

ST FORMAT

COMIC CAPERS

"DISCOVER HOW
TO CREATE STUNNING
COMIC STRIPS WITH OUR
STEP-BY-STEP GUIDE"

HMM, I WONDER

Create
your own
strip cartoons
with our fully
working
demo



future
Your guarantee
of value

REVIEWED THIS MONTH:

EPSON FLATBED SCANNER

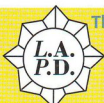
- ULTIMATE VIRUS KILLER 6.6
- MAGICMAC ● UVK BOOK
- KILLING IMPACT ● DOUBLE BOBBLE 2000 ● EVOLUTION DINO DUDES ● HERO ● PIPETRIS ● EVEREST 3.5 ● DA CAPO ADDRESS MANAGER
- PATHS OF GLORY ● 1ST GUIDE
- STOSSER MULTIMEDIA DISPLAYER
- PAC THEM AND MUCH MORE...

THE BIG SQUEEZE

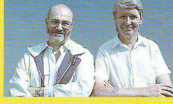
Free up megabytes of
space with our guide to
compression software



L.A.P.D.



The faces behind L.A.P.D.



Software at realistic prices

PD DISKS: • £1.50 each • Budget range PD Disks ONLY £1.00
Same day service, quality virus-free disks

Please add 50p P&P on orders under £5.00. Overseas customers (outside Europe) please add 50p per disk

ALL DISKS BELOW ARE ONLY £1.50 UNLESS OTHERWISE STATED

games

- **ARCADE** •••••
- G.417 **TAR TREK - TNG** Intergalactic action - requires 2 joystick (1Mb) (2 disk/£3.00)
- G.411 **COMBAT** Face action military shoot 'em up in style of Operation Wolf
- G.410 **HMM MR OH L** One or two player classic 'PacMan' with sampled music
- G.409 **ULTIMATE ARENA** Best 'em up in the style of 'Mortal Kombat'
- (1Mb, 1Mb, 5Mb)
- G.403 **SQUARE OFF** The ultimate tumbling block 'Tetris' game (ST) (1Mb) (2 disk/£3.00)
- G.398 **ASTEROIDS** Classic asteroid blasting action - order G399 for STFM version (ST) (1Mb, 3Mb)
- G.409 **FRANTIC STEE** Space ball action kinetic combat simulator - order G401 for STFM STFM (1Mb) (2 disk/£3.00)
- G.247 **MIGAPACE** The classic blast the cerebral 'Conquer' game (1Mb)
- G.399 **DINAHAUSTER** Bomb laying and dodging arcade game (ST) (1Mb)
- G.366 **DAVE MAUNICE GAMES** - Five games from the master programmer, including 'Frogger' (1Mb)
- G.393 **YIPPIE LORD** Animal duelling game in the style of the classic 'Yeast'
- G.380 **STARBALL** Football game - arguably the best PD game on the ST
- G.391 **MAX** Help Max find his girlfriend. A 'type' arcade platform game (1Mb)
- G.383 **SUPER PSYCHO KART** High speed platform game to rescue piglets (1Mb)
- G.386 **ROCKWELL - SPECIAL Edition** Tunneling/dig/landscaping collecting puzzle game
- G.281 **PYCHO PIG** Platform shoot 'em up with Rainbowbow pig (2 disk/£3.00)
- G.279 **OPERATION GRAPHIC** First 'Tetris' style shoot-em up action (ST) (8Mb)
- G.266 **TETRI** & PLE Two very good versions of the 'tetris' arcade game
- G.289 **HACKMAN II** 1 megabyte version of PacMan, 100 new levels
- G.112 **LUMINATION** 100 levels of fast arcade action with wacked sound FX
- G.201 **BARI** 'Tetris' style three in a row, falling blocks with many added features (ST) (4.7 Mb)
- G.374 **ONE HUNDRED AND EIGHTY** Computer darts.

- **FANTASY/ROLE PLAY** •••••
- G.425 **ANDROUS OF DOOM** First person view fantasy role-playing game "NEW"
- G.404 **MEMORY RECALL** Challenging memory test with dig (pic) & sound (1Mb)
- G.412 **NORFAN** Clay sci fi, first person view role-playing game (1Mb) (2 disk/£3.00)
- G.431 **REASON OF REALITY** First person view dungeon exploration and monster bch
- G.110 **TORON** First person view role-playing fantasy adventure game (1Mb) (2 disk/£3.00)
- G.308 **WALLS OF ILLUSION** The ultimate 'Dungeonmaster' clone with English instructions (1Mb)
- G.429 **WIPED BIKES** Musical combat in a maze of sliding walls (1Mb, 5Mb)
- G.5 **MORAX** A complex fantasy AD&D based role playing game (1Mb)
- G.370 **MINDWAVE** Fantasy adventure with an overhead view
- G.289 **DARKLITE** 'Space Crusade' type droids vs gnomes
- G.262 **ALIENS** Space Marines v. Alien strategy combat game
- G.115 **MYSTIC WELL** Complete 'Dungeonmaster' style adventure game.

- **PUZZLES** •••••
- G.404 **COLOR CLASH** Defeat means solve puzzles, beat the buddies
- G.404 **MEMORY RECALL** Challenging memory test with dig (pic) & sound (1Mb)
- G.387 **SPACEWEEPER** A challenging 'Missile' game in three dimensions
- G.315 **SKULLS** Addictive up to date revealing of Landmine/Minifield (1Mb, ST)
- G.111 **JCSAW** A completely original puzzle (1Mb)
- G.269 **QUADRANT** Multi-choice answer game for knowledge quiz (ST)
- G.169 **POP MUSIC CHALLENGE** Trivia quiz on music of the 60s, 70s and 80s.

- **ADVENTURES** •••••
- G.158 **LOTTOR** (Over 18s only) Adventure with hooks in a west coast red light district - if only Hugh Grant had played this game instead of...
- G.411 **ROBOT REBELS** A sci fi text adventure
- G.394 **THE SECRET PARK** A text adventure with graphics for children
- G.223 **CALYANORCH** DDD type fantasy adventure set on a far earth-like planet
- G.312 **INVESTIGATION** Graphic adventure in the style of Sierra Q1 (2 disk/£3.00)
- G.000 **ADVENTURE ACADEMY** 3D graphic adventure to blow up the school
- G.142 **A NIGHT ON THE TOWN** An adventure with the opportunity to meet the girl of your dreams and...well, the rest is up to you.
- G.222 **GRANDAD AND THE SEARCH** - 3D graphics adventure by Ian Scott, Shawnee (1Mb)
- G.303 **GRANDAD AND THE SEARCH FOR THE SANDWICHES** Graphic adventure (1Mb) (2 disk/£3.00)
- G.156 **THE ABE CHASM** An adult adventure featuring Snatch and Crunch (over 18's only)
- G.167 **SANDY** An adult adventure (over 18's only)
- G.81 **QUEST FOR THE HOY GRAL** Mythological midway fantasy
- G.202 **UNWILLING UNDERPOWERD** Highly rated large scale text fantasy adventure.

- **STRATEGY & OTHERS** •••••
- G.432 **MIDI WIZ** Fantasy war game with similarities to 'Civilization' (1Mb, 5Mb)
- G.131 **STAR TREK - THE GAME** Defeat the Klingon threat to the galaxy (1Mb)
- G.427 **AIR TRAFFIC CONTROLLER** Control coverage and going at a busy international airport
- G.380 **STAR TREK - KLINGON WARS** A Starship Enterprise battle simulation (1Mb)
- G.399 **INTERNATIONAL MANAGER** European Nations/War/ID Cap Management game
- G.391 **KINGST** GAME OF GO: Two computer versions of the Oriental game of Go, Amigo
- G.434 **PROMER LAUGH MANAGER** Soccer management simulation (5Mb)
- G.315 **SKILLS** Locate and defuse mines in a huge playing area (1Mb, ST)
- G.344 **CHESS MASTER** A chess/draughts game analysis tool
- G.312 **CASER** Strategy game set around the Mediterranean in 500c (1Mb)
- G.380 **GAU CHESS** French chess playing program for all levels
- G.399 **STRATEGEM** Two player strategy world war game (2 disk/£3.00)
- G.328 **PEGASUS** Strategy game. Seek out and colonize planets (1Mb) (2 disk/£3.00)
- G.287 **THE CARSE HAZARD** Angling simulation game (1Mb)
- G.237 **CHOKO** Makao game of battling warts by Martin Brownlie (1Mb or 0.5Mb)
- G.324 **IMPERIAL CONQUEST** Complex ancient Mediterranean game of conquest (5Mb)
- G.325 **SOCGER MANAGER** A complex simulation of soccer management (5Mb)
- G.217 **THE MAZE** 3D adventure game loosely based on 'The Crystal Maze'
- G.173 **PRIGGLING** Move your programs around the screen 'tammying' music
- G.100 **VEGAS** Roulette, poker, blackjack and slot... without the Nevada smell!
- G.428 **TURK DISK** Fix your bank balance in 'Civilization' or 'Sim City', all maps for 'towns', an 'RLE' survival guide and 100 of cheats for other games!

budget uk

- **BU115 FOOTBALL SECTION 1**: The original £19.95 Premier League version of the soccer management game!
- **BU 111** INTERNATIONAL CHECKIT II: Animated 3D game (1Mb)
- **BU 90** SPACE INVADERS: Classic arcade action by Robert Leong
- **BU 90** MARCH II: Possibly the most addictive game ever devised
- **BU 89** HORSE RACING SIM: Quality sim from the safe ring to the track
- **BU 30** QUEST FOR GALAXIA: The 'Galaxians' return to your ST
- **BU 70** PAXMAN ST: The definitive version by Robert Leong
- **BU 71** DARK SOUL: Role-playing adventure with a 3D view
- **BU 17** MAKE A BREAK: Think you're a snooker player?
- **BU 22** BANDIT: Electronic fruit machine.

L.A.P.D. Licenceware Games

Possibly the best licenceware range on the ST

Licenceware means that for every copy you buy the author receives a royalty payment from L.A.P.D. This ensures that the authors receive suitable recompense for their hard work thus encouraging them to produce even more excellent programs for the Atari range of computers. It saves you all the fuss and hassle of shareware packages. Licenceware programs are complete and ready to run, there are no hidden fees!

strategy games

- L128 **BUDGET** 4/2 (1Mb, £3.00): Computer mediated fantasy combat system for one or more players. Includes two free adventures stories. **EXTRA! First fifty orders will receive FREE printed manual! *NEW***
- L129 **BUDGET** ADVENTURES P1 (£3.00): Six additional solo adventures for the above BUDGET system. *NEW*
- L124 **THE SANDS OF MARS** (£3.00): Govern a Martian mining colony
- L123 **SEA WARR** (1Mb, £2.50): Hit-vent version of 'BattleShip'. Design and fight your own fleet. *NEW*
- L101 **CONQUEST** (1Mb, £3.00): Rule over a medieval kingdom's economy and armies
- L104 **WAR OVER THE REICH** (£3.00): Plan and execute a campaign of WWI wars against Wehr German cities.

- L98 **WORLD AT WAR** (£3.00): A game of economic and military strategy on a grand scale for one to seven players
- L72 **GRAND PIR MANAGER** (£2.50): Simulation game of running a Formula One Grand Prix team
- L79 **DARKLITE** (1Mb, £3.00): A sci-fi space/strategy game in which you must destroy the Darklite forces. Remnants of the 'Space Crusade' game.
- L118 **THE SEVEN SEALS** (£3.00): by Ben Weston. The five games on one disk: THE UNMANNAGED IS, I simply will defeat you! 'em up game. CLAY, a Humans ruling type game. QUEST KNIGHT, a fantasy game. LOOK PROBLEMS, the challenging electron game. LOGIC PROBLEMS II, more of the same.
- L42 **OUTRIDER** (£2.50): An arcade/strategy game in which you take control of a space colony
- L53 **HOT COOL** (£2.50): A game of grandstand riding for one to three players
- L59 **ARTHUR OF THE BRITONS** (1Mb, £3.00): A strategy game with arcade graphics.
- L60 **CONQUEST** (1Mb, £3.00): A 'God' game in which your task is simply to survive for one year.

arcade games

- L120 **DESERT HAWK** (1Mb, £3.00): Control a Black Hawk helicopter through different missions
- L119 **ASTEROIDS** (ST, £6.00): The classic game 'Astroids' with 3D rendered asteroids.
- L120 **ASTEROIDA** (STFM, £7.00): The STFM version of the above.
- L121 **FRANTIC STEE** (£7.50): Fast action kinetic combat simulator
- L122 **FRANTIC STEE** (£7.50): The STFM version of the above
- L123 **SQUAD OFF** (£7.50): Falling block puzzle game in the style of the classic 'Tetris'
- L93 **PROJECT PULLEY** (£3.00): Attempt to clear twenty spaces of debris 'Astroids' style.
- L87 **STORM** 94 (1Mb, ST, £3.00): Arcade action clearing aliens from a circling space freighter.
- L86 **STORM** 94 (1Mb, STFM, £3.00): As 187 above but for the STFM.
- L66 **FURBIES** (£3.00): A platform game across many levels as you guide a blue fluffy creature in an attempt to rescue his girlfriend.
- L60 **MIDWINTER** (£2.50): The perpetually popular 'Pacman' game!
- L116 **STREETS** (£3.00): Drive your motorcar around the streets collecting diamonds and blasting.
- L117 **FISH NAK** (£3.00): A game for younger players who must find food for their fish without getting eaten.
- L70 **CHRONIC INVADERS** (£2.50): The 'Space Invaders' return in this reworking of the all time classic computer game.
- L61 **3D ASTEROIDS** (1Mb, £2.50): Based on the classic 'Astroids' game - but in 3D!

adventure & role-playing games

- L131 **WANDERING SCIENCE** (£2.50): Solve the puzzles on an alien vessel. A 'graphic' adventure
- L125 **PRINCE OF GLORY** (£3.00): A word and memory role-playing game
- L115 **DEMON II** (£3.00): A fantasy adventure game with an overhead view and detailed point and click interface
- L114 **TIME MACHINE** (£3.00): A clayey text based adventure with over 100 locations and over 40 graphic screens.
- L112 **OKRAHVEN** (£2.50): High adventure in a fantasy land.
- L97 **STONE COLD SOBBER** (£4.00): A traditional adventure game but with a point and click interface
- L69 **BO-HAZARD** (1Mb, £3.00): A first person perspective game to clear a space highway of alien colonies
- L21 **DEAD OR ALIVE** (£3.00): A large, complex and humorous text adventure game
- L31 **THE CURSE OF AZURE** (2 disks, £4.00): A graphic fantasy role-playing/trading game. (Now FALCON compatible)
- L41 **MURDER ON THE CRUISE EXPRESS** (£3.00): A murder mystery game with an almost infinite variety of solutions.
- L50 **DEMON** (£3.00): Trapped in a stone vein, your first task is to escape before the resident demon gets back. 300 levels.

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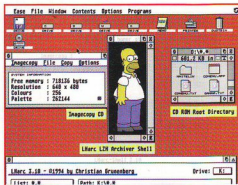
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18 Proof of age required on all adult titles. We do not condone or supply illicit hardware materials.

ST FORMAT

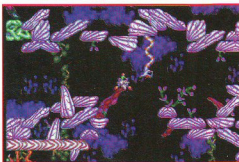
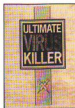
REVIEWS

- 26 GT-LOOK 2 SCANNING PACKAGE**
The first colour flatbed scanner for your ST is now here, courtesy of Epson and System Solutions. We investigate this professional scanning solution.
- 29 MAGICMAC**
After a long wait, the first MagiC emulator for the Apple Mac is here. But is it worth upgrading to, or should you stick with your Atari?



MagiMac: now you can run ST programs on an Apple Mac.

- 30 ULTIMATE VIRUS KILLER 6.6**
The latest version of the definitive virus killer has just been released. We check out its antibiotic skills.
- 31 UVK BOOK**
Richard Karsmakers' companion to UVK 6.6 features a printed manual for the software and a general guide to viruses.



Killing Impact: Joust is kicked into the 1990s in this fabulous French update of the arcade classic.



Double Bobble 2000: another arcade classic gets the 1990s treatment.

- 32 KILLING IMPACT**
Trade in your ostrich for a rocket-powered hopper. Joust gets a welcome update for the 1990s in this addictive and colourful Falcon-only game.
- 34 DOUBLE BOBBLE 2000**
This Falcon shareware title is so good we've decided to give it a full page review! Another arcade classic goes through the update mill and comes up smiling.
- 35 EVOLUTION DINO DUES**
After two years on the shelf, this cutesy platform title for the Falcon has finally been released. Was it worth the wait?

REGULARS

- 6 COVER DISK**
The star program on this month's Cover Disk is a £60 paint package. Get started with *Deluxe Paint* and company here.
- 13 NEWS**
Even as UDS announces its withdrawal from the Atari market, Top Byte unveils new ST games.
- 43 PD & SHAREWARE**
Yet more bargain software to be had, including wildlife pictures, the freeware release of *HERO* and the latest version of the powerful text editor, *Everest*.
- 49 ST ANSWERS**
Clive Parker bows out from ST Answers with his solutions to commonly found disk problems. Meanwhile, the rest of the STAs bring laughter and happiness to more troubled souls.
- 56 THE SCORE**
There's news of a new synthesizer from Korg, plus the answers to a veritable plethora of music and MIDI problems. Let's rock, Andy Curtis!
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The final part of our exhaustive *SubStation* solution emerges from the dark depths of the Pacific.
- 80 FEEDBACK**
The place where you get your say. Comments, questions and all the latest *Star Trek* gossip – it's all here in the place inhabited by your lovely editor.
- 81 NEXT MONTH**
Our hopes, dreams and prophecies for January 1996.



COVER DISK 77

THIS MONTH...

DELUXE PAINT: The complete and unrestricted version of Electronic Art's ST FORMAT Gold-winning art package. Worth £60!
Uncompressed size: 665K

STRIP CARTOON: Exclusive demo of FaST Club's new comic strip creator. Requires 1MByte and a monochrome monitor (or Sebra).
Uncompressed size: 200K

PIPETRIS: Puzzle game combining the addictive qualities of Tetris with the ingenuity of Pipemania. All STs (not Falcon compatible).
Size: 53K

ST DIARY: Record the day's events, or store details of your schedule with this handy utility. All Ataris, monochrome or Sebra required.
Uncompressed size: 142K

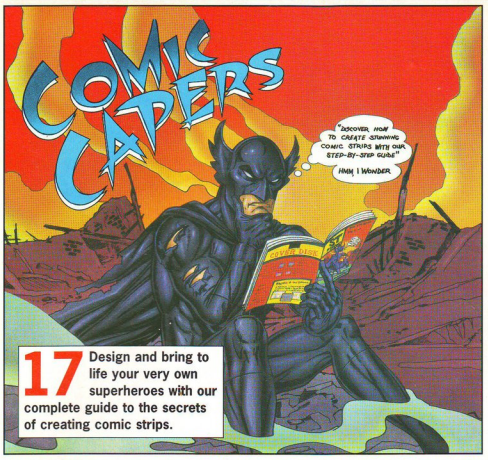
BOOTS/SAVE: Store and restore disk bootsectors with this incredibly straightforward utility. All STs (TOS 2.06 and Falcon with STOSFix).
Size: 50K

FILE PACKERS: Atomik (both ST and Falcon versions), Pack Ice and Jampack - three file packers to compress your files and save valuable disk space.
Uncompressed sizes: 112K

BREAKOUT: Accessory version of the classic bat 'n' ball game. Runs on all Ataris in all resolutions.
Size: 13K

SEBRA: Emulate high resolution on a colour TV or monitor with this handy utility. Compatible with both STrip Cartoon and ST Diary.
Size: 24K

BACK UP: Avoid losing everything on your Cover Disk by backing it up to a blank disk. Do it NOW!
Size: 12K



17 Design and bring to life your very own superheroes with our complete guide to the secrets of creating comic strips.

FEATURES

- 11 LOOM SPECIAL OFFER**
Loom's classic Loom is now available for a knock-down price. Get your copy here.
- 17 COMIC CAPERS**
Pow! Kerbang! Dug Armstrong, Frank Charlton and Simon Forrester combine their talents to demonstrate how you and your ST can produce professional-looking strip cartoons.

