again, stunning!
MD.30 Cyber DEMOS; Buzy Bee, Saturday Moring Workout, Chasers....
MD.32 STE Demo; 400 colour version of Amiga BOING! Movie ST; Animation.
MD.35* Aliens; digitised sound and pictures from this Sci-Fi classic!
MD.38 Probe; Animation of voyager style space probe spinning in space.
MD.42 When Harry Met Sally; Funny bit from film where Sally demonstrates.....
MD.43 Star Trek; Good sample of the opening sequence from the TV series.
MD.48e Jungle demo; Cartoon style film with sample music and sound effects!
MD.47 Police Squad; Sampled opening sequence of this great series! (MB)
MD.50 So Watt; Care Bears do it again!
MD.51 Dark Side of the Spoon; Superb collection of stunning demos!
MD.52 Robomix Demo; Digitised film slips - sampled speech, sound effects.
MD.53 Chad Jackson; Hear the drummer get wicked; sampled sound demo!
MD.54 Full Metal Jacket;I Wanna be your drill instructor - film music.
MD.55 The Run; Suberb Car chase sequence ported from the Amiga.
MD.56 Valley Girl; Digitised sample of amusing Frank Zappa song.
MD.57 INXS Demo; Need you tonight!
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DAMOCLES

The scale and time limit of Damocles pose a few problems for most people. Try Rik Haynes' handy tips for size

DIFFICULTY 8 RATING

IMPENDING DOOM

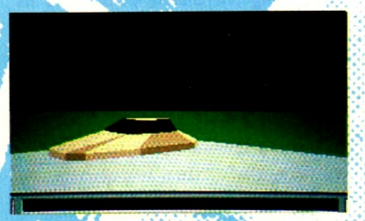
The oceanic world of Eris is populated by nine islands with the inhabitants living in single city states. Almost all of its surface is water — making it glow like a giant sapphire as it resides in the fifth position in the Gamma Galaxy. But a catastrophe is about to befall Eris. The giant comet Damocles is hurtling towards it and will collide in a few short hours unless you can prevent it from doing so. But how?



Many of the buildings in this game have roof-top security cameras — so make sure that you approach them carefully.

WELL-TIMED STRATEGY

Intelligent life is found on all of the planets in the Gamma solar system — and you will have to visit them all, and explore all of the cities, searching buildings for useful objects if you are to save Eris. Needless to say, while you're doing this the hour of doom is drawing near. However, time-savers are at hand in the form of transporters, which can can be picked up, relocated, and flown through. And it goes without saying that the faster the vehicle you have, the quicker you can nip around and pick up clues.



The vehicles in Damocles offer excellent vision. Remember to look out of the windows and check for signs of hostility before you disembark.

FINDING THE MIDAS PYRAMID

Read the alien inscription in the secret room at the base of the sphinx door on Acheron (co-ordinates 00:03 or 06:03). Go on foot while holding either 'reading glasses or red herring'. The pyramid number given is 68 09 20 33. Find this pyramid, among the 16 million plus other ancient tombs on Midas. A knowledge of hexadecimal is useful when trying to recognise the number logic as you fly over. It can take 10 minutes to work out which pairs of numbers in this group are the most significant. If you give up, fly to planet co-ordinates 577, 341. Use the magic crystal in conjunction with the Book of Wishes found in Eris' capital city at13:15 — but do save the game before you use the book. The Magic Crystal Wish can save Eris by either blowing up or diverting Damocles.

PROGRAMMING THE AUTHOR'S COMPUTER

If you want to 'switch off' Damocles or Icarus, go to the author's house on Birmingham Island (13:14). The author's chair has to be taken outside before it can be used, and you can also take a ride in it. Be warned, though, that the author's computer can create absolute chaos!

EXPLOSIVES

It's going to take a hefty amount of TNT to destroy Damocles: these are the locations where you can grab some:

AMOUNT	LOCATION	COORDINATES
3	Hantzen Lab, Bare Island	06:05
1	Hathaways (Lift!), Snow Island	06:04
1	Ind Co-op A, Ur City	01:02
1	Ind Co-op B, Ur City	05:02
1	Windmill, Dion North	00:05
1	Radar Station, Theon	02:03
1	Vulcan Island, Gaea	08:08

CLUES

These will offer a trail that leads straight to solving the game. Don't forget there's more to this game than just stopping the imminent impact of Damocles...

ITEM	LOCATION	COORDINATES
Photocopier	Logos	04:02
Filofax	Metis	00:06
Answerphone	Dion, Bare Island	02:11
Wallphone	Metis	05:06
Wallclock	Ch'dea	04:01
Blown Safe	Dion Bare Island	02:11

HIGH VALUE OBJECTS

Use these at the Trading Posts, which are scattered liberally around the Dialis star system, to get yourself something really useful:

ITEM	LOCATION	COORDINATES
G'house effect	Dion North	00:03
Gold	Solon	01:01
Gold	Chaldea	06:06
Gold x 4	Tolosa	02:01
Piano	Ur City	09:02
25,000,000 ECU	Capital	15:12

PROTECTIVE GEAR

Life in outer space can be tough, but these pieces of equipment will give you the edge:

ITEM	LOCATION	COORDINATES
Acme Universal Suit	Trading Post, Dion B'ham Island	09:14
Pressure Suit	Trading Post, Capital City	15:03
Heat Resistant Suit	Power Station, Capital City	14:05
Parasol	Outside Location, Capital City	12:04
Thermal Undies	Gun Store (1st Floor), Bare Island	06:06
Electric Fire	Flying School, Capital City	09:09

GAMES TIPS

THE A TO Z OF

Having problems getting through to the next level? In need of a cheat for unlimited lives and energy? Hold tight, for help is at hand in the form of the ST Review guide to game hints and tips



Another World: Delphine's new adventure is a tough nut to crack.



Elite: This classic trading game can still hold a surprise or two. . .



F-15 Strike Eagle II: Watch out for SAM sites and other nasties.



Gods: The Bitmaps made this one of their most difficult games.

ANOTHER WORLD (DELPHINE/US GOLD)

DIFFICULTY 7 RATING

If the big, bad, ugly looking fellows are hindering the escape back to your own world, try these hassle-saving passwords for each and every stage of the game: EDJI, HICI, FLLD, EDIL, LIBC, CCAL, KCIJ, FIEI, ICAH, LDIJ, LDCI, GABK, LALD, KJIA, LFEK.

CADAVER (RENEGADE)

DIFFICULTY 6 RATING

Getting spiked by the darts in the Strong room? You should go to the Cask room and pull the lever twice. Then go back to the Strong room and pull the lever there. This should stop the darts. To unlock the door in the Ekbers room, press the button four times, push down the button that is revealed, then hit the original button three more times.

CAPTIVE (MINDSCAPE)

DIFFICULTY 10 RATING

Lure the bad guys into a doorway and close the door before they can follow you. This is the easiest way to stop them. If these aliens are closing in from both directions, stand in the middle of them and click on sleep.

The aliens will kill each other after a short period of time.

DUNGEON MASTER (FASTER THAN LIGHT)

DIFFICULTY 8 RATING

Looking around for extra weapons is a time-consuming task, but this is where you find some of the tastier ones: Speedbow (level 10), Bolt Blade (level 11), Sceptre of Life (level 7), Sling (level 3).

ELITE (FIREBIRD)

DIFFICULTY 9 RATING

When asked to enter the password, type 'SARA' followed by the correct code. This sneaky cheatcode will enable you to install extras on your ship. Press '*', then use these codes: '3F 01'(cloaking device), '38 01' (military laser), '32 01' (docking computer), '2F 01' (energy bomb), '24 01' (ECM system), '18 FF' (extra cash). Pressing 'ESC' returns you to the normal game.

F15 STRIKE EAGLE II (MICROPROSE)

DIFFICULTY 4 RATING

Blowing up all the SAM radars means the enemy can't pinpoint your F15 in the skies above and, consequently, they will be unable to accurately launch missiles at you. Leave any hostile air bases until last because these are the most heavily defended locations in the game.

GODS (RENEGADE)

DIFFICULTY 9 RATING

The Bitmap Brothers programming team made this one of the hardest games to complete. Crafty cheaters can nudge the odds in their favour by typing 'SORCERY' on the password screen. This will give you infinite lives.

HEIMDALL (CORE DESIGN)

DIFFICULTY 7 RATING

To keep your party of Vikings alive, collect food wherever possible. Then, back at the ship, share this bounty with the rest of the group. Before leaving the ship, give all the gold to one person and the keys to another. Remember, you can always store extra items on the ship for safekeeping.

IK+ (SYSTEM THREE)

DIFFICULTY 1 RATING

For some very unusual background graphics, try these special codes while playing the game: 'PAC' 'WORM' 'SPID' 'BIRD'. To become totally invulnerable, and better than the mighty Bruce Lee himself, simply press the space bar when your weak character is knocked down on the floor.

JIMMY WHITE'S WHIRLWIND SNOOKER (VIRGIN GAMES)

DIFFICULTY 5 RATING

Watching an amazing 147 break on TV only happens once every 10 years. Now you can watch this monumental feat on demand, by simply entering the Trickshot menu, pushing the 'F7, F4, F1' keys, then going for a Demo.

LEANDER (PSYGNOSIS)

DIFFICULTY 6 RATING

Completing each level without a little bit of help can be frustrating and very tedious. So, why bother? Quickly progress to the next level with the passcodes 'ZXSP' for level 2 and 'LVFT' for level 3. To activate the cheat mode use 'ESPR'.

LEMMINGS (PSYGNOSIS)

DIFFICULTY 8 RATING

Having problems getting those dopey little blue guys through each level? Try these passwords for the end stages of each section: 'GLCOJLMODU' (level 30 on fun); 'JMGMCKNMFT' (level 30 on tricky); 'IJHMFHFKHY' (level 30 on taxing) and 'FINLLFIIJQ' (on mayhem).

LOTUS TURBO CHALLENGE 2 (GREMLIN)

DIFFICULTY 3 RATING

A game of Duck Shoot will appear if you type 'DUX' before the start of play. 'DEESIDE' allows you to always qualify and 'TURPENTINE' stops the clock. You can start on any level with the following codes: 'TWILIGHT' (level 2), 'PEA SOUP' (level 3), 'THE SKIDS' (level 4), 'PEACHES' (level 5), 'LIVERPOOL' (level 6), 'BAGLEY' (level 7) and 'E BOW' (level 8).

ST CHEATS

THERE'S 30 IN ALL, COUNT 'EM...

MANIC MINER (SOFTWARE PROJECTS)

DIFFICULTY 4 RATING

Playing the original eight-bit adaption of ***Manic Miner*** helps you get started as the entire screen can be seen at once. After collecting all the items on any stage, try to quickly reach the exit – even if you have to let Willy fall down the total length of the screen.

MICROPROSE GOLF

DIFFICULTY 5 RATING

Instead of hitting your golf ball straight at the hole, move the cursor to the left of the screen, attempt the hardest hit possible and let the snap fall all the way to the right.

POPULOUS 2 (BULLFROG/ELECTRONIC ARTS)

DIFFICULTY 10 RATING

Trying to become the ultimate God will require hundreds of experience points. This code will turn you into the most powerful guy around – 'ADKIWBKDCJZLTUWZ'.

POWERMONGER (BULLFROG/ELECTRONIC ARTS)

DIFFICULTY 10 RATING

When starting a new game always watch your opponents first to establish what route they will take. Also, try to make an alliance with the strongest side.

PRINCE OF PERSIA (BRODERBUND/DOMARK)

DIFFICULTY 6 RATING

Possibly one of the best animated arcade adventures ever, the confrontation of your own reflection is simple. Just walk into your "other self" to become "one" once more.

RAILROAD TYCOON (MICROPROSE)

DIFFICULTY 8 RATING

Sid Meier's classic railway building simulation is an exercise in money management. But you can avoid an overdraft by pressing 'SHIFT and 4'. Your cash will be instantly increased.

RAINBOW COLLECTION (OCEAN)

DIFFICULTY 4 RATING

Obtain bonuses by using the following passwords: 'SSSLLRRS' for fast rainbows, 'RJSBJSBR' for double rainbows and 'BLRBJSBJ' for the speed up, fast feet.

ROBOCOD (MILLENNIUM)

DIFFICULTY 3 RATING

Even someone as tough as Robocod could use a little spot of invincibility from time to time. Just collect the bonus objects in this order: 'CAKE, HAMMER, EARTH, APPLE, TAP'. The initial letters of the words spell "cheat", of course!

ROBOCOP 3 (OCEAN)

DIFFICULTY 2 RATING

If you're still having problems with the van at the beginning of the game, then just drive along the left-hand side and keep crashing into the side of the vehicle.

RODLAND (STORM)

DIFFICULTY 4 RATING

Are those big blue whales and dumb elephants becoming a pain? For fast relief just quickly pause the game and press 'HELP' five times. A small blue heart will appear when you return to the game; this indicates that an endless amounts of lives are available to you.

SECRET OF MONKEY ISLAND (LUCASFILM GAMES/US GOLD)

DIFFICULTY 7 RATING

The governor's dogs stand guard over the house, so use some stewed meat and yellow flowers from the forest to make them sleepy. As swimming in these Caribbean waters isn't such a good idea, you should try using the cannon to shoot you across the water for a bit of shore leave.

SILKWORM (VIRGIN GAMES)

DIFFICULTY 6 RATING

As controlling a jeep and a helicopter at the same time can't be the easiest thing in the world, then it follows that Silkworm shouldn't be one of the easiest shoot 'em ups ever created, so type 'NCC-1701C' to even the score.

SPEEDBALL II (RENEGADE)

DIFFICULTY 7 RATING

For a sure win (almost), invest in some intelligence in addition to armour and strength. Diagonal shots will make it harder for the goalie to save. By the way, more points are awarded for longer shots.

THUNDERHAWK (CORE DESIGN)

DIFFICULTY 4 RATING

Flying below 250 feet will hide your craft from the radars and undue attention from enemy fighters and helicopters. But some weapons require you to be above a certain height – for instance, the MK81 and MK82 bombs should be dropped from a height of 250 feet and 500 feet respectively.

WOLFCHILD (CORE DESIGN)

DIFFICULTY 5 RATING

This howling success from Core is lycanthropy at its best. Try jumping into any solid wall, as most of them have hidden passages behind them.

XENON II (RENEGADE)

DIFFICULTY 2 RATING

Want to see a few levels ahead? Pause the action and type 'RUSSIAN AIR'. You can skip levels by pressing 'N' when the game is restarted.



IK+: Try 'PAC', 'WORM', 'SPID' and 'BIRD' for results.



Captive: Derring-dos and androids in another galaxy.



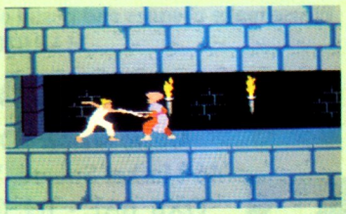
Lotus II: some of the later stages will test you to destruction. . . .



Manic Miner: An early ST game with its own eight-bit section. . . .



Powermonger: Establish what route your opponents will take.



Prince of Persia: sharpening your fencing skills will pay dividends.

DIAL - A - TIP

Cheats, Tips, and Game Solutions

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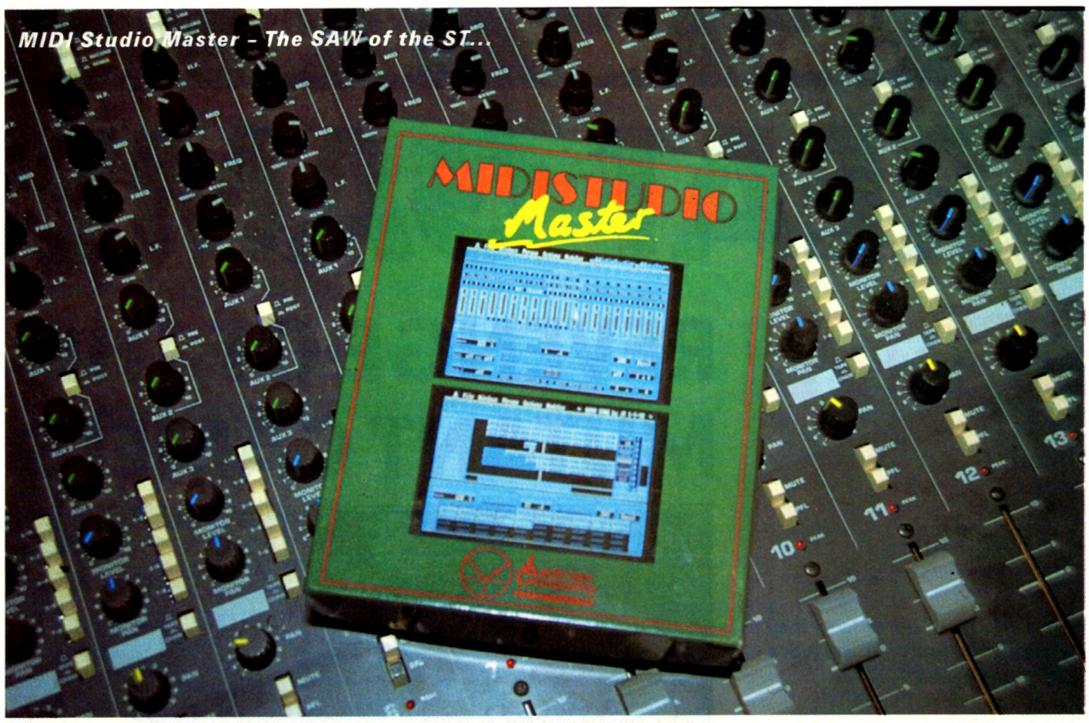
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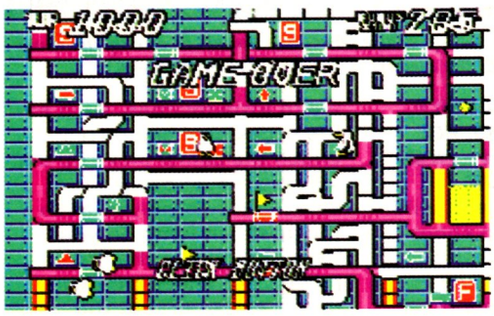
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Clear, concise, information boxes with all the information that you require and, wherever needed, comparison tables take all the hard work out of finding the products you need.



PD games – fun for free!



P-p-p-pick up a PD penguin.

PD ZONE 110
Our monthly look at home-grown software, including this month's six best games, six programs to boost or enhance the use of your ST and the top five utilities for artists.

STEP LIGHTLY 122
It's funky, it's futuristic – it's ***Fractal Music Composer***.

HIS MASTER'S VOICE 124
MIDI Studio Master – reviewed, rated and compared with its competitors.

NEW DIMENSIONS 128
STOS 3D makes the dream of programming in more than two dimensions a reality.

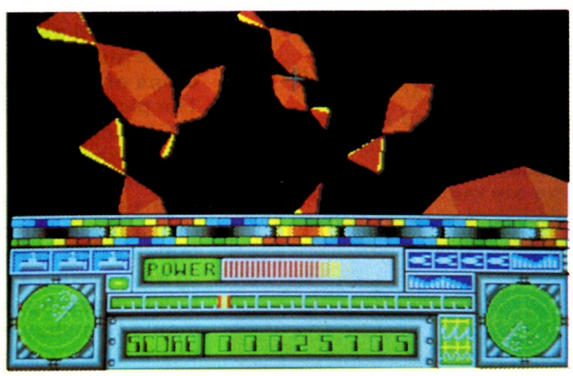
FULL THROTTLE 136
Two of the latest screen accelerators fight for pole position: ***NVDI*** and ***Quick ST 3.0***

TOP 30 EDUCATION PACKAGES 138
Part one of a series...

REPAIRS MAP 145
Need an ST technician? Then look no further...



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PD ZONE

SIX GREAT GAMES

WHAT IS PD?

Public domain, shareware, licenceware and – yes – even beerware exist. But what precisely are they?

The software that's sold by PD houses is divided into four distinctive categories: Public Domain proper, Shareware, Licenceware and Bulletin Board distribution.

The most readily available type of software is PD. Quite simply, the rights for any software that falls under this heading has been waived. For reasons best known to the individual authors, whether it be public recognition of their works or the hope that their disk catches the eye of an employer, programmers relinquish all rights they have to their programs so that they may be copied and freely distributed without charge.

Licenceware means more or less the same as Public Domain to users – the differences lie with the stockists. In the case of Licenceware, the author places his program in specific PD libraries and only they are licensed to sell it. The library must then pay a royalty to the programmers' company for every disk it sells, which works out at around 50p per copy.

Shareware is a shadier area altogether. It is freely distributed in the same way as PD, but if you use the program regularly you are expected to register the copy you have with the author and pay him a small fee (usually about £5.00). This is not as strange as it sounds, as the user is often rewarded for his honesty by the author, who may hold back an updated version of his program to be sent only to registered users. Some programmers even include little bugs on the disk to encourage registration.

Bulletin Boards break away from the traditional form of mail order libraries and are operated by computers linked to modems. By connecting a modem to the telephone system anyone can set up their own Bulletin Board.

Most combine their ST and modem with a hard drive on which the PD and Shareware is stored. The system only allows users to swap programs with each other – hence the absence of Licenceware products – but some less scrupulous operators have been known to include full-price commercial games on their inventory, as was the case with ***Robocop*** 3 two weeks after its commercial release.

Although the systems are quite wide-spread, the amount of programs they can hold is limited by the size of the hard drive being used. The long phone calls required are also expensive, and it's not unusual for a library just starting out to receive a £3,000 bill for the first quarter. However, if you do have a modem, contact numbers are regularly published in the computer press – ***ST Review***'s list of modem numbers is printed on page 168.

REVENGE OF THE MUTANT CAMELS



Daft but delightful, Revenge of the Mutant Camels is one of the most deeply dippy games on the circuit – it's also one of the best. . . .

• ***WIZARD PD, 178 WAVERLY ROAD, READING, BERKS, RG3 2PZ • DISK NO: ARC44 • MEMORY 512K • SHAREWARE***

IN BRIEF: A strange and wild horizontally scrolling shoot-'em-up game that takes a camel and, in two-player mode, a goat as its main sprites. There are loads of weapons and power-ups to be found, as you run, trot, gander and gallop across the plush multicoloured backdrops of varying weirdness. The pick-ups fall by the bucketful and serve to make your ship of the desert more like a Chieftain Tank of the dunes as the world you travel through screens of increasingly hostile enemies.

These can be anything from bomb-dropping vultures to manic Gameboy and Lynx users. The surprises and weird little touches, such as the occasional cigarettes which the camel picks up and smokes, never cease to amaze. In two-player mode the goat can jump on your back and double the fire power. For sheer originality this is a winner, but the action is often less controllable than you might be used to. However, the usual great samples found in Llamasoft games give it a boost, and there's no denying that this will go down as an all-time great PD game.

ST REVIEW COMMENT: "Great game for PD. Don't expect a fantastically presented arcade monster, but do expect some entertaining surprises."

✪✪✪

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FOR YOUR ST

VIOLENCE

ATARI ST REVIEW BUDGET BUY

• COMPUTE "IN" STYLE', 64 CASTLE HILL ROAD, HINDLEY, WIGAN, LANCS WN2 4BJ • DISK NO: M626 • M: 512K • SHAREWARE

Violence is one of the best shoot-'em-up games I've seen anywhere. The screens are excellently drawn and are bursting with colour and frenetic action. All the sprites are detailed and, instead of changing every now and again, they constantly throw up new designs and types of craft to come at you. Scrolling is exceptionally smooth and there are even a couple of levels of parallax to contend with. The whole thing is reminiscent of ***Xenon 2***, which is a great achievement. Although it's not as slick as the Bitmaps' version, it's a fairly accurate clone.

Extra weapons can be bought by holding down the fire button for a certain amount of time. This does prove a bit annoying, as you keep accidentally entering the shop when the action gets really hectic.

There are over 20 weapons to select from and the longer you survive in the game zone, the more credits you earn to put towards your armament. How many levels there are is anyone's guess as the speed and the density with which the aliens wreak their relentless attacks can be too much for your reflexes. Brilliant stuff, rarely seen on PD.

ST REVIEW COMMENT: "One of the best games you can buy on the PD circuit. You won't believe that it's Shareware, it's so good. Buy! Buy! Buy!"

★★★★★

PENGUIN

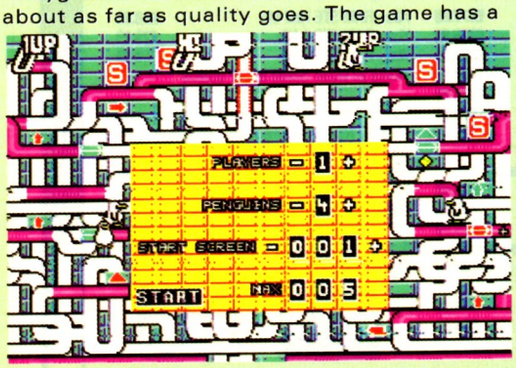
• WIZARD PD, 178 WAVERLY ROAD, READING, BERKS, NG3 2PZ • DISK NO: ARC46 • MEMORY 512K • SHAREWARE

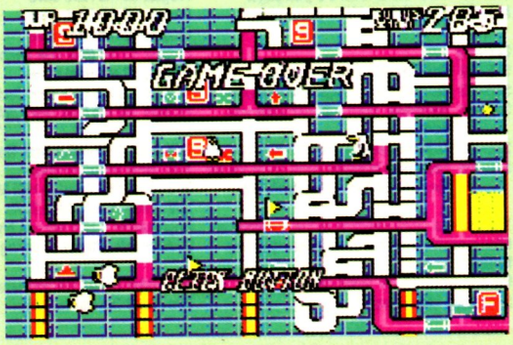
In scenes reminiscent of ***Pipemania*** and ***Lemmings***, ***Penguin*** succeeds in being totally enthralling. Your task is to safely guide the Lemming-like birds along a series of platforms, bridging the gaps in between by using a series of arrows, plugs and covers to reach an escape pit that awaits them at the bottom of the screen. Avoid the four out of five chasms that are filled with bubbling goo, otherwise it's instant death and game over.

Psygnosis doesn't have anything to worry about as far as quality goes. The game has a limited number of screens, and the basic formula of bridging gaps in between platforms, plugging holes and escaping to the exit doesn't change their appearance that much. The personalities of the little creatures and the appeal of simple, but addictive, puzzle games are enough to see you through many a night. The ability to change the rate at which the penguins tumble adds a new dimension. The sound effects and presentation are great and these sprites have a character all of their own.

ST REVIEW COMMENT: "Fast paced and frantic. Owing much to ***Lemmings*** and ***Pipemania*** this is not a clone but an absorbing combination of the two."

★★★★





The tumbling animals are having a hard time of it. So many platforms, so little time.

PD ZONE TOP TEN

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5

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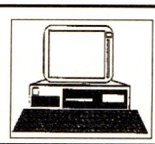
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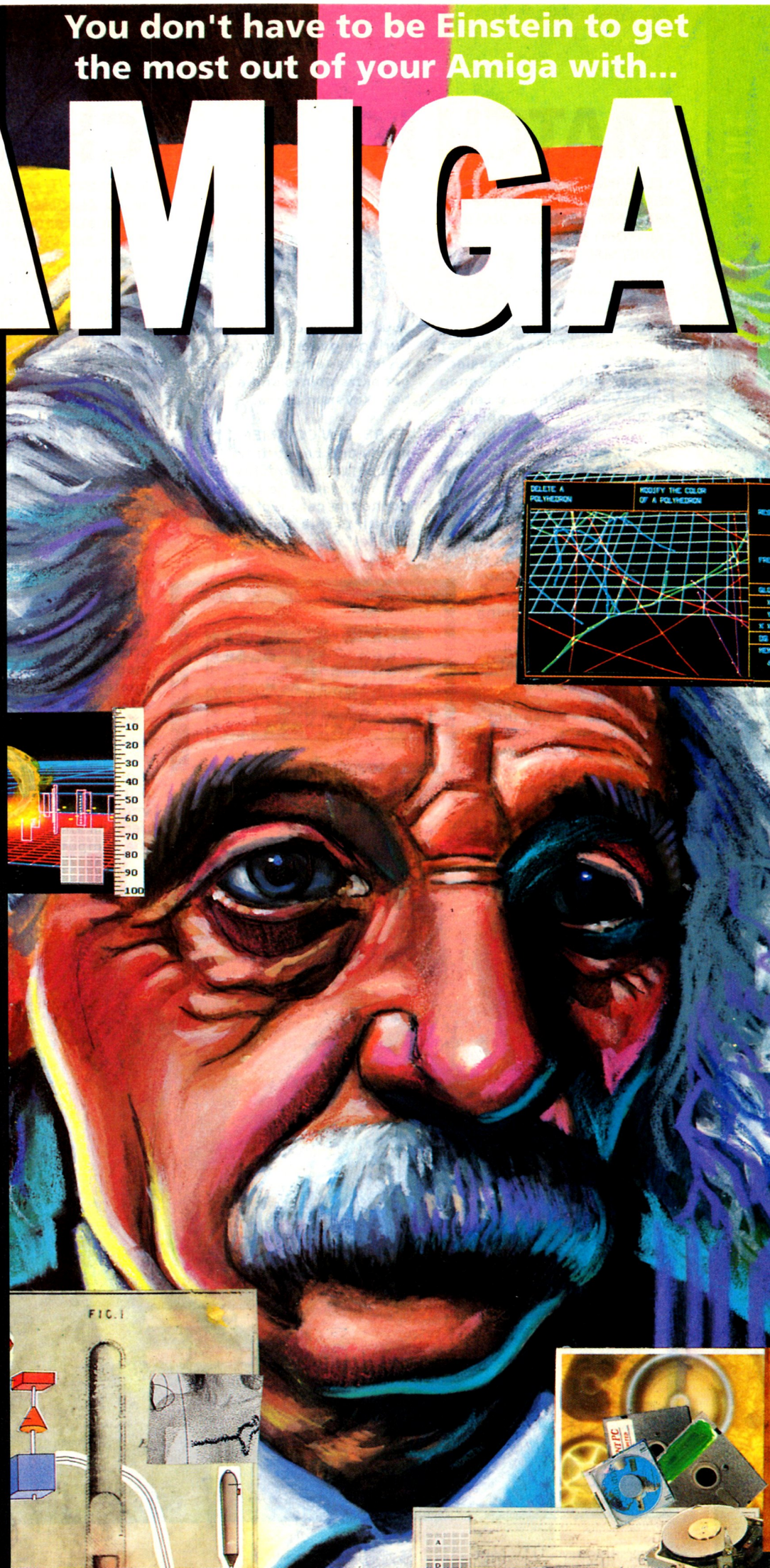
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MATCH IT

• FLOPPYSHOP, 45 PROVOST GRAHAM AVENUE, HAZELHEAD, ABERDEEN • DISK NO: BUD 91C • MEMORY: 512K • SHAREWARE

ATARI ST REVIEW BUDGET BUY

This game is very similar to ***Shanghai***. The task is to remove all the tiles from a table of 70, one pair at a time. "It couldn't be easier," we hear you cry, but the snag is that you only have a certain amount of time to complete the task. The tiles can only be taken if a direct path can be seen to each, and they can't be taken from opposite sides unless there is a clear way through the middle of the board. To make things even harder, the pictures on the tiles are made up of Chinese characters and, unless you've been going to the Won Ton night school recently, you'll find these very hard to match up at any reasonable speed.

Some tiles – those that represent the seasons for example – can be coupled off even if they look different, whilst matched flowers not only further your cause, but slow the clock down into the bargain. The game is incredibly addictive and you won't want to give up until you've completed at least five levels. If you get stuck, a quick punch of the help key will remove two tiles for you. You can do this twice during a game, but if you resist the temptation you'll get extra points and a free help key next game.

ST REVIEW COMMENT: "Brilliantly and beautifully presented, top-quality PD, and the results do total justice to the hard work that's gone into this game. More please!"

✪✪✪✪✪



A mine of confusion is provided by the Chinese characters, but you'll keep coming back for more.

CHESS

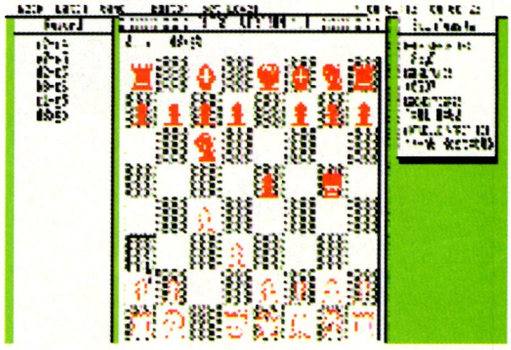
• WIZARD PD, 178 WAVERLY ROAD, READING, BERKS RG3 2PZ • DISK NO: BRD04 • MEMORY: 512K • SHAREWARE

Simple but sweet, this is one of the best chess sims you can get for next to nothing. If you've ever watched a chess championship you'll already realise why they barely managed to top three-and-a-half people in the ratings tables. Just as it is with most terminally boring spectator sports, there's no substitute for the real thing. Whether you're World Chess Champion Kasparov or Kevin Turvy, you'll instantly appreciate this simplistic computer version. One or two-player options exist, just in case you've an equally intellectual friend, but you'll find that the computer opponent is a more than adequate adversary.

You'll be amazed at the speed with which the computer checks your mate! The game is almost identical to the computer version used on television to show you how the professionals do it, but here the traditional black and white has been forsaken for a rather garish red and cream version. Chess only ever appealed to a small minority and that number is probably even less today, but if you feel that your brain cells have reached meltdown there's no better way of kicking them back into shape.

ST REVIEW COMMENT: "What else can you say about a game that's been around longer than Bruce Forsyth? A good, fast computer adaptation of the board game."

✪✪✪✪



One of the best chess sims available on PD.

TOP FIVE UTILITIES FOR THE ARTIST

At these bargain prices, no self-respecting artist should be without one of these. . .

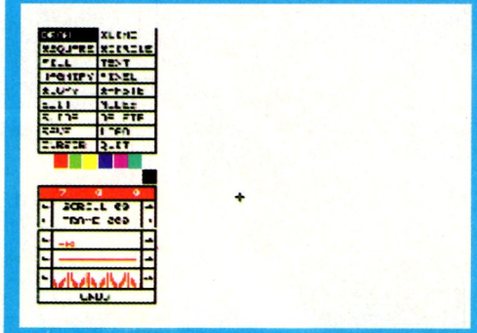
PROGRAM: ART ST 2.31
Price: £2.50
Disk No: ART 18
Supplier: Wizard PD
Details: A superb art package that could easily brush shoulders with most commercial ones. Up to five screens can be worked on at once with 512k.

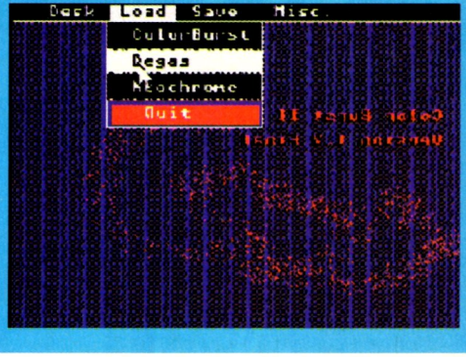
PROGRAM: COLOUR BURST 2
Price: £2.50
Disk No: ART 18
Supplier: Wizard PD
Details: Colour Burst 1 and Colourburst 2 were both originally shareware products but have now come onto PD. This has everything you could want from a cheap art utility, including brushes and tool panels.

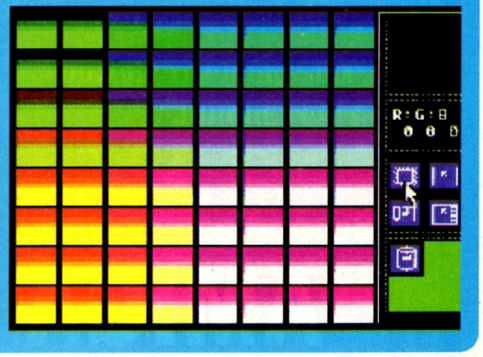
PROGRAM: VIEW GIFF
Price: £2.50
Disk No: GD1143
Supplier: Goodmans PD
Details: A GEM-based program that operates in all three resolutions. All images can be cropped and shrunk to size enabling you to fit them into ST screens for scrolling in windows. Once loaded they can be saved in NEO, DEGAS, Macpaint or FL format.

PROGRAM: FRACTAL ZOOM
Price: £2.50
Disk No: GD466
Supplier: Goodmans PD
Details: The most comprehensive fractal program on the circuit. It's very fast and has more options than half its competitors put together. A complete package with full instructions on disk. Entertaining stuff that'll keep you busy for ages.

PROGRAM: PALLET MASTER
Price: £2.50
Disk No: ART 05
Supplier: Goodmans PD
Details: Brilliant colour drawing aid that allows 50 colours on screen at once. Also includes sample programs and loads of information on how to use the disk.







TETRIS

• WIZARD PD, 178 WAVERLY ROAD, READING, BERKS, RG3 2PZ • DISK NO: ARC37 • MEMORY: 512K • SHAREWARE

ATARI ST REVIEW BUDGET BUY

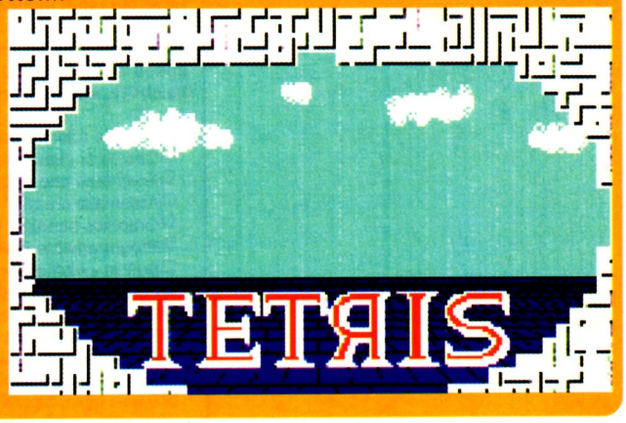
This version of the Russian professor's masterpiece isn't close to the original, it's as identical a copy to the arcade original as you can get. Just in case there's someone out there who's been living on Pluto for the last three years, here's a run-down of the award winning game-play. A series of multi-coloured bricks of different shapes tumble down from the top of the screen towards the bottom of a narrow well. You must line the bottom of the well with the randomly-falling bricks to form as many lines as possible. Once the computer catches on to the fact that you're getting more proficient at the game, it makes the job even harder by speeding up the rate at which the blocks cascade toward the bottom.

Every time you manage to form a line, the level of the bricks drops one notch down. If the shapes are allowed to reach the top of the well it's all over. You won't find a better example of this genre, even at full price. The inclusion of the simultaneous two-player option just adds to the fun and makes it a must.

This is superb – a truly great version of a truly great game.

ST REVIEW COMMENT: "An almost identical copy of the award winning original with a two-player facility."

★★★★★



UNLEASH THE POWER

SIX GREAT UTILITIES TO TUNE UP YOUR ST

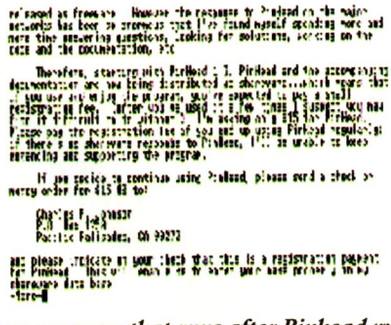
They'll speed it up, make your disk drives last longer, they'll even fool it into thinking it's got a high-res monitor. . .