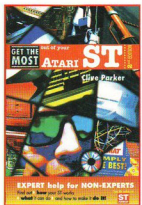
- 37 THE BIG SQUEEZE**
Andy Curtis and Frank Charlton reveal how to create more space on your disks and hard drives.
- 59 GET THE MOST OUT OF YOUR ST 2**
Clive Parker discusses system software upgrades.
- 61 PROJECT DSP**
Paul Hills unravels the complexities of the DSP's instruction set in the latest 56001 tutorial.

The Big Squeeze



37

Discover how archiving or packing your data can free up extra space on your disks and hard drive.



58

Find out how software upgrades can improve your ST in this exclusive extract from Clive Parker's new book.

Get the Most Out of Your Atari ST 2



Print: Service Coordinator Janet 'Yo Capp' Anderson
Paper controller: Frank 'Move the Boat' Crane
The Line: Lutz, Steve, Steve, Kim, Mark, Gower, Simon
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exploratory features, written by the very best in the business. **DISCOVER THE BEST:** We have a custom policy of editorial independence and our reviews give clear recommendations. **DELIVER TO YOU:** You need solid information fast. So our designers highlight key elements by using charts, diagrams, summary boxes, annotated photographs, and so on... **DISCOVER THE BEST:**
At Future, editors operate under two golden rules: ■ Understand your readers' needs ■ Supply them. **WE REQUIRE INTERACTION:** We draw on readers' contributions, resulting in the heaviest letters pages and the best reader tips. Having one of our magazines is the joining a nationwide user group. More pages, more intelligent staff, better quality - magazine you can trust.

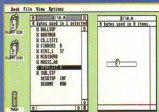
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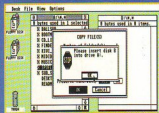
1 Assuming you have a single-drive system, insert your Cover Disk back-up into drive A. Double-click on the drive A icon to access it. Next, double-click on the Drive B icon.



2 When prompted, remove the Cover Disk and insert your blank disk into drive A. Click on OK and a separate window should appear with the contents of the disk within it.



3 Next, click and hold down the left mouse button on the file or folder you wish to copy across to your blank disk. Drag the file over to the drive B window before releasing the button.

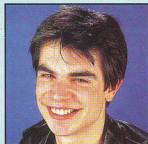


4 An alert box will tell you to insert disk A (your Cover Disk). Do so, click on OK and follow the on-screen instructions. You may have to swap disks several times during this process.



5 Just follow the instructions on the screen until the file or folder you wished to copy has been transferred - it'll be displayed in drive B's window.

Cover Disk



Some people laugh at adversity, others cry. Nick Peers just keeps on churning out Cover Disk after Cover Disk. Here's his latest, and it's really rather good.

DELUXE PAINT

By: **Electronic Arts**
Machines: **All Ataris**
Resolution: **ST low only**
Uncompressed size: **320K (program disk) and 345K (animation disk) respectively**

Deluxe Paint, to quote Clive Parker, "is the Rolls Royce of

16-colour paint programs on the ST". This month we're able to present, exclusively, the complete, unrestricted version of this superb paint package from Electronic Arts!

Getting started

Format two blank disks. Label the first 'Program disk' and the second 'Animation disk'. Copy DELUXE1.TOS to the first blank disk and double-click on

it to dearchive all the files.

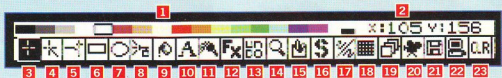
Next, copy DELUXE2.TOS to your animation disk and double-click on it to dearchive all the animation files. Once that's done, you can delete both TOS files. Run *Deluxe Paint* by putting the program disk in your internal disk drive and double-clicking on DELUXE.TOS.

Hey, Van Gogh

Deluxe Paint has long been regarded as the elite paint program on the ST. It scored 96% in issue 15, and nothing has bettered it since. It not only boasts the usual drawing functions, but also possesses a



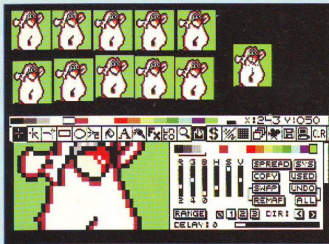
Pressing [Return] produces this view, which is a good compromise between seeing a large amount of the screen and keeping the tools handy.



- The 16 colours in the currently selected palette. Click on them to select the new foreground and background colours.
- X and Y co-ordinates of the cursor.
- Freehand draw: use a variety of brushes to create single points or freehand drawings.
- Straight line: create straight lines by clicking and holding down the mouse button while drawing the line.
- Curve: create curved lines with a start and end point, plus two points to control the curve itself.
- Rectangle: create outline or filled rectangles or squares.
- Ellipse: create ellipses or circles.
- Airbrush: spray different patterns on to the screen.
- Fill: fill an enclosed space with the current foreground or background colour. You can create different fill patterns from the sub-menu.
- Text: create text on the screen, using one of *Deluxe Paint*'s built-in fonts, which must be loaded from disk.
- Define brush: create a brush from a variety of sources, including chunks taken from the image itself.
- FX: determine how the colours are applied to your drawing when you paint. Special effects include smear, smooth, filter, blend and tint.
- Undo: undoes last change.
- Zoom: alter the zoom magnification in the hotspot zoom box.
- Palette: modify or arrange the 16 colours (which are drawn from a palette of 512 colours on the STFM, and an impressive 4,096 on the STE/Falcon).
- Stencil: enables you to fix part or all of your picture so that it cannot be altered.
- Mirror: create mirror images of your brush, either horizontally or vertically, for symmetrical drawings.
- Grid: restricts your drawing tools so they align correctly with a specific grid - perfect for creating evenly spaced patterns, such as brickwork.
- Tweening: create animated sequences by selecting the start and end frames of your desired animation.
- Animation: extra animation functions to accompany the Tweening tool.
- Disk: enables you to load and save pictures, and copy pictures to and from *Deluxe Paint*'s memory buffer.
- About: includes program information and the option to quit *Deluxe Paint*.
- CLR: clear the screen so that you can start a new drawing - a lifesaver if it's all gone horribly wrong.

I WANT A MANUAL!

Unfortunately, Electronic Arts no longer distributes any ST products, but if you're desperate to get hold of *Deluxe Paint*'s 208-page manual, try placing a reader ad (page 64). You never know what might turn up!



Creating custom brushes from chunks of other pictures is a breeze with *Deluxe Paint*. Wallpapering your screen has never been easier!

staggering array of spray and fill tools, as well as a powerful animation section.

Once the program has loaded, you'll be presented with the main screen. It's a split-screen affair: the top half shows the top half of the current image; the bottom half contains the tools menu. The

latter can be removed at any time, enabling you to view or edit the whole image, simply by pressing [Space].

Oi, Matisse!

Deluxe Paint features all the tools you'll need, and more besides. The tools menu holds your palette, a row of tools, the

currently selected tool sub-menu and a hotspot zoom box, which makes detailed work much easier. Each tool is selected by clicking on the corresponding icon (see opposite) with the left mouse button.

If you want to modify the tool in any way, use the right mouse button to access its sub-menu. The Freehand Draw sub-menu, for example, enables you to select your brush, which can be anything from a very fine single pixel to a chunky rectangle shape.

Yo, Picasso!

Drawing with *Deluxe Paint* is incredibly painless. Once you've worked out which brush or tool you are going to draw with, just start clicking on the screen to produce your masterpiece. You can draw directly on to the 'page', or zoom in for precise work.

The best way to progress with *Deluxe Paint* is to experiment. So long as you save your drawings regularly, you

with colour displays should install *Sebra* (see panel) before running the program.

Make us laugh

If this month's Comic Capers feature has left you raring to create a comic strip, why don't you try this exclusive demo of *FaST Club*'s new budget-priced cartoon creator? *STrip Cartoon* was developed by Claude Boulanger of *Pablo Paint* fame (see *Cover Disk 70*), and makes designing and laying out strip cartoons very easy.

The program runs in monochrome, so you can only produce black and white comic strips. Nevertheless, it is specifically designed for creating attractive cartoons, and it makes mixing the text and graphics in an eye-catching layout remarkably simple.

STrip Cartoon enables you to paste graphics on to your

storyboard in two ways. The first is to import monochrome *BLK* files one at a time, which can then be pasted on to the document. Although this format isn't especially common, you can easily convert your favourite images using *PicScan* from *Cover Disk 74*.

The second method is to import *BIB* library files, which contain several images. Once you've chosen a library, click on any part of the image you require to select it for pasting.

Make them talk

No comic strip is complete without its speech balloons, thought bubbles and weird and wacky typefaces. Fortunately, creating text in *STrip Cartoon* is relatively straightforward. Using novelty fonts is a little more difficult, because the program supports a peculiar variety of screen font, but you can

REMEMBER

Write-protect your *Cover Disk*. Slide the black tab so you can see through the hole.

Make a backup using the *Back Up* program on the *Disk*. Never ever run anything except *Back Up* directly from the *Cover Disk*.

Many *Cover Disk* programs are compressed to fit them on the *Disk*. Follow the instructions in the *Getting started* sections to decompress them.

Read the instructions in these pages and in any document file that is on the *disk*. They're there for a reason.

If you have problems with your *ST*, consult your manual. If you're still stuck write to: *ST Answers*, *ST FORMAT*, Future Publishing, 30 Monmouth St, Bath, BA1 2BW.

can't do any harm trying out different effects and techniques. Turn to page 20 to learn more about colouring pictures with *Deluxe Paint*.

use any font that is compatible with *Pablo Paint*.

The most important part of *STrip Cartoon* is the layout section. Each strip board corresponds to an A4 page, and you create frames (either rectangular or circular) to paste your graphics and text into. If you are following the *Comic Capers* feature (see page 17), you can use *STrip Cartoon* in place of *Calamus SL*. Although it doesn't support colour, it is easier to get to grips with than a fully functional desktop publishing package.

Like it?

We'll be reviewing *STrip Cartoon* next month. If you can't wait till then, you can order it direct from the *FaST Club*. The full version comes with extra libraries and fonts and costs just £14.95. *FaST Club* is on ☎ 0115 9455250.

STRIP CARTOON

By: Claude Boulanger
(available from *FaST Club*)
Machines: All *Ataris*
Resolution: *ST High* only
Memory required: 1MByte
Uncompressed size: 200K

STrip Cartoon enables budding comic strip artists to design their own cartoon strips. Apart from the save and print functions, this demonstration is fully functional.

Getting started

Just copy *STRIPCAR.TOS* to a blank disk or hard drive partition, and double-click on it to dearchive the *STrip Cartoon* folder. Open it up and run *STRIP_CD.PRG*. *Atari* owners

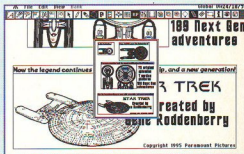
SEBRA

If you want to use *STrip Cartoon* or *ST Diary* on a colour monitor, you'll need *Sebra*. Just copy *SEBRA.PRG* from the *SEBRA* folder into your *AUTO* folder and re-boot. The program will load automatically.

The program produces a reasonable approximation of a high resolution screen on a colour TV or monitor - run *SEBRA.PRG* from the desktop to reconfigure it to best suit your tastes - but it isn't really a practical replacement for a dedicated monochrome monitor.



You can re-shape your illustrations to suit your story. *Rugged Warrior* is a suitable tale for bitter and twisted types.



We dug out two converted *Calamus* fonts to create the obligatory *Star Trek* comic strip.

PACK UP YOUR TROUBLES

Atomik 3.6/3.5F

By: Altair
Machines: 3.6 all STs,
3.5F Falcon only
Resolution: Any
Memory required: 512K
Size: 7K (ST), 10K (Falcon)

Pack Ice 2.40

By: Axe
Machines: All Ataris
Resolution: Medium/high
Memory required: 512K
Size: 10K

Jampack 4

By: Andrew and Tim Knipe
Machines: All Ataris
Resolution: Medium/high (ST),
ST High (Falcon)
Memory required: 512K
Uncompressed size: 85K

The three packers featured in The Big Squeeze (page 37) are on this month's Cover Disk. Atomik and Pack Ice are more efficient and quicker than Jampack, but Jampack has a more user-friendly interface and is better for beginners.

ST DIARY

By: Simon Wilkinson
Machines: All Ataris
Resolution: ST High (colour displays require Sobra)
Uncompressed size: 142K

Keep a record of the ups and downs of your life with this useful diary program.

Getting started

Copy ST_DIARY.TOS to a blank disk or hard drive partition and double-click on it to dearchive AUTO and ST_DIARY folders. The AUTO folder contains Auto Diary, an add-on to the program which

displays today's reminders each time you boot up.

Don't forget

Like any diary, ST Diary can be used to keep a record of your activities. Alternatively, you can use it in conjunction with Auto Diary to remind you of upcoming appointments.

Once the program has loaded, you can either open an existing diary or create a new one. Select the latter and confirm or re-set the data.

Two forms of data can be entered - Day and Event. Event data appears as a single line at the top of each day, enabling you to keep track of birthdays and other important dates. The Day data enables you to record the day's events, or enter a schedule for future use. Click on Jump to to leap to another date.

ST Diary is shareware, and upgrading gets you various extras, including a built-in address book. Details can be found in READ_ME.TXT.

File	Day 1	Day 11	Extras
Tuesday 5 September			
Today we experienced the wonders of a Turkish massage. It least, the painful smelling we received was advertised as a 'massage'. Still, if nothing else it got us all clean! The thermal bath was more relaxing, even if we all had trouble breathing in the steam room afterwards! Stale cabbage is the closest approximation we came up with as far as the air was concerned.			
After this we explored the Bada side of Sidacast, a historian's dream, we			

Remember your holidays with ST Diary.

WE WANT YOUR PROGRAMS

We pay for your software - so if you have anything that's good, original and preferably short that you think really deserves to go on ST FORMAT's Cover Disk, send it with this form and full documentation to Nick Peeters, ST FORMAT, Cover Disk, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW

Name

Address

Daytime phone Program title

Total size in K

On a separate sheet, explain concisely what the program does and why it's so brilliant.

Remember to: Include on-disk and paper documentation Write your name and address on the disk

Use a virus-free disk Keep a copy of your program, contributions are non-returnable Enclose an attractive bribe. The £400 Queen CD Collectors' Set would be nice. Not that it makes a difference.

Please sign the following declaration: This program is submitted for publication in ST FORMAT. It is wholly my own work and I hereby agree to indemnify Future Publishing against any legal action should copyright problems arise.

Signed Date

BOOTS SAVE

By: Matt Smith
Machines: All Ataris (TOS 2.06 and Falcon with STOSFix)
Resolutions: ST low/medium
Size: 50K

Bootsave enables you to save boot sectors from your favourite disks and restore them if something goes wrong.

Getting started

To run the program, double-click on BOOTS.AVE.PR.G. TOS 2.06 and Falcon owners will need to unpack the file first and use STOSFix to make it compatible with your machine.

It's broken

Despite being only 512 bytes in size, the boot sector contains the information your ST needs

PIPETRIS

By: Ross McNaughton
Machines: All STs (TOS 2.06 compatible with STOSFix)
Falcon compatible: No
Resolutions: Low/medium
Size: 53K

Pipetris is a cross between Tetris and Pipemania. You'll need a joystick to play.

Getting started

Just open up the PIPETRIS folder and run PIPETRIS.PR.G. TOS 2.06 owners need to unpack the program using Atomik and run STOSFix.

Blocks away

A selection of pipe pieces fall from the ceiling, Tetris-style, and it's your job to manoeuvre them to create a pipeline from the bottom right-hand corner to one of the targets on the left. Once a pipe lands above the red line towards the top of the screen, the liquid begins to flow. Read PIPETRIS.DOC for full instructions.

PROBLEMS?

If you can't load, copy or back up your Cover Disk, it may be faulty. If you think it is, send the disk and a padded self-addressed envelope to: ST FORMAT December Disk Returns, PO Box 21, Daventry, NN1 5BU. We pay return postage.

- Please don't send faulty disks to our Bath or Somerton offices. We don't keep stocks of Cover Disks.
- If you are having problems with a Cover Disk program, re-read the

instructions and any DOC files. If the boot sector becomes corrupt, the disk is unusable, and you'll be forced to reformat it.

Bootsave offers an alternative: it enables you to load in boot sectors to memory, and store them on another disk. Then, if a disk's boot sector becomes corrupted, you can load in the relevant boot sector, hopefully restoring the disk.

Warning!

Some commercial games have protected boot sectors which cannot be copied. Write-protecting any disk you read a boot sector from is a good idea, and if it refuses to work with Bootsave (it may crash your ST for example, forcing you to re-boot), accept defeat and move on to another disk.

BREAKOUT

By: Anon
Machines: All Ataris
Resolution: Any
Memory required: 512K
Size: 13K

Here's an Accessory version of the famous arcade classic.

Getting started

Open the BREAKOUT folder and copy BREAKOUT.ACC to the root directory of your boot disk or hard drive partition. Play the game simply by selecting BREAKOUT from the Desk menu.

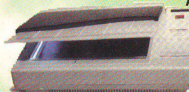
Getting out

Breakout is that famous bat 'n' ball game - just hit the ball to destroy the bricks. Click the left mouse button to get a ball rolling, and use the mouse to slide your paddle left and right. Clear one level and it's on to the next. To finish, click the right mouse button to bring up the mouse pointer, then click the close box icon.

instructions and any DOC files. If you still have problems, call the ST FORMAT Cover Disk Hotline on 01225 442244 on Wednesdays between 2pm and 6pm only.

- Cover Disks are double-sided. If you have an old STFM and can't read the Cover Disk then you need to upgrade your ST to a double-sided drive.
- If you have other hardware or software queries, contact the manufacturer or publisher.

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ST Special FORMAT offer

Loom, the adventure game that launched a thousand clones, can now be yours for the ridiculously trivial sum of just £9.99.

In yet another scoop involving high-powered chainsaws and a rusty nail, *ST FORMAT* has secured the very last copies of *Loom* in the entire universe. Well, okay, the last copies in US Gold's warehouse.

Loom, forerunner of the legendary *Monkey Island*, is a point 'n' click adventure

with gameplay so deep you need a drilling platform to uncover all its twists and turns. The graphics are superb, with smooth linking animations and highly defined close-ups. This is a visual treat that no self-respecting *ST* owner should be without.

Originally reviewed in issue 16, *Loom* scored a highly respectable 81%. Now you can explore this intricate, beautifully designed game world for just £9.99.

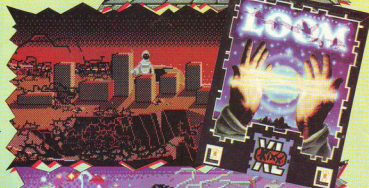
"What sets this game apart from so many of its peers is the superb graphics"

Andrew Hutchinson, *ST FORMAT* 45

You play the heroic Bobbin Threadbare, the only surviving member of the mystical Guild of Weavers who wove the very fabric of reality itself. Now some evil mystic with a penchant for trouble is

threatening to destroy the sacred loom and generally trash the universe. So, what are you waiting for? Fill out the form now

and help Bobbin preserve the universe you know and love...



Yes, I want to weave my way through Loom...

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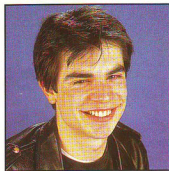
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STF News...



As one game producer leaves the ST market, others unveil new games. Nick Peers reports.

SNIPPETS

Impact Software has reduced the price of **Team: The New Season Edition** to £19.95, just in time for Christmas. Work on the Falcon version continues – it will boast enhanced 256-colour graphics. Impact is on ☎ 01280 850450.

Wild Things has released a new joystick for ST and Falcon owners, entitled the **Jupiter**. The company is run by Howard Jacobson, who recently sold his famous joystick and peripheral manufacturing business, Chetah. Jacobson has also assembled the same team that constructed the best-selling BUG and 125 joysticks. More details when they're available.

The **StoStoTerone Diskzine** is aimed at STE programmers using STOS. It will include extensions, tutorials and lots of source code. Issue one exclusively features version 4 of the STE Extension, which provides true hardware scrolling and full support for the blitter chip for STE owners.

StoStoTerone is freeware, and is available from selected PD libraries. You can contact the diskzine directly by writing to: JHH (Diskzine), 8/26 Hyde Park Gardens, London, W2 2LZ.

The **Falcon Owners Group** has just launched its own publishing arm, Village Software. Initial releases will include the Falcon version of **Outrider** and an ST release, **Warcry**, which is a battle simulation along the lines of **Civilization**. Keep an eye out for more news or a review soon.

Arcane, the new role-playing magazine from Future Publishing, should now be available in the shops. It covers all forms of role-playing, from traditional games such as **Dungeons and Dragons** and **Warhammer** to miniatures, computer games and internet-related activities. **Arcane** hopes to be the **SFX** of the role-playing market, combining quality editorial with upmarket style and layout. So long as you promise to keep reading **ST FORMAT**, we might just let you buy this magazine too.

UDS to leave Atari market

Unique Developments Sweden, creator of both **Obsession (STF 67, 94%)** and **SubStation (STF 72, 75%)** on the STE and Falcon, is no longer developing software for the Atari platform. This means that there won't be a Falcon-specific version of **Obsession**, or extra levels for the STE version of the game. We



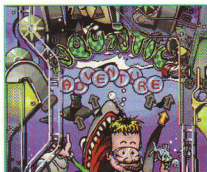
also won't be seeing the **Combat Pack**, or extra levels for **SubStation**.

The company has given two reasons for this change of policy. First, UDS feels its PC and console projects, which include **Jaguar** titles, are too "time-consuming". Second, UDS has discontinued the Falcon version of **Obsession** because: "It is a painful reality that even if we would have time to complete it, it would be far from economically viable."

The company promises a complete refund, plus complementary copies of **SubStation**, to customers who have sent in their **Obsession** Falcon upgrade forms. It also promises to support its existing customer base with any problems experienced with **Obsession** or **SubStation**.

Peter Zetterburg, production manager at UDS, also said

This is the closest anyone got to **Obsession** on the Falcon. It looked like the STE version of the game for both graphics and playability.



It seems we won't be seeing any extra levels for **Obsession** on the STE after all. UDS's departure from the Atari scene is a big blow for the games market.

the company would "like to warmly thank all our customers who have supported us and bought our games during the past year. Without you we wouldn't have been able to enter this business at all. Thank you!"

If you feel UDS still has a future in the ST and Falcon market, why don't you write to the company at Box 6118, S-600 06 Norrköping, Sweden? If enough Atari owners make a point, perhaps UDS can be persuaded to reconsider.

NET NEWS



Futurenet, our very own World Wide Web site, has recently been rated in the top five percent of Internet sites by Point Survey, an independent ratings and review source from the USA. At the same time, Futurenet's hit rate has gone up to over one million accesses a week – not all of which are due to the **ST FORMAT** team's netsurfing activities. You can access Futurenet for **ST FORMAT**'s own Web pages, plus reviews and features from Future's other computing and consumer titles, at: <http://www.futurenet.co.uk/>.



Atari now has a World Wide Web site for **Jaguar** owners. Entitled **Jagwire**, it's located at: <http://www.atari.com/>. It features all the latest hardware and software news, plus a forum for **Jaguar** users to discuss their

favourite console. However, CompuServe has been made the official **Jaguar** support site – CompuServe users need just type **GO JAGUAR** to access it.

Falcon owners interested in **raytracing** now have a World Wide Web page to visit, courtesy of Nigel Briggs. Just point your browser at: <http://spodbox.linux.org.uk/~jinx/>.

Italian Atari distributor **Emmesoft** has recently changed its e-mail address. The new address is: emmesoft@mbox.vol.it.

Paradox Video has just released **An Introduction to the Internet** on video. Aimed at novice net surfers, it will retail at £10.99. The tape provides a general introduction to Internet history, e-mail, the World Wide Web and netiquette. **Paradox** can be contacted on ☎ 0181 741 2203.

Top Byte bites back with games

Top Byte continues to announce new releases for the Atari games market. Its latest project, titled *Aronath*, is a role-playing game that draws influences from *Nethack*, *Gauntlet*, *Canon Fodder* and others.

You control four characters, which can be selected from a pool of 20. They can be controlled individually or as a group, but unlike the *Canon Fodder* characters, they work as a team in group mode, rather than using the more common

'follower leader' system. Top Byte claims game features an advanced hand-timed with cover and obstacles getting in the way of the madness and mayhem.

The game runs in real time on a smoothly scrolling vector-based system, and you can



ers, or spy on your opponents.

The graphics use a palette-switching option to produce more than 16 colours (Top Byte says the screenshot shown here doesn't do the game real justice). What will be of interest to most people is that it will run on all Ataris, including 512K machines. However, to get the maximum amount of detail and performance, 1MByte machines are recommended.

Top Byte expects the game to be ready for a December release, and will be selling it for around £20.

Meanwhile, the sci-fi strategy game *Outrider* should be available 'shortly'. It runs on all 1MByte Ataris.

If you want to learn more about either of these upcoming releases, give Top Byte a call on ☎ 01622 763056.



If the hype is justified, *Aronath* could be another ground-breaking achievement on the ST and Falcon.

STARIO'S CHRISTMAS

Both *Space Ace Stario* and *Stario's Christmas* will be retailing for just £14.99 each, according to James Matthews of Top Byte.

To celebrate the release of *Stario's Christmas*, Top Byte is offering *ST FORMAT* readers the chance to purchase the game for just £11.99 including post and packing (overseas readers should add £1.49) before December 1st. Cheques

should be made payable to Top Byte Software, and we'll be reviewing the game in next month's issue. Meanwhile, Top Byte can be contacted on ☎ 01622 763056 or at: 3 Salisbury Road, Maidstone, Kent, ME14 2TY.

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Positive Image

Floppyshop is confident that *Positive Image* will be available by the time you read this. This powerful image processing utility was previewed back in issue 75, and many enhancements, including substantial speed increases for all STs and compatibility with major graphics cards such as the Matrix, have since been added.

The program will retail at £79, although Floppyshop is launching it at the special price of £65. Look out for a review

and Cover Disk demo in the next couple of months.

Floppyshop can be contacted on ☎ 01224 586208.



Positive Image runs in all Atari resolutions

PD & SHAREWARE NEWS

The latest **Goodman's PDL catalogue** is now available, with single disk prices down to just £1.95 (£1.75 for members), and discounts for bulk purchases.

Nine of Shoestring Software's education titles have been released through Goodmans, including *Robot Words* and *Maths Fun 1*. Serious applications include *Spirografix*, Tony Greenwood's *STOSSER Multimedia Displayer* (see page 46) and a bug-fixed version of *KAOSDesk*.

On the games front, *Anoraks of Doom* (STF 76, 83%) is now available - it costs £3 for two disks. Also featured is *HERO*, the commercial title that has now been released as freeware (see page 43 for a review).

Call Goodmans on ☎ 01782 335650 to place an order.

ASCillum PD has announced a **Dolly Mixtore** collection to enable users to obtain free PD. Just compile a disk of PD, add an intro (using one of the PD intro utilities) and send it to ASCillum. If it passes stringent copyright tests, you can choose a free disk from ASCillum in return. Call ☎ 0181 550 5572 for more details.

A new version of the *STOS Falcon Extension* is available from the **Falcon Owners Group**. It includes direct support for TGA images.

FOG is also working hard to produce an interactive PD catalogue for potential customers. You can contact FOG by e-mail at: requiem@compuserve.com. Alternatively, contact Richard Davey at: 10 Oak Drive, Porthead, Avon, BS20 8QS.

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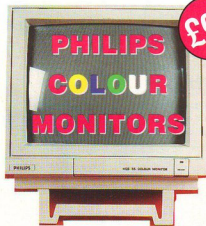
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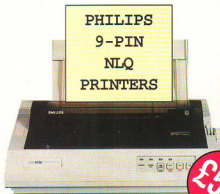
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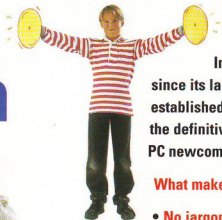
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(price includes video lead). Printer specification: Philips NMS1136 9-pin NLQ Dot matrix printer, Epson/IBM compatible, 120CPS draft, tractor/single sheet fed, supplied with lead.

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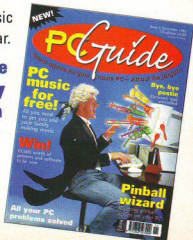
PCGS/STP P511



Don't miss this month's feature on creating PC music – without splashing out on music gear.

Issue five of **PC Guide**, goes on sale
Thursday 19th October

PC Guide



The PC magazine that speaks your language.

COMIC CAPERS

"It was a dark and stormy night..." Dug Armstrong, Simon Forrester and Frank Charlton unravel the secrets of strip cartoons, Manga and graphic novels in this exclusive guide to the world of comic art.

"DISCOVER HOW
TO CREATE STUNNING
COMIC STRIPS WITH OUR
STEP-BY-STEP GUIDE"

HMM, I WONDER



From the cosily anarchic japes of Dennis the Menace to the dark and seedy world of the Watchmen, comics are a major component of popular fiction, and an art form in their own right. From their humble beginnings as lithographic caricatures and political satires, illustrated stories have grown into full-length colour creations with complex plots and a plethora of bizarre characters.

The DTP revolution of the 1980s meant that monochrome comic art could be produced on home computers, but cheap colour printing has until recently been a major stumbling block. Now that the two technologies have drawn level, your ST offers all the tools you'll need to design, create and publish a comic masterpiece.

We'll be focusing on two programs, *Deluxe Paint* and *Calamus SL*, as we take you through story creation, drawing, colouring, lettering and printing a complete comic adventure. Sharpen your pencils, gird your fonts and read on...

Plan of action



Judge Dredd, one of the most famous British comic characters of all time.

© IPC Magazines, 1986

Get your creative juices flowing with Dug Armstrong's guide to creating comic strip stories. Choose your heroes, gentlemen.

Whether you're a novelist, poet, or artist, the first stage in any creative process is to decide

what you want to do. This may sound obvious, but planning is an essential step, especially when you are designing a comic story. Not only do you have to come up with the basic plot, but also

Creating a comic story is a bit like directing a movie

stories, for our strip. Assuming that you know roughly what is going to happen, a text-only script describing each frame is a good starting point. Each

frame has a description, which represents the visual elements of the story, a caption, which conveys

the meaning and emotion of the picture, and speech, which brings the characterisations to life. This script is much like the outline a writer would use to create a film or television screenplay, and it can be used as a checklist for each frame of the final comic.

Once you have created your outline, you can move on to the graphic elements. A storyboard is a series of rough frames, often used to describe a dynamic sequence of visual events. Storyboards can be used to even greater effect when you are planning a comic strip, as the storyboard often becomes a sketched-out plan of the final cartoon.

you have to think about the appearance of the characters and the backgrounds, the overall 'feel' or atmosphere of the piece, the balance between dialogue and action, and so on. In fact, creating a

comic story is a bit like directing and producing a movie, except you have to do everything yourself.

We've decided on a 'swords and sorcery' theme, reminiscent of the Conan



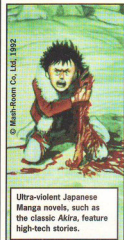
Allen vs Predator: two cult classics go head-to-head in this spin-off comic strip.

© 20th Century Fox, 1989, 90, 91



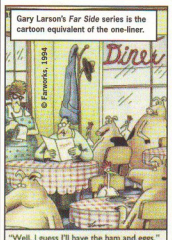
Classic Star Trek goes boldly on in two dimensions.

© Paramount Pictures, 1979



Ultra-violent Japanese Manga novels, such as the classic Akira, feature high-tech stories.

© Mash-Room Co. LLC, 1992



Gary Larson's *Far Side* series is the cartoon equivalent of the one-liner.

© Fawcett, 1964

"Well, I guess I'll have the ham and eggs."

Frame 3

Spartak begins to march through the jungle, and is almost immediately spotted by a group of orc-like beasts concealed amongst the bushes.

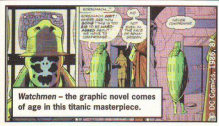
/Caption/

"The dwellers of the Valley were evil, and had vowed to kill all men who entered their domain..."

/Speech/

Orc (pointing): "Awurrp!"

The story outline should contain a description of each frame, including caption and speech.



Watchmen – the graphic novel comes of age in this titanic masterpiece.

© DC Comics, 1986, 87

SCANNERS

Unless you're very good with a mouse, we suggest you create your original sketches on paper, and scan them into the ST – this is how most professional artists work.

Your originals can be in either pencil or ink. Scanning pencil outlines gives a light

scan, which you can touch up and draw over in an art package. Ink sketches give a more solid image, which you can tweak and colour in more quickly. If you have MiGraph's *TouchUp* software, use it to clean up any stray dots before you start colouring.

SCAN YOUR ARTWORK



1 This is one of our original pieces of pencil artwork, drawn by artist Paul Kidby. As you can see, there's a lot of detail here, so we need to scan it carefully. As always, don't be afraid to experiment with your scanner's settings and software.

If you wish, you can take this process one stage further and scan in the rough sketches as the basis for the final artwork. However, scanning in a pencil drawing is only one way of producing the artwork. Rather than drawing on paper, you can create the artwork on your ST - all you need is a mouse or tablet and a bitmap paint program, such as *Deluxe Paint* (from this month's disk).

Alternatively, you can rely entirely on clip-art and bypass the freehand drawing trauma altogether. The only problem with clip-art is that your work ends up looking like everyone else's. Why not try tracing from magazines or newspapers (a graphics tablet is ideal for this), or even the family photograph album!

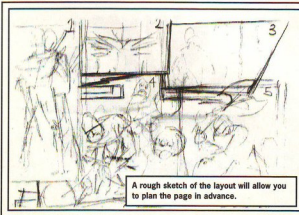
Cards on the table

In all honesty, your comic is going to look a lot better if you have some artistic talent and are prepared to draw all your own work. Our sample strip is based on original pencil drawings by professional artist Paul Kidby, since the writers can't draw to save themselves.

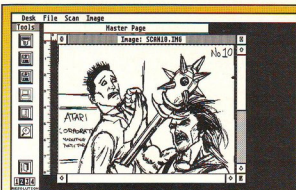
No amount of clever colouring or DTP trickery is going to transform shoebox buildings into a Mega-City panorama, but you can still achieve far better results with your ST than with a box of crayons. Planning is the key to success, and you can always avoid visually complex stories.



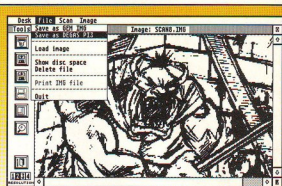
Plan your work with a particular output device in mind - ideally, something like this high-resolution Epson Stylus Colour II inkjet printer.



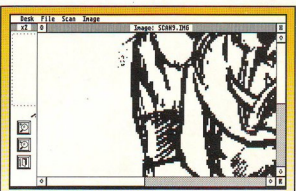
A rough sketch of the layout will allow you to plan the page in advance.



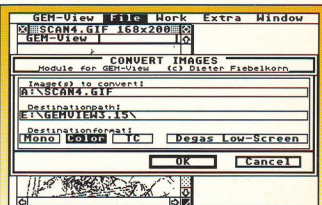
2 Unless you've got access to a flatbed scanner, you'll be using a hand-held model, so bear in mind its size limitations when creating your artwork.



3 If you're feeling particularly brave, have a go at scanning large images with a hand scanner. You'll need to scan the artwork in sections.



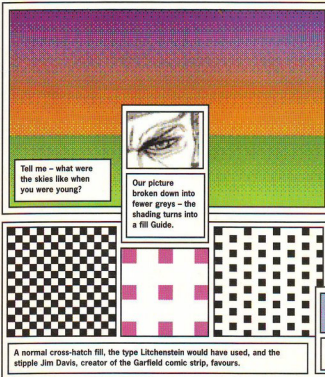
4 If your software supports it, use the Cleanup function to remove single pixel dots caused by dust. Larger blemishes can be edited out by hand.



5 If you're using *Deluxe Paint* to colour your scans, you'll need to chop them into 320x200 pieces. Save your scans out as high-res P13 files and use a converter, such as *GEMView* (from PD libraries) to convert them to low-res P11 or NEO files.

Shading and colour

The fun really begins once you've got the drawings on to your ST. With a little help from Cover Disk program, Deluxe Paint, Simon Forrester starts colouring in.



THE PALETTE

Before you start adding those wonderful splashes of tone and colour to your picture, you have to make sure you have enough colours to work with and that they're the colours you need.

The ST's medium-res display is capable of a maximum of 16 colours. However you're not stuck with the default set - you can choose the 16 colours that best suit your image. Deluxe Paint, in common with most art packages, enables you to create colours by mixing varying amounts of red, green and blue.