PINHEAD

• WIZARD PD, 178 WAVERLY ROAD, READING, BERKS, RG3 2PZ • MEMORY: 512K • PD

A tiny program that uses less than 1K when installed. Its purpose is to drastically reduce the amount of time it takes to boot up your computer, especially if you have several Auto programs and desk accessories installed. Every program that runs after ***Pinhead*** will load into the computer faster than you ever dreamed possible. This drastic increase in speed is not just evident at boot-up times. Programs will load much faster even when they are run from the GEM desktop or a shell, such as Codehead Software's ***Hotwire***.

The program works with all ROM versions of TOS 1.0, 1.2, 1.4 and 1.6. Even though TOS 1.4 and 1.6 contain a built-in "fast load" feature, the utility supports these as well. Some programs, such as ***ARC.TTP*** and ***GFA Basic 2.x Interpreter*** don't actually work with the new ST's "fast load", so you'll be pleased to hear that ***Pinhead*** will snap them into shape with no problems at all. For best results, place the program as close to the beginning of your Auto Folder as possible. If a compatibility problem does occur, the program even includes a handy on/off feature, allowing you to disengage ***Pinhead*** without removing it.



Every program that runs after Pinhead will load into the computer faster than you'd

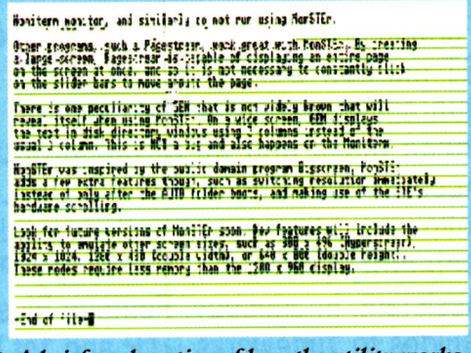
ST REVIEW COMMENT: "No-one should be without this dynamic utility. It's totally compatible, with a 99.99% success rate."

★★★★

MONSTER

• WIZARD PD, 178 WAVERLY ROAD, READING, BERKS, RG3 2PZ • MEMORY: 512K • PD

Monster is a high-resolution monitor emulator. It successfully fools the GEM into thinking that it is using a larger screen than it actually is. In mono mode, the screen resolution is 1280 x 480, and in all resolutions the screen is almost five times larger than the real screen. The window created can then be moved around with the mouse to sit in the required position. Not all software is compatible with the utility, and programs such as ***Tempus*** and ***Flash*** do not run on the Moniterm monitor and therefore don't work when using Monster. On the other hand, ***Pagestream*** is ideally suited to it, and by creating a large screen the program is capable of displaying an entire page on the screen at once. This feature means you don't need to constantly click on the sliding bars at the bottom to move the page up and down.



A brief explanation of how the utility works is provided in the Monster Docs on the disk.

Monster owes a great deal to another PD program, ***Big Screen***, but the newer version has even more features. For example, with ***Monster*** you can switch resolutions immediately instead of only being able to do so after the Art Folder boots. It also makes better use of the STE's hardware scrolling. This is by no means the only version expected, and future releases will emulate other screen sizes.

ST REVIEW COMMENT: "Very useful utility that's ideal for word processing, DTP and artists alike."

★★★

Impressive

The first version of Rédacteur became the standard word processor for the ST in France. For journalists working for the newspapers *Libération*, *Ouest-France* and *La Voix du Nord* it has become an indispensable tool. Its speed and features have attracted thousands of users.

The latest version of Rédacteur, version 3, has retained the speed of the original version and added a greater degree of flexibility, and many more functions and facilities:

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- Font Editor and Editor for mathematical formulae;
- English and French spell checking plus Verb conjugation;
- Editor for user-defined dictionaries;
- Automatic Hyphenation;
- Option to save text files in compressed format;
- Saves in ASCII with or without end of line carriage returns, First Word (Plus), Word Perfect and Microsoft Word formats;
- Full configurability of most functions;
- Database and Mail Merge;
- Runs on any Atari ST(E) Mega ST(E) or TT with at least one megabyte of memory. Colour or monochrome display.

Our customers think so. Here is just a small selection of the feedback from Redacteur 3 users: "An excellent product", "Formidable value!", "Very good, clean and concise manuals. Very pleased", "Wow!", "Beats anything I've got here", "Excellent!","The best word processor available on the Atari", "One of the most useable WP's I have encountered - including PC and Mac", "A most comprehensive program", "Excellent text handling", "A great product!".

And the press agree. In ST User, Andrew Wright summed up Redacteur 3 as: "looks set to make a considerable impact as a high-end, high-speed wordprocessor." In ST Applications, Dr Steve Henderson had this to say about Redacteur 3: "The combined value of AZtheque (Redacteurs database) and Sigma (Redacteurs formulae editor) exceeds the price tag for the whole Redacteur 3 package. The combination of its text and graphics power is going to make this a very hard program to beat."

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QUICK VIEW 1.4

• WIZARD PD, 178 WAVERLY ROAD, READING, BERKS RG3 2PZ • MEMORY: 512K • PD

Quick View is a program that's been developed for viewing text files easily and at leisure. Although it may usually be sufficient to "show" a file from the ST's desktop, this does not allow the file to be viewed randomly. ***Quick View*** allows a file to be loaded into memory and viewed; once there, it can be loaded into the printer and printed. The handy Fliptopic feature allows you to quickly scroll over the type to reach the sections you wish to read, and pressing the Tab key whilst viewing an ST Report generates a comprehensive Table of Contents.

Quick View can also be configured as a desktop application for really easy access. This means that you can load the program automatically by simply double-clicking on the text file you wish to examine – a very useful feature.

ST REVIEW COMMENT: "Fast and efficient examination of your text files, without the hassle of menu changing."

✪✪✪✪



View at your leisure. Quick View 1.4 lets you view text files with the minimum of inconvenience. . .

COLD HARD CACHE 3.5

• GOODMANS PD, 16 CONRAD CLOSE, MEIR HAY ESTATE, LONGTON, STOKE-ON-TRENT, ST3 1SW • MEMORY 512K • SHAREWARE

It may sound daunting but it's actually a reasonably easy-to-use utility for those with slight computing knowledge. As a disk caching program, it works well with both hard drives and floppies alike. A disk cache is a memory storage facility and disk caching improves disk speed by designating the sectors that are used most frequently to RAM. The I/O speed of a cache drive will be somewhere between that of a RAM disk (very fast) and the uncached drive (much slower).

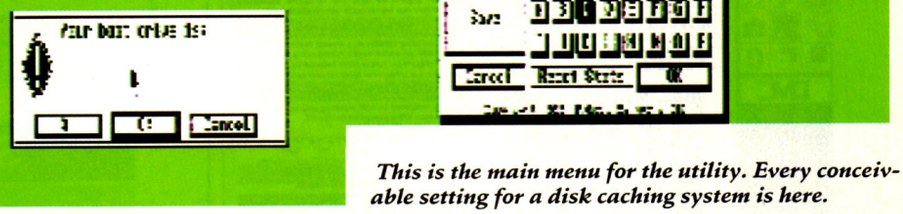
The benefits of the program are numerous: faster disk operation, longer life span for disk drives, as well as your media, and less waiting time on programs that grind your disks.

However, with these advantages there comes just one drawback, which is caused by the amount of memory taken up by the cache program and sector buffers (a minimum of 20k in RAM). Anything that is written goes directly to the disk, unless the sector's already in the code and the data has not changed. This ensures that the disk's contents are always current in case of a crash, power failure or accidental interruption.

There is also the option of choosing the size of the cache and the drives you want to use. It's advisable to experiment with different sizes, but it's necessary to use at least 32 buffers, although 256 is the recommended amount.

ST REVIEW COMMENT: "A small, reliable and fast program that enhances all disk use regardless of type."

✪✪✪✪



This is the main menu for the utility. Every conceivable setting for a disk caching system is here.

KEPCO EDITOR AND RWPRINT

• WIZARD PD, 178 WAVERLY ROAD, READING, BERKS, RG3 2PZ • MEMORY: 512K •

Kepco International has produced a shareware programmers' editor, complete with an extensive users' guide. Other features include multiple file editing, Unix regular parsing for a search-and-replace, keyboard macros, Reverse Video cut and paste between files and many other useful tools.

The disk also includes a source file printer, SFPrint, which is a major update on RWPrint that was put out a while back. This allows the printer listings of the source code files to have "reserved words" and comments printed in bold type, italics or other specified fonts. The output can be to Epson-compatible printers or a ***First Word*** file. The last inclusion on the compilation, also by Paul Brown, is called ***Invtext***. This is an improvement on an earlier version of a program that allows you to create text files and reverse video highlights.

ST REVIEW COMMENT: "None of these programs really stand out on their own, but put together they represent an admirable compilation."

✪✪✪

SPLASH

• COMPUTE 'IN STYLE', 64 CASTLE HILL ROAD, HINDLEY, WIGAN, LANCS, WN2 4BJ • MEMORY 512K • LICENCEWARE

Splash has been specially designed with the very young in mind. The package only contains about 18 functions and features and sets out to be as simple as possible. There are eight colours, excluding black and white, but all can be adjusted by a sub-menu, once the child has got the hang of things, to make many more.

Computer drawing can be a mind-bending experience with scores of menus and effects that puzzle the initiated – let alone a child. ***Splash*** only includes the basics. At the bottom of the screen are the tools, held in big squares that come to life with an animation depicting their function when the cursor moves onto them. There are three types of brush: thin, thick and one that cycles through the colours, and various other alternative, but fun, features. All pictures can be saved and additional ones loaded in.

ST REVIEW COMMENT: "A well-presented child's utility that's ideal for youngsters of all ages, and a lot of adults, too, no doubt. Splash would make a very welcome addition to anyone's collection."

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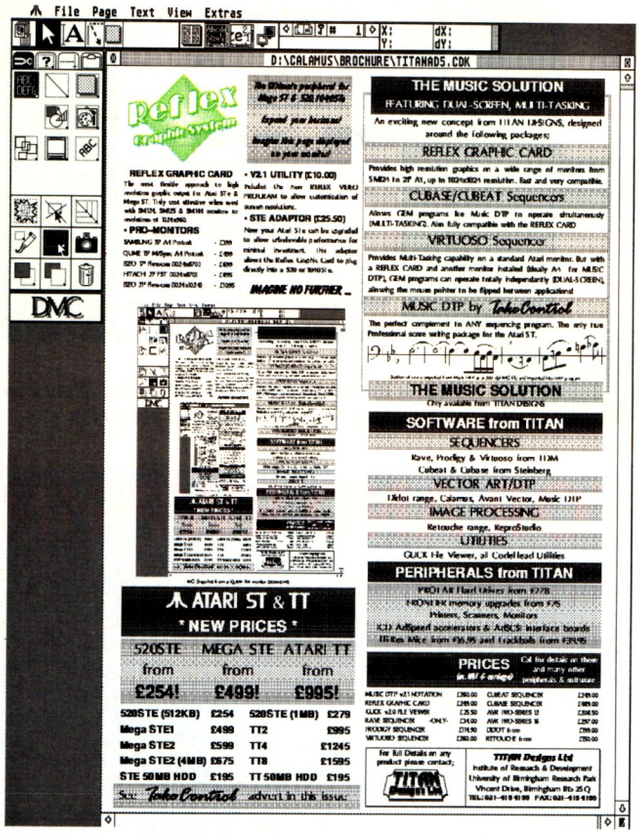
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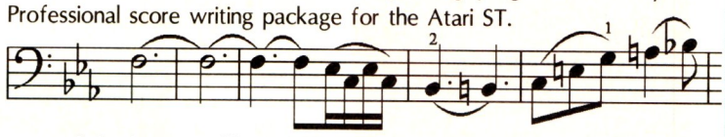
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STEP LIGHTLY

Fractal Music Composer allows you to convert 60s-style psychedelic screens into music. "Let's hope it doesn't sound like Hawkwind," cries Chris Jenkins, as he trips the light fantastic. . .



Everyone doodles in one way or another, whether it be musically, on canvas or with pen and paper — and I daresay that everyone would like to think that somehow their doodles can be shaped into something better.

Now there is a MIDI music package on the ST which does precisely that, transforming multi-coloured fractal screens into dreamy, ambient, background music played on your MIDI-equipped synthesiser. Unfortunately, the ST's internal sound chip is not supported by the program.

Quite a few packages already exist which provide 'improvised' or 'doodled' music, although from a purist's point of view, both terms are misnomers: the sounds which are created are originated mathematically.

There are several 'algorithmic' composition packages such as ***M*** and ***Jam Factory*** which create music using complex mathematical formulae; variation generators, such as ***Ludwig***, which produce stylistic variations from your original music input; and performance controllers, such as ***MIDIGrid***, which let you improvise music in real time. Of all these unusual approaches to MIDI composition, my favourite so far is still ***Fractal Music Composer***, from Fractal Music Ltd.

First, let's make an important point: this package is not to be confused with the similarly titled ***Fractal Music*** by Datamusic Ltd. Although the two packages both use fractal mathematics to generate MIDI music, their approaches and results are quite different.

Fractal Music is quite a dry, academic program and it generates results which are intriguing but not necessarily great listening; ***Fractal Music Composer*** is a whole lot of fun and sounds great! The programmer, Hugh McDowell, certainly ought to know a thing or two about a good tune, since he plays with the Electric Light Orchestra.

Innovative package

Saves files in standard MIDI format

Easy to get quick results

Reasonably priced

PROS AND CONS

Doesn't offer the recording or editing functions of a conventional sequencer

Supports only four monophonic tracks at a time

Needs better error-trapping

WHAT ARE FRACTALS?

Most readers will probably be familiar with fractal graphics. They're generated using mathematical algorithms developed by Benoit Mandelbrot, using recursive techniques; in other words, the algorithm produces a number, which is then fed back into the algorithm.

The resulting numbers are translated into colourful graphics strangely reminiscent of natural forms like clouds, snowflakes and landscapes - and the more you "zoom in" on the image, the more detail is revealed.

In ***FMC*** the same mathematical process is applied to generating MIDI note information, and by connecting your ST to a suitable sound source (preferably a multi-timbral MIDI synth module), the results can be astonishing.

FMC comes with a 40-page manual and two disks — a protected key-disk, and an unprotected backup disk which needs the key-disk inserted into the drive before it will run.

There are medium-res colour and hi-res mono versions of each program. The first is the ***Mandelbrot Set Zoom*** program which allows you to generate your own fractal graphics. The second, the ***Mandelbrot Set Composer***, lets you compose music with these patterns, and the last, the ***Julia Set*** composer, uses a sub-set of the ***Mandelbrot*** data to compose in a slightly different way.

A fourth program, ***MIDI Player***, lets you replay the music files created using either of the ***Composer*** programs; you can also save the files in MIDI standard form and load them into any other compatible sequencer for editing.

The program is written in compiled ***Hisoft Basic***: the original was prone to crash if you messed it about by trying to load incompatible files or selecting impossible options, but the bugs are being worked out of later versions.

Although setting up ***FMC*** is fairly complex, the GEM-based system is fairly intuitive and you don't need to know a lot about fractals, MIDI or music theory to get a tune out of it.

SETUP

The main screen of the ***Mandelbrot Set Composer*** lets you set the playing parameters for the four available MIDI channels.

For each channel you can set a channel number, lowest and highest octave and note, and the number of possible notes in a 'run' of repeated notes, from one to eight. Each track is monophonic - that is, it plays only one note at a time.

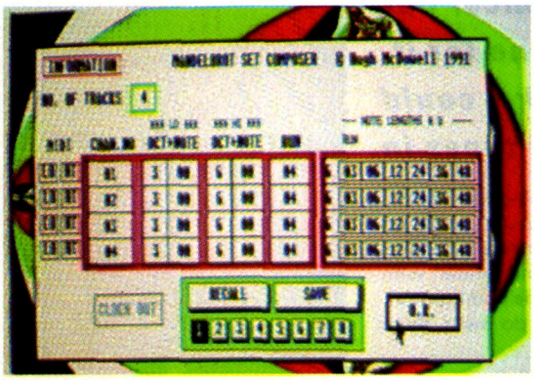
Although it would have been convenient to have eight or more channels to work with, this would inevitably have cluttered the screen and slowed things down. You can always run the same set-up twice, and combine the two runs by merging them in a more conventional sequencer package.

The final section of the setup routine lets you choose the number of available note lengths for each channel, from one to six; and the actual lengths, expressed from one (triplet demi-semi-quaver) to 96 (brève).

The setup screen also lets you choose whether the MIDI clock output is on or off (if you want to

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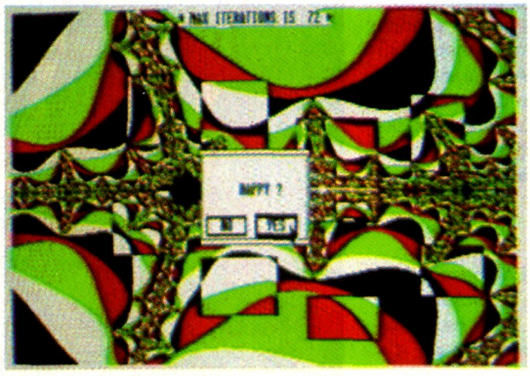




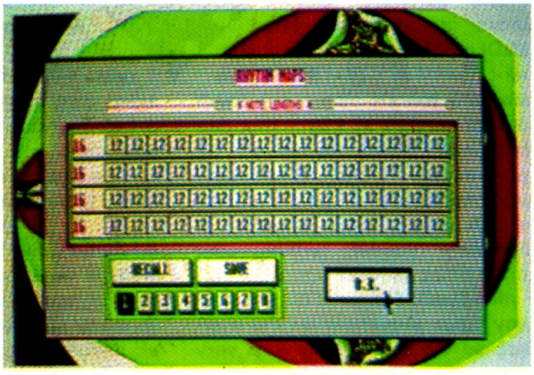
The Mandelbrot Set Composer's main screen, shown in medium res. Here the note range, note lengths and MIDI channels for the four tracks can be defined.



The Mandelbrot Set Composer's Tone Map screen. Here you define the key changes which give the output a more musical structure.



The Mandelbrot Set Composer's box screen, where you choose the area of graphic data which will define the composition's pitches and note lengths, and set the tempo.



The Rhythm Map screen of the Julia Set Composer, where you can impose a repetitive rhythmic structure on the fractal-generated MIDI data.

run a drum machine or other sequencer in time with the fractal music); up to six setups can be saved for re-use.

Having finished with the setup screen, you move to the Tonality Map screen. This lets you impose a sequence of key changes on the fractal music. Up to 36 tone Maps can be defined, each with a type (major, minor, dominant 7th, diminished, whole tone and chromatic), a transposition (+/-24 tones), and a duration in beats. This is the feature which allows ***FMC*** to play melodious music rather than a repetitive drone, so pay attention!

When playing, the music cycles endlessly around the selected tone maps, which can again be saved for later use.

The last step is to move to the Box Drawing screen, which displays either the default ***Mandelbrot*** graphic or one you have plotted yourself. Click and drag with the mouse to draw up to eight boxes on the screen and surround the areas which you want to translate into note lengths and pitches for the four separate MIDI channels. For wide pitch variations, choose a complex area; for little variation, a plain one, and so on.

PLAYBACK

Finally, type in the required tempo in beats per minute, and the program runs. While the music plays, the current tonality is displayed and you can change the tempo with the + and - keys. When playback finishes, you can listen to the music again, restart from a blank setup screen or quit.

The ***Julia Set Composer*** has a similar set-up screen to the ***Mandelbrot Set Composer***, but it differs in that it plots points on the display as it composes. It also allows you to impose a rhythmic structure on each channel by defining a repeating series of note-lengths. It would have been nice to have this facility on the ***Mandelbrot Set Composer*** as well.

THE FINAL VERDICT

So what do the results sound like? Obviously a lot depends on the parameters you have entered, the tempo you choose and the sounds you select on your synth.

What you'll hear is a strangely familiar analogue of the fractal graphics; repeating patterns with endless slight variations, snatches of melody, sudden changes of mood or style, simple tonalities or impossibly complex riffs.

The best feature of ***FMC*** is that by saving its output as a standard MIDI data file, you can load it into a conventional sequencer such as ***C-Lab Creator*** and edit the best bits together into a more satisfying musical whole.

If you want to hear the results yourself, a cassette album, ***Fractal Visions***, containing almost an hour of music composed using FMC, is available by sending a cheque or postal order for £5.99 made out to F.A.M.E. to PO Box 387, London N22 6SF.

Whatever you choose to use ***FMC*** for – whether you see it as a composition tool for finished pieces, an ideas generator or just an academic exercise – you are definitely going to have more fun with it than you have ever had with any other piece of music software — and that's a guarantee!

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HIS MASTER'S

If you want a top-notch sequencer but you don't want to pay a fortune for it, MIDIStudio Master, from Ladbroke, could be the solution. Chris Jenkins tunes in

British-made MIDI sequencer programs, like British-made cars, TVs and HiFis are few and far between. There's Hollis' ***Trackman***, Digital Muse's ***Virtuoso***, and not much else – except for one of the most impressive of the lot, Ladbroke's ***MIDIStudio***.

Better known for disk drives and memory expansions than for music software, Ladbroke first ventured into MIDI music in 1988. The current version of ***MIDIStudio Master*** – there's also a cut-down Junior version at £30 – this has been completely re-written by programmer John Blackledge, and offers a level of sophistication which rivals ***C-Lab Creator*** or ***Steinberg Cubeat***, which cost three times as much.

MIDIStudio Master is quite unlike any other sequencer on the market, so the learning curve is very steep. It doesn't help that so many revisions have been made that the manual supplied is completely out-of-date – it even gets the number of menus wrong, and fails to mention that they can now be represented by icons rather than text. But if you print out the extensive READ.ME files and add them to the 188-page spiral-bound manual, you'll soon be motoring. Although the manual is logically laid out, and written with a good deal of sense and humour, it could certainly do with more illustrations.

MSM requires a dongle to operate. This is immensely irritating if you normally multi-task using another program, such as a patch editor, which also needs a dongle. Apart from that, you need 1Mb of RAM, a double-sided disk drive, and a mono or colour monitor, or TV. The package contains a single disk which can be freely backed up or transferred to hard disk.



MIDIStudio Master's main desk screen, showing the iconised menus, 20 tracks and tape-transport-style recording controls

STRUCTURE

MSM is vaguely GEM-based, but each of its displays is packed with so many numbers, buttons, virtual sliders and knobs that it's initially baffling. The most intimidating aspect, though, is that it's neither song-based, like ***Cubase***, or pattern-based, like ***Creator***.

MSM is actually phrase-based. Phrases can be anything from one beat to 68 bars long, and are recorded from the Master Desk.

This main display features the menu names (or icons) along the top, and 20 reassuringly familiar track indicators, each with a level slider, play status indicator button (showing whether the track is ON, Muted, or playing Solo), and a MIDI channel number indicator.

The 'tape-transport'-style cluster of control buttons is also reassuringly familiar; there's Play, Stop, Record, FFWD, REW, go-to-start, go-to-end and so on, and keyboard control alternatives are user-definable. To its left is a tempo control (there's an audio metronome and a MIDI one to give you a count-in); to the right are displays showing the resolution, which can be up to 240 parts-per-quarter-note, and other indicators such as the MIDI THRU status, looping status and so on.

RECORDING

To record a phrase you click on Record, wait for the count-in and play. Unless you are in loop record mode, where the phrase repeats to allow you to build up a multi-part phrase, recording stops at the end of the preset phrase length.

This is the aspect of ***MSM*** I can't get to grips with; with ***Cubase*** or ***Creator***, you start to record, and it continues recording until you run out of memory (not strictly true, but you get the idea). With ***MSM***, the length of the phrase you are to record is set in advance. The default is four bars, and the maximum is 68 bars at four beats per bar; but if you're in the middle of a hot solo and ***MSM*** stops recording this isn't going to be much consolation.

You'll find that you can halve or double the tempo with a single mouse-click, which is handy for checking complex melodies or, let's be honest, for creating performances faster than you could possible play yourself!

Once you have recorded a phrase, select the Phrase List Window and the control panel slides down, revealing a window containing a little box labelled PHRASE 1. You will also see pre-recorded two-, four- and eight-bar blanks which are used in the Arrange Window. As you record more phrases, more little boxes appear. You can rename them, but you are limited to six characters.

Move to the Arrange window, and you can click-and-drag phrases from the Phrase List Window onto the track display. You can position them on any track, or chain them to create a repeating phrase, but if you want a track to start with silence you have to fill the space with blank phrases.

You can have up to 100 tracks in memory, although only 20 can be output simultaneously. Each track can have up to 100 phrases on it.

The Arrange window also allows you to scroll up and down through the 20 tracks, copy tracks from one to another and delete phrases or tracks. Up to 10 cue points can be placed, allowing you to find your way around your song with ease.

PLAYBACK

As you add more phrases and build up a composition, you can watch the graphic song display scrolling past as you play. A scroll bar lets you search through the song, and using the zoom func-

Reasonably priced

Very powerful and sophisticated

Expandable through forthcoming Pipeline modules

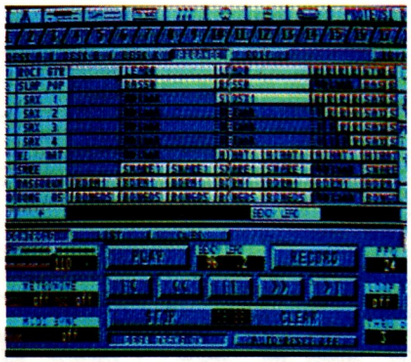
MIDI standard file format compatible

PROS AND CONS

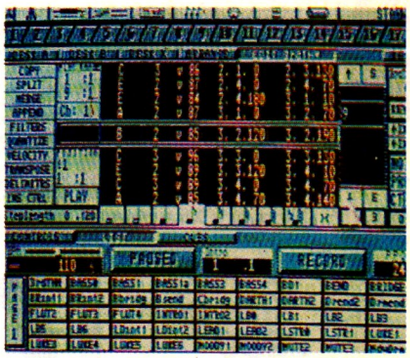
Steep learning curve
Recording system has some limitations
Manual insufficiently illustrated
Dongled – ugh!

VOICE...





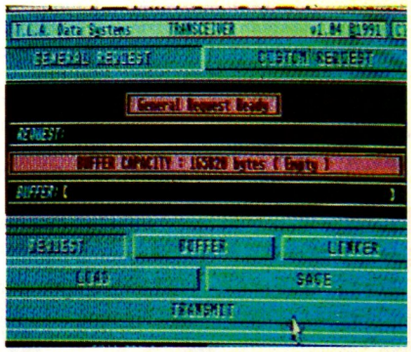
MIDIStudio Master's Arrange window. Here, the phrases that you have previously recorded are now assembled on the track bars to form a complete song.



MSM's Phrase Edit window: detailed editing of note positions and other MIDI data can be carried out on the phrases shown in the Phrase List Window at the bottom of the screen.



A little bonus, the Guitar Tuner, which sounds notes at the correct pitches for you to tune your guitar to your MIDI keyboards.



The transceiver, the first of the Pipeline extension modules, which records and transmits MIDI system exclusive data.

tion you can examine its structure in more detail.

Going back to the Desk page allows you to control the track mix by altering volume, panning, transposition, MIDI delay and so on, in real time.

The last major window, Edit, allows you to control the finer points of your composition. MIDI data is displayed in alphanumeric form (numbers and letters), and you can tweak the note positions, pitches, velocity, transposition, quantisation and practically any other parameter until you're happy. You can also insert music data in step time using the mouse or MIDI.

A filter section lets you define whether velocity, pitchbend, or other MIDI controller information is recorded (active sensing and spurious All Notes Off messages which are generated by some keyboards are filtered out automatically).

There are also velocity scaling, note transpose delimiter and other useful if obscure functions, and quantisation options including humanisation routines which put a degree of unpredictability back into your sequenced tunes.

MSM has very good MIDI synchronisation facilities, with a number of options including sync off, internal sync/send, internal sync/mute, and external. The program transmits MIDI Song Number and Song Position Pointer data, and it both transmits and recognises MIDI Song Start/Play/Continue/Stop messages, so you shouldn't have any difficulty synchronising it with other MIDI gear. As you might expect in a program of this price, there are no SMPTE timecode sync facilities, although apparently they're working on it.

EXPANDABILITY

MSM supports the MIDI standard file system, so your sequences can be loaded into other compatible programs. A Performance function allows chains of songs to be loaded and played automatically.

One of the best features of ***MSM*** is that it's expandable. Although it currently lacks a graphic event editor, its unique Pipeline system means that when one is developed in the future, it can be called on as an extra window. In this way other features such as drum instrument mapping will be included in future versions. One Pipeline-linked module supplied with the current version is a MIDI system exclusive routine which can record and transmit MIDI data such as the appropriate synth sound patches for each song.

There are a few bonus features which you might not expect at this price: a text notepad, alternative pointer designs and control button choices, a fit-time calculator which changes the tempo of a song so that it exactly fits a defined time in minutes and seconds, and an Extended Desk window which allows you to send All Notes Off commands, MIDI continuous controller data, MIDI mode messages, and synth program number-changes. There's a free telephone helpline for users, and the £30 Junior version is still available, adopting the same approach to recording, although it has few more advanced features.

MIDIStudio Master is challenging and may present difficulties if you are used to a more conventional program. In its favour, it isn't too hard to pick up if it's your first encounter with MIDI sequencing, it's extremely well specified and it's very reasonably priced.

"One of the most impressive sequencer programs ever produced in the UK"

NAME: MIDIStudio Master
COMPANY: LADBROKE COMPUTING INT.
CONTACT: 0772 203166

PRICE: £99.99
RELEASE DATE: NOW
MIN MEMORY : 1Mb

EASE OF USE	●●●○○
DOCUMENTATION	●●○○○
EFFECTIVENESS	●●●●○
VALUE FOR MONEY	●●●●○

OVERALL 87%

Ladbroke Computing International

33 Ormskirk Rd, Preston, Lancs, PR1 2QP

Special Offers

520STE Discovery Xtra plus £270

1Mb 520STE Disc Xtra plus £280

1Mb 520STE Disc Xtra plus with PC Speed emulator fitted£339

Phone for details of Mega STE's

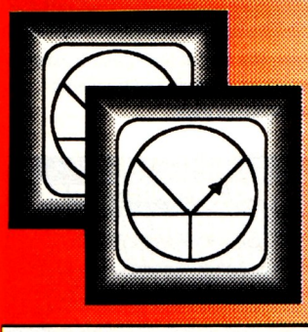
Mega 1 STE with 2Mb RAM, 52Mb Quantum hard drive fitted£949

Mega 1 STE with 4Mb RAM, 105Mb Quantum hard drive fitted£1139

Phone for details of DTP packs

520 STE with 2Mb RAM, SJ48 Bubblejet, Calamus DTP software£739

Tel:(0772) 203166
Fax:(0772) 561071



Ladbroke Computing are the longest established Atari dealer in the U.K. We have developed an extensive customer service policy which means that we test all Hardware prior to despatch to ensure that goods arrive in working order. Although our prices are not always the cheapest we do endeavour to offer consistently good service and backup. This isn't just our opinion, we were voted "Best Dealer 1989" by the readers of ST World magazine, not for "the number of boxes shifted", but for quality service.

All prices are correct at copy date 23/03/92 (while stocks last), and are subject to change without prior notice. Please phone for up to date prices. All prices include VAT & delivery(in mainland UK), there are no hidden extras (WYSIWYG). Next day courier delivery is available for an extra £7 (Mainland U.K). All prices available on Mail Order. Shop prices may differ. Shop & Mail order premises: 33 Ormskirk Road, Preston, Lancashire, PR1 2QP. Open Monday to Saturday 9:30am to 5:00pm. Phones answered from 9:00am. Dealer enquiries welcome. Ladbroke Computing International is a trading name of Ladbroke Computing Ltd. All trade marks recognised..

Midistudio Master

Specifications

Timing:

240 pulses per quarter note (ppqn) timing resolution. Internal clock-synchronisation-to-hardware of 1/3200 sec (less than 1/3rd millisecond).

Structure:

100 tracks storage - output any 20 simultaneously. Up to 100 phrases may be placed on each track.

Mixdown (per output):

On/Solo/Mute, Volume, Program, Stereo Pan, Transpose, output Channel, Midi-Delay.

Controls:

Play, Pause/Continue, Record, Stop/CLear, Fast Forward (with playback), Fast Rewind, Go To Start, Go To End.

Loop Record (Off/New/Add), Multi Channel/One Channel Record. Multi Channel/One Channel Output Per Track. Tempo 40 to 240 bpm, Half Mode, and Recordable. PSG Metronome, Midi Metronome (tunable, two tones). Phrase Size (from 1 beat, to 68 bars of 4 beats per bar). Five Sync Modes.

240/24 ppq Mode Switch. Bar/Beat Position Counter. Realtime Stopwatch, Fit-Time Function. Midi Thru (1 to 16, Off, Multi-Channel). Intro (1 to 16, Off, First Note Trigger). Playback Cue Points (8, nameable, displayed in Scroll).

Edit Functions.

Direct insert/change of any Midi event via Midi or mouse.

Local Phrase Playback - Play and Edit only the Current Phrase.

Step Time Input - via Midi or Mouse, user defined step-jumps, notepitches, notelengths.

Copy, Split, Merge, Append, Rename.

Quantize - 11 levels, Auto, Humanise, Staccato, Legato

Transpose - To + or - 24 semitones.

Velocity - Level-all, Increment/Decrement All, Auto, Humanise, Rescale.

Filters - Immediate Filters, plus Input Filters for Note On/Off, Program, Bend, After Touch, Controllers (individual and multi).

Insert Continuous Scaled Controller - add Pan, Volume, etc., across a phrase.

Delimiters - Transpose/Velocity/Filter delimiters: - All Notes/One Pitch, All Channels/One Channel.

Buffer - 'Undo' the last edit/record.

File.

Midi standard file compatible. Load Song, Save Song, Load Phrase, Save Phrase, Delete File, Change Drive, Disk Space.

And More....

GEM Interface/Menu/Accessories support. Run 'slave' programs off disk from within Midistudio.

TLA Data Systems Pipeline/Modules Facility. Memory-linked modules are called as extra windows.

System Exclusive module built in.

System Exclusive Immediate/Auto Load+Send. Midi Song Number Set, and Transmit. Midi Song Position Transmit.

Remote Midi-Keys Control.

Continuous Load+Play (Performance) Mode.

Mouse Left/Right Button Exchange.

Text Notes Window.

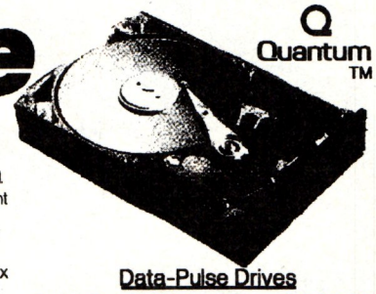
Hardcopy Facilities, telephone Help-Line, and Customisation Service.

£99

FORMAT GOLD AWARD ST Format Gold

81% ST Format 27

Data Pulse



Quantum Mechanics

The 3.5" Auto-parking Quantum Mechanisms used in the Data-Pulse range of Hard Drives are made to very high American Military standard and are covered by a 2 year manufacturers warranty (from date of manufacture).They have a typical, effective access time of 9ms utilising a 64K look ahead disk cache. The mechanisms used are also very low power which means they can operate without a fan, reducing noise.

Data-Pulse Hard drives

- ☑ All drives are formatted/partitioned and tested.
- ☑ DMA device selector & On/Off switch on front of case.
- ☑ DMA Out port for daisy chaining extra drives/ Laser printer.
- ☑ Full metal case measuring 300mm x 285mm x 51mm (wdh), providing good shielding, and monitor stand.
- ☑ Choice of controller boards (prices differ):ICD board with battery backed clock or GEsoft. Both boards have a data transfer rate in excess of 1Mb per second and are supplied with formatting/partitioning software.
- ☑ All drives include backup software, MCP shell programme, Midistudio & Midistudio Master demo's.

Data-Pulse Drives

Data-Pulse 52Mb GE	£369.99
Data-Pulse 52Mb ICD	£389.99

Special Offer

Data-Pulse 105Mb GE	*£449*
Data-Pulse 105Mb ICD	*£474*

84% ST Format 25

Aries

Ladbroke Computing have been active in the field of ST Memory upgrades for a number of years and can offer upgrade advice and solutions for the entire range of ST's.

We have developed our own .5/2/4Mb upgrade board using an in house designed, Multi layer circuit board which measures just 52mm x 62mm, smaller than a credit card. We have achieved this miniturisation by utilising 4 Megabit memory chip technology. The result of this reduction in size is a reduction in cost and more reliable operation, due to the fact that the board resides under the ST's shielding protecting it from interference and reducing Electromagnetic emissions.

The board is manufactured in the U.K and hand assembled in our workshops by skilled technicians.

Memory Upgrades

The boards are then thoroughly tested before despatch.

The board now comes in three configurations, .5Mb, 2Mb and 4Mb. It is possible to start with a .5Mb board and to upgrade it to 2Mb and then 4Mb at a later date.

The boards require some soldering, due to the instability of some plug in devices, but are very easy to fit and come complete with full instructions to fit ANY ST including Mega's (except STE's which use SIMM boards). If your shifter chip is not socketed, you will have to desolder it and install a socket which is supplied.

A memory check program is supplied and skilled technicians are on hand to offer technical support.

Aries Upgrades (Any ST(F)(M))

512K Aries Board	*£ 39.99*
2Mb Aries Board	*£ 99.99*
4Mb Aries Board	*£ 169.99*

Our skilled technicians can install the above upgrade boards for £20 including VAT and return delivery.

Aries Upgrades STE

512K SIMM's upgrade	*£ 19.99*
2Mb SIMM's upgrade	*£ 74.99*

Please check configuration of your machine with our staff before ordering SIMM's upgrades.

16/4 chip upgd STFM £ 29.99

Please check the configuration of your machine before ordering. These chips are not surface mount.

Monitors

Atari SM144 Mono	**£ 139.99**
Atari SC1435 Colour	**£ 249.99**

The new colour Atari monitor comes with cable and tilt monitor stand.

Protar Visto Col Mon	**£ 219.99**

The Visto includes cable & 12 months on site replacement warranty.

Philips 15" Cube TV	**£ 269.99**

A 60 channel, FST, Fastext scart input TV which gives near monitor quality. Includes scart cable.

ST Secure

ST Secure is a security device which uses a combination of hardware and software to prevent unauthorised use of your ST. The "Timelock" hardware can be installed in your ST in approx 30 minutes with no soldering involved. Then when you switch on your ST you must enter the correct password using the 'Key disk' or your ST will reset after 45 seconds. **Only £25 Inc VAT & Delivery**

St Internal drive	***£53.49***
A/B Boot switch	***£14.99***

Our technicians can carry out repairs to all ST's. Phone for details.

Printers

Star SJ48 Bubblejet	**£239.99**
Star LC-20	**£139.99**
Star LC-200 colour	**£199.99**
Star LC24-20	**£199.99**
Star LC24-200	**£229.99**
Star LC24-200 colour	**£289.99**

All Star printers include 12 months on site warranty. All printers include ST/Amiga/PC compatible Centronics cable.

Golden Image

Golden Image External 3.5" Drive £64.99

Includes through port and LED track counter.

Golden Image Hand Scanner £149.99

Includes Touch Up and Deluxe Paint Software.

Brush Mice

The Golden Image Brush Mouse is an opto/ Mechanical mouse in the form of a brush. It has a resolution of 150Dpi, is switchable between ST/ Amiga and costs **£19.99**. The Brush mouse also comes with the excellent Deluxe Paint software for just **£24.99**

Golden Image Optical Mouse	**£34.99**

The Golden Image Optical mouse has a resolution of 250Dpi, comes complete with mat and is switchable ST/Amiga.

Jin Tech Mouse	**£12.98**

High quality replacement ST mouse.