When you start, your picture will almost certainly be in greyscale, which means that your 16 colours will all be shades of grey. You can free up extra inks by re-mapping those greys into black. For an altogether tidier image,

drop some of the lighter greys to white to get rid of any interference introduced during the scanning process.

If your images contain pencil shading, map the colours in blocks of four - the lightest four shades go to white, the next four go to light grey, the next four to a darker grey, and the final four to black. This will turn the pencil shading into fill guides, as discussed elsewhere in this section.

You now have between 12 and 14 redundant shades, inks which can be redefined as colours and used on the picture. All you have to do now is decide what colours your picture needs to give it the right atmosphere.

Start by breaking your picture up. Our



If you're feeling really brave, add a third colour into the stippling mix.

at the edges of the ink it's poured on to).

In essence we'll now be filling in these areas of white or grey, bordered by the lines of our drawing, to add colour and texture. Even if your final printout is going to be in black and white, you can embellish it with grey-scale effects.

Stippling

The first problem you'll encounter is your palette: how are you going to make the picture look great with only sixteen colours? Take a look at our picture - despite the range of skin tones and hair colours, only around four inks have been used here. This

effect is called stippling.

Just as a newspaper photo uses more black dots on a white area to produce a darker shade, our warrior's face features more dark brown pixels on the light brown skin to produce shadows while retaining the original colour. The diagrams show how this technique can turn two inks into five different colours. Creating fills with these pixel arrangements enables you to stipple large areas quickly and easily.

There are two other types of stippled patterned fill, both of which you'll find in use

Now that your cartoon's made it on to the ST, you can make as many improvements as there are combinations of tools in your art package. You can even develop your own individual style by dabbling - your changes aren't permanent, as you can always re-load the picture and start again.

What you will have at this stage is a 16-colour picture, although all the 'colours' will be shades of grey. Follow the instructions in the Palette panel to turn it into a black and white image, with 14 colours left free. If you shaded parts of your original drawing with pencil, you'll may want to opt for four shades of grey instead, leaving 12 colours free. Pencil shading is a good idea, as those areas of light grey can provide a guide for your fill tool (the new colour will stop

For a somewhat more sophisticated effect, you could try a gradient fill.

today. The first is a (retina-melding) 60s pop art thang, more commonly known as Litchenstein (after the artist Roy Litchenstein). Everything is shaded in a light stipple of white and the intended colour. This works best with larger dots (2 pixels square) with definite space between. There's a good example of Litchenstein shading on the cover of issue 44 of *ST FORMAT*.

A more reserved variant is the kind of shading that sits behind characters such as Garfield in Jim Davis' monochrome strips. Again, the shading takes a different pattern, with well-spaced, single-pixel black dots arranged across a white background.

It's behind you

Backgrounds don't have to be stippled, though. Our strip is mainly action based, so we left the backgrounds out altogether to emphasise the main characters. In the occasional frames where more detail was either necessary or desirable, we drew it in with single lines of colour (frame 3), left it as the original grey (frame 8) or blackened it to make detail stand out (frame 10).

For a more sophisticated effect on skies or other large, flat expanses (such as the wall in frame 10), you could try a gradient fill. This works in the same way as a normal ink fill, but the filled area changes colour as it travels, gently sliding from one colour into another through the various shades in between. Gradients make for clean,

easy skiescapes, 3D shading effects on ground that travels out of the frame, and a sense of height on vertical objects.

Plug that gap

By the time you get to this point, you'll have had a frightening experience. One of those seemingly harmless areas you were filling turned out to have a one-pixel gap in its boundary, and the delicate gold of a

battle axe plates everything from here to Wrexham.

There are always going to be gaps in the drawing big enough for a fill to leak through, but you don't have to start re-drawing the picture to join the gaps. The easy solution is to draw across the gap in the fill colour using a line tool, then fill the area as normal – the fill will stop at the line you've drawn. The line

won't be visible in the final image, because it's the same colour as the paint running up to it.

By now you'll be in a position to add colour to everything. The only final tip is to be free with the colour you use – comics are allowed to break the rules, so the gerbils in frame 5 can be bright blue, and the last creature can be a disturbing yellow. Bleurgh.

STEVE PUGH: COMIC ARTIST

Professional comic artist Steve Pugh is the force behind the *Strontium Dog* stories, which feature characters like the mutant bounty hunters Johnny Alpha and Feral Boy, not forgetting the metal-eating Gronk with the weak 'heartsease'. Catch up with his work in 2000AD and the forthcoming *Saint Of Killers* special from DC Comics.

"A typical story begins with a story idea and script written by my colleague, Ian Edgington, who incidentally also uses an ST and 1st Word Plus. This takes the form of a screenplay with scene descriptions, dialogue and rough captions. I then create pencil drawings of each frame, concentrating on well-defined lines and borders. Shading and shadows aren't so important, and are usually added once the hard outlines are in place.

"Once the initial drawings are complete, they are scanned into a 4MByte ST using an Epson GT-6500 scanner. I then use the Touch Up software with a Tabby pen and graphics tablet to tidy up the image, before outputting the final pages to an Epson Stylus 1000 inkjet using A3-sized Arboard or Bristolboard media. These are then passed on to the lettering artist, who adds speech and captions, before submitting the finished frames for colouring and final production.

"Because my work is pretty much exclusively high-quality mono artwork, I don't need colouring facilities. I did toy with the idea of buying a Macintosh, but the ST does everything I need and I can't think of a good reason to change it."



Reproduced by kind permission of Steve Pugh and Fleetway Editions

THE GAP



Gaps in your outlines will cause your fills to leak unless you take action...



Choose the colour you are going to use as a fill, then use it to draw a line across the gap.



Now when you fill your shape the paint won't leak out. Your new line is hidden, too.

Strontium Dogs, one of the landmark stories which made 2000AD a major force in British comics.

Into the frame

Now that you've created and coloured your drawings, you're ready to bring all the elements of the story together in Calamus SL. Dug Armstrong explains.

Calamus SL is arguably the most feature-rich DTP program available for the ST; it also runs quite happily on the Falcon. We'll be using this software to place the graphic frames, add borders, insert captions and add speech bubbles. But before you start laying out your drawings on the page, there are a few things you need to consider.

Depending on the subject matter of your strip, you'll need a few fonts to reflect the tone of the story. If you have the patience, and a steady hand, you can create your own lettering fonts (see the Lettering Fonts panel). However, there are literally hundreds of Calamus fonts (CFN) available freely on PD disks and BBSs, and you should be able to find one

which suits your needs.

Similarly, speech balloons in various shapes are available as vector clip-art from a variety of sources, including next month's Cover Disk. Any clip-art in CVG or GEM formats can be used with Calamus.

First things first

Once you have assembled your images, words, fonts and clip-art, you can start laying out the page. As a comic is

Always try out a proposed style before using it on the whole document

largely graphical in nature, the pictures should go in first. To do this, select the Raster Graphic frame type in the Frame module, and drag out an area on the page where you want the picture to sit. Don't worry about

STRIP CARTOON

Strip Cartoon, a brand new program from IBEC, enables you to create strip cartoon pages quickly. A quick look at the demo on this month's Cover Disk, which at present is

mono only, reveals some impressive functions within a customised Mac-like interface.

As well as smooth hardware scrolling, it offers built-in speech bubbles and caption

frames, graphic libraries and a host of interesting tools. **ST FORMAT** will be reviewing the full commercial version as soon as we get our hands on it.



the size initially, you can re-scale the frame afterwards.

Select the Import option on the File menu to read in your

graphic. We recommend that you use the TIF (Tagged Image) format for your pictures, as these can be

re-scaled with minimal loss of detail. You may notice that your image has been squashed or stretched to fit the frame, and has lost its proportions (or 'aspect ratio'). You can cure this by selecting the frame and using the Optimise Frame For Printer function in the Special Functions for Graphic Frames section of the Frame module. If you then re-size your image with the Proportional Scale

option turned on, it will sort itself out.

Unlike some DTP programs, Calamus cannot automatically place a border around an image frame. To frame each graphic, you have to draw a Raster Area frame around the graphic frame, and place it 'behind' the image using the Frame Background /Foreground buttons. Frames created as borders should have an opaque white fill pattern to stop any 'showthrough' from other frames. Once you have matched the bordering frame to the image frame, you can combine the two using the Group function, so that they stay together.

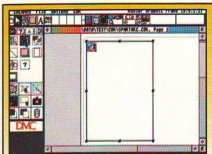
Spelling it out

Once the pictures are in position, you can add some text captions to bring the story to

SUPPLIERS

Product	Price	Supplier	Telephone
Calamus SL	£199	JCA Europe	01753 452416
Fonty	£11.95	FaST Club	0115 9455250
Epson Stylus Colour	£335	Orion Microsystems	01672 311811
HP DeskJet 850C	£458	Fontware Ltd	01252 815514

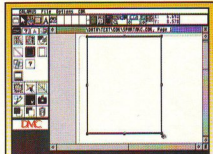
LAYING OUT YOUR COMIC STRIP



1 Create a Raster Graphic frame at roughly the size you want the image to be.



2 Now import the graphic and use the Optimise Size function to preserve its aspect ratio.

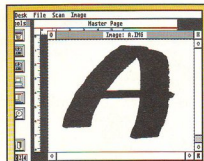


3 Draw a Raster Area with a black border and white interior to fit round the image frame.

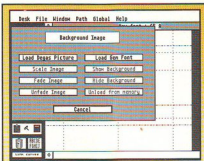
CREATE A LETTERING FONT

Unless you're going for a deliberately computer-like effect, it's best to use a traditional 'hand-lettered' style of font for your comic artwork. For this example we're creating a Calamus font using a simple hand scanner

and FaST Club's excellent *Fonty* editor. The first thing to do is practice your lettering style. A thick felt marker is best, as the resulting scanned image will always look smoother if the original is nice and meaty.



1 Once you've drawn all the characters you need, set your scanner and software to 'line art' mode, and use the highest resolution possible - 400dpi is best, and most scanners support this. You should note to save each letter out as an individual picture file, so you can keep track of which characters you've done.



2 Load *Fonty*, create a new Calamus font, and open the first of your saved image files to use as a backdrop. *Fonty* can't automatically trace the image for you, but manual tracing gives a finer degree of control anyway. Don't be afraid to experiment with different curve types, but save backup versions in case you change your mind.



3 Note that *Fonty* opens a Degas P13 image as a solid black picture. To make the bitmap background a lighter, go to Background option (back where you loaded the image), and select Fade Image. Once you start moving lines, the backdrop may corrupt - cure this by selecting Unfade Image from the same dialog box.

life. There are many ways to lay these out, as our example (see page 23) shows. You can have each caption 'floating' freely inside the image frame, or overlapped with the image border. Captions can even span multiple images to indicate the order of reading.

The simplest form of caption is probably the free-float-

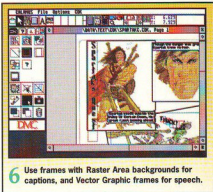
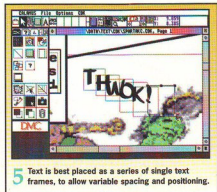
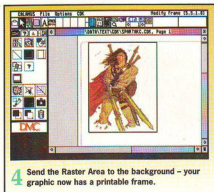
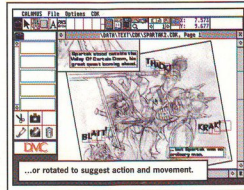
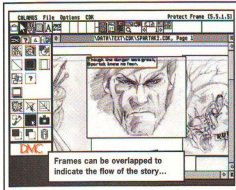
ing rectangle. Text is placed in a Text Frame using the text editor, and a Raster Area of the same kind used for the pictures creates the surrounding panel. You may have to experiment with justification and line spacing, and/or change the shape of the text frame, to get the text to fill the frame.

Speech is inserted in simi-

lar fashion, but using a Vector Graphic object as a background. You could create your own speech bubbles using the Vector Graphic editor, but loads of suitable vector clip-art is available from PD libraries and BBSs. Our balloons were converted from WMF to GEM format, and will be available on next month's Cover Disk.

Again, the balloons should be given an opaque white fill and placed in the background relative to the actual text. Speech balloons should reflect the delivery of the phrase as well as the content, so use smooth rounded bubbles for normal speech, clouds for thoughts and 'jaggy' bubbles for shrieks or exclamations.

Laying out a page is a time-consuming business. So, it is always a good idea to try out a sample of a proposed style before adopting it across the whole document. If you are thinking of using a particular font, make up a few dummy frames and enter a few test words, then print the results at various quality settings. Changing your mind at this stage is easier than re-tyling huge wads of text at the last minute.



Print it out

The job ain't done until your comic strip hits the press. Dug Armstrong reviews your options.

Outputting your finished strip to the printed page is the last step in the process, but it certainly isn't the last thing you should think about. Your whole composition should be created with a particular output device in mind. For example, there would be little point in drawing TrueColour artwork if all you have is a monochrome printer. Luckily, *Calamus SL* provides several options for outputting your work.

A dot-matrix printer is the least expensive option, but provides the lowest quality output. An Epson FX-80 9-pin antique will give you a rough, banded result, and take rather a long time to produce a page.

Modern 360dpi inkjets such as the Canon BJ10 or Epson Stylus 1000 provide good mono output and are within most people's budgets. A standard 300dpi HP LaserJet II (or one of the many clones) offers similar quality and is better suited to larger volumes. Both inkjet and laser printers give results good enough for a newsletter, poster or fanzine.



If you're lucky enough to have access to a colour printer, here's how your cartoon strip might look.

If you can afford them, the new generation of 600dpi machines, such as the excellent HP LaserJet 4, can reproduce shaded greyscale images magnificently. They also give you faster page prints.

And in colour

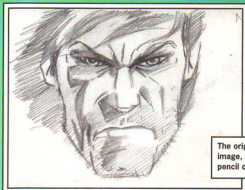
Colour output at home is best achieved with one of the latest colour inkjets. There are a great many on the market, but we recommend the Epson Stylus Colour, a low-cost machine which offers 720dpi colour output and takes some beating. Also worth looking at is the HP-850C, although it may be a while before drivers become available for ST programs.

If you intend to submit your work to a bureau for output via a high-resolution imagesetter, things get a bit more complicated. Although you can output your document to various graphic file formats using the Bridge module, this is a rather expensive piece of software. A more cost-effective way of submission is to produce CMYK colour separations, that is four separate images, each representing a different colour plane. *Calamus* can output separations in various resolutions, via its built-in drivers.

Fortunately, several bureaux will accept *Calamus* CDK files directly – see the Put it on Paper feature in issue 75 for details.

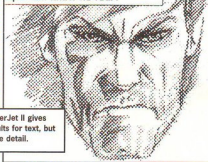
Now, enough of this practical stuff... the moment you've all been waiting for has arrived. *ST FORMAT's* very own comic book hero, Spartak, takes to the page in our example strip. Cast your eyes across and prepare to enter the Valley of Certain Death... *stf*

PERFECT PRINTOUTS



The original greyscale image, scanned from a pencil drawing.

Though the danger was great, Spartak knew no fear.



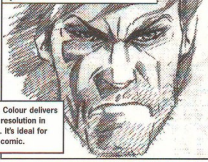
The 300dpi LaserJet II gives reasonable results for text, but loses a lot of the detail.

Though the danger was great, Spartak knew no fear.

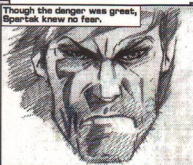


The 600dpi LaserJet 4 is much better at reproducing greyscales and fine lines.

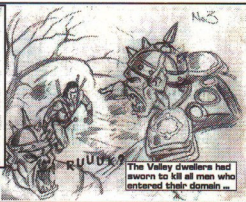
Though the danger was great, Spartak knew no fear.



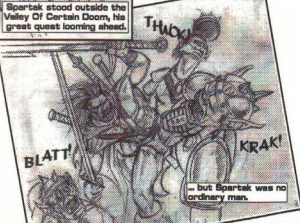
The Epson Stylus Colour delivers a mighty 720dpi resolution in colour and mono. It's ideal for printing the final comic.



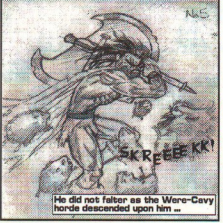
Though the danger was great, Spartak knew no fear.



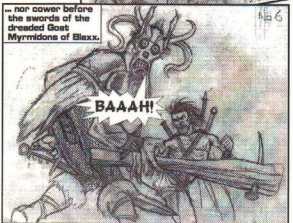
The Valley dwellers had sworn to kill all men who entered their domain...



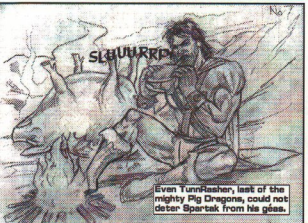
... but Spartak was no ordinary man.



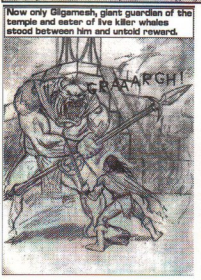
He did not falter as the Were-Gvay horde descended upon him...



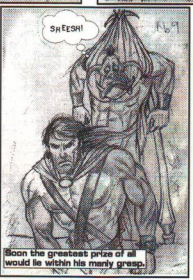
... nor cower before the swords of the dreaded Goat Myrmidons of Blexx.



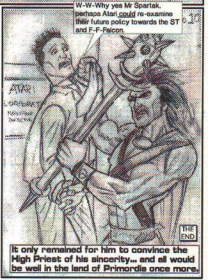
Even Turn-Rasher, last of the mighty Pig Dragons, could not deter Spartak from his goals.



Now only Gilgamesh, giant guardian of the temple and eater of live killer whales stood between him and untold reward.



Soon the greatest prize of all would lie within his manly grasp.

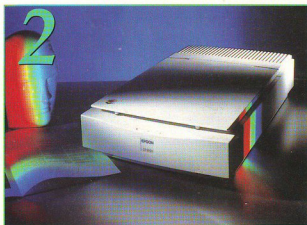


W-W-Why yes Mr Spartak, perhaps Atar could re-examine their future policy towards the ST and F-F-Falcon.

THE END

It only remained for him to convince the High Priest of his sincerity, and all would be well in the land of Primordia once more.

GT-Look 2 scanning package



The GT-8500 looks like a skinny photocopier, but it can scan in 24-bit TrueColour and is a lot more fun to own.

It's easy to add graphics to your ST documents – if you have one of System Solutions' scanners.

Scanners are great for getting pictures and illustration to augment your written work. You can scan and import images very easily, and using your own artwork is certainly more original and interesting than making do with clip-art.

Although very good results can be realised with hand scanners, a flatbed scanner is essential for professional

applications. The flatbed package we are looking at is not cheap, but if you're producing top-quality work you'll want to know all about it.

In issue 75 we covered the art of scanning in detail in our Scan It! feature. The article included a brief overview of Epson's flatbed machine, but we couldn't fit in a full review of the upmarket package offered by System Solutions.

This software/scanner combination claims to give you the sort of results usually only enjoyed by folk with expensive Mac and PC systems, and it certainly looks good on paper.

All for one...