Emulators

PC Speed,(XT)	**£ 90**

Please state STFM or STE version.

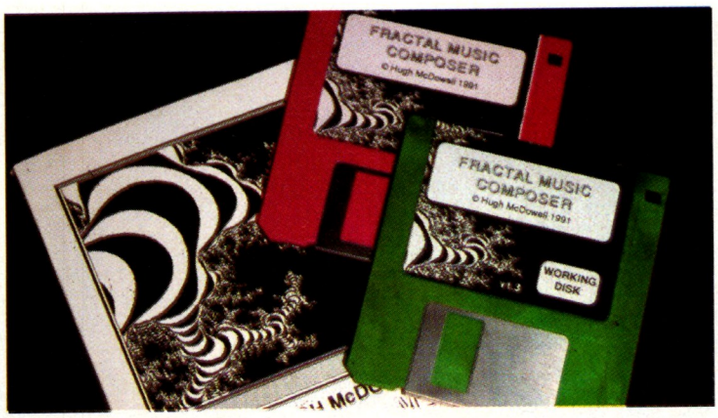
AT Speed	**£ 150**

Includes DR DOS

AT SPeed C16	**£ 249.99**

Includes DR DOS 5, Socket for 80C287 Co-Processor, Norton factor of 8.2

AT Speed-STE Adaptor	**£24.99**
AT Speed-Mega Adaptor	**£ 24.99**





THE PRICE IS RIGHT?

The first type of music software package any ST owner will want to buy is probably a sequencer

The original 'sequencers' were hardware units using a series of potentiometers to determine the pitch of voltage-controlled synthesisers. They were often limited to 16 or even eight notes, giving short, repetitive musical 'sequences'. They were quickly superceded by digital sequencers with much greater capacity, and eventually by software-based 'sequencers'.

The modern software sequencer is in fact a MIDI data recorder capable of storing long, complex performances played on a MIDI keyboard or other controller. The performance data, which includes pitches, note lengths, pitch bends and so on, can then be edited in many ways; truncated, looped, transposed, reversed, and so on. This makes it possible to experiment endlessly with a piece of music before committing yourself to the final recording, in much the same way that a word processor lets you edit documents before printing out a letter.

By building up songs using many sequenced tracks, and by synchronising other instruments such as drum machines, the ST-based sequencer can become the centrepiece of your composing system. In this field the ST is second to none, since its built-in MIDI ports give it an advantage over computers which are in some other ways superior, such as the Commodore Amiga, Apple Macintosh or IBM PC-compatibles.

Most chart hits are now produced with the help of an ST-based sequencer somewhere along the line, so whether you're just in it for your own entertainment or you want to appear on Top of the Pops, your choice of sequencer package is crucial.

This table lists MIDI sequencer programs for the ST that are in a similar price category to Ladbroke's ***MIDIStudio Master***, giving details for the latest version. For our purposes a sequencer is defined purely as a MIDI performance recorder, so variations such as algorithmic composers, variation generators, graphic-to-music convertors and so on are excluded.

Contacts:

Atlantic Audio, 071 272 8944

Gajits, 061 236 2515

Hollis Research, 0481 728286

Ladbroke Computing, 0772 203166

Zone Distribution, 081 766 6564

BUYERS GUIDE

TITLE	PRODUCER	DISTRIBUTOR	PRICE	RAM	MON	TRX	EVN	GRP	SCR	ARR	SNG	SYN	COMMENT
TIGER Cub	Dr T	Zone	£99	1Mb	C/M	12	N	Y	Y	N	N	N	Entry level program; graphic editing and non-editable note display
Trackman	Hollis	Hollis	£100	.5Mb	C/M	32	N	Y	N	Y	N	Y	Optional hardware port expander and footswitch
MIDIStu	Ladbroke	Ladbroke	£100	1Mb	C/M	20	Y	N	N	Y	Y	N	Rewrite of the 1988 pattern-based MIDIStudio program; dongled
EditTrack Gold	Hybrid Arts	Atlantic	£116	1Mb	C/M	60	Y	Y	N	Y	N	Y	SMPTETrack minus SMPTE hardware; operates under Multi Program Environment
Sequencer One	Gajits	Gajits	£90	.5Mb	C/M	32	N	Y	N	Y	Y	N	Entry-level sequencer with good graphic editing

Ram – Minimum memory required to run (or in some cases, to load all modules).
Mon – Type of monitor supported, mono or colour
Trx – Number of individual MIDI tracks which can play simultaneously without hardware additions
Evn – Event editor. A feature which allows editing of recorded MIDI data, shown in alphanumeric form
Grp – Graphic editor. A feature which allows editing of recorded MIDI data, shown in graphic form
Scr – Score display. A feature which displays and prints out MIDI notes in conventional music notation
Arr – Arrange. Allows patterns or phrases to be chained to form a song
Sng – Song display. Shows the position of patterns or phrases in a song in graphic form
Syn - Synchronisation. Dedicated hardware available for sync-to-tape or SMPTE sync
Y — Yes, the sequencer includes this facility
N — No, this option is not available

ATARI ST REVIEW
ESSENTIAL BUY

What brings programming in 3D within the grasp of the average user? Tony 'call me D-lightful' Dillon loads up the latest from Europress software



Two items can be worked on at once if you like, but usually the left and right work spaces are used for pasting blocks. Place one in the right, one in the left, and bind them together with the glue tool.

ADDING A NEW DIMENSION

The idea of creating 3D objects is something of a holy grail for thousands of ST owners, and now ***STOS*** — the package that, it's claimed, makes coding easy — has reached something of a landmark. The latest update, version 2.6, works in three dimensions.

THREE DIMENSIONS AS EASY AS TWO?

STOS 3D has a very simple aim: to allow you to build three-dimensional objects and locations, then to move and manipulate them in a way that's as easy as playing a flight simulator. Take your pick whether you incorporate these objects into an adventure game or a business presentation: ***STOS 3D*** is the programmer's flexible friend.

Easy to use
excellent quality results
Almost endless possibilities

PROS AND CONS

Can take a little time to understand Object Modeller
Slows nastily with large numbers of polygons

The package comprises two disks, a 100-page manual and a quick-reference guide. One disk contains the installation programs necessary to upgrade your version of ***STOS*** with the 3D extension, as well as a 2.6 updater.

The second disk holds the Object Modeller program, which can be run through ***STOS*** or independently, depending on how much memory you have. Installation is easy, and involves making a back-up of your original ***STOS*** language disk. There's an auto-booting installation program on the Install disk, which contains two sub-programs – Update and Install. Updating brings your version of ***STOS*** up to version 2.6, with all its new commands. Install adds the 3D extension to your now updated version of ***STOS***, making it an even more powerful beast, now with the capacity to sling 3D objects about like there was no tomorrow.

Until now, the only 3D creation package available has been Incentive's ***3D Construction Kit***, in which whole areas rather than objects were created. Rooms were more like a single complicated 3D object than a collection of independent objects, although the kit did have a simple command

INSIDE INFO

Although it's still in a very primitive stage at the moment, Scale Gunner certainly looks set to break no boundaries and cause no stirs whatsoever.

It's a simple romp, casting you as a nuclear powered fisherman, and the idea is to blast away any fish that are coming toward you with your laser gun. At the moment, the lasers are aimed with the mouse and the fish emit a loud bang and disappear when shot.

Eventually bonus items, such as treasure chests and boots will be included, as well as the ability to move your viewpoint around the submarine, allowing you to track fish as they pass. As the game expands, I aim to make use of the fact that object 0 is your own viewpoint, and allow you to move the submarine across a map, to deadlier clusters of cod. If it looks this good after only a few days' work, just think how it will be this time next month!

language that could manipulate blocks at a basic level. In fact, objects were part of the fabric of a room, and if you wanted to use the same object twice, you actually had to build it twice.

STOS 3D works slightly differently. Any object used has to be built separately and then manipulated using a set of BASIC commands. This is the job of the Object Modeller (OM) and is rather like creating a series of sprites with an art package.

Superficially, the Object Modeller in ***STOS 3D*** resembles ***3D Construction Kit***, with an icon window at the bottom of the screen and a workspace in the upper half to display your objects. This is, however, the only similarity between the two.

Along the top of the screen are your two basic building blocks – a cube and a pyramid, plus three flat shapes for decoration – a square, a hexagon and an octagon.

Almost all of the 50 plus icons are used for reshaping, rescaling and repositioning your basic building blocks. Every vertice and line can be pushed and pulled to create all manner of customised blocks. This is the tricky part. Faces are stretched, pushed and rotated about the one that faces the screen, rather than from a standard set of co-ordinates. It sounds confusing, and to begin with it is. When a block is first copied to a workspace, it is face-on to the screen. Pulling or stretching at this point pulls and stretches it at right angles to the screen. When the block is moved, pulling and stretching have a different effect, depending on the degree of movement. This can seem unpredictable and even uncontrollable at first, but with perseverance comes understanding. It's a logical way of handling it, it's just to start with, it's a little hard to get the hang of it.

You can place the building blocks anywhere you like in relation to as many blocks as you wish, then add decoration or insignia to the sides of the polygons. Here's a demonstration:

Suppose I wanted to make a model of a fish. Simply sticking a cube and a pyramid together isn't going to make much of an impression. So I begin with a cube, for the body of the fish. By stretching the cube, while squashing the

"STOS 3D is excellent. Friendly and simple, it makes 3D programming a relatively easy process"

NAME: STOS 3D
COMPANY: EUROPRESS SOFTWARE
CONTACT: 0625 859333

PRICE: 34.99
RELEASE DATE: MARCH
MIN MEMORY : N/A

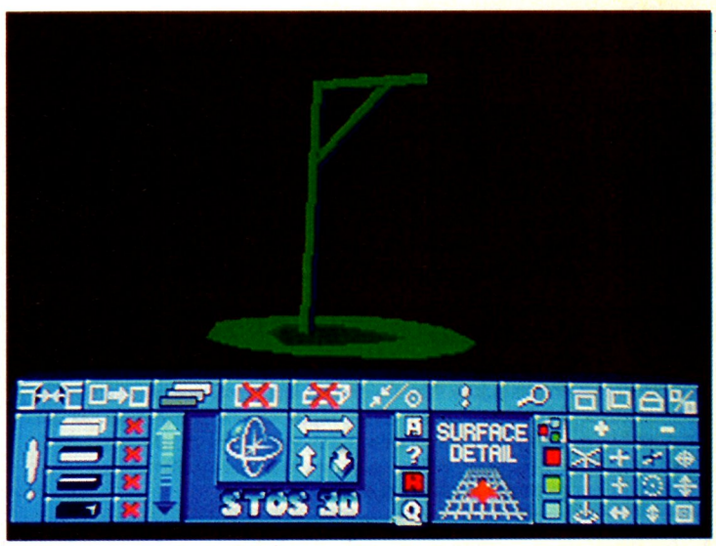
EASE OF USE	★★★★★
DOCUMENTATION	★★★★½
EFFECTIVENESS	★★★★★
VALUE FOR MONEY	★★★★★

OVERALL 92%

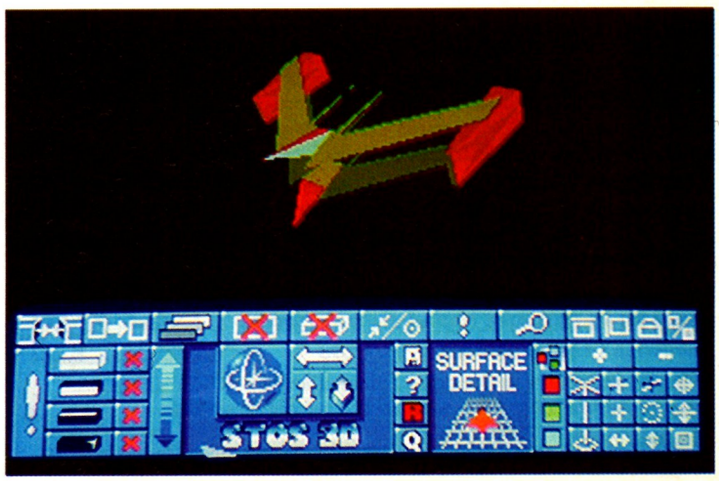
BUYERS GUIDE

AT-A-GLANCE, A POINT-BY-POINT COMPARISON OF STOS 3D AND ITS NEAREST RIVAL. . .

	STOS 3D	3D Construction Kit
update (cube):	15 frames	10 frames
number of basic blocks:	5	10 frames
design system:	Objects are created using a creation tool, saved as blocks and manipulated using BASIC commands, allowing for intricate animation and manipulation	Locations are built from an icon-based system with few moveable objects. No animation, and limited manipulation
rotate blocks:	Yes, to over 60,000 angles	Yes, through 90°
type of game:	Any	Freescape Only
create a 'virtual' system:	Yes:	Yes
combine sprites:	Yes	No



The obvious thing to design is a spaceship, but STOS 3D can be used in many other areas. Create graphics, such as these gallows, for horror games, or blocks for educational use.



CALAMUS DTP - *SIMPLY THE BEST*

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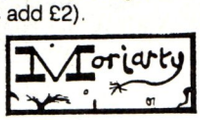
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GAME 21 - Hanoi, Hero (Gauntlet clone), Sensori, Pente, Millipede, Wormwar, Jigsaw
GAME 44 - Skidpan (overhead car racing), Haunted House, Pop Music Challenge, Techmate Demo
GAME 62 - House of O's, Lottery, Mold 1, Underground (adventures)
GAME 63 - Treasure Search, CoreWars (a battle of the programmers!) - This disk is not STE!

DEMOS

DEMO3 - VLM Megademo
DEMO 42 - Total chaos double doozer.
DEMO 51 - Hoby 1 megademo
DEMO 74 - Slaytanic Cult - STE only
DEMO 81+82 - Translovance
DEMO 93 - Songs of the Unexpected
DEMO 16 - Things not to do
DEMO 45 - Decade Demo (some bad carnage)
DEMO 69 - Electra Resit
DEMO 78+79 - Punish your machine (£3.00)
DEMO 92 - Shamen Music Demo
DEMO 2 - (£3.00)

APPLICATIONS & UTILITIES

BUSI 2 - Sheet 2, Home Accounts, Dbase One 'A'
UTIL 3 - Almanoc, Treesaver, Biomorph, Plotter 'A'
UTIL 10 - Printing Press v3.0, File tool 'A'
UTIL 13 - German to English, Dbackup, DC Utils 'A'
PRO 20 - Video Master - superb video titler £3.95
BUSI 3 - Fastbase - incredibly powerful database 'A'
UTIL 4 - Pools v2.5, Norad,, DC Utils and more 'A'
UTIL 11 - Pagestream Font Editor, Fastcard 2 (1Mb) 'A'
UTIL 14 - Full of printer drivers inc. Bubblejet 'A'
PRO 23 - Video Master Fonts Disk (£3.95)

BUSI1 - Invoice and statement generator 'A', Namenet (database) 'A', Sales controller 'H'
UTIL 15 - Tons of misc itils including copiers, formatters, virus killers, directory listers, diary etc. 'A'
LANG 13 - Tim Oren's Guide to Professional GEM in C - tutorial, source code and utilities 'A'.
LANG 24 - C Adventure Toolkit v2.0 - very powerful language for creating large, complex text adventures 'A'.

SOUNDTRACKER MODULES

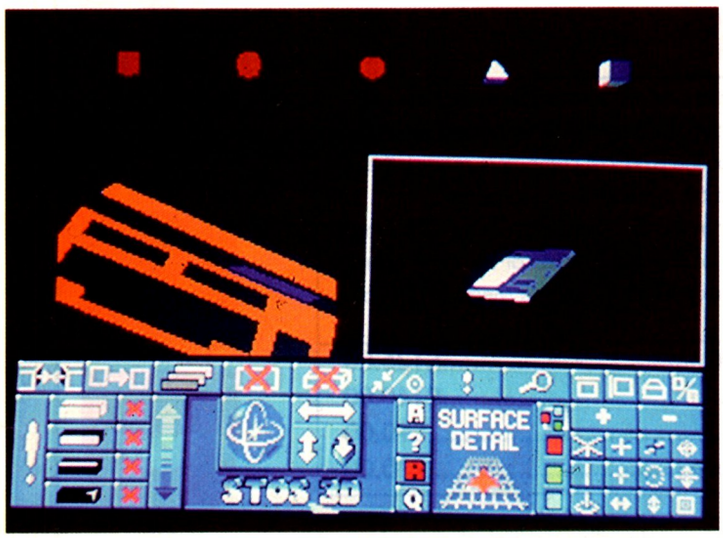
All Soundtracker disks come with the ESION player program for both the ST and the STE. Those marked E are STE only.

TRAC 6 - Tune One, Art of Noise, Chartmix, Deadlock, Dragnet, Rainbow, Popcorn, Wonder Chicken
TRAC 11 - Clothes, Complica, Endtheme, Hi-energy, Hunters, Jackdance, Scratch, Magic, SLL9
TRAC 20 - Altair, Bluemon, Clutch, Disco, Einstein, Megamix 88, Shortpsh, Symphaze, Song, Flash 4
TRAC 40 - All, Celtic 2, Creative, Evolution, Frog, Kreuger, Lost, Trilogy
TRAC 49 - Berry, Close, Depress, Doc II, Eagles, Eg, Enemies, Esion, Going, Goodlife, Hdance, L-around 'E'
TRAC 50 - Got-ya, Home, How-deep, Intuition, Jaw, Jumping, Killer, Link, Night, Ns-speed, Official 'E'
TRAC 74 - Brain, Didcop, Lamer Tune, Mast serve, Power Rockpebb

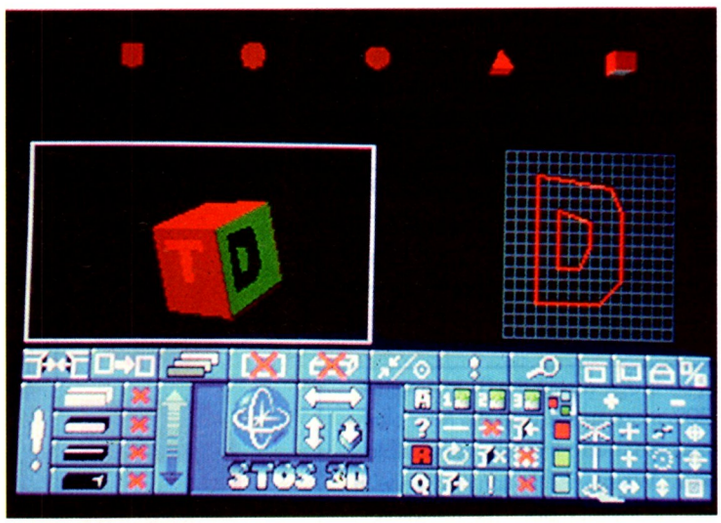
As well as these disks listed we also stock hundreds of demos including the complete range of POV. We also have over 100 disks of clipart and stock disk magazines, wordprocessing and communications

(STR1) 30 Anderson Estate, Lower Road, Hockley, Essex SS5 5NG Modem users call New Age BBS on (0702) 715025

Having two windows lets you edit two objects at once, as shown below where I've created an ST in the left-hand window and a floppy disk in the right-hand one.



This is how you add details to a surface. The box on the right is your drawing window, and once your design is finished, you can place it on a selected face.



sides in, I can make an elongated box. Then, by selecting an end-face and pulling the corners in a little, the box takes on the appearance of a squared-off cone. Next comes the head, a pyramid with the base rearranged to the same dimensions as the larger end of the body. Click on the glue icon to stick the two together, and there you have the main body of your fish.

THE WEALTH OF CONTROL OPTIONS

STOS 3D is quite a treat if you felt restricted by ***3D Construction Kit***'s 90° rule. In ***STOS 3D***, objects can be placed at any angle to any other object and they don't even need to be touching.

Another term for object is "group", used exclusively when an object is made up of multiple blocks. Group manipulation is what distinguishes the Object Modeller from anything else. When an object is saved to disk, it is saved as the co-ordinates of all the blocks, rather than the blocks themselves. This allows for spaces between blocks, blocks at any angle and blocks within blocks, seen through transparent windows.

Of course, you can't display huge amounts of polygons on screen without soaking up processor time. At best, ***STOS 3D*** runs at around 20 frames a second, but with a more detailed object, that can slow down to around six or less.

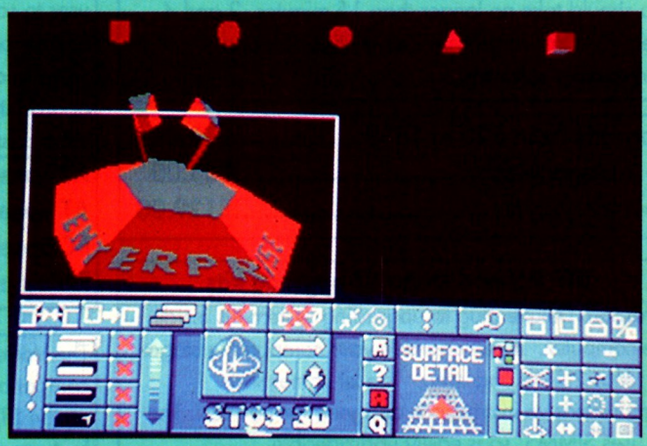
YOUR FIRST STEPS

The 3D extension adds 30 new commands to your ***STOS*** vocabulary, giving you the power to display, manipulate and interact with the objects you've created.

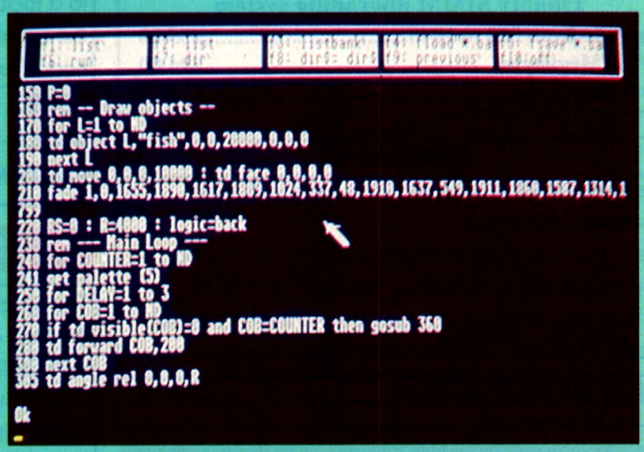
With my fish object I wanted to create a game called ***Scale Gunner***, a simple shoot-'em-up that has you sitting at the rear of a submarine, blasting at some large and very angry robotic cod. For the sake of speed I decided to limit the area containing the 3D

STEP BY STEP

1 *The Object Modeller. The icons on the bottom-left control the Block and Face options, and the icons on the bottom-right move the blocks against each other. The large icons in the centre let you view the object from all angles.*

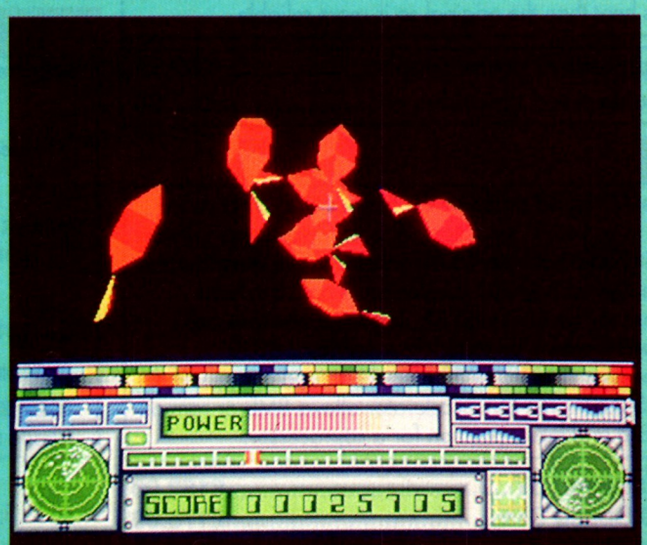


2 *Just some of the STOS 3D commands. Here, I'm generating a small attack pattern using the angle and forward commands.*



```
150 P=0
160 rem -- Draw objects --
170 for L=1 to NO
180 td object L,"fish",0,0,20000,0,0,0
190 next L
200 td move 0,0,0,10000 : td face 0,0,0,0
210 fade 1,0,1655,1890,1617,1809,1824,337,48,1910,1637,549,1911,1860,1587,1314,1
220
230 BS=0 : B=4000 : logic=back
240 rem --- Main Loop ---
250 for COUNTER=1 to NO
260 get palette (5)
270 for DELAY=1 to 3
280 for COB=1 to NO
290 if td visible(COB)=0 and COB=COUNTER then gosub 360
300 td forward COB,200
310 next COB
320 td angle rel 0,0,0,R
330
Ok
```

3 *A finished screenshot. Note the spiral effect generated by the program. At the moment this is running at around seven frames a second! The program is placing the fish at the centre of the screen and spiralling them outward, while bringing them to the foreground.*



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To 2 Megabytes.....£65.00
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STF (M) and Mega ST upgrade kits

Xtraroom Deluxe plug to upgrading system fits inside the computer. It can upgrade your computer in stages to 1Mb, 2.5Mb and 4Mb. The kit comes with comprehensive instructions designed for novices. The kit uses SIMMS, so is easily upgradeable.

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Quality SIMM upgrading system

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SOLDER IN KIT

The solder in kit is designed for people with more electronics experiece.
There are four types of chips used in the ST: 16 DIL chips, 4 DIL chips, 4 Surface mount chips and 16 surface mount chips. All types are normally stocked, check, check your configuration before ordering.

Solder in kit (all versions).....£25.00

REPLACEMENTS

The HCS power supply and disk drive upgrades come complete with fitting instructions and plug straight into the ST without soldering. The Power supply produces less heat than the original so is more reliable.

Replacement power supply.....£39.95
Double sided disk drive kit.....£47.00

ACCELERATORS

The AD Speed made by the famous I;CD corporation fits in as the PC emulators. It is hardware and software switchable between 16 Megahertz and 8 Megahertz. The new SST 68030 accelerator is only available presently for the Mega ST. It gives a phenomenal speed increase by using the super fast 68030 processor running at 50 Megahertz and comes with TOS 2.51. The SST accelerator allows 8Mb or ram on board and has a position for a coprocessor.

AD Speed ST.....£152.00
AD Speed STE.....£175.00
68030 SST-50.....£550.00

PC EMULATORS

PC emulators allow the ST to use PC compatible programs without affecting the ST in normal operation. Pc Emulators for the ST/F/M computers require the user to solder a 68 pin socket on top of the microprocessor in the ST. Installaion in the STE simply plugs in on top of the microprocessor using an adapter board into the expansion slot of the Mega ST, at no extra cost.

AT Speed C16.....£125.00
AT Speed 8.....£140.00
PC Speed.....£90.00
Fitting as above.....£30.00

The Vortex 386 amulator allows a high degree of compatibility and speed for PC compatible programs on the ST. True multitasking through the advanced features of the 386 allows windows to be used in enchanced mode. The AT Once 386 can accept a 387 Co-processor, this will speed many programs up to a factor of 5 times! The 386 sx emulator also has the capability for Fastram cache on board to allow a norton factor (speed comparison) of 15.

VORTEX 386 SX-16.....£350.00
387 CO-PROCESSOR.....£117.00
FASTRAM CACHE.....£30.00

SPECTRE GCR MAC

The Spectre GCR cartridge allows the ST to emulate the Mac giving 20% more speed than the Mac plus with 30% bigger screen area! It is fully compatible with ST hard drives. When used in conjunction with the SST it can beat the fastest macs. The megatalk board fits the Mega St to allow connection to Mac specific peripherals, LAN network and Mac SCS!

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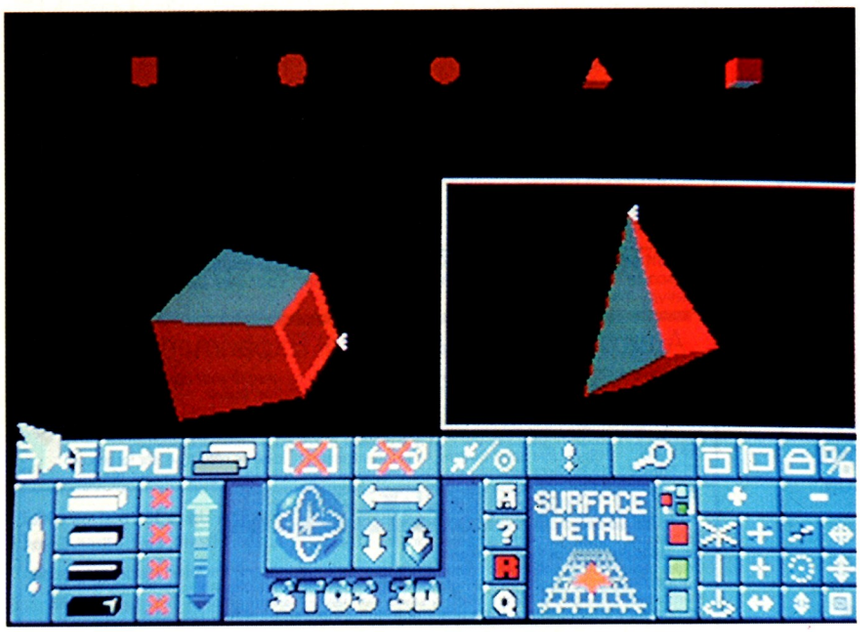
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FEED YOUR ST!





Selecting points and lines allows you to reshape your objects any way you want. Using a slider tool, move the points parallel to the selected face. It's not an easy concept to grasp, but it does work

environment to the top of the screen, so I filled the bottom of the screen with an instrument panel, drawn rather well by graphic artist Paul Fleet.

Next I had to create the 3D world. As the entire game is to be played under water, all I needed for a backdrop was a blue wash. Then came the true test. Enter the fish.

MAKING IT EASY

Using the new commands and manipulating complex simulated three-dimensional objects isn't as difficult as it sounds. The commands are very simple, deceptively so in fact. For example, after positioning an object with the TD OBJECT command, you can move it in any of three ways. TD MOVE places the object to new co-ordinates, TD MOVE REL moves it a specified distance in a specified direction and TD FORWARD moves it forward relative to the direction the object is facing. The TD ANGLES command gives you the power of rotation.

Combining these commands gives you simple control over some very smooth flight patterns.

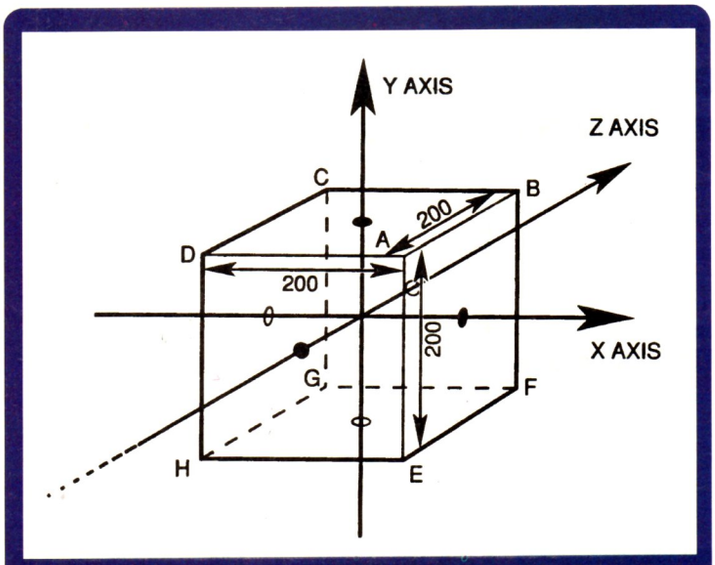
For the purposes of getting to grips with ***STOS***, imagine that there are basically two types of object – stationary and moving. Stationary objects are easy, just place an object at a set co-ordinate and that is where it will stay until you tell it to do otherwise. Moving objects are a little more tricky. The easiest way to understand it is to think of how an aeroplane moves. When flying straight, the plane is moving forward, towards the direction it is facing. When it turns it banks first, changing its angle first across the wing and then the nose raises or dips, with the plane moving forward all the time.

So, by writing a small random pattern generator in STOS BASIC, I can now invoke a fish to come on screen from any point and make a bee-line for you. It really is as easy as all that. Obviously you need a basic understanding of geometry, but the introduction in the well-written manual gives ample explanation to the beginner.

A WINNER, FROM ANY ANGLE

The beauty of ***STOS 3D*** is that, unlike a lot of utilities, you don't have to put a lot in to get something out. You can have an object on screen, flying about and performing all sorts of controlled stunts within an hour of loading. The simple command syntax and easy-to-understand format makes it ideal for beginners, and with practice and use of some of the more complex commands, the quality of the routines you produce can reach amazing standards.

STOS 3D is quite simply the most powerful utility to appear on the ST since, well, ***STOS***. Accessible, yet powerful, it enables you to produce the sort of games you've always wanted to see, with none of the tedious maths. It's something no self-respecting ***STOS*** user should be without.



HOW OBJECTS ARE HANDLED

Objects are handled much like sprites. First the object has to be loaded and then displayed. Once it has been labelled with a number between one and 20, you can send it zipping about wherever you like. 3D objects have an additional axis to plot (the z-axis, which is the distance between background and screen at 90° to the screen), but the most significant difference between these and 2D objects is that there is another set of co-ordinates. These calculate the angle the object is facing through the three axes. This combination of six stats gives almost complete freedom in your virtual world, giving some stunning results.

It's time to meet the STOS family. . .

1) STOS

STOS was the first truly successful 16-bit programming language. Designed primarily as a games creation tool, its easy-to-understand syntax and immense flexibility made it enormously popular. The original system was quite basic, but since then Mandarin has released update disks with new commands and powerful accessories, such as sprite generators and animators, map editors and screen compactors.

2) STOS COMPILER

No matter how fast it may run, BASIC high-level programming can never run at the same speed as a machine code program, because your machine has to translate the BASIC instructions into machine code before it can execute them. The STOS Compiler allows users to compact and compile their STOS programs, increasing the speed by up to 60 per cent.

3) STOS MAESTRO

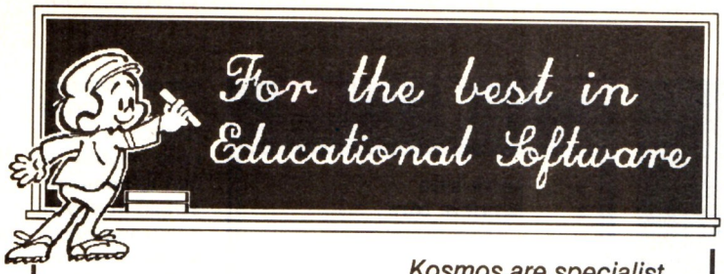
At the time, ST sound was a little weedy, and trying to get some decent music for your games was difficult if you didn't have a compatible music package. Europress came to the rescue with STOS Maestro, a sequencer, drum machine, accompanist and synthesiser all in one.

4) STOS MAESTRO PLUS

The time had come for STOS users to have a bit of sound grabbing for themselves. Maestro Plus is little more than Maestro with an added sampling cartridge containing a single phono socket and some sample editing software.

5) SPRITE 600

This is basically an expansion disk containing 600 sprites, all animated, from helicopters to dragons to spaceships. Even Mario makes an appearance at one point.



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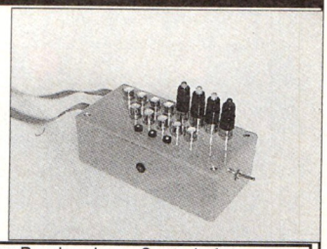
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POV81 Boing STE 1 meg/Movie STE/Yo STE
POV82 Full Metal Jacket/Twist/Ballsprite Demo/Minidst Demo
POV83 Scanners 1 meg/Kraftwerk Demo
POV84 Thunderbirds Special edition (not STE 1 meg)/Copier/Inxs - new sensation/ Overlanders Demo 1 meg.
POV85 Money for Nothing 1 meg/Stoned again (not STE)/ Copier.
POV86 SWS demo (1 meg)/Miami Vice/ Overlanders 3616/Gen 4. Sit Com mag intro.
POV88 Angel Eyes (1 meg not STE) Gen 4 (not STE)
POV89 Wizard demo/Bon Jovi/7 up Flotsam
POV90 Kinky Boots.
POV91 Weekend Demo/Visualisers/Pesh/Tea Party Demo.
POV92 Thunderbirds/Inxs "Kick"/ST Force
POV93 Def Leppard/Genesis/Power Bass/ Ninja 3.
POV94 Wild Demo/Twin Peaks/Maggie 3 intro
POV95 Walker Demo 1/Pixel Twins 12/Toilet Demo.
POV96 Blood Money/Slaytanic Cult 6/Ball Demo.
POV97 Walker Demo 2/Cover Girl/Crazy Demo.
POV98 Alf Mega Demo/Giga Stars/Flying Brains
POC99 Life's a Bitch/Trolls New Year/Stuffy Demo /KGB Demo.

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PRO14	Source Code		

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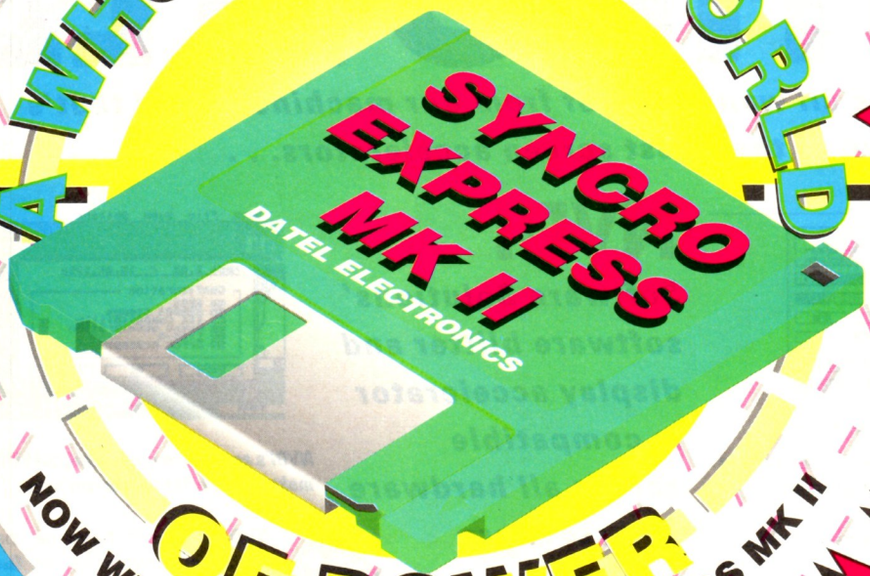
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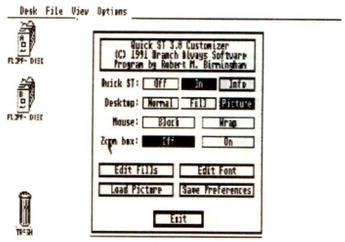
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FULL THROTTLE

Let's face it: there's one thing we all want more of from our machines – and that's speed. Tony Dillon checks out two of the latest screen accelerators. . .

QUICK ST

Quick ST from the ST Club is an inexpensive way of adding zip to your ST. . .



Quick ST can increase the speed of text drawing by up to 2,200 per cent.

More than just a desktop accessory, ***Quick ST*** allows you to completely overhaul the dated GEMDOS system. Dated? Well, it is compared to this. . .

The Atari processor can sometimes take a while to redraw screens, especially on a crowded desktop or when running a word processor handling an especially long text file. The function of a package like ***Quick ST*** is to accelerate the part of the processor that deals with screen update, saving small, but sometimes irritating amounts of time. It does this by booting itself into the empty slot where you'd usually find the desktop DOS, providing a whole new desktop of sorts.

To use it, it has to be installed onto your boot disk: that is, placed into the auto-folder. Once in, it remains there until you reset the machine, just like your normal desktop. If you want to see it working straight away, however, just pop in the master disk and use it from there.

At first, the desktop doesn't look any different; you'll see the same desktop screen with all the same icons. In fact, you'll probably feel disappointed until you start using it to open a disk window. I won't say it's fast, but blink and you'll miss it. ***Quick ST*** can make a phenomenal difference, increasing the speed at which text is drawn by up to 2,200 per cent!

The beauty of this package is that its use isn't just restricted to the desktop. Place it on any program that uses a GEM interface, such as ***First Word*** or ***ACopy***, and the difference is astounding. They really do run much faster. Remember, though, the accelerator only speeds up the screen display, not the whole of the processor.

Programs won't load any faster or run any faster – but you will find that the screen refreshes a little less like an ST and more like an STE.

The other program on the disk loads up as an accessory on the Disk menu, and lets you customise your desktop. There's a range of simple options, from changing the colours, designing and placing a pattern as a backdrop, loading the ***Degas*** picture of your choice to stand behind your icons, to redesigning the fonts and offering two different forms of mouse control. The Block option prevents the mouse from leaving the edges of the screen, and won't let it enter the menu bar unless the right button is held down, while Wrap lets you drag the mouse everywhere. Take it off one side of the screen and it miraculously appears on the other side.

"An excellent accelerator for the beginner and the hobbyist"

NAME: QUICK ST 3.0
COMPANY: ST CLUB
CONTACT: 0602 410241

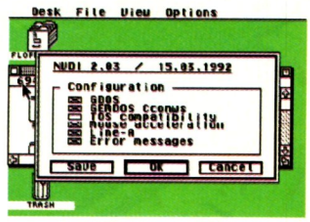
PRICE: £12.99
RELEASE DATE: OUT NOW
MIN MEMORY : N/A

EASE OF USE	★★★★★
DOCUMENTATION	★★★½
EFFECTIVENESS	★★★★½
VALUE FOR MONEY	★★★★½

OVERALL 81%

NVDI

Software Solutions' software blitter and display accelerator is compatible across all hardware and software formats. . .



NVDI's across-the-range compatability makes it a tool for the serious user.

A no-frills utility, this isn't a million miles away from ***Quick ST***, although its only function is to accelerate screens – and this it does rather well.

Install it in the same way as ***Quick ST***, with the main program placed in the AUTO folder of the disk you usually boot your DOS from. But unlike ***Quick ST***, the desktop takes on a different appearance straight away: sharper, cleaner fonts appear, and the windows have slightly different icons for Close and Zoom – if you don't often use the latter, it can be turned off, speeding up the screen even more. As with ***Quick ST***, the package works best with products such as ***First Word***, speeding up text-handling enormously.

If you want to know exactly how much faster the screen is displayed, there's a full BIOS program on the main program disk, and this interprets the display screen as a percentage of your current version of TOS: 100 per cent means that the speed is the same as TOS, and so anything more is an improvement.

But why buy ***NVDI*** when ***Quick ST*** costs so much less? The reason lies in the structure of the package. Rather than being a new GEMDOS, ***NVDI*** is actually 25 per cent of the internal operating system but written in Assembly Language rather than in C, which is the language favoured by Atari. This means it has complete compatibility with everything, from a basic 8MHz ST to a turbocharged TT in high resolution, as well as being able to run Matrix and Reflex graphic boards. ***NVDI*** is a true programmer's tool, aimed squarely at the serious user, whereas ***Quick ST*** will suit the enthusiast.

NVDI may not have as many bells and whistles as ***Quick ST***, but for the professional it's a far better utility.

WHAT A SCREEN ACCELATOR DOES

A screen accelerator simply speeds up the screen update, mostly on packages such as Desktop, but also on Desktop-based programs, such as word processors or desktop publishing. Some accelerators even increase the update on art packages, and can work with graphics cards and already accelerated machines.

They work by replacing the part of the operating system that controls output to the screen. Atari originally wrote the operating system in C language, which is fast but archaic when compared to the hyper speed assembly language routines of ***NVDI***.

"A serious tool for serious users — excellent at acceleration"

NAME: NVDI
COMPANY: BELA
CONTACT: 071 252 7775

PRICE: £39.99
RELEASE DATE: OUT NOW
MIN MEMORY : N/A

EASE OF USE	★★★★★
DOCUMENTATION	★★★★★
EFFECTIVENESS	★★★★★
VALUE FOR MONEY	★★★★½

OVERALL 88%

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THE TOP 30 EDUCATION PROGRAMS

PART ONE: ENGLISH LANGUAGE

With such a wide range to choose from, buying the right education program can be a daunting prospect for any parent. Here, with the first of a three-part round-up, is parent and journalist Pat Winstanley. . .

LET'S SPELL

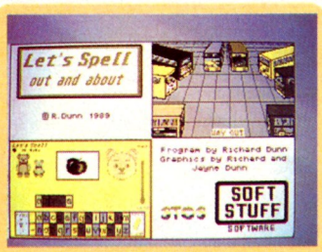
• AGES 4-9 • £11.99 EACH PACK • SOFT STUFF • 19 QUARRY HILL ROAD, TONBRIDGE, KENT TN9 2RN.

IN BRIEF: Newly released at affordable prices, ***At the Shops***, ***Out and About*** and ***At Home*** make up the ***Let's Spell*** series, where the child clicks on an item of scenery, then spells it using an on-screen alphabet. Limited to spelling and alphabet work, French language versions are also available, complete with accents.

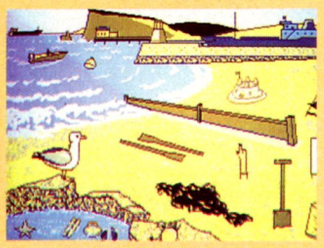
Although the documentation is rather sparse and at times patronising for adults, it's nevertheless adequate for most people's use — certainly the controls are well-laid-out and the screens are generally attractive. The package is a doddle for even the youngest child and there is a fair range of objects to spell. There's plenty to interest the younger child or beginner, but older children and better readers will get bored by the lack of challenge.

ST REVIEW COMMENT: "A useful series of programs for beginner readers using the look, cover and spell technique as practised in many schools. Even young children can cope with little parental intervention".

✪✪✪



The top-right of the title screen shows coaches ready to go to various destinations. The child will uses a screen to spell chosen items.



Ah – we decided on the seaside. Use the mouse to make the hand point and click on the desired object for spelling.

SPELLBOUND!

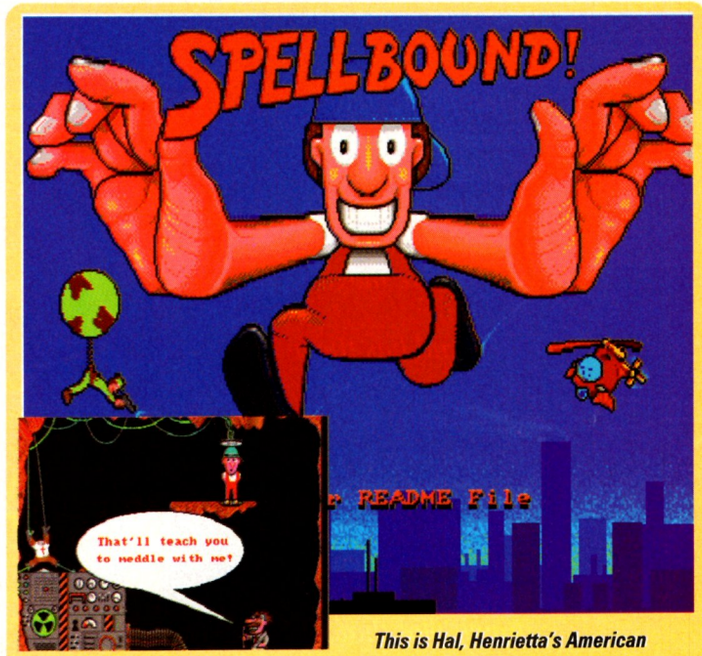
• AGES 7-ADULT • £29.95 • LANDER SOFTWARE • 74 VICTORIA CRESCENT ROAD, GLASGOW G12 9JN.

IN BRIEF: Unashamedly arcade game in style, this spelling program is joystick-controlled and entails collecting scattered letters from a variety of settings, while avoiding baddies. Word lists can be added and modified, and the parent/teacher mode also allows for storage and analysis of scores.

The kids love this one and can't get enough of it. Each word needs to be remembered and the letters collected in order. Extensively tested in collaboration with schools, ***Spellbound!*** comes with an impeccable pedigree. As far as the presentation is concerned, however, it's fairly average, and although it's helped by the attractive packaging, it's let down by the manual protection.

ST REVIEW COMMENT: "An ideal program for children who prefer shoot-em-up style games. The educational aspects slip past them almost unnoticed. This is one game where parents need to prepare for being beaten by their offspring".

✪✪✪



- ..... who doesn't seem to be the nicest of customers when Hal falls into his clutches.....

This is Hal, Henrietta's American cousin. His mission is to rescue Morgana the Morbid's wand from Professor Grime .....

MAGIC STORY BOOK

ATARI ST USER ESSENTIAL BUY

• AGES 5–14 • £29.95 • SOFT STUFF • 19 QUARRY HILL ROAD, TONBRIDGE, KENT TN9 2RN.

IN BRIEF: As a change from straight spelling games, this program allows any child, whether a reader or not, to create their own on-screen picture book. The story elements can be used from those provided on disk, or words can be typed-in and animated sequences added using ***STOS***.

This is an excellent platform to encourage children to use their imagination, and although it can take a while to get started due to the number of options available, the variety of ready-made stories gives a good base for creating more or modifying the ones provided.

Magic Story Book conforms to English and Technology Attainment Targets at Key Stages 1 and 2. The large, clear manual is well-illustrated and informative.

ST REVIEW COMMENT: "This is a well-designed, well-presented and thoroughly useful package and appeals to both children and adults. The graphic and animation side also acts as a first step in programming, and when used together with ***STOS*** becomes a powerful tool for creation. Rolf Harris raved over the program on television some months ago, and with justification".

✪✪✪✪✪

LEARN TO READ WITH PROF

• AGES 4–9 • £25.99 • PRISMA SOFTWARE • 29 ST JAMES AVENUE, UPTON HEATH, CHESTER , CHESHIRE, CH2 1NB.

IN BRIEF: This series of programs is designed to take non-readers through from beginning to recognise words to constructing sentences. Its well-designed route makes use of a common vocabu-



Our intrepid adventurer is about to land on a desert island. To find the treasure you must help him to piece together sentences.



Wearing flippers and face mask our hero waits for a keypress to tell him when to stop swimming. Choose the correct word to fit the blank space.

lary of 63 words across the range.

Although colourful animations play a part, the emphasis is on simple controls and drilling of the basics. Four separate but interlinked packages are available: ***Prof Plays a New Game***, ***Prof Looks at Words***, ***Prof Makes Sentences*** and ***Prof Hunts for Words***.

Despite the fact that the controls are simple, the games are excruciatingly slow to play – and this is certain to frustrate some children.

Nevertheless, the Prof packages are very good for those who prefer a slower pace – and they follow the National Curriculum perfectly. ***Prof Plays a New Game*** comes complete with an audio cassette and a set of small reading books.

ST REVIEW COMMENT: "This series is good at what it sets out to do, which is to be a complete reading tutor. The extras in the first package are well-designed and simple-to-use and their integration with the program is complete. However, poor use of the ST's capabilities means there is little flexibility or control. Definitely one to try with the child before you buy.

✪✪✪

THINGS TO DO WITH WORDS

• AGES 5–12 • £11.99 • SOFT STUFF • 19 QUARRY HILL ROAD, TONBRIDGE, KENT TN9 2RN.

IN BRIEF: This is a collection of three word games which encourage spelling in quite a fun way. ***Anagrams***, ***Jumbled Sentences*** and ***Word Hunt*** (make as many words as possible from the letters of another) are all simple to play, with little distraction – and the mouse control with on-screen alphabets will make life easy for the child.

There's nothing particularly new about this package, either in terms of content or presentation – nor is it particularly in-depth, despite the fact that four difficulty levels have been built-in.

ST REVIEW COMMENT: "The package makes no pretence at teaching, concentrating on the puzzle aspect instead to provide simple drilling in an absorbing way. The testers found difficulty



This friendly character is a bookworm, as you will see on various screens during the game where his progress leaves neat round tunnels



Here is one of the easier anagram screens, with a selection of possible answers above to help the child choose.

levels rather abstract and required a good deal of adult help at times, but nevertheless they found it extremely enjoyable. Rather a middle-of-the-road package which competently does what it sets out to do".

✪✪✪✪

SPELL!

• AGES 5–15 • £8.95 • EUROPRESS SOFTWARE, EUROPA HOUSE, ADLINGTON ROAD, MACCLESFIELD, SK10 4NP.

IN BRIEF: Designed to cover a wide range of spelling problems encountered by both children and adults, this package offers plenty of flexibility in its five different games. A set of word lists (5,000 words in all) covers different types of difficulties such as vowel sounds, word families and irregular spellings. In addition to the words supplied, user lists can be created from virtually any text file and incorporated in the games. Words can also be grouped according to age/difficulty/type.

ST REVIEW COMMENT: "It's cheap, but it's also rather tacky and unappealing. If your budget is tight and you need a spelling package this is a reasonable choice, but don't expect anything fancy. It does its job well but makes no use of the ST's facilities. By using a very similar format across both 8 and 16-bit machines, the programmers have had to reduce graphics to the lowest common denominator – and they are awful, and are also afflicted by terrible screen design. It's a shame that such a well-thought-out and flexible package should be marred by its 8-bit presentation".

✪✪✪

An education in PD – just how good is Public Domain?

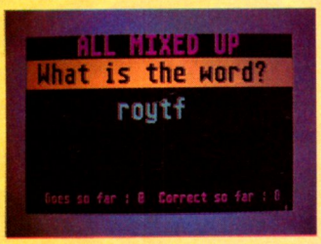
The educational software market, like that for arcade games, is divided into three main sections by price.

At one end of the scale are the £20-£30 packages with big, colourful boxes, at the other are public domain titles which come as a bare disk for £2-£3. Now beginning to compete for the middle ground is a range of software houses offering products around the £10 mark. What's the difference in the packages to make such a wide variation in costs to the consumer?

- Full-price games are now being treated as serious product by large software houses and, given the glossy promotion we see in the likes of ***Magic Story Book*** and the Disney series. Both these titles justify their prices due to the depth and extent of programming in the games, not just their boxes.
- PD producers, however, are also improving their products, one factor here being the availability of ***STOS*** which allows non-arcade titles to be programmed by almost anyone to an acceptable quality and depth.
- As the demand for educational products grows, educational software houses are recognising that many of the full-price products on the market are simply not worth what is being charged, and that increased sales at lower prices both satisfy the customer more and at the same time satisfy the need for profits. This is the basis of the middle range.
- For now, though, PD is worthwhile in two ways – as a taster to see what kind of program appeals to a particular child and to increase the range that the child has to choose from.
- Many PD educational titles are produced by hobbyist programmers using STOS. Teachers and parents programming in their spare time have excellent opportunities to involve children in the creative process, something larger software houses cannot always do.
- Don't expect great depth or fancy graphics from PD titles and you won't be disappointed. What you will find is a wealth of educationally valuable games out there for a few pounds each. This is a highly recommended route to take either on its own or in conjunction with the purchase of one or two full-price packages.



Yeuch! Whoever chose this colour scheme needs an optician. Just press a key to choose one of the six games.



If you can read past the psychadelics you'll see an anagram of when life is supposed to begin.

HENRIETTA'S BOOK OF SPELLS

ATARI ST REVIEWS ESSENTIAL BUY

• AGES 7–14 • £25.99 • LANDER SOFTWARE • 74 VICTORIA CRESCENT ROAD, GLASGOW G12 9JN.

IN BRIEF: Hopeless Henry has been turned into a frog by the nasty witch, so the child must help Henry's wife, Henrietta, to rescue him. This involves solving a variety of word and letter puzzles in the spooky castle.

Each level of the game offers a different type of problem with difficulty ratings which the user can set himself. ***Henrietta's Book of Spells*** helps children solve problems and deal with logic as well as straight spelling. Parents will definitely be needed for this game

Parents often see games as being "anti-educational", but are they right?

Should educational programs be like video games? Until recently, almost all educational programs for home use resembled those in schools – simple drilling exercises with no frills and generally little in the way of graphics. The educational aspect was the be-all and end-all, and woe betide the programmer who tried to jazz things up a little for the kids. Now more and more programs are being released where the educational aspects are hidden away behind an ostensible arcade game.

Does it matter? When you are considering programs aimed for home use, yes it does. Children have had enough of "boring school" when they come home. The last thing they want is to be plonked in front of a screen full of more work. If they want to use the computer at all they would rather have the latest shoot-em-up than a list of sums or spellings.

Designers and programmers are beginning to recognise this with the result that the front-end of educational games are nowadays starting to resemble the latest chart-toppers. This, in turn, is encouraging children to practise their basic skills without even realising it. At the same time, the power of machines like the ST means that mainstream games are beginning to include a great deal of strategy instead of the mindless and unstimulating beat-em-ups of the past few years. Games such as ***Populous***, ***Captive*** and ***Dungeon Master*** have become classics, partly because of their hidden educational value – they teach calculation, strategy and logic problems rather than sheer joystick reflex.

Is academic software boring? Some of the older games are, but newer ones needn't be. Howeve,r some children suffer from distraction and those with short attention spans are often better off with a simple program than one which flashes fancy animation at them while waiting for an answer. In the long run, each child is different but none will persevere with a program that doesn't interest them. Choose wisely, perhaps with a taster from the PD market or one of the group packages, and you'll soon find what interests your child.

The most academically sound program in the world is worse than useless if your child doesn't enjoy it!

lary of 63 words across the range.

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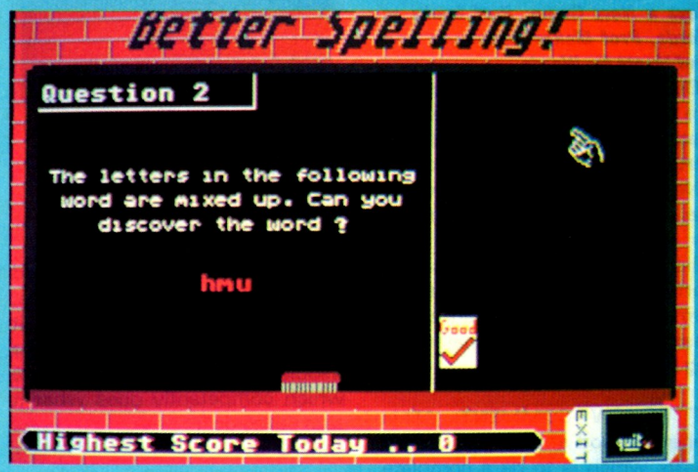
Nevertheless, the Prof packages are very good for those who prefer a slower pace – and they follow the National Curriculum perfectly. ***Prof Plays a New Game*** comes complete with an audio cassette and a set of small reading books.

ST REVIEW COMMENT: "This series is good at what it sets out to do, which is to be a complete reading tutor. The extras in the first package are well-designed and simple-to-use and their integration with the program is complete. However, poor use of the ST's capabilities means there

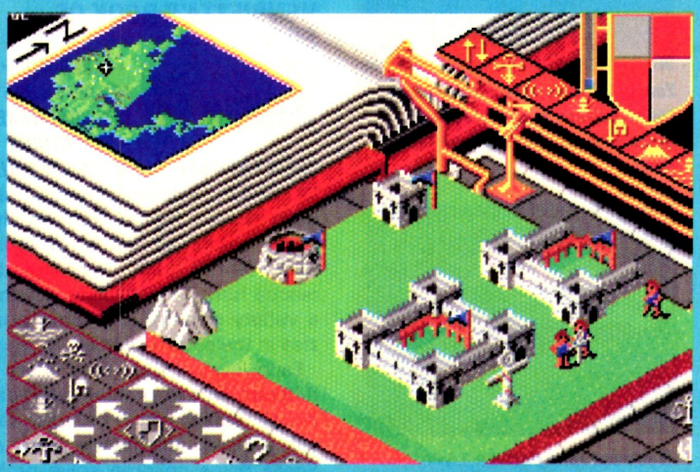
JUST HOW EDUCATIONAL ARE THEY?



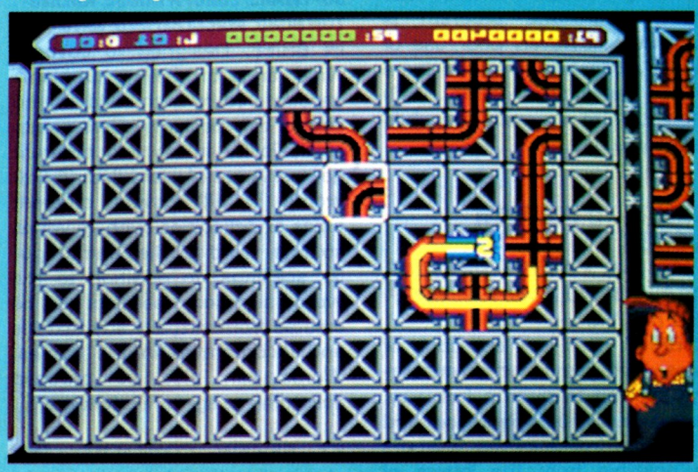
Sim City from Maxis involves weighing up the pros and cons of building up a town, maintaining it, creating power supplies and roads and taxing its citizens. It's been used on town planning courses, if only for some light relief.



Although many parents may disagree with their militarism, flight simulators such as F-15 are good for eye-hand co-ordination and strategic thinking. Older players like this genre of game too.



The so-called God-sims, such as Powermonger, Populous (above) are perfect examples of mainstream games that have been applauded by educationalists in schools and universities alike.



Puzzle games such as Loopz and (pictured here) Pipemania develop simple logistical skills and forward thinking. In a sense they are the digital age's equivalent of chess, backgammon and draughts.



Nice clear graphics make this activity a pleasure, but don't be fooled by the on-screen keyboard as you have to use the real one.



This is the spelling section where a word is flashed then blanked, leaving you to type it in.

is little flexibility or control. Definitely one to try with the child before you buy.

✪✪✪

THINGS TO DO WITH WORDS

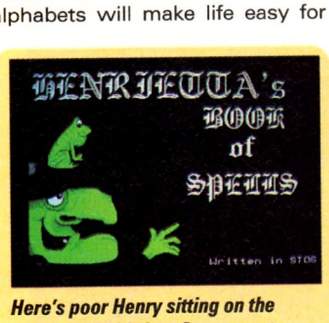
• AGES 5–12 • £11.99 • SOFT STUFF • 19 QUARRY HILL ROAD, TONBRIDGE, KENT TN9 2RN.

IN BRIEF: This is a collection of three word games which encourage spelling in quite a fun way. ***Anagrams***, ***Jumbled Sentences*** and ***Word Hunt*** (make as many words as possible from the letters of another) are all simple to play, with little distraction – and the mouse control with on-screen alphabets will make life easy for the child.

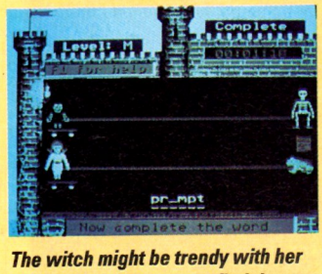
There's nothing particularly new about this package, either in terms of content or presentation – nor is it particularly in-depth, despite the fact that four difficulty levels have been built-in.

ST REVIEW COMMENT: "The package makes no pretence at teaching, concentrating on the puzzle aspect instead to provide simple drilling in an absorbing way. The testers found difficulty levels rather abstract and required a good deal of adult help at times, but nevertheless they found it extremely enjoyable. Rather a middle-of-the-road package which competently does what it sets out to do".

✪✪✪✪



Here's poor Henry sitting on the wicked witch's hat. Can we get enough spellings right to help Henrietta rescue him?



The witch might be trendy with her skateboard, but can you find the missing letter to keep her brakes on?

SPELL!

• AGES 5–15 • £8.95 • EUROPRESS SOFTWARE, EUROPA HOUSE, ADLINGTON ROAD, MACCLESFIELD, SK10 4NP.

IN BRIEF: Designed to cover a wide range of spelling problems encountered by both children and adults, this package offers plenty of flexibility in its five different games. A set of word lists (5,000 words in all) covers different types of difficulties such as vowel sounds, word families and irregular spellings. In addition to the words supplied, user lists can be created from virtually any text file and incorporated in the games. Words can also be grouped according to age/difficulty/type.

ST REVIEW COMMENT: "It's cheap, but it's also rather tacky and unappealing. If your budget is tight and you need a spelling package this is a reasonable choice, but don't expect anything fancy. It does its job well but makes no use of the ST's facilities. By using a very similar format across both 8 and 16-bit machines, the programmers have had to reduce graphics to the lowest common denominator – and they are awful, and are also afflicted by terrible screen design. It's a shame that such a well-thought-out and flexible package should be marred by its 8-bit presentation".

✪✪✪

HENRIETTA'S BOOK OF SPELLS

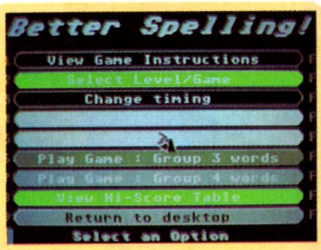
ATARI ST ESSENTIAL BUY

• AGES 7–14 • £25.99 • LANDER SOFTWARE • 74 VICTORIA CRESCENT ROAD, GLASGOW G12 9JN.

IN BRIEF: Hopeless Henry has been turned into a frog by the nasty witch, so the child must help Henry's wife, Henrietta, to rescue him. This involves solving a variety of word and letter puzzles in the spooky castle.

Each level of the game offers a different type of problem with difficulty ratings which the user can set himself. ***Henrietta's Book of Spells*** helps children solve problems and deal with logic as well as straight spelling. Parents will definitely be needed for this game (and even they may have problems!)

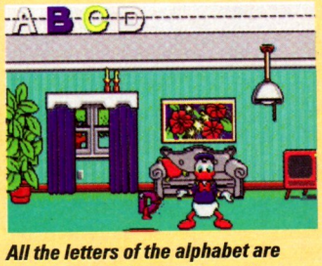
ST REVIEW COMMENT: "Taxing, frustrating, fun, editable – this is an excellent program. Probably the best spelling game around at the moment, with prettier graphics and animation it would have scored even more – although the colourful but primitive graphics and animation don't seem to detract too much from the children's enjoyment.



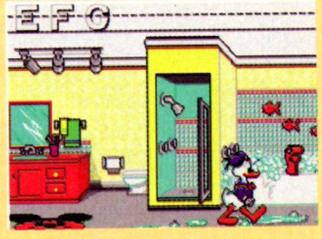
There are plenty of options to choose from here. But, alas, this is the extent of your introductory instructions.



And here we are with an anagram to solve. At the end of the game an animated board rubber wipes the screen – apple for teacher?



All the letters of the alphabet are hiding in disguise from Donald. Press the correct key to catch them. Note the sticky-out-tongue!



And here's an "F" trying to come clean. No use though, press a key and Donald will put paid to dirty tricks.

TEN DOS AND DON'TS

Following our top ten golden rules means that you'll always spend wisely when purchasing for your child. . .

DOS

DO choose programs that children will enjoy as well as learn from. This is playtime, not homework.

DO try the program with your child in the shop if possible.

DO take recommended ages with a pinch of salt. Those suggested by publishers can be wildly inaccurate.

DO look for programs which can be backed up. Disks and children are not a happy combination.

DO aim for a program the child can operate independently. This means that you will need to look for mouse and icon control options for younger children.

DON'TS

DON'T worry if your child seems happiest with a program aimed at a younger age group. It will still be having useful practice.

DON'T ignore arcade games – many have useful educational elements like mapping, buying objects and memory aspects – and don't forget physical co-ordination and reflex formation.

DON'T assume that programs cover all of the National Curriculum, although most educational programs cover at least some elements.

DON'T assume that any program will teach. Some will, but they are few and far between. Most offer only practice at the skills the child has already acquired.

DON't assume that your child can be left alone. Disk swapping and on-screen instructions beyond the child's reading abilities are very common.

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HEIMDALL

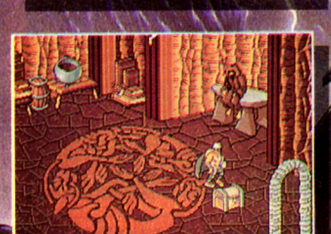


CU AMIGA SUPER STAR

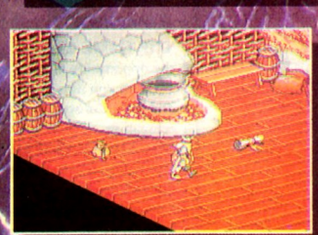
Norse legend tells of a time when the Gods of Valhalla and Asgard created a race known as the Vikings. Born to represent his people at the battle of Ragnorak, Heimdall must first fight, solve puzzles and explore the Viking world to find the weapons of the Gods.

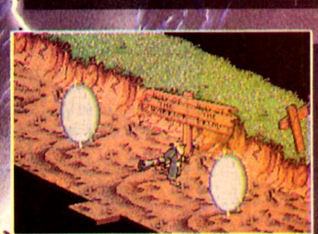


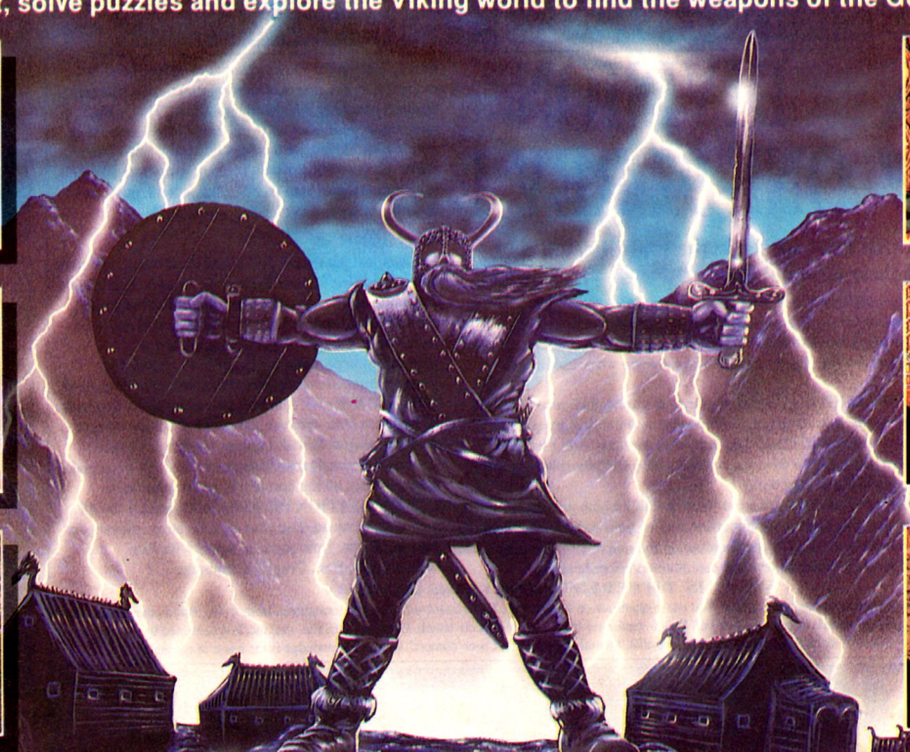












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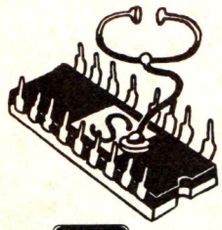
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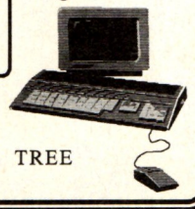
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NEW *** DIVISION ONE 92 REVISION ONE *** NEW



DIVISION ONE 92 REV 1

"(The Midnight Oil) treat soccer in the sophisticated way Americans treat their national games." **-The Guardian**

THE GAME Everyone has their own ideas on what makes a soccer team "tick". Here is the opportunity to put into practice your own ideas. Operating from the English 1st division you must build a squad to challenge for the league title, the FA and League Cups and the 3 European trophies. And as players age, rebuild the team while holding off relegation.

SQUADS/TRANSFER MARKET In a 3 squad system (1st team squad, reserve squad and youth squad), use the continuous intake of youth players and training program to create a squad whose skills reflect your ideas. Supplement these skills with carefully selected transfer market acquisitions. As they age, veterans fade and youngsters develop, keep an eye on the changing skills of your team

SKILLS All players have a balance of 5 skills (no "skill levels") which you must develop by experimenting with your team. Even more important will be your judgement about the effect of the particular team balance or skill combination on the outcome of the match, and subsequently a season of football. Suitable training can develop/enhance skills.

MATCH/STATS Your judgement will be put to the test in this unique 4 minute match/stats simulation against accurately simulated opposition. This is the measure of your team and your most reliable source of information. There are displays of: match flow, two teams, player-with-the-ball, injuries, discipline, substitutions, in-match tactics, goal scorers, possession breakdown and performance assessment.

REVISION ONE

The best just got better! All updates that have been made to Division One 92 over the last six months. In addition the match screen has improved, opposition team info expanded, a European transfer market added and a few more minor changes. An edit program and a customisation program have also been added. The manual has been expanded and the packaging improved.

EDIT PROGRAM. Edit the team and players that make up Division One. Produce **your own** Division One, or Scottish League, British League, European League, German/Spanish/French/Italian...etc...etc. Or even make up a league of all the best teams you've ever seen.

CUSTOMISATION PROGRAM Customise the 45 man starting squad. Use your own favourite players, or your local side. How about as squad with Pele, Beckenbauer, Best, Cruyff, Maradonna ....?

WHAT IS DIFFERENT ABOUT THIS GAME?

Division One 92 transforms the soccer management game. You can concentrate on the football. Experiment with players, formations, team styles. Build your dream squad and check it out in accurately simulated league/cup football. Match results are from a unique soccer match. Every pass, tackle, shot etc. is determined by the players involved. Your choice of skills thus influences match results. Mental arithmetic has been dumped. Football knowledge is the name of the game.



HEAD COACH V3

"When it comes to the 4th down Headcoach has it"."Headcoach", "TV Sports Football" head to head.
(Pop Comp.)

Headcoach V3 has been described as "the best game ever put onto a computer". It is the complete American Football game, a multi season epic with the very best strategic elements of the real thing. You will call the plays, devise the gameplans and develop the team.

Use the first season (2 pre-season games, 16 regular season games, and the play-offs) to discover your 45 man squad of players. Then exploit the college draft to improve the team and expand your game play to beat the very best the NFL can throw at you.

Players will age and teams will fade (a player will last about 6 seasons), but you will stay and rebuild ....

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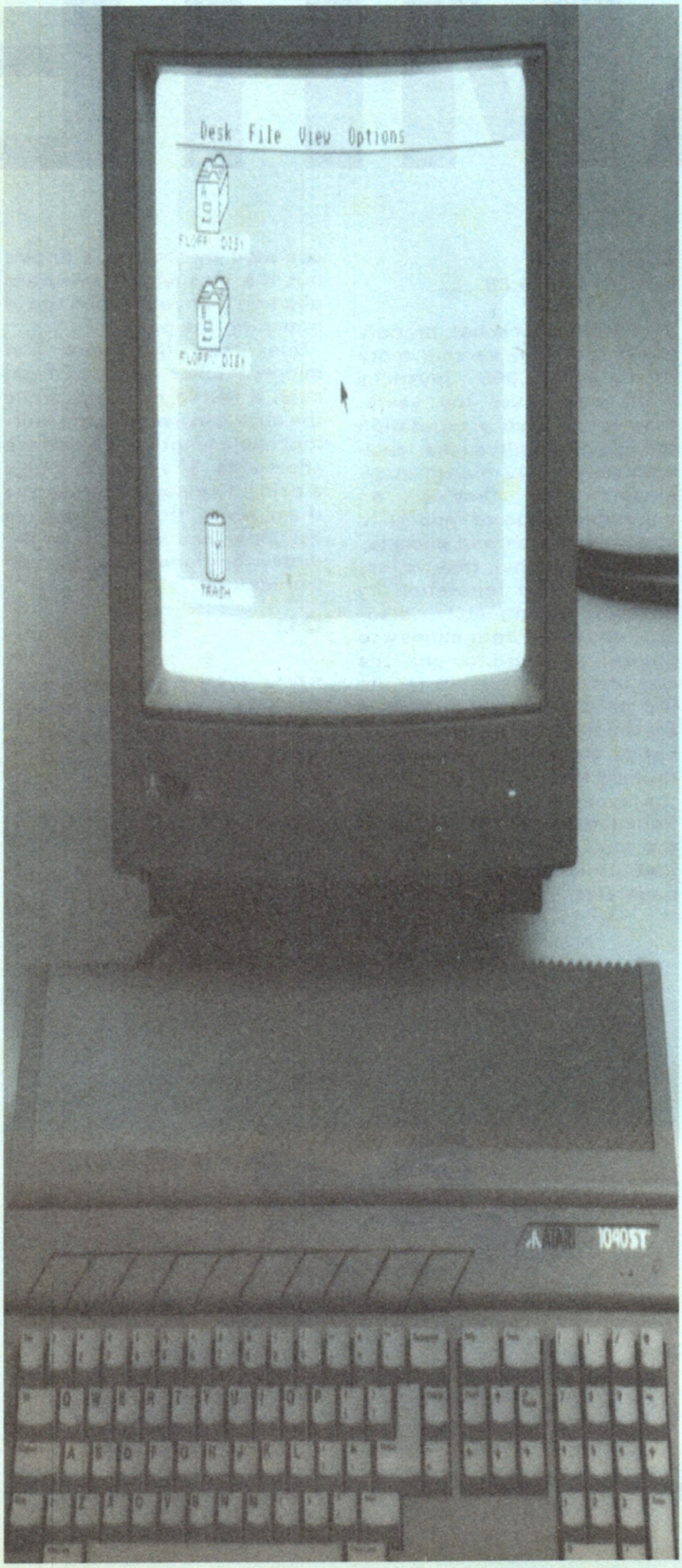
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ST BUYER



Where can you find 32 pages postively crammed full of useful buyer's information, tutorials, comment, charts, and retrospectives? Right here in ST Buyer, that's where! And look at what we've got this month. . .Kicking off is our comprehensive buyer's guide to joysticks, page 148. . .Tutorials are a-plenty with our beginner's guide to Desktop and STOS games creation on pages 152 and 155, respectively. . . Onto page 157, and a look at the bargains to be had when you decide to buy second-hand? . . we show you how to create your own joystick convertor on page 158 – and then there's much, much more. . .

Such as our look at classic programs, page 160. . . How to kit out your ST, page 162. . . Beginners DTP, page 164. . Business programs, page 165. . . Public Domain, page 166. . . comms feature, page 168, your technical questions are answered on page 172 and we'll end up this section with book reviews, charts and a prifile on user groups, starting page 172

STICKS OF DYNAMITE

What suffers more wear and tear than any other item that belongs to a computer gamer? The ST Review testers have been thrashing away at fifteen joysticks. How do they all compare. . ?

Buying a joystick is easy. Buying one that doesn't fall apart or stop working within a week is another matter entirely. Faced with an endless array of rubber-necked wonders, each with its own ergonomic design and outrageous claims of longevity, it's a thankless and costly task choosing which one to pit against the likes of Project X, Speedball II or Rainbow Islands.

If you're fed up forking out a small fortune each month to replace faulty joysticks, then fear no more! ST Review's crack team of wagglers have been busy over the last two months putting some of the finest joysticks that money can buy through arduous routines and subjecting them to literally hours and hours of solid play. The result of all this waggling? Probably the most comprehensive joystick reviews ever! To make things easy, we've given each joystick an overall five star score which is a product of marks awarded for innovation, durability, ease-of-use, a comfort factor, and responsiveness.