The heart of System Solutions' scanning package is the GT-Look 2 software, which enables you to use any Epson flatbed scanner with your ST or Falcon. These scanners are designed to operate with Macs or PCs, but a special lead provided with GT-Look means they can be connected to your Atari.

If you already own or have

access to an Epson scanner, you can buy the software and lead by itself. If not, you can purchase the entire shooting match, including both software and scanner.

There are three Epson scanners in System Solution's flatbed range, the cheapest being the GT-6500 at £699. This is fine if you are on a tight budget, but as it only comes with one interface as standard, we decided to look at the slightly more capable GT-8500 model. This has both parallel and SCSI interfaces, works at a higher scanning resolution, and has four lamps in the scanning head rather than three. At £799 it costs £100 more than the GT-6500, but it will be far more versatile in the long run.

The top of the range model is the GT-9000 at £899. You'll only need this for work of the highest standard professional. All these prices include GT-Look 2 and an appropriate lead.

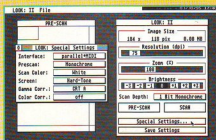
...and one...

Epson's GT-8500 flatbed scanner looks a bit like a compact desktop photocopier. The hinged lid lifts to reveal a glass plate, on to which you lay the item to be scanned. At the rear of the machine is the mains cable's socket, and a variety of interface ports to hook up the unit to your Atari.

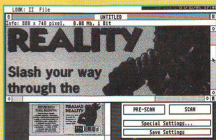
If you have a Falcon you can utilise the SCSI ports to connect things up. ST owners get a special lead which connects the scanner's parallel port to your computer's printer port, with another lead connecting to your ST's MIDI out port.

Apart from a power switch and a reset button, the scanner is bereft of controls – it is operated via the software.

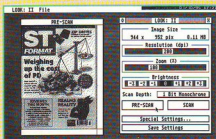
SETTING UP A SCAN



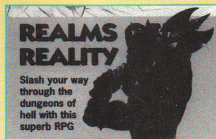
1 Adjust the various options from the main control panel. The pop-up menus, sliders and buttons are easy to operate and you don't need the manual. We've selected a mono scan at 200dpi, at 100% zoom and normal brightness.



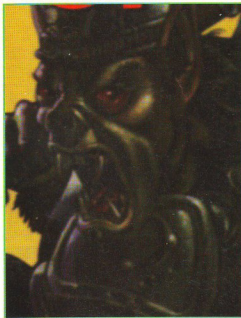
3 Clicking on the Scan button starts the scanner again. It takes a detailed re-scan, reading data only from the area just specified. A new window appears on screen, containing your scanned picture.



2 Put your artwork into the scanner and click on the PreScan button. The scanner quickly scans the whole cover, and displays it on screen. Move the rectangular box to the part of the picture you'd like to scan in detail.



4 The standard file format is TIFF, but you can specify other types if you want. Mono scans produce quite small files; a grayscale version of the image would be five times as big; and a colour scan results in a file of almost 2MB/byte.



A section of issue 75's front cover, scanned in 24-bit colour.

scanner connected – all you get is an error message. With an Epson flatbed machine plugged into your ST, it's all systems go.

Even a basic 512K ST can run GT-Look, but you'll need a mono monitor, because it doesn't run in ST low or medium resolution. You will still be able to scan in full colour – the image will be 'dithered' into a monochrome display on your screen, but it is saved to disk in all its multi-colour glory. If you have a Falcon, the GT-Look 2 software runs in colour.

Scanning software usually needs loads of RAM, because large images take up lots of memory space, but GT-Look enables you to scan direct to disk. As your Atari doesn't have to hold the image in RAM, it only needs enough memory to run the actual program. You can run GT-Look on a floppy-only system, as long as you keep the images below the storage capacity of the disk, but we recommend that you invest in a hard drive.

You can scan in mono, greyscale or full colour, at a range of resolutions. The maximum 'real' resolution is 400dpi, but the software can further enhance the image by simulating 'virtual' resolutions of up to 1600dpi.

GT-Look 2 puts you in the driving seat, and the scanner works faultlessly

THE TECHNICAL SIDE

GT-Look 2 works with three types of image:

Monochrome (black and white) is suitable for digitising line drawings, cartoons, illustrations or similar. The Epson flatbed scanners are able to dither half-tone and colour images internally, which can then be sent as monochrome images. These 'bit images' are often used for OCR, vectorising graphics and telefax.

Half-tones, which can be likened to black-and-white photos, are

actually 'greyscale images', which contain up to 256 shades of grey. The scanner is able to convert colour originals to greyscale before the image is transferred to the computer.

TrueColour images contain up to 16.7 million different hues, and consume masses of disk space; however they do look as good as colour photographs.

The three image types correspond to scan depths of 1 bit, 8 bits and 24 bits respectively.

GT-Look 2 has many other excellent features, including controls for colour-correcting your scans, and the ability to print out directly, giving you a 'photocopy mode'. However, to use these optimiser and photocopy features you need the optional extra software modules (£49.95 each).

...for all

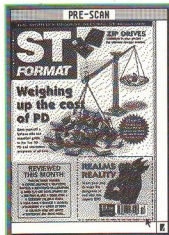
GT-Look 2 puts you and your ST in the driving seat, and the Epson scanner works faultlessly. Hand scanners may be cheaper, but flatbed scanning produces better results, and this package really spoils you. It makes everything so easy, and gives you top class results.

The price unfortunately puts the system outside the reach of many ST owners, but a few specialised users will find that GT-Look 2 and an Epson scanner will give them very professional results. If you look around for a secondhand Epson machine and just by the software, you might be

able to put your own package together more cheaply. Otherwise, keep buying those lottery tickets... *stf*

PETER CRUSH

Product: Epson GT-8500 flatbed scanner with GT-Look 2 and lead
Price: £799 (software alone £129.95, lead £20)
Contact: System Solutions
Tel: 0181 6933355
Min system: Any ST, mono monitor



The pre-scan facility enables you to select the area of the image you wish to scan in detail.

IMAGE FORMATS

GT-Look can save monochrome, greyscale and TrueColour images as simple uncompressed TIFFs, which can then be read by most art and DTP programs. Other supported formats include: the three TIFF block formats (TIM, TIH and TIC), TARGA, and CRG.

GT-Look 2 also loads images in the following formats: screen (DOO and PIC), STAD (PAC), Degas (PI1, PI2, PI3), Neochrome (NEO), GEM image (IMG), TIFF 5.0 (TIF),

TIFF block (TIM, TIH and TIC) and TARGA (TGA). This means it can be used for checking images and/or converting them.

GT-Look 2 also supports a format specific to DA's range of artwork software, enabling it and any other DA product to load a 'virtual' image from disk, without actually importing the whole picture file. A representation of the image is displayed, saving memory and speeding things up.

GT-Look 2 scanning package

HIGHS

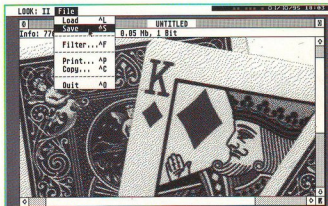
- Works on a modest ST
- Very easy to use
- Scans a whole A4 page

LOWS

- High price of package

In short...

A technically superb flatbed scanning system, sadly with a rather hefty price-tag. **85%**



The King of ST scanners? Probably – the price is certainly regal. It can scan any flat object, and dithers colour images attractively.

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ATARI UPDATE MAG

Atari ST Update Magazine is a new magazine from the owners of The PD Zone. Issue two is out now, with two disks (one containing a demo of Callamus), 80 pages and a price tag of £3.50. A preview copy can be obtained by calling our order line on 01983 867377 at the times stated below, and you can also order the complete magazine using The PD Zone's unique credit scheme. A three month subscription is also available for just £5.95!!!

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MagiCMac

Want to combine the speed of a Mac with the familiarity of ST software? With MagiCMac, you can.

You could be forgiven for thinking that MagiCMac is an Atari emulator for the Apple Mac. It isn't, it's a full implementation of the MagiC operating system for 68030 and 68040 Macs.

The MagiC operating system also runs on Atari computers, but the distinction is an important one. As an Atari emulator, MagiCMac is less than successful. As a version of MagiC, it's rather good.

On the ST, MagiC completely overwrites TOS – it is a separate, multitasking operating system. What we see on the Mac is that same operating system running alongside the Macintosh's native operating system, System 7.

MagiCMac has to be configured to work with the available memory, and a minimum of 8MByte of RAM is required to get the program to boot cor-

rectly. Virtual Atari hard drive partitions are set up as Mac folders and mounted on the MagiCMac control shell.

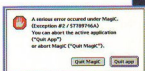
Running MagiCMac takes you into the the MagiC environment, which includes a specially optimised version of the *Ease* desktop. All desktop functions are exactly the same as in the Atari version, and *Ease* links up with *Kobold* (the file copier) in the usual way.

Hardware

The Mac's printer and modem ports are different from the STs, so there are some problems with accessing them.

The modem port is the easier of the two, as it is a serial port on both machines, and a patch program enables you to use the Macintosh's.

The printer port is more of a problem because the Mac uses a serial printer port, instead of the ST's parallel port. According to the manual, specific drivers for Apple printers will be written soon, and a package called *Power Print* enables Mac users to



If you experiment with ST PD, you'll find plenty of these messages. You'll find some programs do work, though.

work with parallel printers.

Power Print users can select the special option in the setup menu and should experience far fewer problems with printing. So, if you need to use a printer with MagiCMac, we suggest you use a parallel printer with *Power Print* (£149) and *NVDI* for MagiCMac (£69.95). If you then use a word processor such as *Papyrus*, which uses GDOS, printing will be no problem.

Using a CD-ROM drive is easy – mount it as an extra drive from the config program and it will install automatically to the

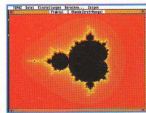
Ease desktop at boot-up.

Unfortunately, there is no good news for MIDI users. The Apple Mac does not have MIDI ports as such, so you cannot make use of sequencers. In fact, very little sound has been implemented, besides the key click, so trackers and sample players can't be used either.

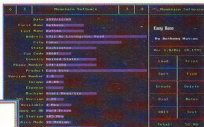
Compatibility

Modern, well-written programs run under MagiCMac without problems. You will be amazed by the sheer speed at which Atari software runs.

Unfortunately, there are fewer well-written programs



One of the best things about MagiCMac is access to enhanced screen resolutions. This fractal, created by a TT fractal generator program, looks superb in 16 colours at 640x480.



Any program that is competently written should run under MagiCMac. The *Easy Mac* program shown here, for example, works well.

than we might wish. Almost all games and a great many PD programs fail to run at all. Some, such as *Calamus SL*, run after a fashion but are effectively unusable because of display or printing problems.

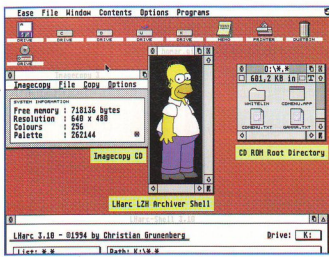
Memory is a little tight, even on an 8MByte Mac. After booting MagiCMac we had around 2MByte free to run Atari programs, so ST programs that grab a lot of memory may run into problems. You may also have to try several of the available screen resolutions before you get a program to work. MagiCMac displays in up to 256 colours on a 640x480 screen, and also includes a 640x400 setting to keep die-hard mono programs happy.

Finally

Generally speaking, if you can run a program under MagiC, then it will run under MagiCMac. With a *Power Mac* version of the program due out soon, MagiCMac may be heading for a bright future. **ANDY CURTIS**



Stello is one of the few games which will work under MagiCMac. Both the ST and Falcon versions run perfectly.



No, it's not an Atari emulator. MagiCMac is the MagiC operating system, implemented for 68030 and 68040 Apple Macintoshes. So, now you know.

Product: MagiCMac
Price: £149
From: System Solutions
Tel: 0181 6931919
Hardware: Apple Mac with 68030 or 68040 processor and 8MByte of RAM, running System 7.00-7.5.1

MagiCMac

HIGHS

- Very fast
- Excellent multi-tasking
- CD-ROM compatible

LOWS

- Memory hungry
- Needs MagiCMac NVDI
- Virtually no sound

In short...

MagiC for the Apple Mac – a good idea that needs a little more work.

75%

Ultimate Virus Killer 6.6

UPGRADES

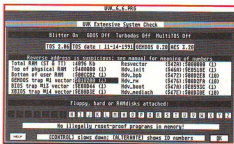
UVK is updated about every three months. Anyone who owns a previous version can upgrade to this latest version for just £6.49. If you're a first-time buyer, you should send your registration card to Douglas Communications. You will then receive notifications of all the updates, and you'll be able to upgrade to the latest version for just £6.49.

Alternatively, you can pay a subscription fee of £21.98 and automatically receive the next four updates of the program when they become available.



Ultimate Virus Killer's frequent updates don't cost much, and ensure you don't get left behind.

On boot-up, UVK displays a bewildering array of information about your machine. Never mind, it's all for the best.



INFECTION

The boot sector is the part of the disk containing all the information that your ST needs in order to access your files. This 'invisible' section is the perfect environment for a virus. When you access the disk, the boot sector virus moves to your ST's memory, which can only be wiped clean by switching off your ST for a minimum of ten seconds.

While the virus is in memory it will copy itself on to any new floppy that's inserted in the disk drive (assuming it's not write-protected), thereby spreading the infection. Worse still, the virus often keeps count of how many times it's copied itself before activating its destruction routine. This might involve printing a message on the screen, crashing your ST or, worst of all, corrupting your disks. One virus, known only as the Belstein Virus, is also capable of wiping the entire contents of your C drive.

Link viruses are more cunning, attaching

Creating and distributing viruses isn't big, and it really isn't clever. UVK fights the good fight against disk infection.

If you find that an increasing number of your disks are being corrupted, or that strange things are happening on the screen, you may well have a virus. Commonly found on floppy disk boot sectors, viruses can have various effects, ranging from flashing a message on the screen when you boot up to spreading through your disks and destroying vital data.

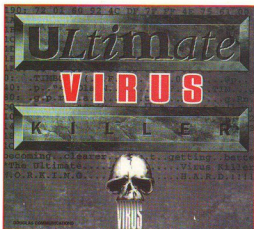
As with real infections, as soon as you eradicate a known

virus a new one appears to take its place. The ST scene is still a breeding ground for new viruses, and as a result 20 new boot sector viruses have been added to UVK's detection routines since version 6 was released 18 months ago.

How ultimate?

A virus killer is a vital part of your software collection. A few years ago you might have been able to survive with a PD virus killer, such as *Sigrotat*. Unfortunately, these programs haven't been updated for a long while now.

UVK is the only up-to-date virus killer available. Its author, Richard Karsmakers, has also continued to develop the program and its interface. The fact that UVK can also recognise and repair over 700 commercial boot sectors is a fantastic bonus, enabling you to restore old games you



UVK re-dresses the balance in the never-ending battle against virus writers.

thought had been corrupted and lost forever.

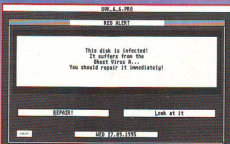
It would be nice to have a printed manual, rather than the disk-based documents, but the documentation is comprehensive and for this price, you can't really complain. *stf*

NICK PERES

Product: Ultimate Virus Killer 6.6
Price: £12.95 (upgrades available)
Contact: Douglas Communications
Tel: 01625 850270
Min system: Any Atari, all 80 column resolutions

TAKE CARE

You shouldn't use UVK on your commercial games disks unless they're mentioned in the program's list of boot sectors. Ignoring this warning may result in permanent damage.



You wouldn't believe how often we receive the Ghost virus.

themselves to the end of program files and copying themselves this way. If you don't have a virus killer, look out for files that are bigger than they should be. Fortunately, link viruses are quite rare - there are only five on the Atari as opposed to the 90 boot sector viruses currently recognised by UVK.

UKV 6.6

HIGHS

- Comprehensive and powerful
- Regularly updated
- Superb value for money

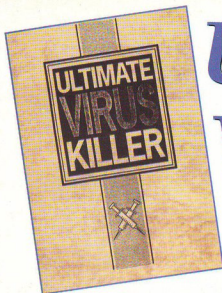
LOWS

- No printed manual

In short...

An essential, powerful and comprehensive utility that everyone should have.

94%



Ultimate Virus Killer: the book

A book about a virus killer? A brave concept, or a complete washout? Read on, Macduff...

Richard Karsmakers is something of an Atari guru. He's responsible for *UVK*, the finest piece of virus-killing software ever to grace an ST, and also for the stupendously long-lived *ST News Disk Magazine*. But a book? Based on *UVK*? We thought *Star Trek* had the monopoly on spin-offs, but this takes the proverbial Jaffa cake.

The book can be roughly carved up into three categories. There's the manual for *UVK* itself, some more generic technical sections, and some autobiographical material.

The manual

Pages 75 to 198 – over half of the book – are given over to a reprint of the *Ultimate Virus Killer* documentation. Given that this material normally appears on the *UVK* disk as an ASCII file, this reprint is no bad thing. *UVK* may well be easy to use, but it's still handy to have the documentation. It does beg the question of whether you're getting good value for money, though. Do you really want to pay £15 for

a book when you already have access to half the text?

Techie stuff

The technical sections of the book are where Richard's knowledge really shines. He obviously knows his stuff when it comes to computer viruses, and his years of work in the field have produced an excellent source of reference. Chapters cover everything from generic and Atari-specific virus histories to a superb section dealing with the concepts and theories behind virus coding. It's a fascinating glimpse into an often misunderstood area, and makes for a highly interesting read. We only wish Richard had expanded these sections, and left out... the 'other bits'.

My so-called life

Whether these were written as sheer page-fillers, or whether the author genuinely feels he wants to share this stuff, it's

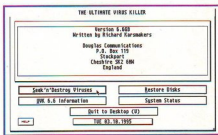
hard to say. At times, Richard goes into some fairly personal history, including accounts of his love and social life. These autobiographical interludes do nothing to enhance the book. It is possible that Richard didn't want to produce a techie book – after all, he does site the author of *Your Second Manual*, Andreas Ramos, as an inspiration.

It doesn't work, though. If you're buying a book of this type you want to read about the technicalities of battling against the strange minds of virus programmers, not how the author

left his long-time girlfriend for another woman.

The physical quality of the book leaves a lot to be desired, too. The pages look like photocopies, and the binding is awful. A cheaper version of the glue-based perfect binding system used by paperbacks has been used, and the spine is nothing more than black cloth webbing. The whole affair feels very fragile, and the pages were starting to detach themselves by the time we finished it. Why not use a ring-binder system, as Mark Baines did for his *Atari 'A to Z'*? That would have made adding updates possible, too.

For the quality, the price is scandalous. Frankly, it's



The program is excellent, but sadly, the book isn't.

doubtful the book would last two months of repeated reading. It's a shame that this and the superfluous personal waffle detract from what is otherwise a well-written book from an acknowledged expert. With a different binding and more technical details, we'd love it – but not like this.

FRANK CHARLTON

Product: *UVK*, the book
Price: £15
Contact: Douglas Communications
Tel: 01625 850270
Min system: The ability to read

Ultimate Virus Killer

HIGHS

- Excellent technical sections

LOWS

- Poor-quality binding
- Unnecessary personal revelations

In short...