CONTROLLER

BONDWELL £9.88

IN BRIEF: Quickshot proudly boast that they've sold more than 20,000,000 joysticks worldwide. Over the years, they've built up a reputation for sturdily-built sticks, each with its own 12 month guarantee, and they've an incredible range of models to suit most tastes and pockets.

Having said that, they've just tarnished their reputation by releasing a completely ridiculous stick. It's both clumsy to use and awkward to hold – the kiss of death in joystick terms. It's double handlebar grip is too small for an average-sized hand, especially when both thumbs are needed to operate the joypad and firebutton positioned towards the centre of the stick. There is a second firebutton, positioned on the underside of the stick and operated by the index finger, but it's in such an awkward position that you'll soon tire of punching the pad.

Due to the lack of microswitches, you don't get such a tactile feedback while the stick's in use, and the four-foot cable length is a bit on the short side. The joypad is also a pain – I've never got used to them, even though I own a Famicom, and much prefer the more traditional joystick control method.

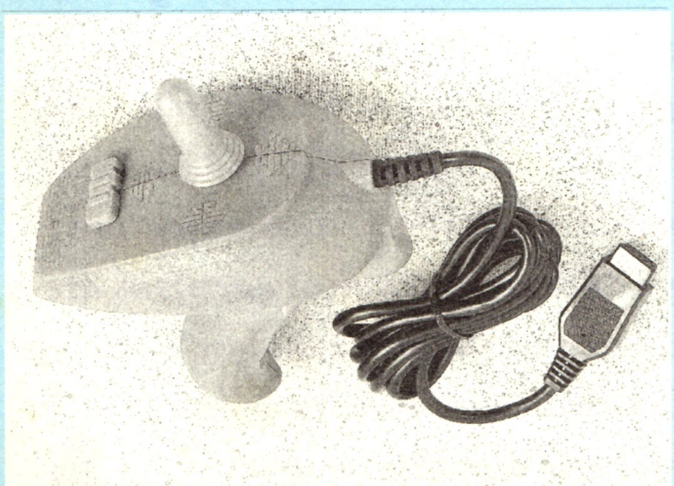
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"It's solid construction is about the only nice thing that can be said about the Controller".

CRUISER

POWERPLAY £10.98

IN BRIEF: The Cruiser has long



The Navigator: a nice design but overall, less than impressive.



No microswitches and a shoddy feel sum up Quickshot's Controller.

been a favourite of mine. These days, the stick has metamorphosed from its sleek matt black beginnings into a multi-coloured machine which boldly mixes pinks, blues and greens in a tasteful display of overstatement.

The basic stick is still very much intact, though, and offers an easy-to-grasp handle coupled with solid construction and a special twist lock at its base which offers three different resistances: loose, medium and stiff. This is probably the stick's best feature, allowing you to alter the resistance to suit the type of game you're playing. For instance, if you fancy a game of Speedball 2, a stiff setting will allow you to turn your players on the spot, while flight sims are best played with the joystick set to a loose setting, allowing for gradual movement rather then short, stacatto bursts.

The lead is an acceptable five footer and the base of the machine fits snugly in the palm of the hand. There are also four suction cups at the base of the stick to help affix it to your table-top if you should so require. Two microswitch fire-buttons and directional control provide the icing on the cake.

✪✪✪✪

"Overall, a brilliant stick, which stands up well to some serious waggling."

NAVIGATOR

KONIX £12.25

IN BRIEF: Despite its weird design, The Navigator fits the shape of the hand almost perfectly and gives a pistol-like grip. With the firebutton positioned conveniently close to the user's trigger finger, rapid firepower is yours for the taking. Fully-functioning microswitches also mean you can hear and feel every click and movement you make.

My only real criticism, and it's a biggie, is the awful shaft. It's just too tiny and doesn't allow the user to get a good grasp of it during play. Consequently, precise movement isn't really on. Moreover, although the shaft is made of metal, the model under test broke down after only three hours of use. Not a very good recommendation, I'm sure you'll agree.

Cable length is a very good five-and-a-half foot and the autofire mechanism kicks in when the firebutton is held down, ensuring a constant stream of bullets during play.

✪✪✪

"Despite being quite strong on design and ergonomics, it's just far too weak when it comes down to playability."

SURESHOT STANDARD

SONMAX £10.98

IN BRIEF: The handle's microswitches give an excellent response and, coupled with the stick's self-centralising system, steel shaft and pistol grip, can't be faulted. It's double-eight figure fits the hand well and the thing even looks the business thanks to a transparent plastic casing.

On the down side, the leaf spring firebutton gives little tactile feedback and is awkward to press for any length of time. Cord length, at just over five feet is a bit on the small side, and the lack of an autofire facility is a distinct drawback. It's essentially a hand-held device as there's a lack of suction cups underneath the base of the machine. Instead, the stick is graced with supposedly non-slip rubber pads which slip and slide about a tabletop like Torvill and Dean in their heyday.

✪✪✪✪

"It certainly looks the business, but utterly fails to live up to its promise."

SPEED KING

KONIX £12.25

IN BRIEF: Superficially, this actually looks like a poor cousin of most of the sticks here. Cheap and shabby, even its markings are the result of transfers overlaid on to the moulded plastic of the main body. Aesthetically, it's a non-starter, but once you've summoned the courage to remove the L-shaped contraption from its box, it fits rather nicely in the palm of the hand with the thumb occupying a special grove and the index and middle fingers centred around the firebutton.

During use, the stick gave a very good tactile response and the microswitches worked well. From initial misgiving, the Speed King quickly became one of our favourite sticks and proved adaptable to any type of game, whether it be a platform jumper or an aircraft sim. At six-foot, the lead was one of the longest we had in for test. Models are available with or without the autofire feature.

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"Looks aren't everything. It may appear dull but it's worth testing with an open mind."

TORTOISE

CHEETAH £9.98

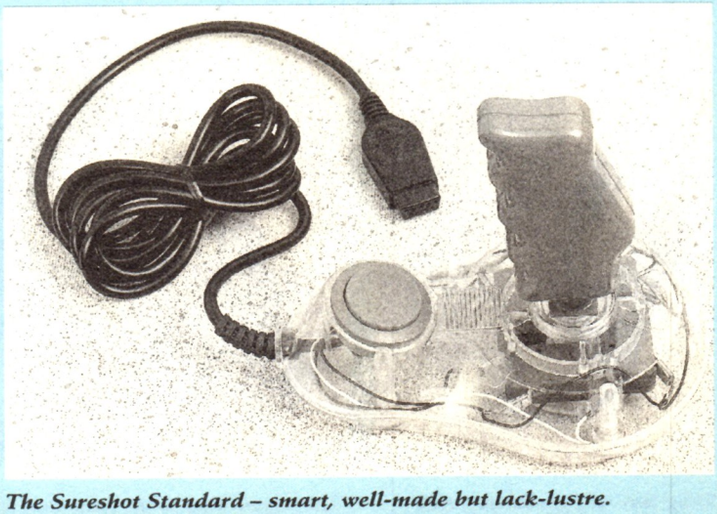
IN BRIEF: This looks and plays like a joke. Obviously aimed at the pre-teen age-group, the Tortoise consists of two units: a heavy duty stabilising body with an "ergonomically" shaped control "shell". The hand is supposed to fit smoothly over the shell at the top of which are three fire buttons to stab at. Movement is engineered by rocking the shell from side-to-side and top to bottom, but after a while, even this proves a cumbersome and ineffective control system which soon becomes tiresome. Also, it's doubtful that small hands will get the most out of this device as they would probably fall short of the firebuttons due to the bulky nature of the shell.

✪

"Clumsy and unresponsive, this particular joystick doesn't come recommended by anyone who tested it."



Switch Joystick: For anyone who take their gaming seriously.



The Sureshot Standard – smart, well-made but lack-lustre.

ATARI ST ESSENTIAL BUY

SWITCH JOYSTICK

GRAVIS £39.99

IN BRIEF: A little too big to hold in the hand, this table-top joystick certainly offers a multitude of features. The first thing to notice is the foam-padded pistol grip with built-in firebutton. As well as feeling incredibly comfortable, it also offers a firm grip and moulds itself to your hand.

The stick comes with a very sophisticated tension adjustment system. This allows the user to set the amount of tension or resistance provided by the joystick handle. Ten settings, which range from loose to stiff, ensure that there will be at least one setting which suits your playing style. In addition, the tension adjuster also reduces the travel distance or throw of the stick, making it ideal for flight sims and arcade games alike. Restricted movement allows for faster reactions such as those needed in arcade-orientated games, while the softer settings provide smoother movements suitable for flight simulators and driving games.

Trigger points are automatically set depending on the tension adjustment. When the stick is set at a loose setting, a greater amount of handle deflection is needed before a response is triggered in the game. It's also possible to manually adjust these trigger points for even more controllability. There are also three fire buttons, two located on the base of the unit and one perched on top of the handle. Button selectors at the side of the machine allow the user to independently select each fire button's function, ranging from normal fire and auto fire capabilities to forward and backward movements.

All these features add up to one hell of a joystick. A six-foot lead, solid construction, and a pleasing design help add further to the stick's appeal. Although quite costly, this is worth the investment.

"If the Zip Stick is the Rolls then Switch Stick is at the very least a Bentley — a superlative stick."

✪✪✪✪✪

ATARI ST ESSENTIAL BUY

SUPERPRO ZIP STIK

SONMAX £13.99

IN BRIEF: Two firebuttons placed at either side of the unit mean that both right and left-handed players can use this, and the solid construction means the stick can put up with as much wiggling as you can possible throw at it. Even Ocean's aging Daley Thompson's Decathlon would prove no problem to a stick of this stature.

The stick's long shaft and knobbly top prove invaluable in overall control and helps afford a nice, comfortable grip. Micro-switched throughout, every tug translates in a nice, tight response and an auto-fire feature provides rapid bursts or a continuous stream of bullets. From Speedball to R-Type, from Project X to the Addams Family, the Zip Stik handled all-comers.

About the only criticism that can be levied at the stick is its rathre less than adequate lead of just over five foot. But that could be seen as just nit-picking - play and enjoy.

"This truly is an essential buy if you only ever buy one joystick make sure that it's this one."

✪✪✪✪✪

STING-RAY

Logic 3 £34.95

IN BRIEF: When the Sting-Ray joystick was first released, it caused quite a stir, due in no small part to its absurd styling which makes it look like one of those rayguns that Flash Gordon used to bandy about in those crumbly black and white early-morning sci-fi serials. Despite such unfortunate comparisons, or perhaps because of them, the Sting-Ray has gone on to become quite a popular joystick.

It fits the hand in a similar fashion to a revolver with the handle nestling in the palm of the hand and the index-finger ideally placed over the firebutton. On top of the 'barrel' is the joystick's shaft, topped off with a knobbly piece of plastic for the grip. Overall, its design is akin to Konix's Navigator, but the knobbly end to the shaft makes it an altogether more controllable affair. An auto-fire button is also perched atop the machine together with two thruster buttons fixed to each fin. When pressed, these are reputedly meant to make you speed up, but they're placed in such a ridiculous position that it's doubtful whether you'll ever call them into play. A six-foot capable rounds of the package.

"Once you've become accustomed to the design, it really is a nice stick."

✪✪✪✪

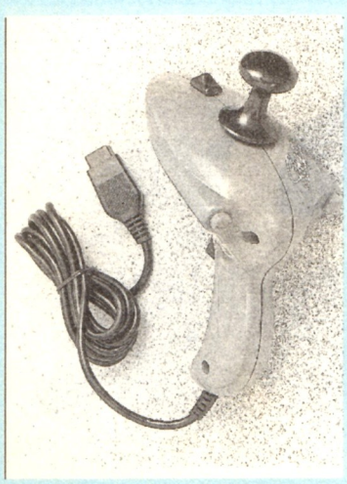
THE BUG

Cheetah £14.99

IN BRIEF: The Bug certainly lives up to its namesake: it's incredibly tiny and would be an ideal starter stick for a young child. Suitable for either left or right-handed players, the device comes with a five-foot cable and two firebuttons placed at the front of its compact body. These are activated by the player's thumb with the stick's shaft conveniently located towards the centre of the device. Again, the main failing with the stick is its abysmally short shaft which allows little or no grip and, therefore, a subsequent loss of control. If only manufacturers would realise that a knobbly end and long stick are essential ingredients in a successful joystick and not sacrifice such aspects for gimmickry such as this.

✪✪✪

"It may look appealing, but it's very frustrating to use."



Sting Ray: a popular joystick with an unusual design.



The Sigma Ray looks nice, and it's rather good to handle, too.



The Ultimate joystick. This one has a whopping great lead.

THE ULTIMATE
Euromax £34.95

IN BRIEF: Obviously not a hand-held model, this table-top device is incredibly ugly and cumbersome. Admittedly, its spherical hand-grip proves to be a worthy feature when compared to some of the other sticks we've reviewed this month, but its unresponsive fire buttons give the machine a decidedly dull feel.

Perhaps its best feature is a variable-speed autofire button which can spew out a super-fast hail of shots at its top speed. Unfortunately, the machine also has its fair share of minus points and the unresponsive helm makes arcade games a positive chore. Although it has a whopping six-and-a-half foot lead (mistakenly put at 10 foot on the packaging!), the rest of the machine doesn't live up to expectations. I found it slow to respond to tugs on the joystick shaft and rather too bulky for its own good.

✪✪✪

If you've got your heart set on a table top joystick, buy something else."

SIGMA-RAY
Logic 3 £14.99

IN BRIEF: This one has the best grip of all the joysticks we tested. The pistol grip fits the contours of the hand beautifully, with both firebuttons within easy reach. There's also a couple more placed at the base of the stick, just for good measure as well as an auto-fire switch and single-shot option button. Style-wise, this is the pick of the bunch, and in play the stick also excels, proving to have just the right amount of tension for flight sims although not quite so hot for arcade-orientated games.

In-built microswitches ensure a positive feedback and the suction cups allow for table-top play as well as hand-held action. Cord length is a minuscule four foot, but the overall layout of the stick more than compensates for such shortcomings.

✪✪✪✪

"It looks good, plays well and, by golly, it plays like a dream."

THE ARCADE
Euromax £19.95

IN BRIEF: Another firm favourite in the CU offices, The Arcade has proved remarkably resilient to more than a year's worth of constant use. The fact that it has survived such duress is a testament to its sturdy construction and solid design.

What you get for your money is a pretty basic stick with one firebutton and a long shaft with ball-handle. It might not be much to look at, but it plays superbly well and, if it wasn't for the leaf spring firebutton, would be one of the best sticks available. The lack of options comes as a welcome relief as it seems to be the fashion these days to incorporate as many unessential gimmicks as possible merely to artificially bump up the price.

The back-to-basics approach is to be widely applauded and the matt black appearance of the machine, together with its triangle design, gives it a certain style all its own.

✪✪✪✪

"An excellent work-horse. It's tough, resilient and very manoeuvrable."

ATARI ST USER ESSENTIAL BUY

ZOOMER
Euromax £69.85

IN BRIEF: The Zoomer is a specialist stick aimed at flight sim and driving game enthusiasts. Its yoke resembles a steering wheel with both top and bottom bits cut away. It's not small, as its 30cm tall by about the same length width-wise. Fire buttons are located on top of each arm and there's an auto-fire knob on the base of the machine. Four suckers keep everything stable and the cable is a good six-foot long.

I found that the Zoomer greatly enhances the realism of flight simulators and driving games. The handle itself has reasonable sideways rotation but the vertical axis is considerably less mobile. Because the up/down and left/right movements are so different to each other, it overcomes the problem of sensitive joysticks which dive when they should be turning and turn when you want to climb.

It's not really suitable for the likes of R-Type and Speedball, but load up Flight of the Intruder or F15 and you'll have a ball. It definitely adds a new dimension when playing these type of games.

✪✪✪✪✪

"It may cost an arm and a leg, but this one is a must-buy for all flight sims fans."

PROF 9000 DE LUXE
Euromax £34.95

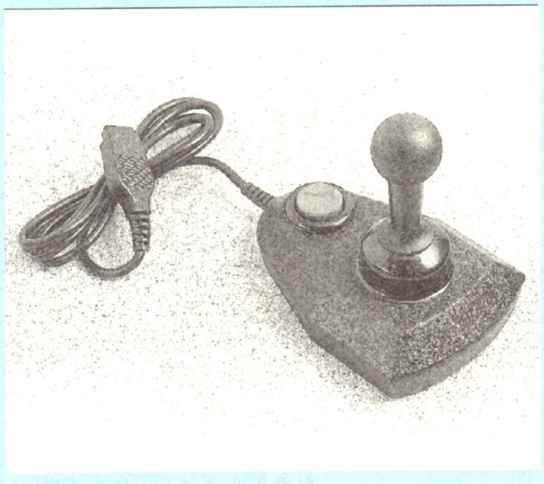
IN BRIEF: The first thing that's noticeable is the springy feel of the stick. It has just the right amount of travel for a good bash at virtually any fast-paced arcade game and the fire-button perched on top of the shaft is in easy reach of the thumb. Also, two buttons on the base of the machine, and the left one of these alters the rate of autofire by turning it clockwise or anticlockwise. Strangely, though, the base and stick buttons cannot operate at the same time.

The long thin shaft means you can easily wrap all four fingers around it, but the cord length is a poor four foot long. The shaft's microswitches give a positive feedback to movement, but the leaf spring fire buttons once again prove a disadvantage in measuring performance. It's especially noticeable on shoot 'em ups were you need to constantly monitor your firing rate – with a leaf spring this is almost impossible.

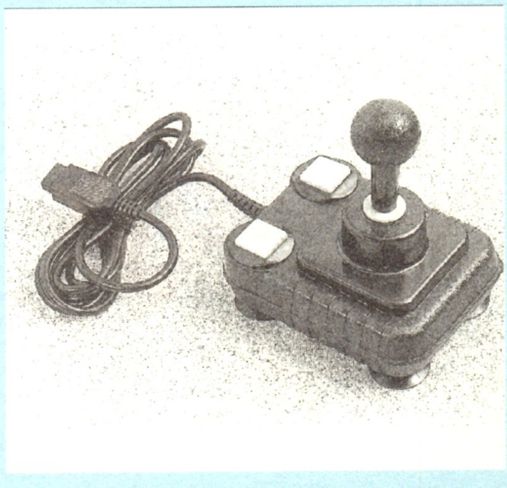
"This is a smart and stylish stick with plenty of manoeuvrability."



The Zoomer: it really is the bees knees for flight sim enthusiasts.



The Arcade: a competent, sturdy and altogether excellent choice.



The Superpro Zip Stik stands head and shoulders above the opposition.

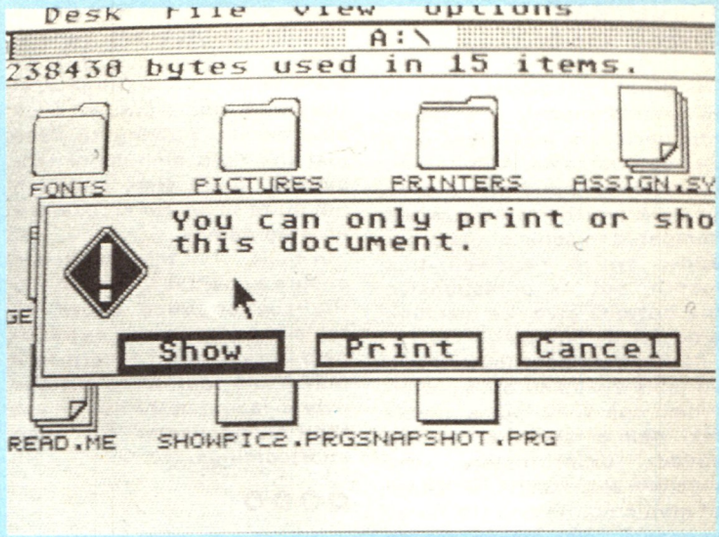
GETTING ON TOP OF THE SITUATION

One of the best things about your ST is its easy-to-use desktop. Tony Dillon explains how it all works. . .

The Graphics Environment Manager (GEM) was created in 1986 as an easier alternative to the complex and often confusing command-based disk operating systems offered by older machines. Rather than wasting your time and your brain power typing in a whole string of instructions and wading through screens of meaningless text, GEM allows you to see the contents of your disk in an easy-to-understand format.

As its name suggests the screen display resembles the top of a desk, with filing cabinets representing the drives and a waste bin for 'throwing away' files.

This use of simplistic graphics makes GEM easy to use, even for the complete beginner. But if you are stuck on desktop, our simple guide should get you started...



This is the standard prompt when opening a data file. Show displays the contents, but only makes sense if the file contains text.

A THE MENU BAR

In the top row of the screen are all the functions you could possibly need to open, read, format and check your disks, along with full operating system instructions and desktop information.

B DRIVE ICONS

These represent your floppy disk drives, and opening them displays the contents of the disk that is currently inserted. If you don't have a second drive, the 'B' icon will open drive A.

C DRIVE WINDOW

Here you can view the contents of an inserted disk. The bar at the top of the window tells you which drive the disk is in, along with the amount of memory used. The shaded area tells you that this window is 'active' – ie in use. Only one window on screen can be active at once.

On the left of the shaded bar is the close button. Clicking on this closes the window and returns you to a previous one. If no other windows are open, you are returned to the desktop. The other button, on the right of the bar, re-sizes the window to fill the screen: this is useful for viewing the contents of a disk, as sometimes there are too many to display on an average-sized window.

The two slider bars, on the right and bottom of the window determine which part of the folder or disk you are looking at, letting you scroll the contents until you find the file you are looking for.

D FILE ICONS

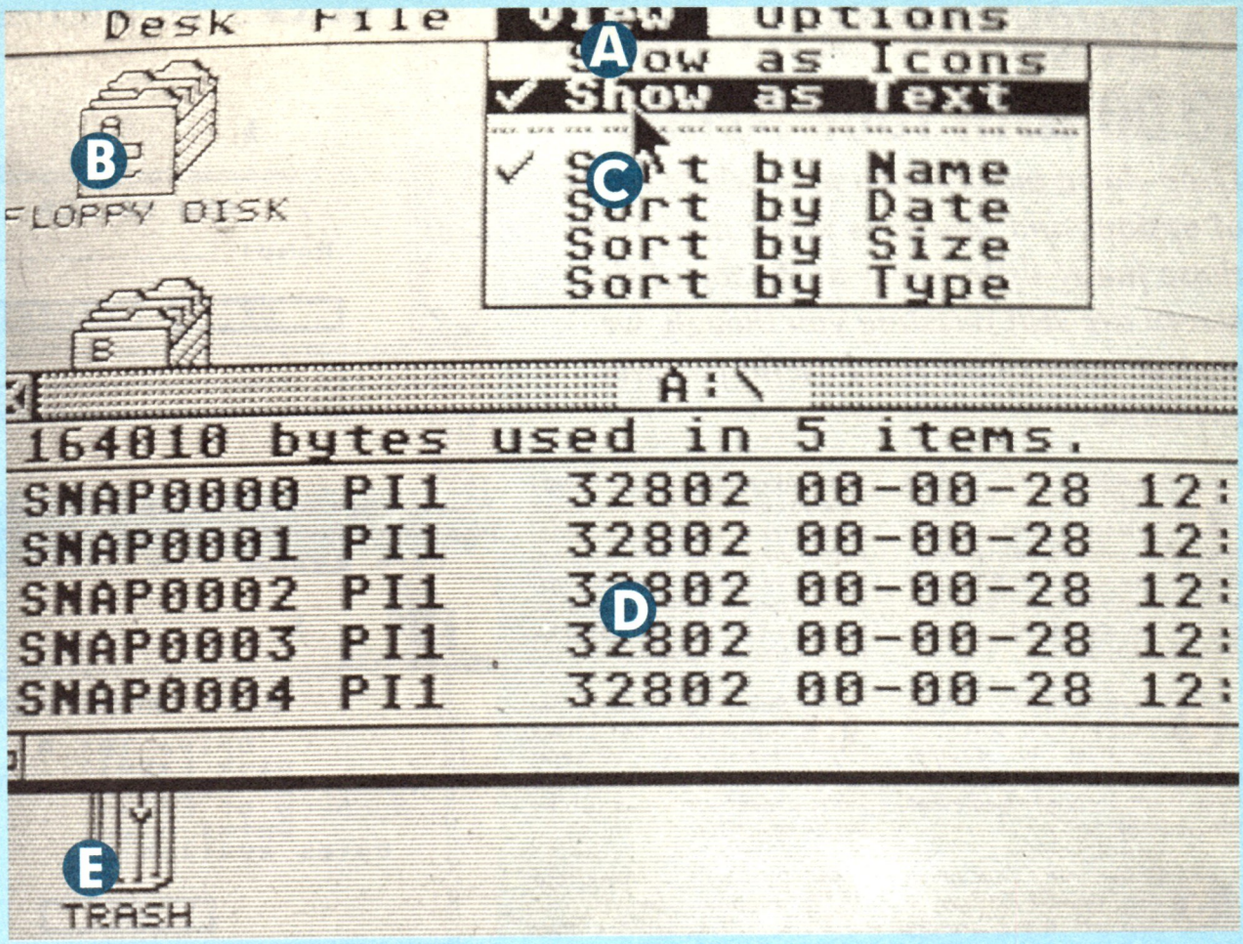
Every file on a disk is displayed on screen as one of three icons, either a folder, program or a data file. A folder is a container for a group of files, and opening a folder opens a new window displaying its contents. Folders are an excellent way of organising your disk. Opening a program file simply runs the program within it.

Data files can be anything from level code in a shoot-'em-up, through fancy graphics saved from an art package, to word processing documents. The three-letter extender after the name under the icon should give you a good idea as to what the file is. .PIC, for example, is obviously a picture file whereas .TXT or .DOC is a word processing or text file. Opening a file brings up a prompt window which asks you whether you want to Show, Print or Cancel your request. Showing the file displays the contents as text on screen. In the case of a WP file, you will be shown the file in a legible form, with or without spaces, depending on the text format. If it's anything other than a text document, however, you may get nothing more than a screen full of junk letters and characters. This is nothing to worry about – it's just telling you that the file isn't suitable for reading. To exit this screen, press 'Q'. Printing the file does exactly the same thing, only to a connected printer. Cancel exits the prompt box and deselects the icon.

E THE WASTE BIN

The bin is where you dump all unwanted files. By dragging a file from an open window and dumping it here, you can erase the file forever. Before the computer will erase it, it will put up a prompt box asking you to confirm your request.

A The Menu Bar
B Drive Icons
C Drive Window
D File Icons
E The Waste Bin



The Desktop screen in all its glory. The top line carries the menu bar with the icon on the left representing different drives whilst the large window is the window for disk A: and shows in text format (as selected) just what files are on the disk.

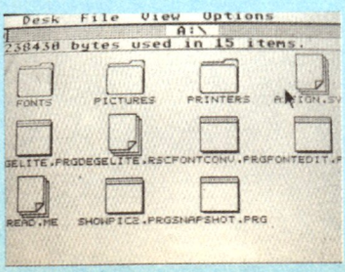
STAYING IN CONTROL – WITH A MOUSE

It all starts by pushing one around. . .

Looking through this guide, you may be a little confused by terms such as dragging or clicking. These are simple mouse controls that allow you to interact with desktop. In short, clicking means tapping the left mouse button when the on-screen arrow is over an icon. Tapping once – single clicking – selects an icon, whereas tapping twice in quick succession – double clicking – opens an icon.

You can select multiple files in two ways. The first is to hold down the shift key before single clicking with the mouse. With the shift key held down, as many icons as you like can be selected and highlighted, and even all opened at the same time.

The other way is to draw a box. This is done by holding down the left mouse button while the pointer is not on an icon, and moving the mouse to the opposite corner of the group of files you wish to select. As you are doing this, the ST will draw a box showing you the current area highlighted. Releasing the mouse key places the box.



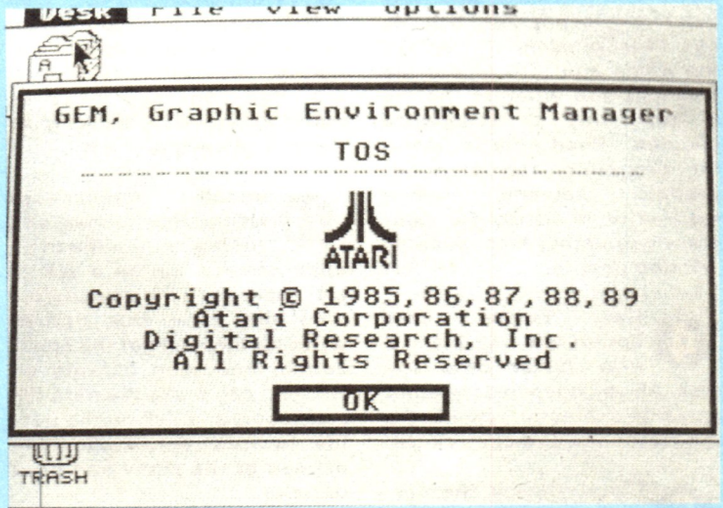
The three different disk identifiers are on the left. They are from top to bottom; Folder, Program and Data File.

IT'S A DRAG

To drag means simply to pull an icon around the screen. To do this, position your cursor over an icon and hold down the left key. A vague outline of the icon selected appears around your pointer. Now by moving the pointer to another part of the screen and releasing the button you can position your icons anywhere. This has many uses.

You can use the dragging method for moving files between disks: to do this, open a window for drive A and one for drive B and then move files between them. If you want to copy a whole disk, drag the Drive A icon to the Drive B icon, and a requester box will appear, asking you to insert the disks for drive A and B in turn.

To drag a window, place the pointer in the shaded bar at the top, and then drag as with an icon. Moving windows to folders or other disks has the same effect as moving single icons. At the top of the screen are the words Desk, File, View and Options. By bringing the mouse pointer to any of these words, a drop-down menu appears, offering you all manner of options, selected with the left mouse button. They are detailed on the following page.



This window tells you where you are with GEM. If you have any other questions though, you may just have to ask Atari...

14 QUICK AND TASTY THINGS TO DO WITH YOUR MENUS

Drop-down menus open up a whole range of options and functions to the user. If all those funny little words at the top of the screen are still puzzling you though, we outline some of the most useful features available

1 Desktop Info (find under 'DESK'). Selecting this brings up the GEM information screen, telling you who wrote it and when. If you have an STE, you get a lovely multi-coloured Atari logo too.

2 Open. (find under 'FILE'). This option is identical to double-clicking with the mouse on an icon. It simply opens a selected file or folder.

3 Show Info. This gives you general information on the currently selected icon, either a disk, folder or file. If a disk or folder has been chosen, a box will appear telling you how much space has been used, how many files there are, and how much memory is left. If a file has been chosen, it displays the name and size of the file and tells you whether the file is 'read only' or 'read/write enabled'. Read only is useful for programs and standard graphic screens, while read/write is handy for constantly updating files, such as WP documents.

4 New Folder. This option lets you place a new folder onto the disk. All you have to do is enter an eight-character name in the requester box and click on OK.

5 Close. Closes the current window and places you on an earlier one, if there is one open.

6 Close Window. Closes all windows from the current disk.

7 Format. This empties the currently inserted disk and sets it up, ready for use. It can do this to any 3.5" disk, so always check the disk you are going to format in case it has data you want to keep.

Selecting this option brings up a box asking you if you want to format a single or double-sided disk. As only original STs have single-sided drives, select double-sided, as it doubles the disk storage capacity from 360K to 720K.

8 Show as Icons/Text (file under 'TEXT'). This determines whether the contents of a window are icons or text. Only one can be active at a time.

9 Sort by. . . These four options decide in which order the files are displayed in each window. Again, only one can be active at any time.

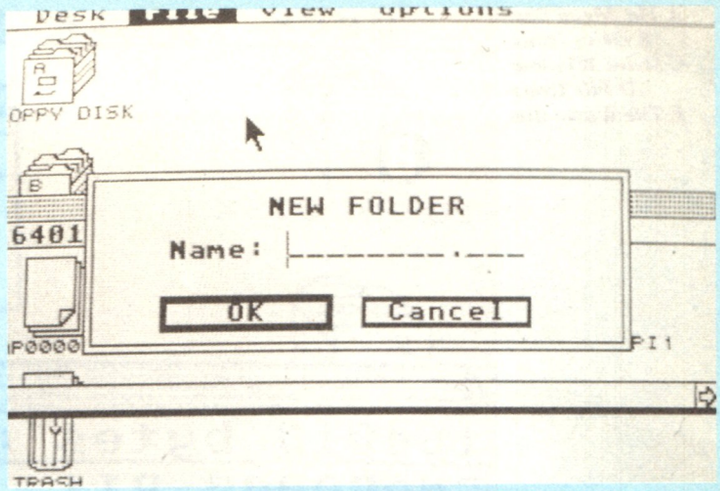
10 Install Disk Drive (find under 'OPTIONS'). This option lets you select how many drive icons are displayed, and what type they are. You can take away as many as you like, as long as there is always one left.

11 Install Application. Using this allows you to 'tag' a data file to an application, such as a WP or art package. By selecting a data file, then this option, entering the name of the application, and then clicking on OK, you can make the data file self-loading. Click on the data file to load the application, instead of the show and print options.

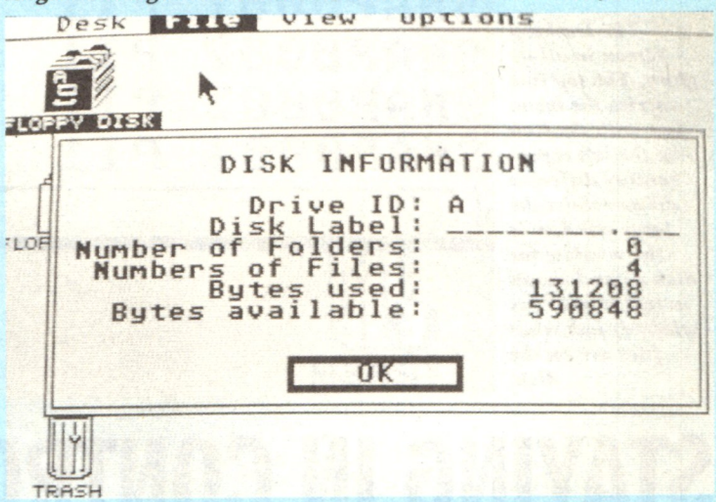
12 Set Preferences. This prompt box is self-explanatory. It allows you to tailor the desktop to suit you. 'Confirm Deletes' and 'Confirm Copies' denotes whether or not the machine will ask you to confirm deletion or copying of a file, and the resolution options let you choose the screen format to use. Low and medium resolution can be run on an ordinary TV or monitor, but you can't access high resolution unless you have a high-res mono monitor connected.

13 Save Desktop. This lets you save your changes to the current disk, meaning that whenever you run desktop from it, it will appear as you saved it.

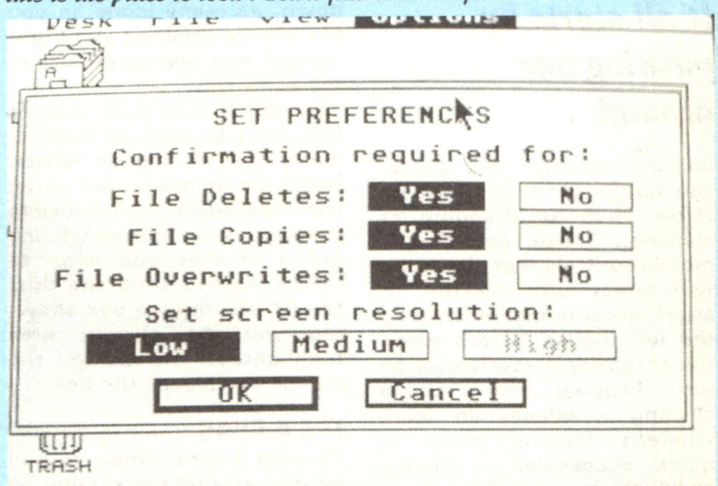
14 Print Screen. Dumps the current screen to a connected printer.



When opening a new folder, a name must be entered that is no longer than eight characters. The three letter extender is optional.



If you're not sure of how much space you have on your disk, then this is the place to look . You'll find it in the file.



Tailor Desktop to your heart's desire. It's probably worth leaving the confirmations on unless you're certain of what you're doing.

BITS FOR SALE

The cost of hardware need not be a limiting factor to your system if you decide to buy and sell second-hand. ST Review takes a journey to the bargain basement...

When you are improving your system, or even setting it up for the first time, the obvious thing to do is to go to your local computer outlet and hand over the money.

There is, however, another way. You can save a lot of money by looking at the 'For Sale' ads in your local paper. There are even magazines devoted to the buying and selling of used computer equipment, which you could try. ***Micro Mart*** is a weekly 160-page magazine published every Thursday that has thousands of entries.

There are a few pitfalls to be wary of when buying equipment this way: here's how to avoid them.



When you see the item you are interested in the first thing you do is make contact with the person that is selling, usually by phone. Before you commit yourself to anything you should make arrangements to see and test the equipment. If the vendor is not prepared to let you test it, then don't risk your money: if the equipment is as advertised there should be no objections to testing.

If you are buying long-distance, you probably won't be able to see the equipment. In this case you need to establish a few things before the deal is set.

- **What is on offer?**
- **Are leads and peripherals included?**
- **What guarantees is the vendor prepared to make that it is as advertised?**
- **Who is going to be responsible for the cost of delivery?**

It is also a good idea to ask why it is being sold, as this can give you a good clue as to its usefulness. It may be that it has limited expansion capabilities or a small fault that the vendor forgot to mention in their advertisement.

Once you are satisfied with the sale, make your offer. The value is not what the vendor asks, but what it is worth to you. If your offer is less than asked for and the vendor rejects it, ask him to keep a note of your details in case he changes his mind. When you do part with your money, make sure you get a written receipt. If sending a cheque, make sure it is crossed and write on it 'Account Payee Only'. This way if it should get lost in the post, only the person it is made out to can cash it.

SELLING

What you are selling may well be something you are very fond of, but remember that sentimental value cannot be bought, so try to set your prices realistically. Look through the ads for items similar to yours to see what price others are asking. If you are including software and peripherals, try to price them realistically as well. If you are selling a complete system with external drives, printers etc, price them each separately as this will make your system seem more attractive, especially if the price for the complete system offers some sort of discount.

How your computer looks is very important. It may well be in full working order, but a grubby keyboard and casing tend to make it look bad. Remove stickers, vacuum the keyboard and give it a wipe with a damp cloth to spruce it up.

Potential customers will want to test your equipment, which they cannot do if it is boxed up. Make sure that you are able to set it all up for them. If you are selling a hard drive, remember to remove all personal files. It is possible to recover deleted files so it is advisable to format the drive – but remember to back up anything that you want to keep first though.

Once a sale is agreed, don't part with your equipment until you're sure you will get your money. Buyers paying by cheque will not mind waiting for it to clear. When it is being sent by parcel post or courier make sure it is well packed and clearly marked 'FRAGILE' and 'HANDLE WITH CARE'.