An oddball book: the technical sections are useful, but the rest isn't.

55%

FAME AT LAST?

Trivia time! Did you know there's a virus dedicated to our very own ST Answers guru, Clive Parker? Apparently, the Lucky Lady Virus 1.03 disguises itself as an old-style ST FORMAT Cover Disk. The

UVK book mentions that it was designed as a 'personal revenge' against Clive, who once dared to berate virus programmers. Oh dear. Childish, or what? Uh-oh, now I've gone and said it...



If you can get them, downward thrusts help you achieve that killing impact.

Killing Impact

The ceiling cracked and a figure on a hydraulic hopper landed in the office, crushing Nick against the floor. "Yes!" the rider screamed.

Though the advent of the Jaguar gave us such treats as *Tempest 2000*, there are still many classic gaming ideas that could be re-applied. One of the titles we've been waiting for is an update of *Joust*, the excellent duelling coin-op. Thankfully, Falcon owners need wait no longer, because Rebel Vision has completed *Killing Impact*, a *Joust* for the '90s.

If you're a *Joust* virgin, the Ostriches? panel will give you an idea of the basics, although

a good many things have changed. For a start, you've swapped that odd-looking ostrich for a jet-powered hopper, with hydraulic legs that kill whatever they hit. It's a strange craft: it drops like a stone normally, but pressing the fire button triggers your boosters, keeping you in the air. You don't have any option about the length of blast, though – flying is achieved by continually hitting fire, a system that gives you firm control over your height and velocity.



That strange, hydraulic jet-hopper in full. And something being horribly squished. Nice catsuit, though.



The weapons are packed on to the fire button too tightly for comfort.

Steering works on the same system – you don't actually change direction until you fire your boosters. Although you have to travel in a series of bouncing arcs, the system lends itself to fighting, smooth ascents and emergency action.

It's mean

This new craft can also be upgraded with extra engines, a freeze gun, mines and a laser. Many of the creatures you encounter aren't easy to dispose of, and these extra abili-

ties come in handy quite often.

The major change, though, is the playing area, which is no longer a single wrap-around screen – the duelling area has been replaced by enormous, explorable levels, which you must travel through. This isn't born of plot, by the way: as Rebel puts it, the game "will take you, with a robot, to a strange planet with great surroundings, where you'll find some very dangerous creatures. You'll have to kill them." That's all there is to it – kill everything that moves.

If you're really into high-scores, you'll be off on a rampage of mass destruction without any further encouragement. However, Rebel has also made rampaging necessary, as killing things isn't just enables you to upgrade your hopper, but also opens up huge (and important) parts of the playing area that you couldn't get to previously.

Killing something isn't just a matter of hitting it, though. The shallow element of *Joust* was that you could just scrape something and it would plummet to the deck, but the creatures in *Killing Impact* offer

OSTRICHES?!

You don't remember *Joust*? You had a version on the ST that was incredibly faithful to the original, with a number of blokes sitting astride ostriches (that could fly, strangely), attempting to knock each other out of the skies and collect the resultant eggs before they hatched. If the eggs did hatch, the new birds flew off to pick up their riders and duelled again. As the wrap-screen levels progressed, more and more hazards were added, and the computer opponents became faster and smarter.

What really made *Joust* was its originality – it was a multi-player action game that didn't involve guns or fists. You won by mastering the way the ostrich flap – a tap on the fire button made the ostrich flap once, giving you control over the bird's speed, height, and ascent rate. The winner of each collision was determined by their height at the time of impact – the highest player stayed on their bird.

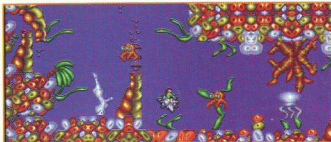
This turned simple collisions into carefully timed attack dives, with the unsuspecting bird suddenly flapping like crazy to gain those important few pixels of height.

One thing to remember, an important point that has made it through to *Killing Impact*, is that your direction control has realism – the true-to-physics engine means that, though you can move left and right easily, your directions only take effect at the flap. You can't change directions or affect your horizontal movement in mid-flight. This means slowing down and turning is a balance between turning speed and height gain.

Joust was, in fact, a truly excellent game, defining the strengths of every multi-player game from that point onwards. It was interaction on a very basic level, casting aside guns for gritty one-on-one battles. Great stuff.



"It was this big, honestfry..." Another unsuspecting fisherman bites the dust.



Scenery as colourful as this is very good at hiding those dangerous creatures.



There are always things you can't kill - this snake will get you everytime, but there's nothing you can do about it.

more of a challenge. They will nearly always survive the first hit, unless you get a good run up - the game boasts a momentum system, so that the harder you hit something, the more damage you'll do. This adds another element to the game, as duels can turn into long, drawn-out battles. The environment is also less than accommodating, as the juts and crevices make that clean, easy kill a lot more difficult.

And scary

The creatures you're fighting have come a long way, too. Some walk along the floor, some can jump incredibly high, and others hang around on the ground and shoot at you. There are, of course, a fair few flying monsters as well, though they have a lot more skill than the original *Joust* opponents. They don't always attack you, and they don't submit without a fight.

Each level is more hazardous than the previous one, with strange, new creatures and different pitfalls. However, the difficulty curve is steady and approachable, challenging you without being unfairly tough. The only exception is the occasional inclusion of gun turrets that nearly always score against you. These unavoidable seem to tax the fun somewhat, adding a dose of irritation to what is otherwise an enjoyable game.

There are only really three levels in the entire game, but each doubles the length of the previous one, making for

around 15 hours of play if you go through it all in one sitting. Unfortunately you really don't have any choice in the matter - there's no password system, and no save game option. Rebel claims the game can take up to 30 hours to complete, sans the realisation that very few people have the time or the patience to sit down and do one thing for a day and a quarter. Come to think of it, not many people have enough strength in their thumbs to tap a fire button continuously for that length of time, either.

But it feels good

Killing Impact comes into its own on the atmosphere front.

Each level is broken up into several sections, each with its own look, feel, and collection of life forms.

Incidental sounds complement the beautifully drawn, naturally arranged scenery to create an sense of actually sitting in your character's surroundings. Unfortunately, the music doesn't really complement the scenery - ambient sounds would have happily filled any uncomfortable silences.

Killing Impact doesn't break any boundaries, but what it does it does very well. The game runs at the same frame rate as the monitor (be it RGB or VGA), making for smooth scrolling and animation. If your monitor or machine has difficulties keeping in sync, you can adjust the game's timing (by adding nops - machine-level pauses).

Control freaks also have the option of adjusting the craft's thrust at any point in the game. You can work with short, weak thrusts that provide

GROUP SESSIONS

Like *Joust*, *Killing Impact* provides for some really hairy two-player action. When you play a multiplayer game (and, given the right system, you can have up to four people on the screen at once), you co-operate with the other players to travel through the levels - you can't kill each other.

Obviously, all four players have to stay on the same screen, though thankfully you can't collide.

If you could, then the real struggle of the game would be to stay out of each other's way long enough to travel anywhere, rather than to kill things to complete the level.

the minimum of lift, or more powerful bursts that give you greater speed for fewer thumb-taps, trading off accuracy and manoeuvrability for a quick response and fast flight. Should you feel the need, you can alter this thrust as you come across different obstacles, though a setting of seven (the scale goes from one to ten) seems about right for most things. It would be nice, though, if the thrust control was linked to the fire button, so that the longer you held the button down, the more powerful the burst.

One annoying point is that the extra weapons are accessed by holding down fire for a few seconds (to

charge up), then pushing in a direction and releasing the button. Though there aren't many other ways to pile four functions on to one button, this system is a bit fiddly - even when you've got the time to charge up, you can't guarantee getting the keys right without losing control of the craft.

Back to the future

Killing Impact is a perfectly accessible game for *Joust* virgins, but it seems to be designed to make the most of a game style we all wish had been expanded a long time



"Why all the fuss? It's only a flesh-wound."



Head-to-heads end in both parties flying off in different directions, as neither gains the height necessary to do any real damage.

ago. The level layouts add a layer of abstract strategy the original didn't have, as you're planning long runs of action instead of frantically hopping about. For instance, you'll find it's better to duck and weave up a long column and then work your way back down, effectively doing sections backwards to make the most of your height.

Killing Impact has turned *Joust* into a science, a transformation that's long overdue. ST owners should hunt out a copy of *Joust*, but buying a Falcon has paid off for the rest of us - we get *Killing Impact*. *stf*

DAVE BARRINGTON

Product: Killing Impact
Price: £29.95
Contact: Merlin
Tel: 01452 770133
Min system: 4MByte Falcon with hard drive

Killing HIGHS

- It's *Joust* for the 1990s
- And it feels great

LOWS

- The guns are annoying
- Not an excellent control system

In short...

A valuable update of an already excellent game. Buy it now - you won't regret it.

85%

VERDICT • STIF VERDICT • STIF VERDICT • STIF VERDICT

Double Bobble 2000

Fire up your Falcon, turn yourself into a small green dragon and have some bubble-blowing fun with Dub and Dob.

The retro trend that spawned *Killing Impact* is also responsible for *Double Bobble 2000*, which drags the original Taito coin-op *Bubble Bobble* kicking and screaming into the late 1990s.

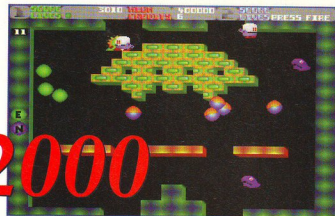
Brought to you by The Reservior Gods, *Double Bobble 2000* takes full advantage of the advanced hardware in the Falcon030. While the graphics and sound have been spiced up immensely,

the programmers have thankfully left the original game-play completely intact. The original was great fun to play, and this version is no different.

Dragons...

You take the part of a small green dragon called Dub, and your mission is to complete the 100 or so levels by polishing off the various nasties on each one. Your ultimate goal is to dispatch the boss, Darren Von Blubba.

Dub disposes of his enemies by spitting bubbles at them - if you score a hit, the bubble encloses



Try new Dob Micro for longer lasting bubbles, and it's kind to your flippers too.

the bad guy and you can finish him off by jumping on the bubble to burst it. It may not have the plot complexity of *Civilisation*, or even *Llamazap*, but it certainly makes up for that in terms of gameplay.

Double Bobble 2000 is 100 per cent faithful to the original, and it really is one of those 'just one more go' games - something that seems to be sadly lacking in this new age of full-motion video gimmickry.

Control options are excellent: you can use the keyboard, joystick or a Jaguar joypad, or any combination of these for the two-player mode. Yes, *Double Bobble 2000* offers the original's two-player action as well. Player two takes the role of a second dragon, called Dob, as you team up against the might of Von Blubba. Even with two players, the game still runs at full speed.

True colours

The original's graphics were functional at best, but artists Ripley and Sparehead 3 have made the most of the thousands of colours available on the Falcon. The screens are still recognisably *Bubble Bobble*, but they sparkle with colour and detail, and they shift at an impressive speed, too.

The sprites look like the originals, but have been given an injection of colour and a feeling of solidity. The collision detection is spot on, and the whole game looks very professional.

Double Bobble 2000 wins hands down. It's not

an original concept, but The Reservior Gods has taken a very successful idea and updated it without trying to add unnecessary 'extras'. The programmers are obviously hugely talented, and deserve to go far.

The 40-level demo version (also available from the Falcon Owners' Group) is just £1, and for £10

The original was great fun to play, and this version is no different

you get extra levels and a level designer - superb value for money. If you're into platform games with humungous amounts of playability, put *Double Bobble 2000* at the top of your shopping list. *stf*

FRANK CHARLTON



Muck about too much on a level, and you're in big trouble...



Only another 99 levels to go, and then we can design some more. The fun never stops on *Double Bobble 2000*.

SUPER SOUND

Double Bobble 2000 sounds fantastic. It uses the Falcon's DSP chip to play crisp Soundtracker MOD music right through the game. The sound effects are also sampled, and don't interfere with the music.

Something which really caught our attention was the clever stereo effects. If you're at the left of the screen, any sounds

you trigger - for example, by blowing a bubble - will come from the left speaker. Moving to the right moves the sounds to the right speaker, and standing in the middle mixes the sounds through both channels. It's not a major thing, but we think it's little touches like this which show how much work has gone into *Double Bobble 2000*.

Product: *Double Bobble 2000*
Price: £10
Contact: Falcon Owners' Group
Tel: 01225 843241
Min system: Falcon030 with 4MByte and RGB/VGA/TV screen

Double Bobble 2000

HIGHS

- Completely faithful conversion
- Monstrously addictive

LOWS

- Nothing

In short...

A classic game updated to use Falcon technology. Stunning, and great to play.

96%

Evolution Dino Dudes



Strap on your loincloth and wiggle your spear – it's time for 16/32's prehistoric Falcon game.

Evolution *Dino Dudes* is a *Lemmings*-style puzzler in which your god-like task is to take an unruly tribe of prehistoric cavemen and guide them along the tenuous path toward civilization. You begin with a central 'pool' of cave-geezers, a certain number of whom you'll need to use in order to complete each level.

Each level gives you a specific task to complete. This could involve simply reaching the end of the level, or making your tribe evolve to a level where it discovers some new gadget, like the spear in level one. Whatever the task,

though, you'll need to get your head round some real brain-sizzling puzzles in order to progress.

Your basic dude can do two things: move about and form a stack. Forming a stack involves your little hairies

climbing on top of each other to create a human ladder. You'll need to use this trick quite often, as initially it's the only way to travel between plat-

forms. Discovering the spear brings two new skills: throwing and vaulting. By using the spear like a pole-vault, you can propel your dudes across small gaps in the platforms. You can throw it, too – but do be careful about where your other dudes are standing before you let rip! As you come across new tools, your dudes learn

even more skills, like using fire to burn vegetation or riding about on a big stone wheel.

The clock's ticking

To make each level harder, you have to fight against a strict time-limit. Some levels are also cursed with spear-carrying enemies or even the odd dinosaur. The first few levels are a piece of cake, though, and ease you gently into controlling your dudes. Unlike *Lemmings*, only one dude is

You'll need to get your head round some real brain-sizzling puzzles

active at a time, and you switch between them using the JagPad's keypad.

To complete a level, you need to think of your

dudes as a team, and make them interact with each other. You may occasionally need to (gulp!) sacrifice a dude for the common good, just to get the other guys to safety. Help is at hand, though, since you can rescue imprisoned dudes and add them to your tribe.

After the first ten levels, the difficulty level starts to rise and you'll find yourself grunting, puzzling, and swearing that the damned thing is impossible. It's not, of course, but you need to do a fair amount of lateral thinking to get your head round some of the levels. Still, the sense of satisfaction when you crack that bit of a puzzle is excellent, and its challenging nature makes the game more enjoyable.

Evolution Dino Dudes is in no way a frantic game. It's very smooth, with some slick animations between levels. The sprites are good fun too – especially when a dude gets too close to a hulking great Tyrannosaurus. Equally good

Witness the moment: man learns how to scratch his bum.



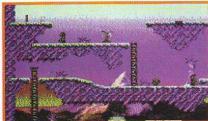
Hrrm, so how are you going to cross that gap, then?

are the sound effects, with cute samples firing off all over, and the stereo music fits the scene nicely, too.

The difficulty curve is just about right and, with some careful thought, you can get a fair way into the game on your first attempt. There's also a handy password facility.

Evolution Dino Dudes won't make your jaw drop with amazement, but it will make you pull your hair out. A smart game, and we like it. Oh, and in case you're wondering, it's almost identical to the Jaguar version. *sf*

FRANK CHARLTON



You know, I remember when this was all Industrial parkland as far as the eye could see...

AT LAST...

This is a game with a history, and that history goes something like this... A few years ago a bunch of programmers at Imagitec released a nifty little *Lemmings*-style puzzle-'em-up, called *The Humans*. While this game was released on almost every computer format available, it never made it to the ST. Atari liked the game, however, and commissioned Imagitec to convert it for the newly-launched Falcon, with a subsequent version for the Jaguar. Atari then ordered a swift name change, believing

the original title wasn't catchy enough, and *Evolution Dino Dudes* was born.

So where has the Falcon version been? After all, the Jag version was one of the first games released for the 64-bit wonder machine. Simple, this is another one of those games Atari decided not to bother with when it pulled out of the computer business. You can thank 16/32 Systems that *Evolution Dino Dudes*, along with *Llamazap* and *Steel Talons*, has ever seen the light of day.

Product: Evolution Dino Dudes
Price: £24
Contact: 16/32 Systems
Tel: 01634 710788
Min system: Falcon with RGB monitor and Jaguar joystick

Evolution Dino Dudes

HIGHS

- Reasonably addictive
- Good difficulty curve

LOWS

- Can get tiresome

In short...

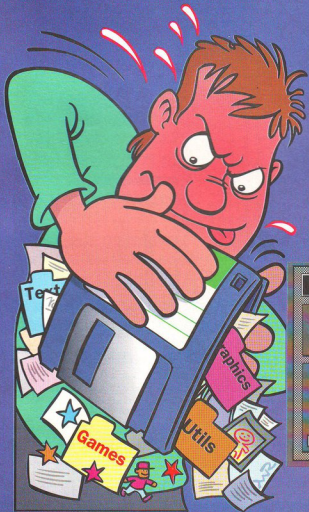
A smart conversion of a good game, but some later levels are too frustrating.

81%

VERDICT • SIF VERDICT • SIF VERDICT • SIF VERDICT

The Big Squeeze

Discover how to free up more space on both your floppy and hard disks with our complete guide to compression software. Andy Curtis and Frank Charlton go on the trail of the tiny saviours.



If you find disk space a constant problem, you'll be interested to know that there are ways and means of cramming more data into less space. Given the right file types, compression software can squeeze your data down to just five per cent of its original size. So, you can cram more programs on to a disk and save yourself a fortune on new floppy disks or hard drive upgrades.

Save money

Compressing data also means you can transfer programs with the maximum of efficiency and the minimum of waste. It may mean you can send your friend just one disk instead of two or three, saving you money on disks and postage. Alternatively, transferring archived files via a modem will cut down your phone bills.

There are two basic forms of compression: archiving and packing. The most efficient and straightforward form is archiving.

Archiving software essentially compresses a selection of programs and documents down into a single file that takes up significantly less space than the original data. The major benefit of this is that you can cram more data on to a single disk, which is useful for backing up your files. It's also easier to transfer archived files over phone

lines, and they are standard on both BBSs and the Internet. The downside of archiving is that you can't use any of the compressed data without returning it to its original form first – a process known as dearchiving. As a form of backup, however, it's second to none.

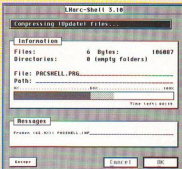
Pack it in

If you want to be able to access your compressed data easily, without having to dearchive it on to disk first,

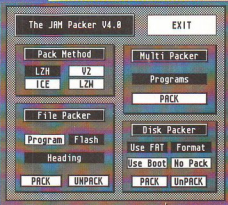
you can use a packer. Although packed programs are compressed in a similar way to archived ones, a piece of

code is added to the program so it can be unpacked into memory when you load it. The process is more complicated than archiving, and a packed program takes longer to load and run than its unpacked equivalent. Nevertheless, packing large executable files can free up valuable hard drive space or even make it possible to fit a number of programs on to a single disk.