THE PRICE IS RIGHT

This is a brief guide to prices of second-hand equipment. Please remember that these are only a guide, and the value of goods varies. A lot depends on the age and condition of the item, and what is included with it

Atari 520 STFM/E	£150-250	MODEMS	
Atari 1040 STFM/E	£200-350	300 Baud	£10
PRINTERS		1200-12/75	£50
9 Pin Dot Matrix	£75-100	2400	£100
9 Pin Dot Matrix (Colour)	£100-200	9600	£150-300
Daisywheel	£50-100	SCANNERS	
24 pin Dot Matrix	£150-200	Hand	£75-100
24 pin Dot matrix (Colour)	£200-300	A4 Flatbed	£150+
Bubble/Inkjet	£250+	DIGITISERS	
Laser	£500+	Mono	£50-100.00
MONITORS		Colour	£100-150.00
Mono (SM124)	£90	SAMPLERS	
Colour (SC124)	£150	Mono	£15.00
FLOPPY DRIVES		Stereo	£20-25.00
Internal	£30	SOFTWARE	
External	£50	Any	Approx one third of current cost
HARD DRIVES			
Depending on size	£150-500		

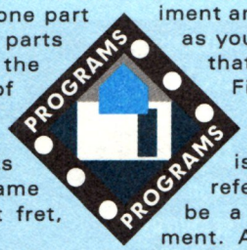
CREATE YOUR O

PART ONE

The ever-popular STOS program makes coding more accessible. Tony Dillon is here with a six-part guide to creating your own STOS game. . . .

What self-respecting ST owner doesn't have a copy of ***STOS***? Originally billed as ***The Games Creator***, it's turned out to be much, much more than that, as anyone who knows about STOS-based PD utilities can tell you. Its real advantage is its power and relative ease-of-use. Where the package fails though, is with the manual. Comprehensive though it is, it doesn't really give the budding programmer any guidelines on how to manipulate the package to get it to do things the way you want.

Any programmers worth their salt will tell you that the key to their jobs is one part knowledge to 10 parts technique. What's the use of knowing all of the STOS commands if you don't know the ins and outs of putting a game together? But don't fret, help is at hand. . . .



Over the next six months, we are going to create a game. Not just any game, though. Together we will create a complete level of ***Super Squirrel***, a flip-screen platform game based on the acrobatic squirrel that appears in a certain well-known lager commercial, racing across an assault course of ropes, poles, jumps and see-saws. I bet he reads ***Atari ST Review***.

SO WHAT DO WE NEED?

Programming a game shouldn't be done in one large block. In fact, this is never how it's done. Break the task down into manageable chunks, ensuring that each facet of the game works properly before tying it together. For ***Super Squirrel***, we're going to break it down like this:

1) The Game Plan
2) The Sprite and Background Graphics
3) Sprite animation and control routines.
4) Backdrop scrolling and animation.
5) Connecting the sprite with the backdrop.
6) Scoring and completing the game

The task isn't as daunting as it might at first seem. Each month we'll be going through one of these sections in detail. This month, let's start right at the beginning and work out our game plan. . .

DESIGNS ON SUCCESS

The secret to success lies in organisation. Too many times I've come up with a good idea for a game, started on the most interesting bits immediately, got lost, given up hope and, finally, dropped the idea altogether. Your first task, before you even get close to the keyboard, is to determine in the finest detail exactly how the game will work. Of course, you don't have to stick rigidly to this plan. Feel free to experiment and change it as much as you like; but make sure that all of it will work.

First of all, write down exactly how you want it to play. This is only for your own reference so it needn't be a professional document. As long as it covers everything you need to remember, that's all that matters. For example:

Super Squirrel is going to be a flip-screen platform game, with numerous obstacles placed across the playfield. The aim of the game is to get from the start of the screen (ground level, bottom-left corner) to the bag of nuts at the end of the assault course within a time limit. The assault course is made up of see-saws, swings, jumps and narrow platforms. Different platforms have different properties, and the trick is finding out how to cross them. If you try walking along the top of a rope, for example, you'll fall and have to start again. The only way to get across the rope is to hang underneath it. Using swings and seesaws will make demands on the player's sense of timing. The see-saws will constantly rock, so you'll have to time your jump on and off of them, and swings will be constantly moving.

One way I could break it up into levels is by making the squirrel go round and round the course, adding more obstacles and moving the nuts further along each time. Falling from an obstacle automatically sends you back to the start, although checkpoints, or flags that the squirrel has to pass, could be included.That's enough of the basic scenario. Let's start to plan how it will hang together. For this you'll need to draw a flowchart.

GO WITH THE FLOW

A flowchart is a diagram used to plan a program, as well as to guide when programming. All sensible programmers would recommend drawing one up: it does make forward planning easier, and you can see at a glance where a program might be going wrong. A flowchart takes a long time to prepare, and it probably isn't a decent one unless you've redrafted it several times.

The charts on these pages show that a flowchart is actually a series of labelled boxes with arrows connecting them. The arrows indicate the 'flow' of the program (the order in which the tasks are carried out). Master a flowchart and you'll have an infinitely more successful program.

Here's a simple example. Let's say we wanted to move object A across screen B 20 times, while scrolling screen B vertically. Figures one and two show two ways of doing this. Can you tell which is the best in terms of memory, simplicity and efficiency?

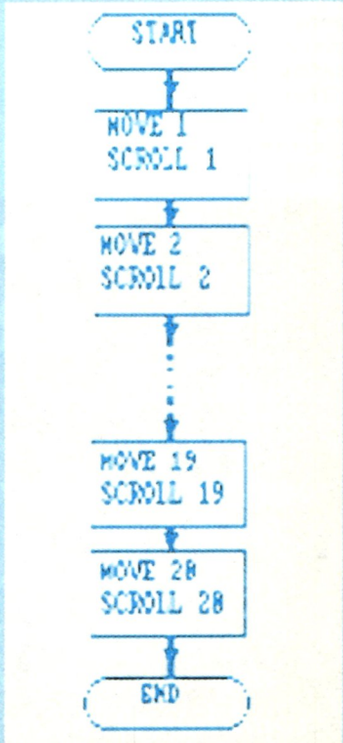
The answer is obviously B. Rather than use 20 separate movement routines and 20 separate scroll routines, by using one general movement and scrolling routine, and then feeding it different information each time you use, it saves time and space, as well as making the whole package neater and easier to follow.

BOXES

What's written in the boxes is really quite general.— a flowchart is a planning aid and a guide, not an actual program. For the moment don't worry about how it's going to scroll the screen. Rest assured that, at this stage, this is where it will scroll.

To start with, break your program down into its components. These can be anything from assigning variables at the beginning, to reading the joystick or testing to see if the name of the user has been entered. Super Squirrel has a host of components, so what I'm going to do first is to create a master flowchart.

As you can see, it's extremely general. After all, a box that simply says "Check Squirrel's Position" doesn't really help much when it comes to pro-



Setting up a flowchart for your scrolling routines is a vital part of establishing a plan. This particular example, however, is far too complex and unwieldy to be of any use.

WN STOS GAME

gramming. This is why subflowcharts are created — these look at things in detail.

In my program, each of the squirrel's actions takes it to a different loop. It does this if what the squirrel is doing changes the way it interacts with the backdrops.

For example, if I wanted to make the platforms one-way, to allow the squirrel to jump upwards to a platform, but not to jump back down from it, then the program needs to be able to tell if the squirrel is moving up or down when it comes into contact with a platform. This is where things start to get a little more complicated.

Planning in such detail so early on does seems like a lot of hard work, but it does pay off later, believe me.

So now you can put together your own flowcharts, or if you prefer, keep on using ours for reference. If you think you can structure the program in a way that would better suit your needs, then design a customised chart. There's certainly plenty of room for experimentation. .

You now have a complete program. Sit down and see how you can compact it by re-using routines, such as the collision detection. Why rewrite the same routine a dozen times in a program when you've written it already?

ESSENTIAL VARIATIONS

The next step is to decide which variables you are going to use. A variable is a labelled piece of information accessed throughout your program. It could be the co-ordinates of the main sprite or the current score. However you use them, variables are essential.

Sit down with your flowchart and try and work out which variables you are going to need in your game. There are obvious ones, like the current position of the squirrel, and the number of lives it has left, but what else are you going to need?

Here is a list of the variables for Super Squirrel, as they stand at the moment:

Squirrel X, Squirrel Y: Co-ordinates of the squirrel sprite.

Sface: Whether the squirrel is facing left or right.

Sup: If the squirrel is standing or hanging.

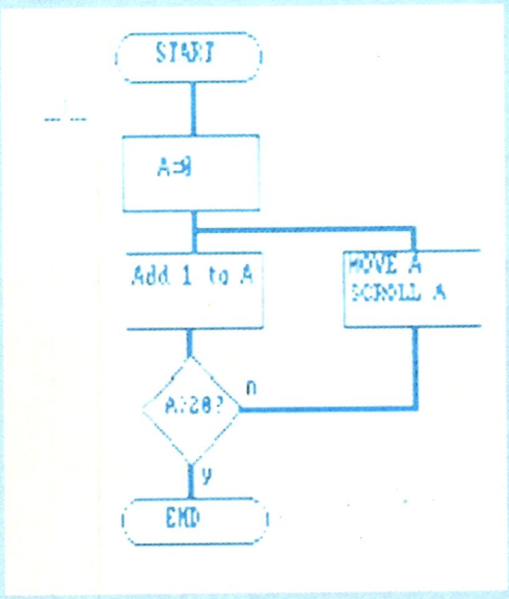
Score: Current score

Screen: Current screen

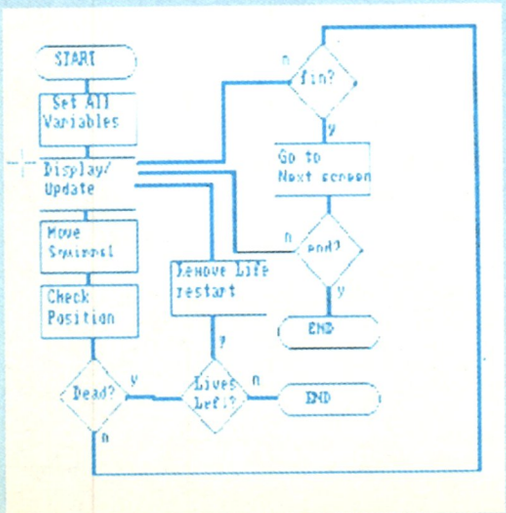
Lives: Number of lives remaining

The program will generate separate co-ordinates for the obstacles on each screen as it creates them, but that comes later on.

For the moment, you should have more than enough to keep you busy until next month, when we start work on the sprites and backdrops. Happy planning!



This is much more like it. The plan has been organised so that it uses only one general movement and scrolling routine. This saves time, frayed nerves, and quite possibly saves your program from becoming unworkable.



The very basics of the game: you'll need to anticipate every single thing that you want it to do, from acknowledging what's in the ports to recognising a name keyed into the high-score table.

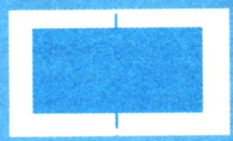
STEP BY STEP

There are dozens of different symbols used when creating a flowchart. Here are the most common and useful ones when designing a game like ours.

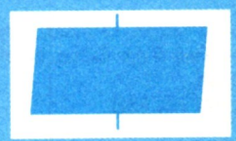
1) Start/End Boxes
These signify, as their name suggests, the start and end points of the program. Although you can only have one start point, you can have as many end boxes as you like.



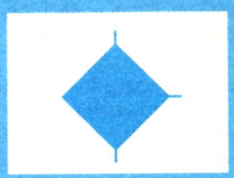
2) Action Box
This represents an action on behalf of the computer, for example putting something on screen, or adding two numbers.



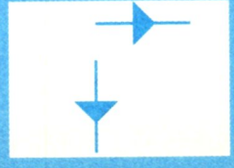
3) Input/Output Box
This is used whenever the computer has to look externally for information, such as entry from the keyboard or reading a joystick. It also means loading, saving and printing.



4) Decision/Condition Box
This diagonal box is a junction in the flowchart. Written inside it is a question, such as "Is A more than 20?" You can have as many exits from this box as you like, all labelled in answer to the question. In this case we would have one exit for "Yes" and one for "No".



5) Arrows
If you want to follow the path of the program, follow the arrows. To make it easier to track what to do next, always mark the direction of the program between boxes. Never let a line be two-way: use two lines instead.



STICKY

CHECK LIST

Here's a list of all the various bits you'll need in order to build your Sticky Box mouse/joystick switch

Parts List

IC1	-	74LS157
IC2	-	74LS00 or 74LS37 (see text)
D1 & 2	-	1N4148 switching diodes
LD1	-	5mm LED (10mA) Green (see text)
LD2	-	5mm LED (10mA) Red (see text)
R1	-	1K5 0.6W metal film 2% (see text)
PL1 & 2	-	9 pin D socket (PCB mounting)
PL3	-	9 pin D plug (in-line)
Cable	-	1/2M either 9x7-core with screen OR 10-way ribbon
Veropins	-	9 off
Sockets	-	14-pin DIL x 1 16-pin DIL x 1
Case	-	to suit.

A full kit of parts (including double-sided PCB) or pre-assembled unit manufactured under licence from Designer Mouseware™ is available from:

Badger Boards, 87 Blackberry Lane, Four Oaks, Sutton Coldfield B74 4JF
Tel: 021 353 9326

Kit: £6.85 + P&P
Complete: £9.95 + P&P. The PCB is also available separately.
Please note that the kit is guaranteed to work. However, neither the manufacturers or ST Review can accept responsibility for errors made by the user while constructing it.

Mark Smiddy presents Sticky Box – a simple adapter to automatically switch between your mouse and joystick at the flick of a button

When was the last time you wanted to play a two-joystick game and then discovered you had to fiddle around unplugging the mouse? It was during one of these moments that I came up with the idea for this design. Functionally speaking, it works more or less like the excellent ***RoboShift*** designed by Steve Collins, although his design has a few improvements over this one. Most notably it always defaults to the mouse port and the whole thing is built with ultra-compact SMT components.

However, the main advantage that our ***Sticky Box*** has over ***Roboshift*** is that it's £7.00 cheaper. While ***Roboshift*** is only available commercially for about £17, this design can be bought for less than a tenner and is perfectly suitable for a first-time construction project. Even if you have never wielded a soldering iron in anger before, this project is simple enough for almost anyone.

Both designs can be built on the same PCB, but since extra saving is far outweighed by the extra convenience, a kit is only available for the more complex one.

CONSTRUCTION

Building the ***Sticky Box*** is a simple matter of "stuffing" the PCB and wiring the flying 9-pin. Two points are worth noting: pin 1 of IC1 and IC2 (marked with a notch) face towards the D connectors. Also, take care when wiring the flying 9-pin D socket: the lead spacing is quite tight and you will need a small (typically 17 watt) soldering iron to do the job. A magnifying glass is helpful to read the pin numbers too. A set of "Helping Hands" available from Maplin or Tandy will come in very useful when performing this operation and building the boards.

HOW IT WORKS

Figure 1 shows the basic idea in action in both forms. A quad two-input multiplexer is avail-

DESIGN CONSIDERATIONS

The most important part of this design is that it should draw as little current as possible from the port which is, after all, only really intended for a mouse. The switch-based design will draw a little under 15mA and the logic version something around 25mA on average. This is achieved by using a combination of LS TTL logic and low current drain devices. IC2 in the main design could be replaced with a 74LS00 with a slight increase in drain. Also, the low-current LEDs can be replaced with standard 5mm versions by reducing the value of R1 to about 330R.

The current flowing through an LED is given by the following equation:

(Vs-Vf)/Rlim = If

Where:

Vf	**=**	**Forward voltage drop.**
Vs	**=**	**Supply voltage.**
Rlim	**=**	**Value of the series limiting resistor in ohms.**
If	**=**	**Forward current flow through the LED in amps.**

In the design this gives:

for the red LED:

= (5-1.7)/1500
= 2.2mA

and for the green LED:

= (5-1.9)/1500
= 2.1mA

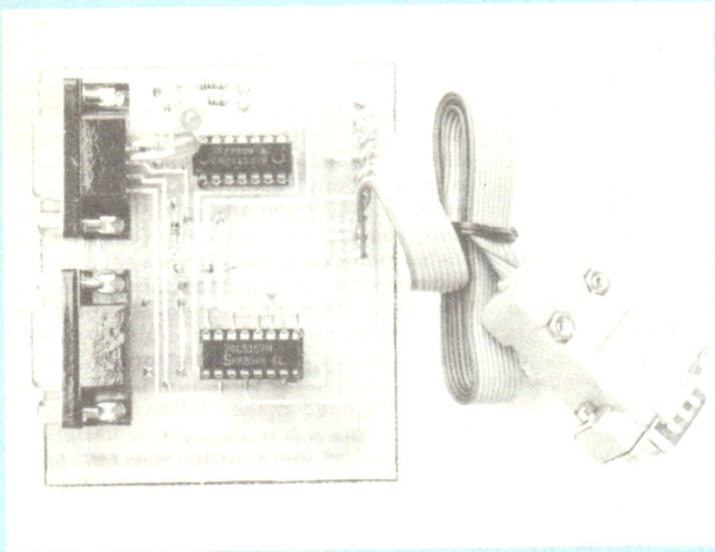
Thus the current flowing into the gate (sourced) is also just over 2mA which is well within tolerance for the 74LS00 and 74LS37. Using standard LEDs, a higher current is called for perhaps as much as 30mA and this requires use of the 74LS37's higher drive capability. In this case using a 330R series resistor gives, for the green 5mm type:

= (5 - 2.2)/330
= 8.5mA

which is a little too close for comfort for standard 74LS00; which has a rated current sourcing capability of just 8mA.

If you can get hold of the low current LEDs, the 74LS00 provides an even better, low-current solution: the cost is similar. Do not be tempted to replace the 74LS00 with a CMOS 4011 the pin outs are different and it is unlikely the CMOS logic will be capable of driving the TTL in the computer reliably if at all.

BOX



It looks complicated but a plan shot shows where everything goes.

able in a single chip 74LS157. Four control lines from each device are connected to the device and selected according to the state of the flip-flop. The flip-flop can be toggled into either of its two states by clicking either "fire" button.

The multiplexer's four outputs exactly mirror the four selected inputs at any time this is passed directly to the computer and the operation is transparent. (Actually, there's a slight delay of about nine thousand millionths of one second as a change of state passes through the gates.) Also, being a logic device, it will not work with analogue devices.

So much for the theory, but in real terms all nine lines may be used so what about the other five? Well, two are for power (+5 and 0v respectively), these usually power the mouse but are used here to power the switcher too. The remaining three consist of mouse left and right buttons and one unused line.

The joystick fire button is connected to the mouse left button. The right mouse button and unused lines are passed straight through; as is the fire button in the simpler design (figure 2).

In the more comprehensive automatic version (figure 3) fire buttons are used to toggle the S-R flip-flop configured from two NAND gates. This part of the circuit is, perhaps, the most difficult to follow because it uses a lot of negative logic.

Opening the circuit are a pair of diodes which appear to be wired back to front. This is actually correct because pressing a mouse or joystick button connects the circuit to ground. The diodes are necessary to isolate the set and reset halves of the flip-flop.

This is another unusual feature of this design because you turn an input ON by switching it OFF.

Just to add complication, the secondary buffer gates invert the signal back again. However, the LEDs light when the driving gate goes LOW! In other words, LD1 is ON when the input to pin 1 of IC1 is ON; and LD2 is ON when the input to pin 1 of IC1 is LOW.

It makes my brain itch too. That information is provided mainly for those of you who want to know how the circuit works or fancy prodding around with a logic tester. Be warned, all is not necessarily what it seems!

STEP BY STEP

If you've got the tools – we've got the rules

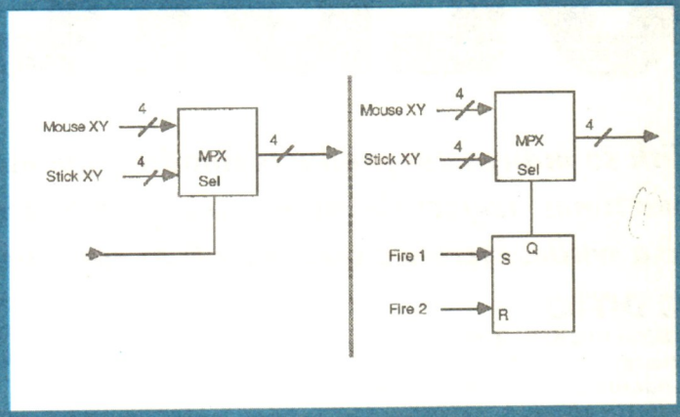


Figure 1: The basic operation reduced to a very simple block diagram. The four mouse or joystick outputs are switched on according to the level sent to the multiplexer by either an S-R flip-flop or simple switching.

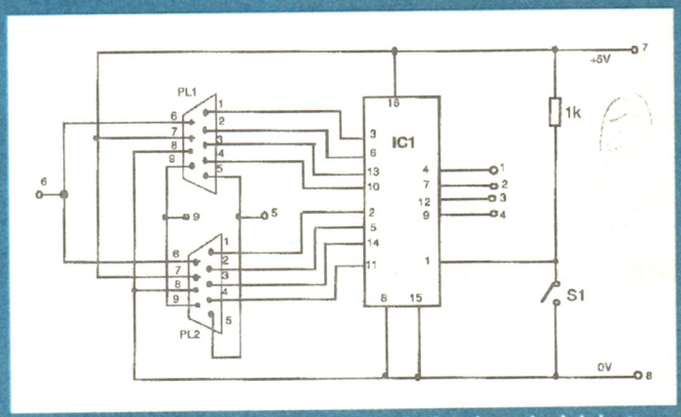


Figure 2: This simplified version of the device does the job just as well, is cheaper and simpler to build (on Veroboard perhaps) but it lacks the convenience of the automatic unit.

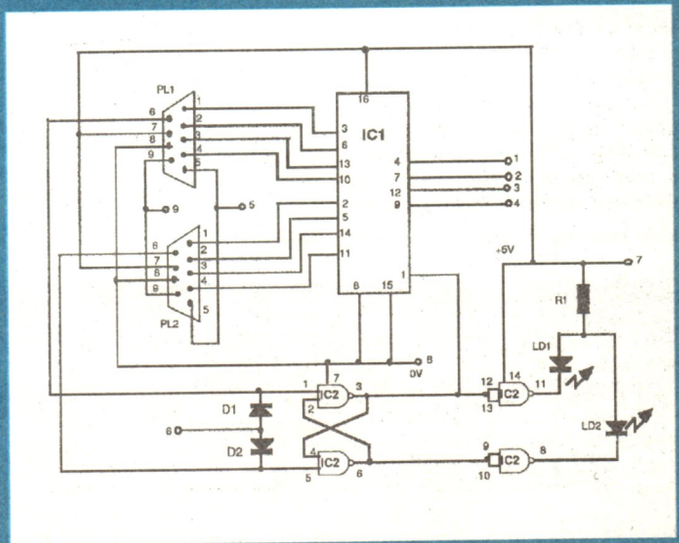


Figure 3: The advanced switching system uses a second IC to handle the extra function of switching between the two devices simply by clicking a button. It's also used to drive the two LED indicators.

OLDIES BUT

With so many new products flooding the market these days, we sometimes neglect the high-quality software that has been around for a while. Here we take a look at some of the best. . .

PC DITTO

PC Ditto has been around since 1980, and although it's not so radical by today's standards as it was then, it's still just as useful. In effect, it makes your ST believe it is an IBM XT and enables it to run software written for that machine.

The parallel port becomes LPT1, while your serial port becomes COM1. Disks formatted with ***PC Ditto*** are in IBM format, in either 40 or 80 tracks, and you have all the standard DOS and BIOS interrupts. Any Atari computer will run the program. Insert the disk, click on PCDITTO.PRG and hey presto, your machine is now an IBM XT, complete with command line and all the DOS commands.

The manual is clearly written and the program itself is supplied on a standard 3.5" Atari disk.

FIRST WORD PLUS

Although low in facilities compared to a lot of the word processing packages available today, ***First Word Plus*** is a good entry-level package giving a WYSIWYG (What You See Is What You Get) display and a limited graphics import. Complete with a spellchecker (although it doesn't have a thesaurus) and fully GEM-based, this package is little brother to the now-PD ***First Word***.

HARLEKIN

Now on version two, this is a great desk accessory with many functions available at the click of a drop-down menu. These include a basic comms terminal, an alarm clock, memory and file manager, note jotter, and even a diary to keep track of those important dates and appointments.

There are other facilities available and the whole thing sits in your menu bar until needed and can be called from within any other application.

ULTIMATE VIRUS KILLER

The Ultimate disk. Although most viruses are relatively harmless, eventually one of these nasty little programs is going to find its way into the boot sector of one of your disks. It's up to you to get rid of it before it transfers itself to other disks.

The ***Ultimate Virus Killer*** is a program that will not only kill the virus, but also recognise the boot sectors of hundreds of program disks – so if you get a virus in a commercial disk you may be able to dispose of it without harming your games disk. At the end of the day, however, there's no better way of making sure that your ST is virus-free than switching your machine off at the mains for at least 30 seconds and write-protecting your disks.

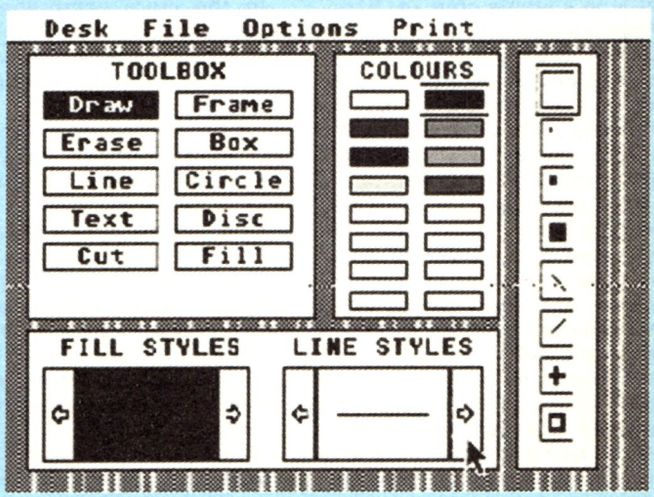
IMPRINT

IMPrint is produced for the entire Atari range. Yet another picture printing program, this one has a few nice touches. As the program primarily serves to print pictures it's helpful in that it just doesn't have the standard printer drivers, but a program that will allow you to make your own driver for any printer that is slightly out of the standard range. Colour printers are also catered for.

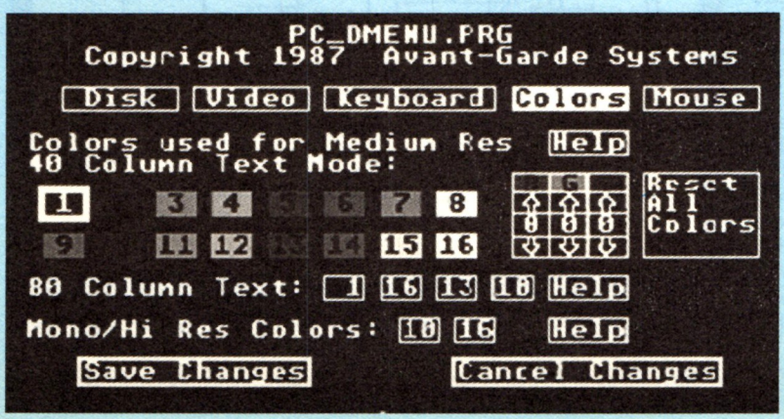
The picture you load in will always be saved by IMPrint to Degas format, although you do have the ability to load a picture of any resolution and view it in another. So, if you are in medium resolution, you can still use a high-res picture.

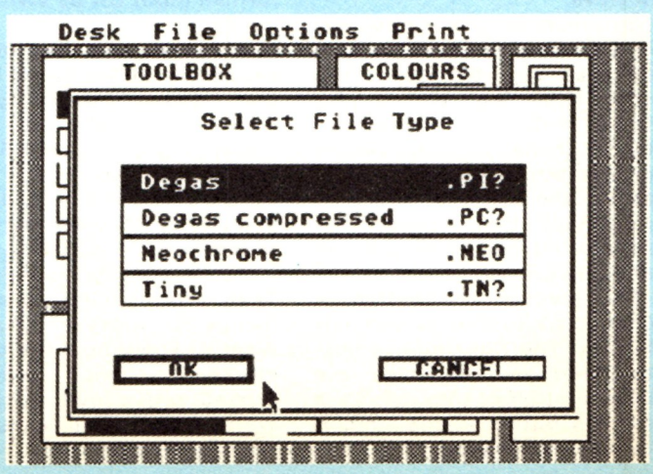
Also included on the disk is a set of drawing tools to enable you to adapt and adjust the picture before printing. Printing can be done to any size and orientation and also includes a "darkness" option which means that you set the number of passes the print head makes when printing. A basic program but with a few variations that make it well worthwhile, ***IMPrint*** is available from zzSoft, or from ST Review via its subscriptions offer (see page 60).

Imprint offers you various ways of altering your image, and a variety of formats can be loaded.



Before loading PC ditto set all your options.





GOLDIES

FONTKIT

Do the fonts on your DTP package seem limited? Take a look at Font Kit Plus. . .

Users of DTP packages such as Timeworks will no doubt be aware of the restrictions imposed by using only GEM-based fonts. There are, of course, a wide variety available, but there comes a time when it would be useful to adapt or even rewrite fonts. This isnt all that easy and can often lead to headaches and even switching off in disgust. But now help is at hand from Jeremy Hughes of the ST Club. Jeremy has produced a rather useful package entitled ***Fontkit Plus*** which allows you to do all sorts of things to all sorts of fonts. ***Fontkit Plus*** isn't just a font changer, it's a suite of programs.

FONTSWITCH

This is an incredibly useful desk accessory which makes management of screen and downloadable printer fonts child's play. The screen font selector allows you to replace the system font used by TOS and GEM for another of your own choice. In addition there is a keyboard utility that allows you to reconfigure the keyboard layout and access alternative layouts through "metashift" keys. To top this off there's a printer utility which lets you download and select all of the different printer fonts. You can also set print parameters, such as pitch, style and page format. These facilities enable you to work on a word processor in Greek or Cyrillic text or print documents in a variety of typefaces. To make this even easier to use there is a configuration program supplied, so that you can set the program to your own requirements.

COPYFONT

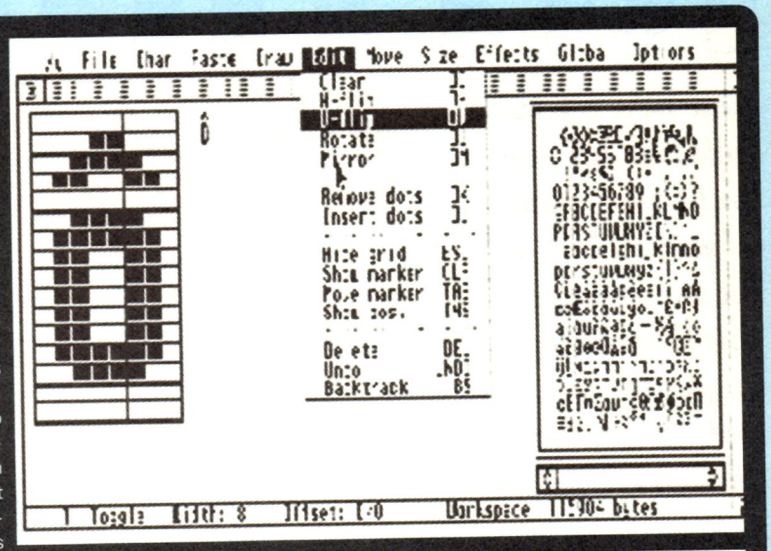
This desk accessory allows you to copy characters or images from the screen and save them in GEM-font format, prior to editing using ***Fontkit Plus***. It's very good for converting fonts from other formats or even using clip art as fonts. You are only limited by your imagination.

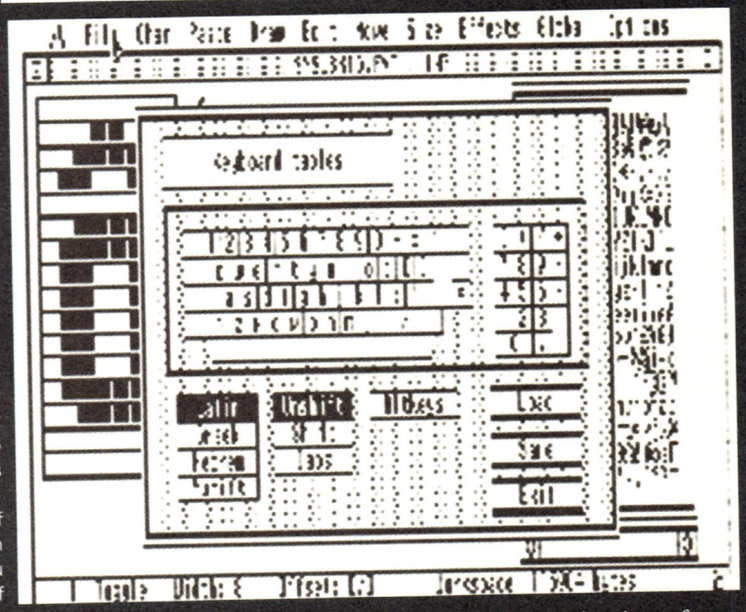
FONTPRINT

This emulates the Epson downloading facilities of a printer, enabling you to use NLQ downloadable fonts on a printer that would not normally allow this facility. This useful tool is supplied for both nine-pin and 24-pin printers.

FONT CONVERSION

Fontkit Plus is also accompanied by a selection of programs enabling you to convert other font formats to GEM, or even to convert GEM fonts to Signum. Used as standalone programs or part of the main program this is great if you use a variety of DTP packages.

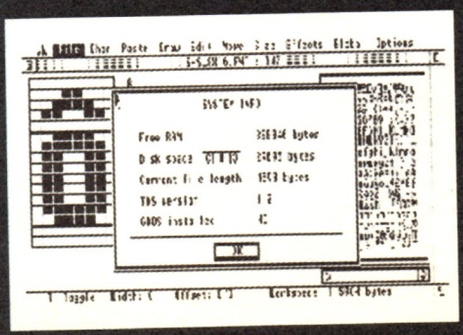




When you are creating or adapting a font using Fontkit Plus, select the type of keyboard you want and don't forget to check your memory.

Fontkit Plus uses all the programs mentioned above as modules, and is a very powerful tool in itself. Start out from scratch and create a new font – or load in a font and make the changes you want, assigning it a new name and identification number, then saving to disk. If you are creating a scientific document and need to display specialist symbols or formulae then this is essential.

The manual is in a ring binder and takes time to explain in detail how to use all the functions. In the style of the ST Club, they not only tell you how to do it, they prove it can be done by using ***Timeworks*** and ***Fontkit Plus*** to produce what is a very clear and well-thought-out manual and other accompanying documentation.



BUYERS GUIDE

KITTING OUT

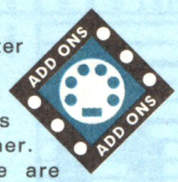
Your new ST may look like all you could ever want when you buy it, but sooner or later you'll want to put it to greater use. We look at some of the add-ons available

After a while the novelty of your bright, shiny, new ST will probably start to fade a little as you get used to the software supplied with the pack and your bank balance recovers from the expense. It is now that you will start to consider ways of expanding and improving your system. There's a huge range of optional extras, from second drives, through input devices like mice and joysticks, to emulators which let you run programs designed for other machines. With such a variety of things to choose from, how do you decide what extras you really need for your particular machine?



A second drive does away with the old problem of constant disk swapping and may also mean you can take advantage of high-density disks.

DRIVE B

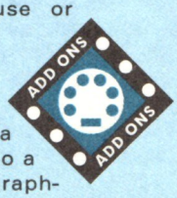


Sooner or later the urge to add a second drive (Drive B) comes to every ST owner. After all, there are many games and programs that would run far more smoothly if you could leave disks in Drive B rather than continually swapping.

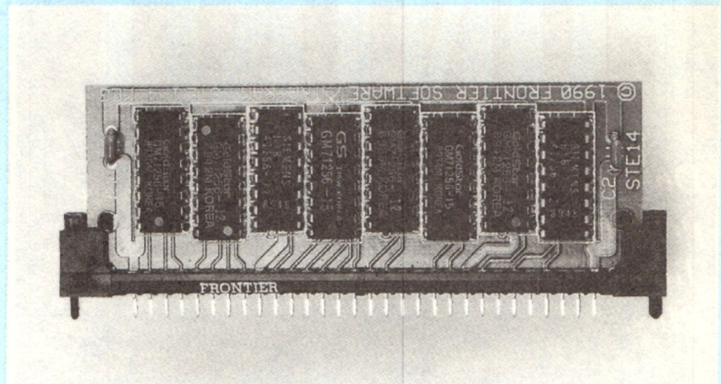
As with every popular peripheral, there are many options available and all are reasonably priced. The only major difference is whether the drive has its own power supply or not. Those which don't, draw it from the joystick port. There have been no reported instances of this harming your machine, but the power supply is not really built to handle such external devices, so it's best to pick a B Drive with its own power supply.

The most recommended drive comes from Cumana, which is well known as a producer of quiet, durable drives. But if you want a drive with a difference, why not go for a high density drive that will give you 1.44Mb per high density disk, or a 5.25-inch drive? The maximum amount of data these disks can hold is 1.2Mb, but the disks are a lot cheaper. There is even a drive with built-in Blitz hardware that is used to copy disks at a great speed – very useful to PD libraries. Remember, though, that it is illegal to copy commercial software even if it is for personal use or safety backup.

MEMORY

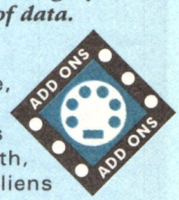


If your machine is a 520, or if you do a lot of DTP or graphics work, you will need more memory. It would be impossible to suggest what type you need as the choice is so wide. The STE uses SIMMs, Single-in-line-Memory Modules. The STFM, though, was unfortunately not designed with simple memory expansion in mind. There are two types of memory upgrade available – for the STE you just slot-in a SIMMS board whilst the STFMs and STFs will need a board which will have to be carefully fitted. (There's a tutorial about memory on page 54). If you decide that you need more memory then you could try the memory upgrades that ST Review are offering on page 59.



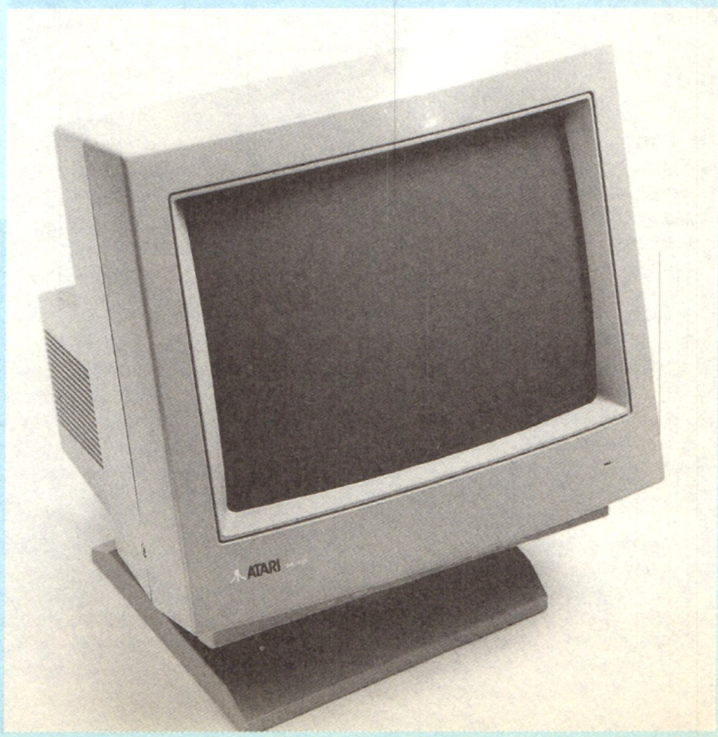
Extra memory's a must if you intend doing a lot of DTP , graphics or anything that requires working with large amounts of data.