Over the next four pages we're going to show you the hard benefits of compressing your data. We'll also reveal which packer and archiver programs are the best in their respective fields, and how to get the most out of compression techniques. If you're running out of room on your floppy or hard drives, read on and learn how to squeeze megabytes of extra space out of your system.



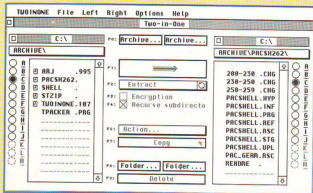
We use LHarc to compress the files on the Cover Disk, but is it the best software available? Turn the page to find out more...



JamPack offers a superb user-interface for packing files, but does it do its job efficiently, or quickly enough? Frank Charlton delivers the verdict on page 40.

Into the archives

Small, compact and highly desirable. Andy Curtis cuts the ST's compression giants down to size as he sets out in search of the ideal archiving software.



The 2-in-1 archiver shell is similar to LZH and ZIP, except that it can handle a number of archive formats, rather than just one.

Some people say that small is beautiful and they may well be right, at least in the case of files. Put simply, archiving is a form of compression that dramatically reduces the size of a file, often cutting

it down to half its original size. Take the *ST FORMAT* Cover Disk, for example. We wouldn't be able to fit half of the programs on each month without the use of an archiving program.

But why do we use archivers, as opposed to packers? First, packed files tend to be slightly larger, and run slightly slower. More important, however, is the fact that archivers enable you to join many files together in a single archived file. This makes it easier to keep groups of

files together, such as a program, its resource file and documentation.

Archived files are also useful if you're into comics work. All the files and programs you find on BBSs have been saved, not only to have the SysOp vast amounts of valuable hard disk space, but also to make the files more convenient to download.

What's more, with UK telephone lines being what they are, it is actually safer to transfer archived files as the tightly compressed data is less likely to be corrupted. Finally, if you have a number of files on your hard drive that you only use occasionally, it makes sense to archive them so that they take up less room and sit neatly in one place until you need them again.

Vive la difference

The key difference between archiving and packing is that archived files are not executable. They are raw data files, which you need to expand before you can use them. Archiving algorithms pack all the data very tightly together in one long encoded file, which is utterly useless unless you use the same mathematical algorithm to dearchive it.

There are dozens of different archiving programs available, but the two industry standards for the ST are ZIP and LZH. The reason for their success? They are easy to use, fast in operation and able to pack very tightly

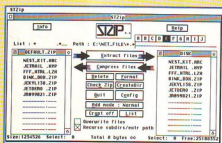
SO, WHAT IS ARC

In the same way that you might take down a tent and put it in a small bag, archiving software takes down the size of the files and puts them away ready for re-use at a later date. The analogy is a pretty good one because the tent is unusable while in the bag, and must be re-assembled before you can use it. The same thing is true of archived files – they have to be dearchived before the files can be used again.

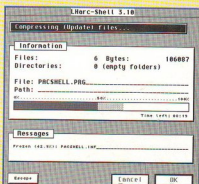
File archiving works by looking for repeated patterns within the code of a file. When an archiver spots a sequence which is repeated, it replaces that sequence with a much shorter one. It then creates a key showing which sequence was converted and what it was replaced with. For example, in the unlikely phrase:

the less widely used standards, such as ARC and ZOO, fall in at least one of the above departments. In the case of ARC, one of the earliest forms of archiving on the ST, it falls in all three. ZOO, on the other hand, is fast enough and packs data tightly, but is difficult to use.

A fifth standard, ARJ, is something of a latecomer to the ST, being primarily a PC compression format. Until recently, ST owners only had access to utilities capable of dearchiving the ARJ format, but now there is a full



ST Zip was the first to introduce the two-column layout, which has since become standard in many other archivers.



LHarc Shell gives you this pleasant graph to let you know how the job is progressing.

A TOUR OF LHARC

We use LHarc 3.10 to create the Cover Disk's self-extracting LZH archives.

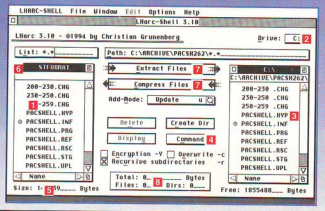
8 Total number of bytes, files and folders of a selected file.

- 1 Archived files appear in this column.
- 2 Click here to select the drive with the files you want to archive.
- 3 The files ready for archiving appear here.
- 4 Click here to convert your archive into a self-extracting file.
- 5 The size of your new archive is displayed here.
- 6 Click here to define a name and destination for your archive.
- 7 Initiate the archiving or dearchiving process.

Archiving is a four step process: First, use button 6 to initiate a new archive, then choose its destination and name using the file selector box. Second, click on button 2 to select the appropriate drive. Double-click on the folders in area 3 till you locate the files you wish to archive.

Third, select the files you want to archive by clicking on each one. You can also click and drag out a 'rubber-band' box to select multiple files.

Finally, click on Compress files and LHarc will do the rest for you.



HIVING?

Scientifically speaking, it's scientifically impossible to do scientifically.

The archiver immediately spots the repetition of the word scientifically and replaces it with something much shorter – *β*, for example. As you can see, if the word scientifically is used with the same frequency throughout the rest of the document (highly unlikely, I know), an archiver would save you a great deal of disk space. All the dearchiver needs to know in order to restore the archive is what *β* stands for and where to put it.

Obviously, this is an over-simplified view of archiving, but it demonstrates the basic principle. Archivers actually use complex mathematics to crunch files as quickly and as tightly as possible.



Packshell is a relative newcomer to the ST archiving scene. It provides an efficient desktop-style interface, which is very user friendly. We love it.

archiving program too. The ARJ system is fast and effective, but its late entry on to the scene means it's unlikely to challenge ZIP and LZH in the popularity stakes. If you do need to exchange archives with a PC owner, stick to *ST Zip*, as it's completely compatible with the PC's PKZIP program.

Point and click

Thanks to some cleverly written graphical programs, archiving on your ST is simple and delightfully horror free. Gone are the days of TTP parameters boxes and incomprehensible interfaces. You can even create self-extracting archives with ease. We use self-extracting archives on the Cover Disk, and while it makes the files a few kilobytes bigger, they are simplicity itself for the end user.

Both *ST Zip* and *LHarc* have their own graphical interfaces, but archivers such as ZOO, ARC and ARJ require you to type coded instructions into a TTP program, which is tedious and horribly unfriendly. It comes as little surprise then to learn that there are now a number of programs available which do all the hard work for you.

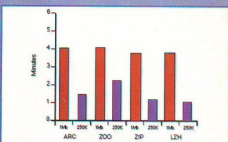
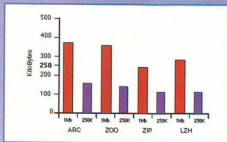
THE ACID TEST

These tests were all done on a standard 4MByte STE running at 8MHz. We used a hard drive to store the data, so expect significantly longer times if you use floppies. The following tests were conducted on both 1MByte and 250K selections of files.

Programs

Here our 1MByte and 250K selections included PRG, RSC and data files. There wasn't a great difference between the various archiving methods we used,

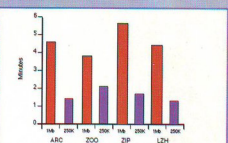
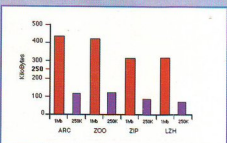
although the ZIP and LZH archives were significantly tighter and a little faster to produce than the ARC and ZOO ones.



Pure Text

Pure text usually archives very tightly. In our 1MByte selection we used a dictionary file, which makes it much harder because there are fewer repeated patterns. The multiple text files used for the 250K

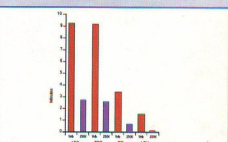
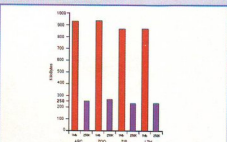
bundle are more representative of how well text files usually archive. LZH has a clear advantage here: it archived the 250K bundle faster than any of the others, and the end result was smaller too.



Graphics

Our graphics bundle was made up largely of JPG and GIF files. Archivers struggle to compress files that have already been compressed, such as JPG and GIF files, so the results are quite poor. The

difference between the various archivers is that ZIP and LZH recognise that these files have already been compressed and so don't attempt to compress them further. This results in faster times.



The *2-in-1* archiver shell enables you to address other archiving programs via its convenient interface. Simply tell *2-in-1* where to find the necessary TTP archiver files and you will be able to create archives in the format of your choice. *Packshell* does a very similar job to *2-in-1*, except that it uses a desktop format, making it instantly familiar and predictable to use.

Archives are created in GEM-style windows and you simply drag the files you want to archive into the archive window – *Packshell* does the rest. The sheer simplicity of this program makes it a winner.

And finally...

If you need to archive files on your ST, we recommend that you use either ZIP or LZH. The archives you create will be

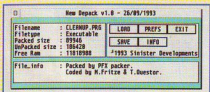
easily accessible to other ST users and if you use ZIP, PC owners should have no trouble either. Avid BBS and Internet users need to acquire a full suite of archivers, including ZIP, LZH, ARC, ZOO, TAR and GZIP, all of which are available from LAPD (☎ 01773 605010). One thing is for sure, archiving on your ST has never been so reliable and straightforward.

Pack attack

Archiving is fine for storage, but what if you want to save space and run the programs? Frank Charlton explains the art of packing.



DataLite 2: a nice idea, but the ST's CPU makes real-time compression sluggish.



New Depack is a program which decompresses and saves almost any packer format.

The difference between archiving and packing is simple. An archived file needs to be expanded before you can use it, while a packed program offers similar space-saving advantages, but can still be run as normal. Packing all of your programs and accessories can take a while, but it's worth it. If you're booting from floppies, packing your boot disks gives you much more room to play with — room for

extra utilities, system enhancements or even the odd game.

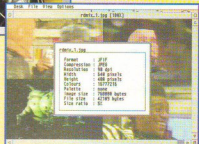
Hard drive users can benefit too. You may think your new hard drive will never fill up, but it will — and all too quickly. Packing your programs reduces the chance of seeing the dreaded disk full alert box.

The technology behind packing is similar to that employed in archiving. The packer looks for duplicated sequences, and replaces them with a smaller 'token' sequence, which is decoded at decompression time.

Unlike archivers, though, with packers you can still exe-

This image has been compressed with the GIF format. It's now just 47 per cent of its original size.

Look at the savings you get by using JPEG. It's now a mere five per cent of the original uncompressed size.



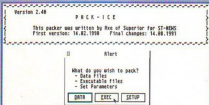
cute the programs that have been compressed. Most of them do this by tacking a small piece of code on to the front of the program. When the packed program is loaded, this code acts to decompress the original file, then the file is executed as normal. Because of this, packed programs suffer a slight speed penalty, but it's hardly noticeable.

PACKING SOFTWARE

In this test we used Pack-Ice 2.4, Atomik 3.6 and the rarer GEM-controlled packing suite JamPack to pack copies of ImageCopy 4CD, OASIS 1.30 and Speed Of Light 3.8.

Pack-Ice 2.4

This packer has been around for years, and has earned itself a devoted following in that time. In fact, some say Pack-Ice has never been beaten in terms of speed and results. There's no interface to speak of, other than a few dialog



Pack-Ice is an excellent packer, and is still used by some demo crews, even after all these years.

boxes and the file selector, but it works extremely well, and was by far the fastest of the packers we tested.

Atomik 3.5

Atomik 3.5 is slower than Pack-Ice, but it uses some extremely efficient packing algorithms to produce frighteningly small files. Atomik has always been a favourite with programmers and demo crews, and still holds its head high even now. Annoyingly, unlike other packers, you can't disable the line which is displayed during the unpacking of Atomik-packed files. We used version 3.5 in our tests,

```
*****
*ATOMIK CRUNCHED BY ELTRID*
*V3.5 completed on: 27/1/92*
*****
F1: CRUNCH EXECUTABLE [TOTAL ERROR]
F2: CRUNCH DATA FILE. [FREE!]
F3: CRUNCH ALL FILES. [FREE!]
F4: CRUNCH PARAMETERS [VWRX]
F5: EXIT FROM ATOMIK. [AMCS]
F6: UNPACKER PROGRAM. [JUNKP]
F7: BUSINESS SECTION. [PUBI]
F8: GREETING SECTION. [IMBI]
```

An ugly interface hides a massively efficient packing program. Atomik really is a corker.

because while version 3.6 does exist, it's essentially the same as its predecessor, except that it's been fixed to run under the Warp 9 screen accelerator.

JamPack 4.0

Probably the best of the three for total beginners, JamPack cushions the newbie bits with a pleasant GEM interface. It also offers different compression systems, including the one used by the LZH archiver and even Pack-Ice. JamPack is the slowest of the three, but produces very good results. Worth hunting out if you're a packing novice.



It may not be the fastest packer in the world, but JamPack offers several compression systems and it's easy to use, too.

The results

ImageCopy 4CD (original size: 442,853 bytes)

Pack-Ice	1 min 5 secs, packed to 265,480 bytes
Atomik	2 mins 57 secs, packed to 241,194 bytes
JamPack	3 mins 16 secs, packed to 254,738 bytes

OASIS 1.3 (original size: 207,714 bytes)

Pack-Ice	34 secs, packed to 84,984 bytes
Atomik	1 min 11 secs, packed to 74,146 bytes
JamPack	1 min 44 secs, packed to 80,480 bytes

Speed of Light 3.8 (original size: 220,622 bytes)

Pack-Ice	33 secs, packed to 111,088 bytes
Atomik	9 secs, packed to 100,908 bytes
JamPack	1 min 27 secs, packed to 106,824 bytes

In terms of packing power, Atomik wins out, producing smaller files in all three instances. Pack-Ice comes tops in terms of speed though, sometimes beating Atomik by over a minute. JamPack takes second place for its packing prowess, but is very sluggish in the speed stakes.

PICTURE PACKING

Picture files have some special compressed formats, which can save you a tremendous amount of space if used wisely. So which format is the best to use? It depends on three things: memory, colour depth, and which formats your favourite software supports.

Memory

A tiny image file will often need large amounts of RAM to decompress. The 24-bit JPG format is a prime example of this. Because of the advanced nature of the compression, a JPG image as small as 60K could require up to 1.5MByte or more of memory to decompress. If you're low on memory, stick to the less efficient compression formats.

Colour depth

Some formats only support a certain number of colours per image. The GIF standard is very widely used, and compresses images of any physical screen size very well, but it only supports pictures with 256 colours or less. For 15 or 24-bit TrueColour images, JPG or TIF produce the best results. Be warned, though: JPG is a 'lossy' compression method. This means the compressed image isn't identical to the original one. JPG uses a system where an image is analysed and stripped of any colour information which the human eye can't really detect,

which is how it produces very small file sizes. Moving an image back and forth between JPG and another format produces rapidly degrading results, so JPG is best used for archiving purposes. TIF, on the other hand, is 'lossless', and doesn't have these problems. Also, JPG only works efficiently on 'photographic-quality' images such as scans or video grabs, so don't use it for hand-drawn pictures.

Software

No matter which format your art packages support, there's a converter available to swap formats. The best conversion tools are *GEMView* or *ImageCopy 4*, as both can handle any format imaginable, even those from other computer platforms. Paint packages such as *Rainbow 2* for the Falcon handle loads of formats, too.

For 16-colour images, stick to the Degas compressed (PI1) format. For between 256 and 16 colours, GIF is still a good choice. For TrueColour, either TIF or JPG is best, depending on your storage requirements.

GEMView is shareware and available from any PD Library. *ImageCopy 4* costs £34.95 from the FaST Club (= 0115 9455250). *Rainbow 2* costs £60 from JCA Europe (= 01734 452416).

Some packers work slightly differently, in that they don't add the code needed to unpack the program to the compressed file. Instead, they rely on an Auto folder utility which notes which programs are being launched, and unpacks any compressed ones. This has the advantage of reducing the size of the packed files, since the code for unpacking doesn't need to be included with every program.

PC and Mac owners have another option: 'real-time' compression. With this system a memory-resident utility watches for disk read and write instructions, intercepts them, and then packs every single piece of data as it's saved to disk. Then, when they're read back, the same program decompresses them. Programs like *Stacker* and *DiskDoubler* work in this manner. The ST's attempt at this came in the form of HiSoft's *DataLite 2*. Sadly, the ST's CPU was really too slow to handle

it, and *DataLite* drives ended up insufferably slow to use.

Although development of ST packers seems to have slowed to a virtual standstill, there is a new one in the pipeline. Coded by the Falcon programming team The Reservoir Gods, it should be one to watch – especially if it's up to the same standard as the team's games and demos. *stf*

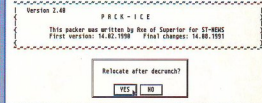


GIVE IT THE BOOT

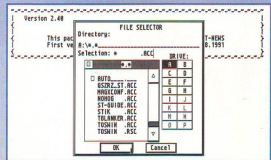
How about packing your boot disk so that everything still runs but takes up less space? We show you how with the excellent *Pack-Ice*.



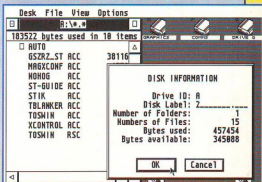
Your original boot disk, comprising a random selection of Auto folder programs and Desk Accessories. As you can see, our selection only leaves 71K available on the disk. Time to pack...



Load *Pack-Ice*, and select EXEC from the alert box. When *Ice* asks if you want to relocate after decompact, choose YES. (If you come across a problem, try re-packing with it set to NO.)



Ice accepts 'wild cards'. So instead of selecting an individual file, type *.* to pack all Desk Accessories with the ACC extension. You can do the same with the *.PRG extension in the Auto folder.



As you can see, there's quite a difference in the amount of free space available. We've now got a whopping 345K left – more than enough room for some more ACCs or even a few fonts.



PC FORMAT

The world's best-selling PC leisure
magazine - on sale now

P.D. & Shareware

The lone dark figure of Nick Peers sweeps mysteriously over the town of Public Domainville, passing judgement on all the new residents.

HERO

Goodmans PDL,
Disk GD2659
All STs (not TOS 2.06
or Falcon)

Originally a commercial release (STF 64, 85%), HERO is now available as freeware thanks to author Tony Greenwood. When it was first released, the game was praised for its slick graphics and animation. The speed of execution was also impressive, especially considering the game had been completely coded in STOS.

HERO is a four-way scrolling platformer, in which your mission is to infiltrate a research base and rescue the men stranded on each of the game's 60 levels. To do this, you need to search each level for a radiation suit, teleport card and various other items, track down the stranded bloke and get him to teleport out. It's then a case of getting to the exit yourself before moving on to the next challenge.