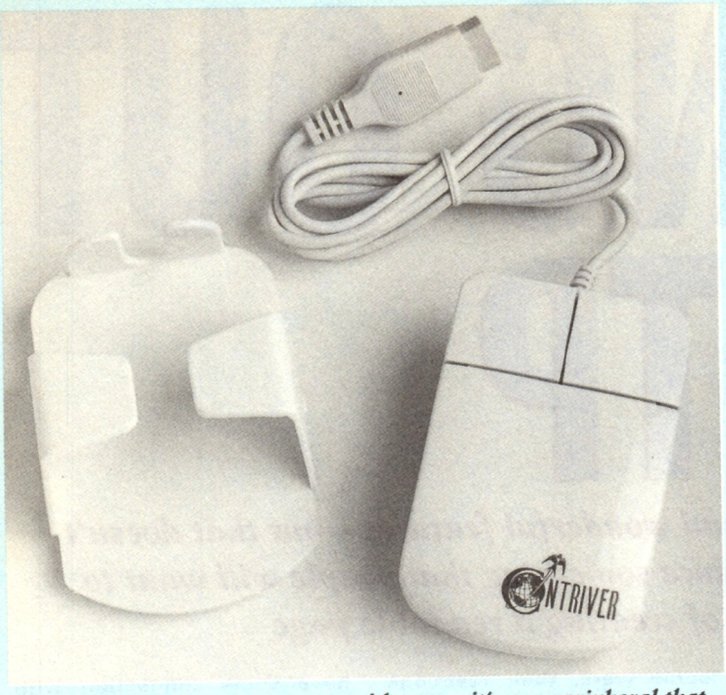
MONITORS



For ease-of-use, a monitor is a must. The TV is OK to begin with, but zapping aliens or writing your best-selling novel while the family want to watch ***Neighbours*** could cause a few problems. Monitors tend to cost less than your average TV set and give

A monitor gives a clearer picture and avoids family disputes.





Choose your replacement mouse with care – it's one peripheral that is practically indispensable.

a far clearer picture. Prices new go up to around £230 for colour and £150 for mono – a good investment. But one word of warning: portable colour TV sets that claim to be TV/monitors are not as good as a dedicated monitor. The screen resolution is the same as a TV's although the signal is direct rather than going through a modulator, which is what happens when you use the TV aerial socket.

MICE AND JOYSTICKS

Your ST came to you complete with a mouse. It may well have come with a joystick, too. But at some stage these are going to need replacing. The mouse is the most important peripheral you own: it's very difficult to work without it, and therefore it is worth choosing your replacement mouse with care. There are two main types: friction, like the one supplied with your machine, and optical.

The optical mouse does not have a ball. It is used on a special mat that has a grid on it that senses the position of the mouse. All replacement mice are smaller than the Atari mouse, and most are smoother to use. The average price for a good mouse is around £30. When purchasing a mouse look out for names that you have heard of, as major companies are not going to risk their reputation on such a small item. A lot of mouse units come complete with mouse mats, mouse houses, or even sweet furry covers!

If desk space is at a premium, why not give thought to a trackball? This is an object with a large ball in the centre that is moved with the palm of your hand. These are very much like an upside-down mouse and take a bit of getting used to, but once you've used one it's doubtful whether you would go back to a mouse. They are available for around £35.00.

Joysticks are another item that need careful thought. After all, the joystick you choose could either give you a score in the zillions, or make you look a total pillock. Don't just go by looks. Is it hard-wearing? Are the buttons in an easily accessible place? Is it going to last more than one game of ***Killer Pacmen From The Asteroid Belt***?

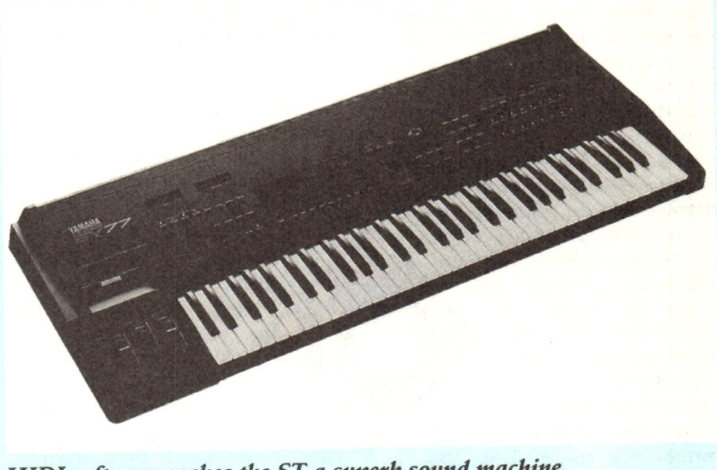
Do bear in mind, though, that "disobedient" mice and joysticks are not always on their last legs. Before consigning your rodent to that great cheese farm in the sky, remember that it is rolling for miles over a surface that, however nifty you are with a duster, is bound to become dirty. Open the door at the base and remove the ball. Inside you will see three rollers. There will also be a band around the centre of each roller. This is dirt that the mouse has picked up in its travels. Using tape head cleaning fluid and a non-metal object, carefully clean the rollers. Give the ball a wipe with warm soapy water and dry it thoroughly. Put it all back together and, hey presto, your mouse is like new.



Your new joystick should be sturdy, with accessible buttons.

MIDI

The Atari ST is widely used by musicians because it has excellent MIDI capabilities. All you need is a five-pin lead to connect your machine to virtually any instrument. Then, using some of the wide range of software available, you can build up a multi-track recording, edit the sounds or even distort them. Mike Oldfield, eat your heart out.



MIDI software makes the ST a superb sound machine.

HARD DRIVES

One of the most expensive peripherals you are likely to buy is a hard disk drive. This will allow you to store a lot of software and load it very quickly, and is ideal for programs that require a lot of disk access. It used to be said that you would pay around £10.00 per meg for a hard drive, but in a lot of cases the bigger you buy the cheaper it is. There are two types: SCSI (often pronounced "scoozy") and HCD. You can use a cheaper PC drive, but by the time you have bought the interface, it's a false economy – unless you are buying one with a vast storage capacity.

EMULATORS

It's said that a superior machine can emulate its inferiors, and this is certainly the case with the ST. On software you can emulate the ZX81, Spectrum, BBC and PC. The main fault with emulators is the fact that they're not even 50% compatible. You can, however, purchase a hardware add-on that will in effect turn your ST into a PC. The most popular of these is the AT Speed. There are two main AT Speeds, the AT Speed C16 and the lower-priced AT Speed. Both give you the capability of effectively turning your ST into a 286PC running at 16MHz for the C16 and 8MHz for the AT Speed.

Fitting is very simple: all you do is fit a shoe onto your 68000 chip (a fine-tipped soldering iron is needed here) then just plug the board in and load the software. This product will convince your machine that the screen you are using is any one of the many types used by the PC. Tests have shown that 90 per cent of programs for the PC are quite happy to run on this emulator.

AND FINALLY

Upgrading your system can be fun, and, in the long run, increase your pleasure in using it. In all cases, shop around. Don't buy the first thing on offer. If you are buying second-hand, try to test each item before parting with your hard-earned cash.

You will be able to obtain most of the above from the ads in this magazine, so you don't even need to move from your chair if you want to start upgrading. . . .

STARTING OUT WITH DTP

DTP packages offer a huge variety of weird and wonderful features – but that doesn't automatically mean that they're going to produce something that people will want to read. Dave Burns takes us through the basics of creating a readable page

PAGE LAYOUT

The first thing you should remember when setting up a page is that first impressions matter. Don't charge at it like a bull in a china shop – take the time to think about what you are doing and plan it out. Start with paper and pen and draw out your columns, headlines and graphics. Once you've done this, you can start to prepare the page on your ST. Make the columns even and easy to follow, with some white spaces to provide contrast, but not enough to make the page look like a maze. Have your artwork facing into the page, or even into the text.

TEXT

Although you will probably have a lot of fonts to choose from, you should never use more than three to a page. To attract the reader's attention, a font that is slightly larger than the body text or even printed in bold is far better than lots of sunbursts and snazzy text. Overemphasis tends to hide what you are trying to bring out.

Your text can be written directly onto the page, but it is far better to use a word processor to actually put your words down, and import them into your document afterwards. This way you can make all the adjustments and corrections you need before the final version, making it a lot easier to fit on the page.

The first paragraph is the one that will make your readers decide if they want to read the rest of the article. It should be a synopsis of what the article is about. Check your daily paper and you'll find that it follows this format. Let's take an example. An article in a local paper starts with the first paragraph: 'The body of an unidentified man was discovered early this morning by a couple while out walking their dog.' The rest of the article goes on to say who the couple were, their reactions when discovering the body and what they did next – it even includes the name of the dog! This gives the readers all the information they want, without having to hunt through the article for the salient points.

Styles differ from writer to writer, but one thing that must be avoided at all costs is waffle. It is no good just waffling away to fill your column, as the reader will soon become bored and move on to something else. Repetition is an insult to your reader's intelligence.

Once you are satisfied with your article, leave it for a while and come back to it later. You'll feel differently after a break.

GRAPHICS

Every graphic needs a caption. If you have a picture on a page of text – maybe two or three articles – without a caption, the reader has to hunt through all the text to work out what the picture is about. The caption should be short and to the point, and the picture must have some connection with the text.

THE FINISHED PAGE

You have selected your graphics, laid out your page and entered all the text. How does the finished version look? Hold it up to a mirror and see if it still balances. If you're making a multi-page document, set a master style. There is nothing more infuriating than constantly changing styles. Reading is supposed to be a relaxing pastime, not a game of hunt the words.

Your ST and a Desktop publishing package combine to make a very powerful tool. Use it wisely and whether you are producing things for fun or profit you will find that your labours will be well received. There is nothing like the feeling of satisfaction when you have produced something others want to read.

● Dave Burns is Editor of ***STunn*** magazine and edits ***Rainham News***, the local newsletter for the Rainham Branch of the Red Cross.

THIS IS HOW NOT TO DO IT. . .

The two examples shown are taken from a genuine newsletter. This first one demonstrates how it should not be done. Too many font styles have been used, the columns are uneven, and there's too much white space. It is basically unbalanced and not very easy on the eye. If you presented with this, you would probably not be very keen to read it.


Africawatch

ISSUE 27 APRIL 1st 1992 London Edition

Blind Justice for Nigeria

Barre rejects the Bomb

Border trouble for Johnson

COMMODITIES 6 • FINANCE 11 • ENTERTAINMENT 16 • SPORT 18

AND THIS IS HOW IT SHOULD BE DONE. . .

This is a definite improvement. There is an even distribution of text, it is easy on the eye, and with only a couple of fonts used it makes a much more pleasant document to read. Of course it's still not perfect. More could be done to it: how would you make it better?


Africawatch

ISSUE 27 APRIL 1st 1992 London Edition

Blind Justice for Nigeria

Barre rejects the Bomb

Border trouble for Johnson

170 killed in train wreck carnage

COMMODITIES 6 • FINANCE 11 • ENTERTAINMENT 16 • SPORT 18 • RADIO 24

BUSINESS TO BUSINESS

DOWN TO BUSINESS

Balancing the books needn't be a chore: Dave Burns investigates some of the business applications available for the ST

For the small business or hobby club an ST business application can be a valuable asset in keeping the accounts straight. It needn't cost much either – there are some good packages available through PD. What follows are a couple of examples, available from New Age PDL. The packages recommended were a spreadsheet, a double-entry accounts package and an invoice and statement generator.

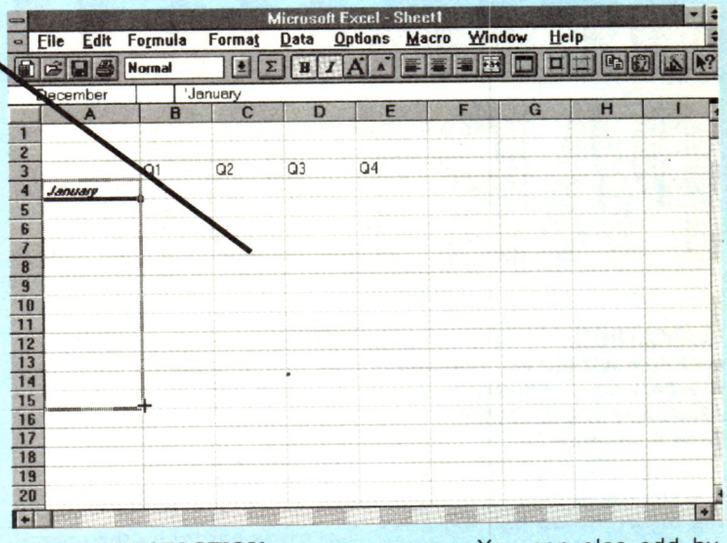
SPREADSHEETS

Put simply, a spreadsheet is a lot of figures in rows and columns, enabling you to see at a glance your exact financial position. Amongst other things you can use it for finances and stock control. The package we looked at was ***Spread***: although PD this is a very versatile and complex package. ***Spread*** accepts input as either text, figures, or mathematical instructions.

If business means PCs to you then running a PC emulator gives full compatibility with many well-known business programs.

NEW SHEETS

The first thing to do is to set out your sheet, which is actually quite a simple process. ***Spread*** is in what is known as cellular format, with each cell having its own co-ordinates, like a map. Move your mouse pointer over the cell you want to use, click on the left button and you'll be prompted for your input. To start with we need to set out headings for each row and column, so we are entering text. There is enough space for up to eight characters. Text must be preceded by ' to let the software know that text follows. For each of the headings we need figures: these are entered with a preceding '=' to let the software know that you are using figures that may be used in your calculations.



TOTAL SATISFACTION

Now that we have a full sheet the fun begins. You will of course, want totals. Here, we've given you a simple example, but you can manipulate the figures any way you like.

If Row A has six figures, and you want to add all of them together except column three, which is a debit, then position your mouse at the end of the column in the cell where you want the total to appear and enter '=a1+a2-a3+a4+a5+a6'. The total will appear. You can also add by the column, or even just selected cells. If you want to alter any of the figures, the new result will be shown every time you make a change, provided that the software is set to recalculate.

Using this program to keep your stock figures will help you immensely as the availability of an up-to-date, at-a-glance record of you stock what you have can only improve your efficiency and stocktaking could even become a thing of the past.

A shareware program that makes financial headaches a thing of the past...

The accounts package that we tested was ***Double Sentry Accounts***, a shareware package. Three types of account are used: purchase accounts, sales accounts and nominal accounts. Purchase and sales are self-explanatory, but nominal is a little more complex. All payments are made from the company kitty and all money received goes into the company kitty, but by using nominal accounts you can identify in what area of your business you are spending or receiving money. For example, you buy disks at 50p each and sell them at 70p each – these details are entered in the nominal account name of disks.

The first thing you need to do is install the program. You can set up as many or as few purchase and sales accounts as you need, and a minimum of 100 nominal accounts.

NAME YOUR PRICE

Next you assign names to all accounts. Let's say you buy disks from Acme and sell to Bravo. Your purchase and sales account are Acme and Bravo, and your nominal account is Disks. Buy some disks, enter the transaction into the purchase account assigned to the nominal account number allocated to disks. Sell some with the same allocation. You will need to keep a separate note of what account is allocated to what number, but once up and running, this program is simplicity itself.

Documentation for ***Double Sentry***, as with ***Spread***, is provided as an ASCII file on disk for you to print out or read from the desktop. They are very thorough, although they are a bit on the technical side.

INVOICES AND STATEMENTS

Central to the success of any business is a well-organised and accurate invoicing procedure, with properly itemised statements and credit notes.

The program we selected is ***Invoice and Statement Generator***, a shareware program from Bay Computers. The demo version available from PD Libraries is a fully-working version, but with only a small number of useable accounts.

Using the configuration option you can set the printed invoices and statements to start at a particular part of the page so that you can use headed paper, and also set a password to keep the contents of your invoice files protected from prying eyes.

The ***I&S Generator*** also allows you to draw up a company statement so that you can see at a glance who owes you what, enter payments or returned cheques, print out a list of overdue accounts, or even print duplicate statements.

PUBLIC SPIRITED PART ONE

Steve Keene takes a second look at the world of public domain with the first of a three-part survey of the all-time classic PD games and utilities. . . .

LLAMATRON

● £2.50 ● WIZARD PD, 178 WAVERLY ROAD, READING, BERKS RG3 2PZ ● MEMORY: 521K ● SHAREWARE

IN BRIEF: This is Jeff Minter's classic. Guide a llama through the hundred-odd fighting arenas and do battle with Coke cans, joysticks, dustbins, beef-burgers and all manner of strange objects. The plentiful sampled speech throughout the game really puts the icing on the cake.

The basic commands are Up, Left, Right and Fire. Holding the fire button down keeps the direction of fire constant. Nothing special, but that reflects the simplicity of the game.

But ***Llamatron***'s biggest asset is its superb sound and sampled effects. There's comic speech and all types of amusing animal noises that keep in line with the zany game-play perfectly. A far-out classic.

The game may be very amusing and the sprites cute, but it's definitely not a game for the young. There are over 100 levels, and novices will start to feel the pace at number three. I doubt if anyone will be able to complete them all. Things are made harder by the enemy sprites moving even faster than you.

ST REVIEW COMMENT: "This is totally addictive, and totally absorbing and totally frustrating – for only £2.50 it's a steal."

✪✪✪✪✪

FLOYD THE DROID

● £2.50 ● WIZARD PD, 178 WAVERLY ROAD, READING, BERKS RG3 2PZ ● MEMORY: 512K ● SHAREWARE

IN BRIEF: A manic robot resembling a small vacuum cleaner goes beserk in space with crazy add-ons and a whole host of dangerously aggressive ***Blue Peter*** creations. There are great graphics, with space droids, robots, mechanoids and computers as the enemy. An adequate starfield scrolls behind you. Some excellent sampled speech is accompanied by the usual blast-'em-up noises and the occasional screech!

You'd hardly describe this sort of game as being overly taxing, but at the same time it's no cake walk either. Seasoned games players will be able to pick up the pace fast enough.

The action is confined to rather a small play area, but the fire power of your droid is just enough to keep the aliens away. That is until they regroup and close in. The use of huge sprites and brilliant colours make it pleasing enough to the eye, but game-play seekers will be disappointed.

ST REVIEW COMMENT: "This is a relatively easy, well-presented game that lacks originality. Probably a good shoot 'em up for the very young."

✪✪✪

SNOWBALL FIGHT

● £1.49 (PLUS P+P 50P) ● FLOPPY SHOP, 45 PROVOST GRAHAM AVENUE, HAZELHEAD, ABERDEEN ● MEMORY: 512K ● SHAREWARE

IN BRIEF: Two tiny men face off in the midst of a torrential blizzard to pelt piles of snow at each other. Each has an energy bar: the more snow you pick up, the bigger ball you'll be able to throw, and the more damage you'll be able to inflict. Expert snowball fighters will appreciate a warmer and safer version of their pastime: some really epic battles can be had. By commercial standards the commands are simple, but they serve their purpose.

Don't expect any variety, though, as this is a very basic game and there aren't too many different shades of snow to be found on Earth. The sprites are small.

The sound is very poor, limited to shrieks – supposed to be the snow – and yelps. There is some speech, but it really is very bad stuff. A Spectrum could do better than this terrible dirge.

This is a very original game – well, I can't think of anything like it anyway – that has taken a simple theme and not spoilt it by introducing any complicated features, such as game-play.

As the controls are limited to fire, up and down, classic playability has been avoided. However, the tiny sprites are pretty responsive.

ST REVIEW COMMENT: "This is worth taking a look at if just for the peculiarity factor. There aren't many truly weird games around, but this is one of them."

✪✪✪

TEN DO'S AND DON'TS WHEN BUYING FROM PD LIBRARIES

Bear in mind our top ten tips and you won't go far wrong. . .

DOs

● **DO** get hold of the oldest magazine you can find and look for an advert for the PD company you're thinking of ordering from. If they're there, it's a safe bet that they're pretty reputable.

● **DO** get the company's phone number and ring them up during the day. If no one's there, you can take that as a pretty safe sign of the library's unreliability and lack of commitment to PD.

● **DO** check to see that the company accepts credit cards. This will mean that the bank have conducted reasonable checks into its finances.

● **DO** speak to the proprietor and quiz him about products to see if he's in it for the money, or really knows what he's talking about.

● **DO** stick to the best known PD libraries and you won't be disappointed.

DON'TS

● **DON'T** ever send cash through the post. A cheque can always be cancelled if you don't receive goods on time. Cash can go astray with no proof of receipt.

● **DON'T** make a cheque payable to an individual, always to the library.

● **DON'T** send out orders to box numbers, as anyone can set one of these up and disappear without a trace.

● **DON'T** place an order and leave it at that. Ring up the library within five days of posting your cheque. If you're in any doubt you can still cancel it.

● **DON'T** place a strange disk into your machine unless it's write protected. Always use a good virus checker and turn off your machine for at least 30 seconds before inserting a new disk. . . .

HORSE RACING SIM

● 99p - £1.99 (PLUS P&P 50p) ● COMPUTE 'IN STYLE' 64 CASTLE HILL ROAD, HINDLEY, WIGAN, LANCS, WN2 4BJ ● MEMORY: 512k ● SHAREWARE

IN BRIEF: Bet your shirt without the risk of losing a single button. Most aspects of racing and betting are included for the professional gambler, and features like the ability to train your horse up and let it gain in experience give the game some depth.

The game includes some great graphics and excellent presentation, especially on the menus. The small horses are not too realistic, but are adequate for the purpose. The sound isn't particularly inspiring but does a reasonable enough job of representing the thundering of hooves along the fairway.

I suppose if you were a racing enthusiast, you could get quite engrossed in this – however, I suspect it's one for the Ascot Brigade only.

You'll get plenty of playing time out of a horse racing sim if it's your cup of tea.

ST REVIEW COMMENT: "Not everyone will like it, and there's no casual fun to be had here. Not bad, but not to everyone's liking.

✪✪✪✪

ORIONS RUN

● £2.50 ● WIZARD PD, 178 WAVERLY ROAD, READING, BERKS RG3 2PZ ● MEMORY: 512k ● SHAREWARE

IN BRIEF: Fight your way through the six-zoned, multi-routed paths to reach the mines at the end. And all of the traditional aspects are included, such as fuel for your fighter.

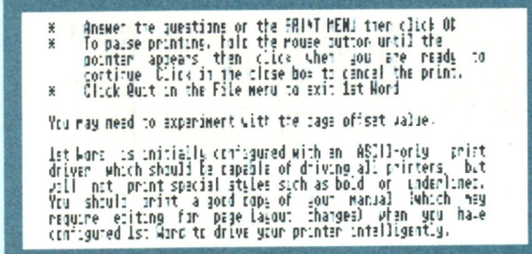
The graphics are great, with appropriate squadrons of fighters, tanks and ground vehicles with which to do combat, and the sound contrasts the frenetic action. Nothing that's going to break your windows or make you duck, but good nonetheless.

This traditional form of gaming has been done to death with the likes of ***SWIV***, but few have been as hard as this to negotiate. Like many games of this type, it's just a question of avoiding the bombs.

ST REVIEW COMMENT: "An excellent game that will serve you faithfully for a long time to come. Perhaps a bit more difficult than it needed to be, but fun all the same."

✪✪✪✪

UTILITIES



SHOW IT

● £2.50 + P&P ● WIZARD PD, 178 WAVERLY ROAD, READING, BERKS, RG3 2PZ ● MEMORY 512k ● PD

IN BRIEF: This is a brilliant replacement for the Desktop 'Show' utility which allows you to double-click on pictures and text files and scroll them both ways. .

The program is ideal for the beginner, due to its ease of use. Just install it in your Auto Folder. There's even an easy access menu available by pressing Help. And anyone who takes their ST seriously knows that a speedy utility such as this is invaluable for competent examination of text and graphic files.

As a complete replacement for the Desktop 'Show', SHOW IT is utterly successful. The unique feature about it is that you'll never have to perform an 'Install Application' for the program to be called. It views regular ASCII files as well as NEO and uncompressed DEGAS pictures.

ST REVIEW COMMENT: "Very effective. It's quick, and avoids sifting through countless menu tables."

✪✪✪✪

QUICK CIS

● £2.50 ● GODDMANS PD, 16 CONRAD CLOSE, MEIR HAY ESTATE, LONGTON, STOKE-ON-TRENT, ST3 1SW ● MEMORY 512K ● PD

IN BRIEF: Those of you who have used Compuserve will know that the system has a maze of services that have to be sifted through for every call made. This utility is designed to control an online session from the moment a call is dialled, so cutting the waiting time.

This package is very easy to use, and definitely reduces the amount of on-line time. It's not really for the beginner or the casual user, though, because of the complexities of Compuserve itself. The program also allows you to create 'DO' files. The fact that it allows you to down-load several files at once from GEnie makes it a good buy.

ST REVIEW COMMENT: "Not bad, but not for the masses."

✪✪✪✪

SUPERBOOT 7 + MEGMATIC

● £2.50 ● GODDMANS PD, 16 CONRAD CLOSE, MEIIR HAY ESTATE, LONGTON, STOKE-ON-TRENT, ST3 1SW £2.50 ● MEMORY: 512k ● PD

IN BRIEF: The most comprehensive boot program that's available for the ST, with options galore that even include a password system in the package. The disk also lets you play sampled sounds and redefine the function keys without having to exit the desktop and run the configuration program. It's so incredibly easy to install that anyone, even with no prior knowledge of the Atari, could do it – just by loading the disk up as normal.

This disk has almost everything for the Atari user, new or expert. It performs over 10 functions, many of which are available as single utilities in their own right.There are quite a few alternative boot program, but this one looks set to beat all the rest by being the most commonly used.

ST REVIEW COMMENT: "Why pay out for individual disks when you can get many of the most valuable utilities on a compilation such as this?"

✪✪✪✪

FIND

● £2.50 + P&P ● WIZARD PD, 178 WAVERLY ROAD, READING, BERKS, RG3 2PZ ● MEMORY: 512K ● PD

IN BRIEF: This package does exactly what it suggests: locates and retrieves files. It's very easy to use. Click on the file and a dialogue box will appear; select the drives you wish to search, execute, and your file will be found. Quick and easy, it fulfils its purpose efficiently and with no fuss: it will be invaluable to long-time hard drive users who realise it's time to tidy their files.

Apart from the main file finding function there are a quite a few extras to be used as well. The program also doubles as a disk cataloguer, for example. The latest version of Find also includes an option box located below the drive selectors, which provides a menu of commands for customising your files. You can also write protect files and update their dates and times.

ST REVIEW COMMENT: "There are lost of file finding utilities around, but this is one of the best."

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FIRST WORD PLUS

● £2.50 + P&P ● WIZARD PD, 178 WAVERLY ROAD, READING, BERKS, NG3 2PZ ● MEMORY: 512K ● PD

IN BRIEF: A semi-professional word processing package that has all the features you could ever want for writing, editing or outputting any kind of written material. It's not a package for the uninitiated, however, and it's advisable to get a print-out of the instructions before you dive in.

Living up to its reputation, ***First Word Plus*** delivers extremely good results for minimum outlay. Using the MAKE 2 program you can design your own small graphic characters as well. The package only runs in Hi-Res, but can be used with the mono emulator supplied. The graphics are a bit limited, as you can't import pictures, but there's a selection of frames to load up, and you can input new text fonts if you wish, up to ten of which can be used on the screen simultaneously.

ST REVIEW COMMENT: "Excellent value for money. Don't spend hundreds of pounds on a full price flashy package without trying this first. What can you lose for £2.50?"

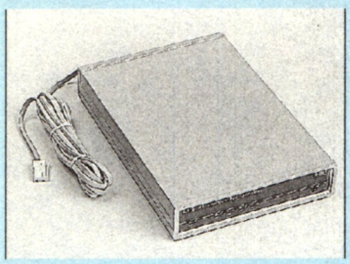
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USE THE TELESERVICE NOW

Using an ST is usually a solitary activity. But hooked into a modem, you can use your machine to talk to other enthusiasts worldwide

The ST is a lot more versatile than many users realise. With the addition of one small piece of equipment and the right software, you can send messages and files down the telephone line to any other connected machine in the world.

This piece of equipment is a modulator/demodulator, or modem for short, and is connected to your ST via the RS-232 port. With the simple addition of some PD software you can connect to practically any machine, including an Apple, a PC,



A modem such as the one pictured here can put at your disposal a whole new world of programs and users.

or even that much maligned workhorse, the Spectrum.

Depending on the size of your wallet, there's a huge choice of modems. A lot of bulletin boards nowadays use HST modems at a price well into four figures – but you, of course, will not need to spend that much. A good second-hand modem will cost around £50-100, but when buying a modem, either new or second-hand, remember to make sure cabling is included.

Don't forget, though, that it's not just a question of equipment costs. You don't need a special line to use a modem, but you are using the telephone system, and BT does like to grab its pound of flesh. The charges for a modem call are the same as those for a normal voice call, and BBS calls can be pretty lengthy.

WHAT STANDARD?

The most widely-used type of modem is a Hayes Standard or Hayes Compatible modem. Just as most printers are Epson compatible, most modems are Hayes compatible. Suffice to say that the first question to ask yourself when buying a modem is "Is it Hayes compatible?". If it isn't, then put it down and find one that is.

Now that we have found our standard, what speed do we want? Speeds start at 300baud and go up to 9600 and beyond. The greater the speed, the less time it takes to send or receive information – and the smaller the phone bill. Just to really confuse matters, these are often referred to in the form of V numbers, the European standards for modem speeds. But being told that a modem is Hayes compatible V.22bis means very little unless you know the standards. Most modems offer not only the quoted speeds, but all the lower speeds as well. This can be incredibly useful.

1. V.21 = 300baud transmission speed/300baud receiving
2. V.23 = 75baud transmission speed/1200baud receiving
3. V.22 = 1200baud transmission speed/1200baud receiving
4. V.22bis = 2400baud transmission speed/2400baud receiving
5. V.32 = 9600baud transmission speed/9600baud receiving
6. HST = 450 baud transmission speed/14400baud receiving
7. V.32bis = 14400baud transmission speed/14400baud receiving

You may be offered a V.21 at a good price, but it could be a false economy as the time spent transmitting and receiving will cost a fortune. For most people, the minimum that's really practical is a V.22, and the ideal will be a V.22bis giving you a speed of 2400baud out and 2400 in. The last three in the chart above are not really neccessary unless you plan to spend a long time on the telephone. So, ideally, it looks as if we need a Hayes compatible V.22bis modem.

NOW WHAT?

Having selected your modem and made sure you have the correct cable, you are probably itching to try it out. Carefully unplug your ST and follow the installation manual to connect the modem correctly.

Next, you need some software to convert the computer output into something the modem can understand. There are many types in the public domain, ranging from the very basic to auto-everything (see box). Unfortunately, the software supplied with most modems is designed for the PC and is unlikely to work with the ST.

LOGGING ON

Now we're set up, let's look at what we can do with a modem. Well, the obvious thing is to pass messages and files to another modem-owning friend, but why stick to one-on-one? The whole idea of a modem is to help you expand your horizons.

This is what a bulletin board is all about. A bulletin board system (BBS) is generally set up by a fan of computer comms, and run from his or her home. This person, known as a sysop, runs the board for no profit, and in fact very often runs at a loss, but benefits by making many friends in the computer world. The fact that the board is run from home does not neccessarily mean that it is a sub-standard service. Most sysops, quite rightly, are very proud of the service they provide.

What you will find on a bulletin board is a set of areas or conferences that deal with a certain topic, such as general chat, sales and wants, adventure games, and so on. This is where you can leave messages for other users, either privately, or open to all. You will also find areas where you can download and upload software, and even where you can send electronic mail (E-Mail) to another user. Unlike general messages, E-Mail is totally private and can only be read by the person you have sent it to.

You will also find on all boards the option to 'Page the Sysop'. If ever you have a problem, or don't understand something, then use this option and the sysop, if he's around, will come on line and speak to you directly via the modem.

Now that you have a modem, know what a bulletin board is, and are ready, let's go and call a board. Set the speed of your modem to the highest baud rate possible, set configuration to word length of eight bits, no parity, and 1 stop bit (8N1), and go into terminal mode.

SOFTWARE

Most comms software is available through the public domain. You may find these brief notes a useful introduction to some of the more popular

FLYING START This is, as the title suggests, software designed to give you a flying start in the world of comms. This particular package is for use on viewdata boards, which are 7E1, and similar in appearance to teletext. Following the demise of Micronet, there are very few viewdata boards around and therefore this package is not really an essential part of your collection.

VANTERM A very old and established package that is also moderately easy to use and rather nice to look at. The setting is done from drop-down menus with X and Y modem protocols supported.

UNITERM This is similar to ***Vanterm***, but includes features missing from it, such as text editing. Easy to use, and very reliable, this is an ideal package for the first-time user.

HAGTERM V3 This is similar to those above, but adds the ability to extend modem protocols, create text files and save to disk. This is a very nice, comfortable package to use.

FZT Freeze Dried Terminal. This is a shareware package that is very widely used – and widely praised. It will let you do almost anything you could wish while on-line. Mouse-driven, and extremely user-friendly, it seems to take the best of all the above packages and combine them to make what we consider to be the ultimate comms package.

BULLETIN BOARDS' CODE OF CONDUCT

There are a number of important rules and conventions to follow when using a Bulletin Board.

- Always fill in the registration pages correctly and truthfully.
- Try to leave or respond to messages every time you log on.
- Avoid using bad language or messages that may cause offence.
- Do not 'trough' a board (ie. log on, download everything and log off).
- Never just drop your carrier, always log off properly.

Now test that the modem is ready by typing AT <Return>. AT is the Hayes command for Attention, which means a command is about to follow. You should now see the modem report OK, which means everything is fine.

Now, let's access a board. The example that follows is for the Hotel BBS in Rochester, Kent, but if you know the number of another one in your area, then use that number. There will be a short list of recommended boards at the end of this article.

Type in ATD 0634831389 All being well, the modem will now be clicking and purring. By typing the above instruction, you have alerted the modem to a command coming (AT), told it to dial (D), and given the phone number to call: in this example, the number of the Hotel BBS in Rochester, Kent.

Providing the number is not engaged, the phone at the other end will ring, and on being answered you'll hear (if your modem has a speaker) a short high pitched whistle.

This is a sound sent out by your modem to the modem at the bulletin board. What it's saying is "Hi, I wish to communicate with you. I'm running at a speed of XX and set to 8N1".

This will be followed by a very short squeal from the other end which is "Hi, I have matched speeds with you and am now alerting the software so that your user can see what is happening". The next thing you'll see is a welcome screen, followed by some prompts for your input.

LOG-IN

Log-in routines vary from one BBS to another, but In this case you'll be asked to enter your name, or 0 if you are a new user. This is known as the "Log On Sequence". As a new user, you will be asked a brief series of questions, such as name and phone number.

You will also at some stage be asked for a password. This is extremely important. The password is to make sure that nobody else can log on in your name, so don't forget it, or pass it around. The only people ever to see your password should be you and the sysop.

Now that you are on-line, follow prompts and menus to discover the wonderful world that has just opened up to you. If you get stuck, remember that on each menu there is a help command, and most sysops will be only too happy to offer assistance.

HOTEL BBS

As we have logged on to the Hotel BBS, we may as well have a look at it in more detail. Hotel is networked via Nest, Mystic Net and Fido to boards all around the world. The system is run on a 2.5Mb STFM with a Miracom HST modem and a large hard drive.

The first time you log on to Hotel, you will be restricted to the local area, where you can leave messages to people that log on locally. If you want to see the messages from overseas and reply to them, make sure you fill out the registration correctly and leave at least one message, then log off using the command G from any prompt. Wait half an hour and if you have done everything correctly the system will upgrade your access levels.

Now you can ring back and explore the other message bases, play the online game, ***Space Empire Elite***, or even talk to ST Review.

RECOMMENDED BOARDS

All the following boards have networking facilities, so everything you leave on them will also appear on all the other boards in this list

NUMBER	NAME	LOCATION	SYSOP	MAX SPEED
0236 747393	Dregal BBS	Aldrie	Mark Anderson	9600 (HST/V32/V42/V42B)
0252 341751	Super Shot	Aldershot	Graham Lawrence	2400
061 928 8801	2001	Altrincham	Chris Gottlieb	9600 (HST)
0494 728094	Storehouse Bits	Amersham, Bucks	Iain Phillips	2400
0296 398166	The Gourmet	Aylesbury, Bucks	David Barnes	9600 (HST/V32/V42/V42B)
0296 770454	Roy's Realm	Aylesbury, Bucks	Roger Hutchings	9600 (HST)
0324 840868	The SMC Opus	Banknock	Rashad Aslam	9600 (HST)
0282 817379	Random Access	Barnoldswick	Keith Whiteley	9600 (HST)
041 880 7845	Scottish Opus	Barrhead	Donald Whannell	9600 (HST)
0256 768331	BAS Opus	Basingstoke	Graham Butler	9600 (V32/V42/V42B)
0424 83654	Shareware Librar	Battle	Vince Apps	9600 (HST)
0232 768163	Yukon Hol	Belfast	Mark Kerr	9600 (HST/V32/V32B/V42/V42B)
0482 870919	Fido At Odyssey	Beverley	James Willmott	2400
021 430 3764	The Magic Castle	Birmingham	Mick Coleman	2400
021 441 1801	Barney's Rubble	Birmingham	Jon Morby	2400
021 552 9839	The Cult	Birmingham	Jason Reeves	2400
021 788 1751	Faint Breeze	Birmingham	Norman Molineux	2400
0253 57941	Blackpool opus	Blackpool	Ian Ingleby	2400
0258 455117	Blandford BBS	Blandford	Bob Weeks	2400
0204 596245	Time Tunnel	Bolton	Dave Roocroft	9600 (HST/ V32)
0202 5327801	The Co-Ops	Bournemouth	John Mileham	2400
0274 481363	Strange Daze	Bradford	John Poltorak	9600 (HST)
0274 547006	Magnum BBS	Bradford	Keyop Troy	2400
0273 571457	Cslbb	Brighton	Mark Eaton	2400
0273 600996	On the Beach	Brighton	Marc Bowden	9600 (HST)
0272 572322	Noah's BBS	Bristol	Bob Voisey	2400
081 678 6087	Rock Of Gibraltar	Brixton	Paul Bonifacio	9600 (HST/V32/V42/V42B)
0444 870559	Accent	Burgess Hill	Nigel Hewitt	2400
0282 23960	The Saturn BB	Burnley Lancs	Thom White	2400
0249 817704	The Pheonix	Calne	Ade Truelove	9600 (HST)
0222 66907	Public House BB	Cardiff	Stephen Ogbourne	9600 (HST)
0228 26478	Scorpions Nest	Carlisle	Bill Searle	9600 (HST)
091 388 3078	Jackies Place	Chester Le Street	Jackie Sturees	9600 (HST)
0246 236510	Artadia	Chesterfield	Phil Clifford	2400
0342 717800	Airtel Remote	E. Sussex	Adrian Pop	9600 (HST/V32/V42)
0536 400195	Corby Town BBS	Corby	Felix Harrigan	9600 (HST/V32)

NUMBER	NAME	LOCATION	SYSON	MAX SPEED
0892 667091	PDSL	Crowborough	Neil Blaber	9600 (HST/V32)
08656 5190	DTP User	Croydon	Steve Dick	9600 (HST/V32)
0846 693067	Quasser	Dromore	Dave Bryne	9600
0 711047	Trinity College	Dublin	David Doyle	9600 (HST)
021 717 0455	Apricot Tech Sup	Edgbaston	John Krzesinski	9600 (HST)
021 717 0454	Apricot Tech Sup	Edgbaston	John Krzesinski	9600 (HST/V32/V42)
021 717 0453	Apricot Tech Sup	Edgbaston	John Krzesinski	9600
0392 412370	The Lost Arc	Exeter	Helen Rogers	2400
0392 45 384	Night Hawk	Fareham	Robert Leach	2400
0367 242674	Trinity 2	Faringdon	Andrew Bessant	2400
0795 530961	Chancellors Den	Faversham, Kent	Denis Benett	9600 (HST/V32/V32B/V42/V42B)
0795 538357	Dataserve Sys BBS	Faversham, Kent	Graham Jenkins	2400
0795 538359	Chancellors Den	Faversham, Kent	Denis Benett	9600 (HST/V32)
0202 873911	The Abbey	Ferndown	Chris Durham	9600 (HST/V32/V32b/V42/V42B)
0252 626233	BOOB BB	Fleet, Hampshire	Jeremy Browne	9600 (HST/V32)
0452 330238	Atlantis1	Gloucester	Alan Walker	9600
0452 330244	Atlantis2	Glouceste	Alan Walker	9600 (HST)
0274 851027	More Sum Wine	Gomersal	Nigel Beaumont	9600 (V32)
0343 830315	Moray BBS	Gordonstoun	Mark Parlour	2400
0323 844455	Excalibur's Edge	Hailsham	Mike Atkinson	2400
0422 381154	Style QBBS	Halifax	John Carolin	9600 (V32)
0706 832437	P & P Distribution	Haslingdon	Stephen Mitchener	2400
0273 846504	Diamond Opus	Hassocks	Paul Hughes	9600 (HDST)
0424 433816	North Of Archemez	Hastings	Steve Anderson	2400
0424 853361	Piston Popper's UK	Hastings	Peter Burnett	9600 (HST/V32/V42/V42B)
0707 263695	Torture Chamber	Hatfield	Steven Gee	2400
0865 64958	DDLG ACE Centre	Headington	David Colven	2400
0434 606639	Log On In Tynedale	Hexham	John Rawson	9600 (HST)
0434 608324	The Dog House	Hexham	Ian Dodd	9600 (HST/V32)
0628 810889	Mirror Info. Ex.	High Wycombe	Lee Evans	2400
0484 653234	Summer Wine	Huddersfield	Chris Townsend	9600 (HST)
0480 406261	Byte Brothers	Huntingdon	Ritchie Dakin	2400
0473 232540	MiracomTechSup	Ipswich	Paul Garrett	9600 (HST/V32/V42)
0536 414151	The Pegesus Connection	Kettering	Gary Marden	2400
0536 725180	Publisher's Paradise	Kettering	John Wilson	9600 (HST)
0553 761290	West Norfolk (10pm-7am)	Kings Lynn	Chris O'Shea	2400
0482 805225	Forum 88	Kingston	Frederick Brown	2400
0524 752245	The End Zone	Lancaster	Adam Purnell	9600 (HST/V32)
0732 845338	Pacific Lightning	Larksfield Kent	Colin Spice	9600 (HST/V42/V42B)
051 236 3105	Ps&Qs Tel	Liverpool	Alan Smith	2400
051 270 1635	Kelsha BBS	Liverpool	Ken Dalton	2400
051 428 8924	Liverpool Int. Mailbox	Liverpool	Peter Tootill	9600 (V32)
051 734 5817	Graykarn Tech Support	Liverpool	Bill Phillip	9600 (V32)
051 931 4271	Grin!	Liverpool	Ben Goodwin	9600 (V32/V42/V42B)
0924 411109	The Wine Rack	Liverseage	Ron Brookes	9600 (HST/V32)
071 409 7597	Conner BBS	London	Eddie Seymour	9600 (HST/V32)
071 537 9854	The Docklands Project	London	John Clift	2400
071 580 1690	Polynet SNC	London	Eileen McCabe	9600 (HST)
071 608 1899	GnFido	London	Mike Jenson	9600 (V32)
071 824 8863	Wino's Bar Line 1	London	Andrew Brown	9600
071 730 5145	Wino's Bar line 2	London	Andrew Brown	2400
071 962 1238	The Hoovers Retreat	London	Frank Toohey	2400
071 976 6807	Nite Life	London	Neil Jelley	2400
081 207 2989	Dark Crystal	London	Phil Day	9600 (HST)
081 395 8372	The Domain BBS	London	David Boardman	9600 (HST)
081 566 5393	Paradigmus Maximus	London	John Taylor	9600 (HST)
081 748 0974	London Guest House BBS	London	Richard Pike	2400
081 905 5176	Poptel	London	Josh Greifer	9600 (V42B)
081 984 1522	the Stateside Link BBS	London	Brian Willis	9600 (V32/V42)
0502 518274	Disabled Data Link BBS	Lowestoft	Cliff Jones	2400
0829 782676	The Power House	Malpas	Edward Hobson	9600 (HST/V42/V42B)
0204 364319	Post Box	Manchester	Graham Stephens	9600 (V32)
061 434 9907	D.I.E.	Manchester	Si Thornton	9600 (HST/V32)
061 707 20-08	Dead On Arrival	Manchester	Christopher Seeley	2400
061 748 3855	The Sphinx	Manchester	Lorna Price	2400
061 792 0260	Aspects	Manchester	Dave Gorski	2400
061 832 1961	The Co-Op Manchester	Manchester	Frank Dent	2400
0858 466594	Aureal	Mkt. Harborough	Eddy Ralphson	9600 (HST/V42)
0642 232142	Middlesborough Social Ser.	Middlesborough	Tom Lamb	2400
0895 272021	Software Madness BBS	Middlesex	Gary Weston	2400
0594 544865	Scottish Wildcat	Montrose	James O'Hara	9600 (HST)
0509 620442	Pagemaker User	Mountsorrel	Gill Foster	9600 (HST)
0282 698380	Look Northwest	Nelson Lancs	Neil Metcalfe	2400
0635 248622	Teminator BBS	Newbury	Neil Boffin	9600 (V32)

NUMBER	NAME	LOCATION	SYSOP	MAX SPEED
063571324	Eddies BBs	Newbury	Eddie Seymour	2400
0953 851351	Track 83 Atari St	Norwich UK	Les Partner	9600 (HST)
0602 476175	Nottingham University	Nottingham	Ian Sherman	2400
061 627 0630	Oldham Access Centre	Oldham	Wayne Winterbottom	2400
0689 827085	Fox's Den BBS	Orpington	Barry Freeman	2400
0865 53999	Daily Information	Oxford	Simon Barber	9600 (V32/V42/V42B)
0865796430	RM Support BBS	Oxford	David Taylor	2400
0865 882872	M-G-M	Oxford	Nik Garfield-Middleton	9600 (HST)
091 518 1058	The Castle Eden BBS	Peterlee	Andrew Lackenby	9600 (HST)
0202 600305	Fourth Dimension	Poole	Wayne Weedon	2400
0705 754851	The Co-Op Board	Portsea	Geoff Wade	2400
0705 871434	Community Centre	Portsmouth	George Cordner	1200
0745 855959	Coastline BBS	Prestatyn	John Timmis	9600 (HST)
0772 828975	Grizzly The Third	Preston	Colin Adams	9600 (HST)
0296 668148	Komputer Knowledge1	Prince Risborough	Andrew Eaves	9600 (HST/V32)
0296 668141	Komputer Knowledge2	Prince Risborough	Andrew Eaves	2400
0737 766027	Infotel	Redhill	Bob Garbutt	2400
081 7830207	Oldfield House School	Richmond	Mike Burleigh	2400
0706 358331	The Gas Lamp	Rochdale	Ian Strachan	9600 (HST/V32)
0632 683696	Tequila Sunrise	Rochester	Paul Boakes	9600 (HST/V32)
0634 831389	The Hotel BBS	Rochester	Kit Watson	9600 (HST/V32/V32B/V42/V42B)
0722 414605	TABS Opus	Salisbury	Jon Stephenson	9600 (HST/V32)
0742 729621	Disu PC	Sheffeid	Phil Green	2400
0795 425341	Sittingbourne Co-Op	Sittingbourne	Phillip Clements	2400
0753 513435	R U Connected BBS	Slough	Chris Norris	2400
021 705 2906	Acadmic's	Solihull	John Kelly	9600 (HST)
08892 516304	Demo Factory	SouthBorough	Ian Mugridge	9600 (HST/V32)
0702 78330	Adullams Cave	Southend On Sea	Tim Coles	9600 (HST/V32)
0259 69803	Telefantasy	Stirling	Gutherie Wernham	9600
061 429 9803	Stun NeST Central	Stockport	Daron Brewood	9600 (HST/V32/V42/V42B)
061 442 6758	Seven Seas Maximus	Stockport	Vince Flecter	2400
0642 360301	Tees For Two	Stockton On Tees	Gordon Smith	2400
0384 441929	Crystal Junction	Stourbridge	Bert Ilsley	9600 (HST)
091 549 2249	Log On The Water	Sunderland	Alan Myres	2400
021 323 2617	The Red Dwarf	Sutton Coldfield	Steve Pitt	2400
081 643 1015	Number 42	Sutton Surrey	Dave Arkley	2400
0793 430029	State Of Shock	Swindon	Phillip Timm	2400
0793 480287	Spark!	Swindon	Steve Bernhardt	9600 (HST/V32)
0793 724195	Boar's Nest	Swindon	Terry McBride	9600 (HST/V32)
0952 641724	Silver Link	Telford	Phil Gadsby	9600 (HST/V32/V42/V42B)
0666 504597	The Alchemist	Tetbury	Bob Henson	9600 (HST)
081 312 2123	3 Below Forum	Thamesmead	Dave Powell	9600 (HST/V32/V42/V42B)
0734 320812	Golly!	Twyford Berks	Terry Robertson	9600 (HST/V32/V42/V42B)
091 228 0427	The Olive Grove	Tyneside	Peter Scargill	9600 (HST)
091 261 5228	The Publishing Shop	Tyneside	Roger Booth	2400
0634 200707	Fuzzy Logic	Walderslade Kent	Phil Piddell	9600 (HST)
051 638 0639	Bob's Baud	Wallasey	Bob Fraser	2400
0932 231347	Valhalla	Walton On Thames	Ivar Peterson	2400
0926 403904	The Music Studio	Warwick	Paul Urmston	9600 (HST/V32/V42/V42B)
0705 264180	Paragon Support	Waterlooville	Andy Smith	9600 (HST/V32)
081 428 9476	Catweazle BBS	Watford	Trevor Riley	9600 (HST/V32)
0749 670030	World Of Cryton	Wells	Hugo Fiennes	9600 (HST/V32/V42/V42B)
0732 870941	Chatterbox BBS	West Malling Kent	Mick Spice	9600 (HST/V42/V42B)
0206 385358	The Sages Cave	West Mersea Essex	Peter Jezard	2400
0501 44262	Chilba City	Whitburn	David McIntosh	9600 (HST)
0980 863031	The Manor QBBS	Wintersow	Peter Jowett	2400
0734 891355	PMI Data Plastics	Wokingham	John Shepherd	2400
0793 849044	My Little Phoney	Wooton Bassett	Steven Green	9600 (HST)
0905 613968	The Smallest BBS	Worcester	Jim Richardson	2400 (V42B)
0904 679758	York's Best Price	York	Simon Williams	2400

If you run a bulletin board and would like to see it featured here, send your details to: ST Review Comms Listing, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU, or E-Mail it to ST Review at The Hotel BBS on (0634) 831 389, Monday to Saturday.

ASK THE EXPERTS

QUESTIONS AND

Problems with your printing? Modem manky? Not quite sure if that bit of hardware will fit your machine? Fear not, the ST Review panel of experts are here to help the hopeful by giving straightforward advice...

DRIVIN' PROBLEMS

I recently installed an internal drive in my 520 STFM, alongside an external B drive from Cumana. While the new drive is working beautifully, I am now having problems with the external B drive, in that it will only read single sided disks. What is the problem?

Charles Peters, Tripton Way, Norfolk

An expert writes...
Cumana has a reputation as one of the best drive manufacturers around, but in this case we're afraid it's the Cumana drive that's at fault. The problem is caused by a lack of proper line drivers between the ST's sound chip - which doubles as a floppy disk controller - and the floppy disk drives.

According to Cumana, the problem only occurs with drives produced before September 1989, which is when the company became aware of the incompatibility. And the good news is that for £10 plus VAT and carriage, Cumana will modify the drive. If you think you can handle it yourself, the answer is to remove the resistor connected to the side select line on the external drive and replace it with a 10-kilo-Ohm resistor.

LAME GAME

I recently bought a games disk which I think must be damaged. When I try and open it from the Desktop, the screen shows "0 bytes free in 0 items". Does this mean I've been sent a faulty disk, and will the company replace it?

Pete Flowers, Rhinshaw St, Boulton

An expert writes...
The chances are, there's nothing wrong with the disk at all. A lot of games disks don't have a standard ST directory, so there's no list of files when you open the window. You should find it will load and run automatically if you press the reset button at the rear.

PRINTER CONNECTION

After recently buying a PC with EGA monitor, I've been wondering if there's any way of connecting the monitor to my STE. I've tried connecting it directly, via a 13-pin monitor plug, but can't get it to work. Do I need a graphics card?

Mr R.C. Lipton, Bromsgrove.

An expert writes...
Unfortunately, it just can't be done, with or without an EGA graphics card. EGA, or enhanced graphics array, is purely a PC standard. You actually run a risk of damaging your STE if you try.

ON THE BOX

How do I connect my STE to a TV/monitor? The monitor has a seven-pin plug. The manual lists these pins as 1: red input, 2: green input, 3: blue input, 4: sync input (negative), 5: earth, 6: audio input, and 7: not connected.

Anthony Gotleib, The Triangle, Poulton.

An expert writes...
The 13 pins in the monitor port of the ST are listed in the manual. Pin 7 corresponds to red, pin 6 to green, pin 10 to blue, and 13 to earth. Pin 1 is audio out, and should be connected to the monitor's audio input.

You then need to connect the ST's two sync pint to make a composite signal: you do this by adding a 4,700 Ohm in-line resistor to each of the ST's sync output pins, joining them together, and them connecting to the monitor's sync input pin.

DUFF LINKS

How do I connect two STs together to play two-person games?

P.N. Lee, Leicestershire.

An expert writes...
It's actually very straightforward, as long as you've got the right sort of cable linking the modem ports of the two machines (you'll find these, labelled Modem, on the back right hand side of the machine). You can't use a normal serial cable, because these are designed for sending data only, for example to a printer. To play two-person games, you need a null modem cable, which will transmit data through the 'send' channel of the first ST into the 'receive' channel of the second machine. You'll be able to get one fairly cheaply from any computer shop.And if you want the complete guide to computer link-up games then why not read all about it in the special feature in next month's ST Review?

EASY MONEY

My Epson printer won't print pound signs. Why not?

Luke Maddings, Redditch, West Mids.

An expert writes...
The complicated way to get the pound sign to print is to edit your printer config file. But you should find that if you just replace the pound sign in documents with the hash sign, it will print as a pound sign.

FOLDER HOLDER

What is an \AUTO folder, and how do I create one?

Vikki Vale, Hastings.

An expert writes...
The Auto folder allows your ST to configure itself automatically when you start the machine up or reset it. What this means is that you can automatically run programs or install utilities into memory before the Desktop appears. Remember, though, that you should only do this with programs designed for the Auto folder, as many programs depend on TOS and GEM being fully initialised.
Creating an Auto folder is just like creating any other folder: just go into the root directory of your boot disk, choose the 'Create Folder' or 'New Folder' option, and name it Auto.

TURNING JAPANESE

The Desktop seems to give

ANSWERS

If you have any problems with software or hardware then just drop us a line at Ask the Experts, ST Review Priory Court, Farringdon Lane, London EC1R 3AU. We can't guarentee to answer all questions but we'll certainly answer as many of your queries as possible. If you want a personal reply please enclose a stamped, addressed envelope.

me the option of printing document files directly by double-clicking on the file and choosing Print from the dialogue box. But nearly every time I try this, I get a load of gobbledygook in the printout. Why?
N.T. Peters, Hoddeston, Herts.

An expert writes...
The garbage you're seeing is the formatting codes. You can only print a word processed document from within the word processor because only the word processor itself can recognise the formatting codes and suppress printing them. The only files that will print properly from the Desktop are plain text files, like the Readme files you get with most PD and Shareware software and even some commercial products.

UPGRADE CHARADE

In an attempt to educate myself in the use of home computers I avidly read all current computer magazines. I note with some interest that there has been a lot of talk on the Amiga front concerning Commodores release of upgraded machines. I was wondering whether Atari had any plans to put out an advanced version of the standard ST to combat the commercial threat of an entire home market dominated by Amigas.
S. T.Robinson, Woodford Grove, Essex.

An expert writes...
Never the ones to let technology or an opportunity to take up a challenge pass them by, you can rest assured that Atari have more than one trick up their enormous corporate sleeves. Although the release of the Mega ST E was dogged by problems with distribution and the incompatibility of its modulator, and reasonable supplies of the TT are now coming into the country, Atari promise that the problems with the machine have been ironed out once and for all. In addition the Falcon 030 should be with us early in the new year and incorporates incredible graphic capabilities that will not only rival the most credible Amiga offering.

FANCY DRESSING

I have read that it is entirely feasible to turn your St into a PC by simply plugging in an additional circuit board. Can this really be possible?
Mr J. Holloway, Kitts Green, B'ham.

An expert writes...
While it is possible to EMULATE a PC on your home computer, to say that this 'miracle' board turns your ST into a PC is misleading to say the least. German emulator specialists Vortex have produced a pallet of tricks that will plug into any ST and allows you to speed up calculation programs and also includes CGA, VGA and EGA graphic capabilities. The 386SX board is significantly faster than other ST products for the same purpose and ideal for people wishing to run Microsoft's Windows for example. If this isn't good enough for you I'm afraid that you've bought the wrong machine!

WHICH PRINTER?

I would like to purchase a 24-pin dot matrix printer, but I'm lost in the sea of sales jargon and advertising blurb. Can you recommend such a device and save me a lot of hassle?
J Brown, St Helens, Merseyside.

An expert writes:
Well if you are considering a 24-pin printer rather than say a 9-pin, you must be thinking of using it for a bit more than just writing a few letters to your long-lost auntie Thelma.. I would personnally recommend the Panasonic KX-P1123. It's been especially designed with the semi-professional user in mind and produces extraordinary results for a reasonable price (about £265). The drive has four letter quality fonts including Courier, Prestige, Bold PS and Script and more than 20 functions. It's very easy to use with two printer feeding ports located conveniently at the top and bottom of the device. Graphics are reproduced extremely crisply and are very clear and you'd have to go a long way to better its ergonomics. What more could you want?

COVERDISK SERVICE

DON'T FORGET TO USE OUR COVERDISK HOTLINE IF YOU NEED ANY HELP.

Ring the PC Wise helpine between 10.30a.m. and 12.30p.m. during weekdays on (0443) 693233.

And in the unlikely event that your coverdisk won't load, send it to ST Review Disk Returns, PC Wise, Merthyr Industrial Park, Pentreebach, Mid Glamorgan CF48 4DR.

Please enclose a stamped addressed envelope and PC Wise will replace the offending disk.

USER FRIENDLY

Making your ST do more than play games is fairly easy to do. But what happens once you begin to explore more serious avenues? The lone explorer on the ST may be brave, but there are ways to get help with your projects. . .

Many of us are happy to sit for hours on end in front of the ST, trying to beat that high score, drawing pictures, programming, or using a business utility, completely oblivious to anyone else in the house. But most people will find that there comes a point when they need some advice. Someone to ask how to get past a nasty level in a game, how to handle the file selector in the program they are trying to write, or if a particular art package is worth getting. The good news is that for many people, help is at hand in the shape of local User Groups.

WHAT IS A USER GROUP?

A User Group is basically a collection of individuals who get together every week, fortnight or month to share their experiences and to show off their achievements. User Groups cater for everyone, from beginner to expert: no matter how long you have been playing around with computers, there is still a lot to learn!

The Association of Atari User Groups (see address below) keeps a list of clubs. The Association is a voluntary organisation which aims to encourage the exchange of information and help between individual groups and to provide a helpline for Atari users. Among other services to members, the Association runs a PD Exchange system: members send them something for the library and they send you a piece of software of your choice.

FINDING A CLUB NEAR YOU

The first place to look is, of course, the list of clubs on this page. These are all the UK groups that the AAUG is aware of; but there are other groups out there that unfortunately haven't contacted them yet.

There may not be an Atari group near you, but there may be a general club that has Atari users among its members. The best place to ask is at your local computer shop. If you have no luck there, try your local public library – the reference section usually keeps a database of all the clubs and societies in the area.

You could also try writing to the British Association of Computer Clubs, which maintains a general database of all computer clubs. Write (enclosing an SAE) to: Terence John, BACC Database Manager, 148 Furzehill Road, Borehamwood, Herts WD6 2DX. They will send you a printout of all the clubs in your area. Be prepared for some disappointment if you do try this: the club may have closed down, or may not have any Atari owners.

STARTING A USER GROUP

One way to ensure that there is a club near you is to start one yourself. Start off by contacting other ST owners – putting an ad in the local paper will probably be the most effective way of doing this.

WHAT DO WE DO WHEN WE MEET?

At the first few meetings, the most important thing to do is to make sure everyone gets to know each other. Find out what everyone's interests are: you'll probably find that people's interests are as varied as the types of software and uses for the ST, so you can encourage different people to take responsibility for different aspects of the group.

There is just one sour note. You will, no doubt, have at least one individual turn up with pirate software. Make it quite clear that you're not interested and ask him to leave. You'll always have a problem defining what pirate software is, as many of us use back-up copies of software, but the blatant pirates are easy to spot.

WHERE DO WE GO FROM HERE?

Once you've established yourselves and found somewhere to meet, produce a small advert for your club and get that into the computer shops and library. Make a point of getting on friendly terms with your local computer shop: it will be profitable both to you and them. Having a local user group will bring business to them, and in return they will publicise the group for you and maybe even give you discounts. If they don't support the Atari at all, get everyone in the group to go in and ask for the software they're looking for, even if you know they haven't got it. Eventually they will get the message that there is a need, and they'll start supporting you. As the support grows, so will the number of people getting Ataris, and so should your group.

Once you've got past the initial stage, you may want to formalise the group, with a committee and a constitution, or just leave it informal. Whatever you decide to do, if you want help at any time, get in touch with the AAUG.


NEW USER EDITION

AAUG NEWS

JANUARY 1990

WELCOME TO THE WORLD OF ATARI

Welcome also to the Association of Atari User Groups. You have asked us for help in some way or other. As the majority of the calls for help we receive are from new users, we've put together this small newsletter to give you a bit of information – not only about ourselves – but also the world of Atari.

The Association is a voluntary, unpaid organisation, set up by a number of the more respected Atari user groups in the UK, to encourage the exchange of information & help between clubs. It also encourages the formation of new groups, and to provide a helpline for Atari users in general.

If you do contact us again, please try to remember this is not a "full time" organisation, and the computer is just a living (unfortunately). Occasionally we are forced (by our wives!) to do have hobbies, garden, kids and "the rest" on the top of our priority list. Be patient we will get back to you!

Why do we get involved in running clubs? It's our way of saying thank you to all the people who were there when we were beginners, and that's one of the great things about computing – you are always learning something new and there's always a helping hand to be found. Often when it is thought to be a silly question will turn out to lead to a new way of looking at a problem.

We don't have a theme tune for the AAUG, but if I had to pick one, it would be the Diana Ross song "Reach out and touch somebody's hand". You reached out to our helpline, there's someone new you can with a hand outstretched as well - why not try to find them.

User groups can be a great source of support and useful information.

● For more information about Atari User Groups, contact: Ken Ward, Association of Atari User Groups, 45 Coleburn Road, Norwich NR1 2NZ. Phone 0603 661149 (evenings and weekends).

USEFUL ADDRESSES

CAMBRIDGESHIRE – ST. IVES
Huntingdonshire Computer Club
Tony Croft,
7 St Martins Road,
Chatteris,
Cambs, PE16 6JB
Meetings/Newsletter/ST

CORNWALL – ST. AUSTELL
Mid-Cornwall Co-Op
Mike Richards,
8 Victoria Road,
Roche,
Cornwall, PL26 8JF
Phone: 0726 890473
Meetings/Newsletter/BBS/PD/XL-ST

DEVON – PLYMOUTH
South West ST User Group
David Every,
5 Turbill Gardens,
Chaddlewood,
Plympton, PL7 3XF
Phone: 0752 330176
Meetings/Newsletter/BBS/PD/XL-ST

DORSET – BOURNEMOUTH
Bournemouth and Poole Atari User Group
Ian Booker,
163 Verity Crescent,
Canford Heath,
Poole, BH17 7TX
Phone: 0202 672907
Meetings/Newsletter/PD/XL-ST

ESSEX – BRENTWOOD
Brentwood Atari User Group
Gavin Dandridge,
Grindelwald,
Crow Green Lane,
Pilgrims Hatch,
Brentwood, CM15 9RH
Meetings/Newsletter/PD/ST

ESSEX – COLCHESTER
Colchester Atari User Group
Martyn Rayner,
61 Rayner Road,
Colchester,
Essex, CO2 9AE
Meetings/PD/XL-ST/Others

HERTS – CHESHUNT
Cheshunt Computer Club
Derryck Croker,
196 Coates Way,
Garston,
Watford, WD2 6PE
Phone: 0923 673719
Meetings/ST/Others

IRELAND – DUBLIN
Atari User Group of Ireland
Mike Casey,
3 St. Kevins Park,
Kilmcaud,
Co. Dublin
Meetings/Newsletter/PD/XL-ST/Others

LANCS – WIGAN
Wigan Computer Club
Alan Owen,
1 Lidgate Close,
Wigan, WN3 6HA
Phone: 0942 212 662
Meetings/Newsletter/PD/ST/Others

LINCOLNSHIRE
Anyone interested contact
Larry Green,
23 Wellington Square,
Waddington,
Lincoln, LN5 9PD
Phone: 0522 722 269

MIDLANDS – BIRMINGHAM
Midland Amateur Radio ST Group
Michael Nyman,
12 Ainsdale Gardens,
Grange Road,
Erdington,
Birmingham, B24 0EP
Phone: 021 382 3606

NORFOLK – NORWICH
Norwich User Group
Ken Ward,
45 Coleburn Road,
Lakenham,
Norwich,
NR1 2NZ
Phone: 0603 661149
Meetings/XL-ST

SCOTLAND – EDINBURGH
Atari User Group of Scotland
Fraser Blacklaws,
9/3 North Hillhousefield,
Edinburgh, EH6 4HU
Phone: 031 553 1288
Newsletter/PD/ST

WEST MIDS – BLOXWICH
Bloxwich Computer Club
Edward Hunt,
29 Station Street,
Bloxwich,
Walsall, WS3 2PD
Phone: 0922 409291
Meetings/Newsletter/PD/ST/Others

WILTS – SWINDON
Swindon Atari User Group
Mike Bird,
46 Eastcott Road,
Swindon,
Wilts,
SN1 3LR
Phone: 0793 539105
Meetings/PD/XL-ST/Others

CHARTS

You know what's good, because you've read our reviews. But which are the most popular packages? These are the top 20 best-selling games, budget games, and utilities.

FULL-PRICE GAMES

	PACKAGE	SUPPLIER
1	Robocop 3	Ocean
2	Populous 2	Electronic Arts
3	Formula 1 Grand Prix	Microprose
4	A 320 Airbus	Thalion
5	Titus the Fox	Titus
6	Legend	Mindscape
7	Shadow Lands	Domark
8	Special Forces	Microprose
9	Race Drivin	Domark
10	Nights of the Sky	Microprose
11	Harlequin	Gremlin
12	Storm Master	Silmarils
13	Alcatraz	Inforgrammes
14	Space Gun	Ocean
15	Another World	Delphine
16	Robocod	Millenium
17	WWF	Ocean
18	Jimmy White Snooker	Virgin Games
19	Microprose Golf	Microprose
20	Lemmings	Psygnosis

BUDGET CHART

	PACKAGE	SUPPLIER
1	Lotus	GBH
2	Treasure Island Dizzy	Code Masters
3	First Division Manager	Code Masters
4	Golden Axe	Tronix
5	ADF	Action 16
6	Hunt for Red October	Unique
7	James Pond	GBH
8	Navy Moves	Hit Squad
9	Puffy Saga	Hit Squad
10	St Dragon	KIXX
11	Populous	Star Performers
12	Shadow Warriors	Hit Squad
13	Monty Python	Tronix
14	Hover Sprint	Code Masters
15	Head Over Heels	Hit Squad
16	Quottro Fighters	Code Masters
17	Rainbow Island	Hit Squad
18	Bubble Bobble	Hit Squad
19	Italia 90	Tronix
20	Ninja Warriors	Tronix

UTILITIES CHART

	PACKAGE	SUPPLIER
1	STOS 3D	Europress
2	Stereo Re-Play	Microdeal
3	Play Back	Microdeal
4	Protext Version 5	Arnor
5	Mavis Beacon Typing	Mindscape
6	Quartet	Microdeal
7	Fun School 4 (5-7yrs)	Europress
8	Deluxe Paint	Electronic Arts
9	Tiger Cub	Zone
10	STOS Compiler	Europress
11	Re-Play 8	Microdeal
12	VIDI ST	Rombo Productions
13	DEF Pac 2	Hi-Soft
14	Turbo ST	Hi-Soft
15	Canvas	Microdeal
16	First Word Plus	Electric
17	Prodigy	Digital Muse
18	Time Works	Electric
19	Fun School 4 (7-11yrs)	Europress
20	Home Accounts 2	Digita

Our thanks to Microbyte for compiling these listings.

BOOKSHELF

The ST is an amazing tool for learning, but there are times when a book is really what you need. . .

INTRODUCING ATARI MACHINE CODE

One of the ST's most popular mid-range DTP programs is no easy beast to master

Do you sometimes find yourself frustrated by not being able to write a short program? Does the source code of your latest PD masterpiece look as if it is written in Double Dutch? Then reach up to the bookshelf for a copy of Introducing Atari Machine Code by R Pearson and S Hodgson, published by zzSoft.

The book comes complete with a disk containing a symbolic assembler/linker, symbolic disassembler (de-bugger), a resource construction program and some other programming utilities. There is even some example source code for you to test and use.

All you need to use it is the ability to copy, move and delete files, format disks and generally use the GEM Interface. From here the book states that in return for study and practice it will take a novice up to the ability to program in Assembly Language with some degree of proficiency. At no time do the authors say they will turn you into a super programmer with the ability to knock out a best-selling program in your tea break. They emphasise the need to study and practice and then move on to other avenues.

A lot of complex theory has been omitted to allow the reader to gain a working knowledge of how Assembly Code works, and there's even a whole chapter devoted to those using GFA basic.

Programming styles differ from person to person, so not too much of the author's programming style has been allowed to get into the book, but there are plenty of working examples that help you learn.

If you have an interest in Machine Code and are prepared to devote time to study it, you will find this book of immense value in helping you to learn the ropes. Each subject is explained clearly and in enough depth to allow you to understand what is being done, without completely inundating the reader with intimidating knowledge.

Roger Pearson, one of the authors is also the man behind ***EZ Text***, the popular entry-level, low-priced DTP package also available from zzSoft. Contact zzSoft at 25 Honeyhole, Blackburn, Lancashire BB2 3BQ Tel: 0254 672965

THE USERS GUIDE TO TIMEWORKS DTP

Desktop publishing is becoming more and more popular on the ST, with the introduction of easy-to-use packages that will work on almost any Atari. One of the more popular entry-level DTP packages is ***Timeworks DTP***, and the recently updated version, ***Timeworks II***.

There is, of course, a world of difference between being able to use it and producing an impressive document. This is where David Smith comes in handy. His book, ***The Users Guide to Timeworks DTP*** will take you from loading the program, to producing all manner of different, professional documents, including using ***Fontkit Plus*** and showing lots of examples to make its use easier.

The style is clear, easily understandable yet not condescending, using clear concise language that imparts information very easily. This book can actually be read anywhere, although you will find yourself rushing to your machine to try out what is being shown.

Available at £9.95 from: The ST Club, 2 The Broadway, Nottingham NG1 1PS Tel: 0602 410241

DISKMAG

There are several ST disk magazines, and what follows is a run-down of the main ones available. If you're feeling creative, you can use the shell program on our cover disk to make your own. There's a prize for the best

Many people have been producing fanzines in one form or another for many years now. Since the advent of computing, the standard of these magazines have improved drastically.

Where they really took off was when the diskmag came along. The cost was low – there were no duplication costs, distribution was by mail and they could be advertised in the free ads sections of the computer press.

STEN

ST Enthusiasts Newsletter is a bi-monthly magazine using a shell written by its author Dave Mooney.

This is a magazine for the enthusiast, with content varying from the ultra-informative to the downright silly. The disk is always packed and all space left over is filled with PD. ***STEN*** is available from Dave Mooney, 14 School Road, Morningside, Newmains, Lanarkshire. Just send a disk and a stamp.

SYNTAX

This is a magazine for adventure game players. It contains reviews, hints, tips, features and a lot more. It's in colour and costs £3.50 an issue or £20 a year from 9 Warwick Rd, Sidcup, Kent.

STUNN!

STUNN! is the ST Unemployed Newsletter. This is one of the largest distribution diskmags. It has a monthly distribution of around 6,000 in the UK and is also available in Australia, Luxembourg, Holland and Yugoslavia.

It is available monthly, on receipt of a disk and a stamp from 19 Henley Close, Rainham, Kent ME8 0EW.

DISKSPACE

Diskspace started out poorly, and never really improved. Originally Budgie licenceware, the content of issue 1 was mainly articles taken from ***STUNN!*** and ***STEN***. Issue two became Public Domain and was based on a home-made shell.

COMPETITION

There are many disk mags being produced these days that have not been widely recognised and are not very widely available.

Now with the version of the all-new magazine shell ***ST-Zine*** by Andy Oakley included on this month's cover disk, we look forward to seeing many more. So much so that we want to see more.

Use the shell on the coverdisk, or write your own, and send the finished magazine to us by 26th May. The best will win the superb prize locked away in the ST Review office.

RULES

The standard competition rules apply, and the judges' decision is final. We regret that we will be unable to return entries.

The best will be reviewed in these pages in a future issue, so start writing and send your entries to Diskmag Competition, ST Review, Emap Images, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.

BUYING CAMERAS

For your PHOTO & VIDEO Best Buys

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Thinking of buying a camera or camcorder? Don't make costly mistakes. Read Buying Cameras first.

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● **BUYING CAMERAS MAGAZINE—**

IF YOU WANT OUR ADVICE, BUY IT!



IN PLAIN ENGLISH

One of the major hurdles for newcomers to computers is the amount of jargon used. Don't despair, though – our A to Z of the most common terminology should make sense of it all. . .

ASSEMBLY LANGUAGE:
A programming language in which Machine Code commands are named according to their purpose. Assembly Language must be translated into Machine Code by an assembler before it can be executed by a processor.

BENCHMARK:
A set of standard tasks given to different computers to compare their performance. They can either be a series of mathematical operations, or based on real applications.

BINARY NOTATION:
The number system a computer uses for its internal calculations: base two.

BUFFER:
A temporary storage area for information being transferred from one part of a computer's memory to another. It can be used to control the way data is transferred between devices operating at different speeds.

DOWNLOAD:
Receiving information from another computer, either directly or indirectly, for example via a disk or bulletin board.

HANDSHAKING:
A series of special signals which two computers (or a computer and another device like a modem) exchange to check they can communicate and synchronise speeds, communications and so on.

I/O:
Input/Output. Devices which allow instructions to be given to or received from a computer, or the data being exchanged.

LOOP:
A series of instructions in a program that is repeated until a certain condition is satisfied.

MACHINE CODE:
The programming language which can be directly understood by a computer.

MEMORY MAP:
A diagram which shows how the various areas of memory, such as available memory, operating system or screen memory, have been allocated in a particular machine.

MODEM:
Short for modulator/demodulator, a modem converts the digital signals of a computer to analogue signals which can be transmitted down the phone line, and vice versa.

PARALLEL INTERFACE:
An interface, used to connect to many printers, in which each of the eight bits in a byte is transmitted simultaneously.

RAM:
Random Access Memory. Memory in which stored information can be examined and altered by the user. There are two types: static, which retains its information when the machine is turned off, and dynamic, which needs to be refreshed every few milliseconds.

RESOLUTION:
The amount of accuracy with which a picture can be displayed, either on a screen or on the output of a printer. It is usually expressed in dots per inch (dpi).

ROM:
Read-Only Memory. Memory in which information is stored permanently. The information can be read, but not re-written. ROM is generally used to store the basic functions of a computer.

STACK:
A part of memory where data can be continually stored, but only the last item stored can be retrieved.

SUBROUTINE:
A self-contained part of a program that can be called up and run by other parts of a program.

UTILITY:
A program which performs a common operation within the computer, such as virus checking or copying files.

NEXT MONTH

READERS WRITE IN

For the second issue of ST Review we are asking you to get involved! We want your opinions on the latest ST magazine in the world, so that we can shape ST Review into THE only magazine that anyone who's serious about their ST needs. So we need your comments, opinions and above all, your experience of the ST.

READER'S LETTERS

Have you opinions that you want to share? Want to get something off your chest or just want to throw a particular subject up for debate amongst ST owners? Then you need to send your thoughts to POINTS OF VIEW, ST Review, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.

ASK THE EXPERTS

Having a problem with a particular package? Not sure where to go next? Then why not "Ask the Experts". Our panel of experts are familiar faces in the world of the ST and each of them is an expert in their own field. So whatever your problem, be it printers, Desk Top Publishing, Modems, CAD, Databases, PostScript or MIDI and music, we're there to help you out. Send your enquiries to ASK THE EXPERTS, ST Review, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. If you want a personal reply, remember to enclose a stamped, addressed envelope.

SPECIAL RESERVE

TO THE NEWSAGENT:

PLEASE RESERVE ME A COPY OF ST REVIEW EVERY MONTH BEGINNING WITH ISSUE TWO OUT ON 22ND MAY

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ADDRESS: .....

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The Worlds ultimate creative leisure product for your Atari ST. Captures dynamic 512 or 4096 colour images from video into your ST in less than a second.

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Images can now be grabbed from either colour video cameras, home VCR or in fact any still video source. The traditional method of holding three filters in front of your video camera is certainly a thing of the past. Because Vidi splits the RGB colours electronically there are no focussing or movement problems experienced by some of our slower competitors. Lighting is also less of an issue as light is not being shut out by lens filters. Put all this together with an already proven Vidi-ST / VidiChrome combination and achieve superb quality 512 or 4096 colour images. (4096 colours only available on STE). Mono images can be grabbed in real time from moving video.

PUSH YOUR ATARI ST TO ITS LIMIT ...

You will see from independent review comments that we are undoubtedly their first choice.

THE SOLUTION ENABLES YOU TO ...

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- Have perfect freeze frame from any video.
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- Animate 16 shade images at a choice of speeds.
- Grab 3-D images from TV.
- Replace many scanner features.
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- Import images into art packages in mono or colour.

ST World SUPERTEST BEST BUY

"BEST BUY" ... AWARD IN ST WORLD. COMPARISON REVIEW BETWEEN (SAM, COMPUTEREYES, TURBO DIZER, PRO 9800 AND PRO 9800 COLOUR)

EDITORS COMMENTS

Vidi-ST is well designed, well thought out package — good hardware driven by some equally impressive software.

Sam has the edge in performance terms — by a narrow margin. Vidi-ST, however, is considerably cheaper, has the best software, good documentation and can just about match Sam for image quality. This making Rombo's Vidi-ST, beyond doubt, the best buy in Video digitising on the ST.



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