The first few levels of

HERO are relatively simple, enabling you to get a feel for the game. As you progress, you can access certain computer terminals to save your current position or re-load a previous game into memory. As the game's premise and objectives are rather limited, the save game facility enables you to keep moving on to new challenges instead of wading through levels you've already finished.

The main difference between this and the commercial release is that the introduction and end sequences have been removed to fit the game on to one disk. The sampled sound has also been left out, so you're left with rather annoying chip music and no sound effects. This is pity as one of the major pluses of the original release was the atmosphere created by the sound.

On the whole, though,



HERO stands for Human Extraction and Rescue Operation. The demo featured on The Boy's first ever, pre-bitter and twisted era, Cover Disk in issue 63.

HERO is a superb game with excellent graphics and fluid animation. The controls are a little sluggish, and the lack of any sound effects detract from

it a little. Still, you can't complain - after all, you're getting a commercial-quality release for the price of a single disk.

STF RATING: 88%

Titanic

ASCillium PDL, Disk ODD553
All STs

This program traces the history of the Titanic, the 'unsinkable' ship that, er, sunk in 1912. The program itself is split into six sections, each of which consists of

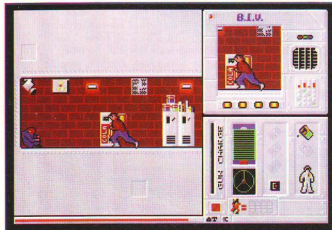
a tiny greyscale - but reasonably distinguishable - scanned picture and some text. Pressing a key 'turns the page' to access more of the disk.

The facts are all there, and the inclusion of the historical context that surrounded the building of the ship is a nice touch. For instance, did you know the Titanic was designed by a US company to dominate the North American sea lanes?

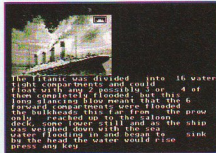
Unfortunately, though, the presentation leaves a lot to be desired.

Given just a little more thought, this program could well shine through as a useful aid in learning about one of the most celebrated maritime disasters of the 20th Century, but for the moment we'd suggest you hold it on ice.

STF RATING: 45%



Thankfully, giving counsel to the people you're rescuing isn't necessary. Just have a teleport suit on you and they'll soon cheer up.



The Titanic was divided into 16 watertight compartments, and could float as long as possibly 2 - 4 of them completely flooded; but this soon proved to be a mistake. The 6 forward compartments were flooded, the bulkheads that ran from the prow only reached up to the main deck, some lower still, and as the ship was weighed down with the sea water flooding in and began to sink by the head the water would rise, press any key.

Did you know that the infamous SOS call was first used by the Titanic? If you can get over the hideous presentation, you can learn all sorts of facts from this program.

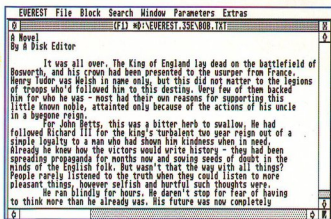
Everest 3.5

Goodmans PDL
All Atari, medium or high
resolution

Everest is a text editor that, along with *Marcel* and *Editth*, offers Atari users the benefits of powerful utilities without the cost. This particular text editor is perfect for programming and word processing alike, not least because of

the powerful formatting facilities it offers. A group of macros can be set up to handle up to 11 different file formats, enabling you to easily create and edit a combination of text and language files without having to double-check your formatting for each one.

Everest supports text files of up to 300K and you can cycle between any of the loaded files by clicking on the relevant function key. The edit and search functions also offer some powerful



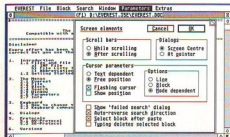
They say everybody's got at least one novel inside them. Judging by this effort from our esteemed Disk Editor, that claim may be a little exaggerated.

options not found in other text editors. Highlighted areas can be created easily by dragging the mouse over the required text. On top of this, the search function includes a useful 'Find Error' option to help programmers debug their files.

Everest doesn't offer the

layout tools or scalable fonts found in 'real' word processors, so it's extremely fast. However, you will need to port your text into a full word processor to make it look presentable. As a pure text editor, though, Everest is excellent.

STF RATING: 91%



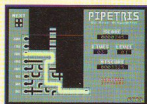
Everest's Formatting parameters screen enables you to set, up different options for different file types.

Pipetris

Cover Disk 77
All STs (TOS 2.06 with
JSTOSFix), colour monitor and
joystick required

Pipetris is an intriguing cross between two old favourites: Tetris and Pipemania. On the one hand, you're trying to prevent a pile of blocks from reaching the top of the screen, while on the other, you're trying to lay the pipes contained within the blocks in such a way that they channel liquid to one of the bonus points on the far side of the screen.

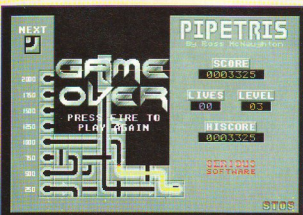
To help you on your way, you can rotate any of the objects using the fire button. If you do manage to lay a valid path from one side of the screen to the



other, you move on to the next level. Fail, and you must start that level again.

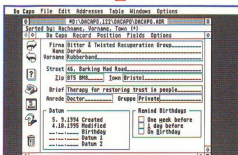
As the levels progress, the game becomes increasingly complex. Extra pipes are introduced, some of which only allow the liquid to travel in one direction, and the tiles fall more quickly. Although there's no way to pause or quit the game, Tetris fans will find enough here to challenge their puzzle-wise minds. As for non-Tetris fans... well, are there any?

STF RATING: 81%



If you've ever fancied building an aqueduct, you'll find Pipetris an interesting challenge. How complex can pipework be before the liquid refuses to flow?

Da Capo 1.22



Keeping tabs on important contacts is really easy with Da Capo. Here's an entry from our Disk Editor's own address book. Sad, isn't it?

HENSA archives, stored in
micros/atari/tos/p/p058
All Atari, 1MByte required,
600x400 display
recommended

Da Capo is a powerful address database from Germany that leaves all the other shareware contenders standing. A powerful GEM interface makes getting around the program a dream, and it literally oozes options and shortcuts to make your address book as comprehensive as possible.

You can display your records in one of two ways: as a table which lists your records in sequential order, or separately with the records sorted according to three user-defined criteria (such as surname, forename and address). The second method lists each record separately, but offers more options for editing and viewing separate records. For

instance, you can store data in the usual fields, but on top of this, you can also add birthdays or other important dates, e-mail addresses and even telex numbers.

Da Capo can be set up to make the process of entering data incredibly easy. For example, you can link postcodes and towns together so that entering one will automatically enter the other. You can even set up the program to dial modem and phone numbers for you.

The current version has only been partially Anglicised, but aside from the on-line help, you shouldn't encounter too many problems. This shareware version only allows you to enter 40 records, but registering, which costs DM30 (around £12), enables you to add many more. Highly recommended.

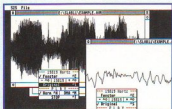
STF RATING: 89%

1stGuide

Goodmans PDL, Disk
GD2076 (two disks, £3.00)
All Ataris, all resolutions

Although 1stGuide originally made its name as a hypertext viewer, it has since ceded that role to the superior ST Guide. However, as an accessory for the quick and easy analysis of text, resource, graphics and sample files, it's quite a useful tool.

One of the main attractions of 1stGuide is its ability to load and view resource files. Once you've loaded a file, you can tour through the entire thing, discovering which links lead where. This makes it a valuable companion to resource editors,



We had problems getting 1stGuide to work properly with samples other than unaligned 8-bit ones, such as the example file from recent Cover Disk offering, SoundLab.



1stGuide makes viewing and listening to certain files a very straightforward process. You simply click on them and off they go.

such as *Interface 2*. Similar options are available with other file types: samples can be speeded up or slowed down and pictures can be scaled to a more manageable size.

Elsewhere, however, it's less impressive. It supports AVR, SAM and SND sample formats, but automatically loops them, which can cause problems. Also, although it enables you to view IMG, JPG and GEM files, it doesn't support common formats like GIF or Degas.

On the whole, 1stGuide is a useful program, but it needs to be developed further before we can recommend it wholeheartedly. An English translation would be a bonus, too – especially if you want to create your own hypertext documents with the program.

STF RATING: 76%

Paths of Glory

LAPD, Disk L125 (£3.00)
All STs, 1MByte
recommended

One of the annoying things about role-playing games is that you can't just jump straight into grappling with monsters and hand maidens. Instead, you have to start off by creating a set of heroic nutters who usually die within seconds as you struggle to come to terms with an unfamiliar interface.

Paths of Glory is no exception. Once you've created

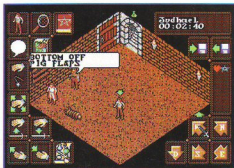
Johnny Hero and outfitted him at the local sword and sorcery supermarket, you're off on your quest in the isometric dungeon. You move your character around by clicking on the various icons. When you come across other characters you can either attempt to recruit them, communicate with them, or just kill them.

The user interface is initially daunting, but you'll quickly come to terms with it. The game is well presented, but a little sluggish in the

combat stakes. It would also make sense to have a better graphical representation of your character to make it more obvious which armour he's wearing and so on.

A good attempt, but in the final analysis *Paths of Glory* is really nothing special.

STF RATING: 74%

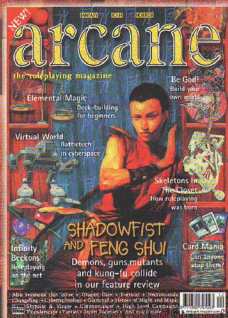


An interesting, if relatively unspectacular, foray into the role-playing genre. *Paths of Glory* is an amusing distraction from the traumas of normal life.

At last a quality independent roleplaying magazine

Comprehensive reviews
Inspirational features
Controversial opinion
Informed news
Pull-out scenarios

and a couple of gags...



miniatures, tabletop games,
collectable card games,
computer games, the internet
arcane will cover it all.

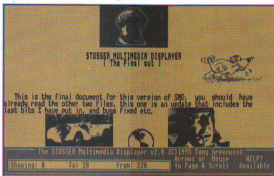
First issue on sale Thursday
9th November £3

STOSSER Multimedia Displayer

Goodmans PDL, Disk GD2658
or Wonder Disk 77
All STs (TOS 2.06 with STOSFix)

The first working version of Tony Greenwood's **STOSSER Multimedia Displayer** is now available. This fine freeware program, from the author of **HERO**, developed out of the **STOSSER Text Displayer**, which featured on Cover Disk 68. The new program enables you to combine text, graphics, animations, sound samples and music in a single packed document, which can then be used for a variety of purposes.

It's quite straightforward to use - just store all the elements (text, music, picture files and so on) in a convenient folder, launch the program and combine everything within its studios. You can alter the



Future versions of **STOSSER Multimedia Displayer** should introduce support for low resolution graphics, making the program a much more colourful affair. At least, that's the plan according to author Tony Greenwood.

colour and fonts used for your text, insert external PIZ picture files, and even add

animated sequences to give your document that little bit more life.

As well as **SAM**, **AVR** and **SPL** samples, you can also include chip music. All of these elements are mixed into your document from modules within the main program.

Some extra work needs to be done to turn this into an indispensable program. Tony has already promised that future versions will include support for low resolution pictures and a wider range of graphic formats, and this will certainly help. It would also be useful to add **MOD** support, even if this format is limited to **STE** owners.

Still, this is a fun program that'll give you a warm feeling inside as you watch your creations come to life.

STF RATING: 80%

Wildlife Slideshows

Stellar PD, Disks ART83-85
All Ataris, colour resolutions

Remember **Photochrome 4**, the rather splendid graphics card emulator that's been lurking around the shareware scene for the past few years? If you want to see what it, and ultimately your 'humble' **ST**, are capable of, then get yourself any one of these **Wildlife Slideshow** disks.

Each of the three disks comes with ten rendered **PCS** pictures of various exotic wildlife. The pictures themselves are sharply detailed, and the 19,000 colours (from a possible palette of 32,768) offered by **Photochrome** have

been used to brilliant effect. The result is a set of pictures you just wouldn't believe possible on the **ST**.

Congratulations go to Martin Cubitt for compiling these utterly stunning images, and Douglas Little of Black Scorpion Software for writing the superlative **Photochrome** in the first place. So, anybody out there fancy writing a game using stunning backdrops like these?

STF RATING: 90%

You might be forgiven for thinking we just scanned in these pics, but they are, in fact, the pictures from the disks reviewed here, viewed on a humble 512K **STFM**.



PD & SHAREWARE ROUND-UP

Keep an eye on the cream of the latest releases to hit the **PD** scene over the past four months.

Title	PD Library	Type	Issue	Rating
ST Guide 1.3	HENSA	Hypertext	73	95%
Tautology 2	AdLib PD	Falcon game	76	93%
Warp 2	Keefy's PD	Disk magazine	73	92%
Skyduel	Floppyshop	Game	75	92%
Switch	Merlin PD	Falcon game	76	92%
Bombzai	Comp Dungeon	Game	73	90%
Egale 2.7	HENSA	Utility	76	90%
Freedom 1.14	HENSA	File selector	71/74	90%
Backward 3	Merlin PD	ST emulator for Falcon	75	88%
The Lost Blubb	Floppyshop	Falcon demo	75	88%
Thing 0.54E	Floppyshop	Desktop	74	86%
Xlator 2.0	Merlin PD	Translator	76	86%
KIVI 1.41	HENSA	Off-line reader	74	85%
Novadisk 8	James Bird	Diskmag	76	85%
OASIS	Demon	Internet shell	73	84%
Square Off	LAPD	Game	73	84%
525 v2.1	HENSA	Sample converter	73	84%
Anoraks of Doom	Goodmans PDL	Game	76	83%
ESSCode 4.4	HENSA	File converter	74	83%
Third Dimension issue 15	Floppyshop	Diskmag	76	83%
Cartoon Capers	Power PD	Game	74	82%
Counter Atak	Floppyshop	Game	75	80%
Pixkrome	Floppyshop	Image processing	76	80%

BOS diskmag

ASCillium PDL, two disks (by name)
All Ataris, 512K (1MB required for free PD)

BOS, the latest entry into the already crowded **ST** disk magazine scene, boasts a slick interface but very little in the way of editorial substance. Most of the articles are extremely short, and the contents page could be more readable, too. There are no software or hardware reviews, and the technical advice pages are rather weak in terms of useful information. Okay, so it's only the first issue, but you need to grab your readers' attention early if you want them to retain any interest in your publication, especially in a market as competitive as this.

The interface, which is best viewed on a monitor as opposed to a TV, is visually pleasing, but is unfortunately rather buggy; clicking on the article you want to read loads the one listed immediately after it. This bug will presumably be removed from future issues, but if the diskzine wants to survive it needs to offer more substantial content to match the promising layout style.

STF RATING: 55%

Movies at Night



The registered version of *Movies At Night* enables you to create animated sequences from *Degas* or *Cyber Studio* animation files.

Goodmans PDL, Disk GD2667
All STs, 1MByte required,
ST low and medium
resolutions only

In the commercial screensaver sector, *Twilight* (STF 76, 88%) has reaped all the rewards, while *Before Dawn* has beaten off *Darklord* for the PD crown. Now, however, there's a new contender: *Movies at Night*, whose main claim to fame is that it can be used with *Warp 9*.

When the *Movies at Night* screensaver function is activated by a period of inactivity, it begins

to playback movie files. As well as the GATOR.MOV example file, this screensaver also includes a construction program which, when registered, enables you to

save your own animated sequences from *Degas* low resolution pictures and *Cyber Studio* SEQ animations.

The program is easy to install and run, and comes with a comprehensive help system – to access it, just press the [Help] key while running the construction set. Unfortunately, because *Movies* only runs in low and medium resolution, it is rather limited. So, unless you're desperate to see yet another screensaver, stick with your current favourite.

STF RATING: 65%

Pac Them

Ad Lib PD
Falcon-only, 256 colours or
more (VGA/RGB compatible)

Pac Them is a German *Pacman* clone, nothing more and nothing less. *Pacman* is the oldest arcade game of them all, and involves trawling around a maze gobbling all the pills and avoiding the monsters. Touch the monsters and you're a goner, unless you've first taken one of the four power pills available, in which case you can chase the monsters and obtain a bonus.

Pac Them is a poor version of this old classic. And despite running in 256-colour mode only, the extended palette has barely been used in the game



The Falcon's hardware is barely used and there are no twists either. It's odd, then, that *Pac Them* takes up nearly 1MByte of valuable hard disk space!

Itself. Aside from the quirky sound effects, there's little to recommend this game. Registering for DM25 (around £10) earns you *Ganymed*, an *Asteroids* clone. Take our advice, get *Pacman* on Es 2 and *Asteroidia* instead.

STF RATING: 55%

Noter

ASCillium PDL, Disk ODDS15
All Ataris

Noter is a program designed to create executable programs capable of displaying text in a variety of fonts and – hideous thought – playing soundchip music over the top, if that's what you want. The resulting file can then be saved on to disk, or if

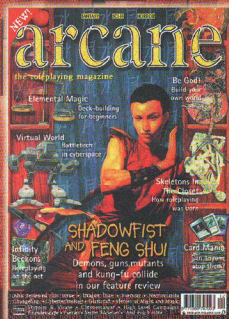
you prefer, packed as an executable program.

If you want to send a message to a friend and annoy the hell out of him or her with soundchip music, look no further. If, however, you want more control over your compositions, (or to retain your friendships) try Tony Greenwood's new *Multimedia Displayer* program (reviewed opposite) instead. Whatever you do, though, don't send any *Noter*-generated files to us.

STF RATING: 61%

At last a quality independent roleplaying magazine

Comprehensive reviews
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Informed news
Pull-out scenarios
and a couple of gags...



miniatures, tabletop games,
collectable card games,
computer games, the internet
arcane will cover it all.

First issue on sale Thursday
9th November £3

Cyber Talk



FutureNet has recently been rated in the top five per cent of Internet sites. Find out what the fuss is about by pointing your browser at the **ST FORMAT** home page.

You've seen the ads over the last couple of months, but you're still a little unsure what FutureNet is all about. Allow me to explain. FutureNet is Future Publishing's rapidly expanding World Wide Web site.

Now, I know what you're thinking: why tell us about it? Well, it seems that at long last the new graphical browsers we've all been waiting for are on their way (see the Web of Intrigue feature in *STF 76*). So, why not start your Internet travels with a trip to FutureNet?

What's on offer?

FutureNet includes features, news, essential contacts and links for all of Future's 30-plus

magazines, including *net*, *The net Directory* and, of course, *ST FORMAT*.

You can take out a subscription to your favourite magazine, order back issues and even take advantage of special reader offers, all from the comfort of your ST keyboard. You needn't worry about evil hackers getting hold of your credit card details either, as FutureNet's server utilises encryption software to prevent Internet fraud.

Then, having stocked up on bargains, you can sit back and fill your noodle with the day's Computing News. Or, if you prefer, you can check out FutureNet's World News, which is also updated daily.

Or what about having a natter with other like-minded souls via the magazine's chat forum? Yep, it's coming soon to FutureNet, so if you want to stay in touch, stay connected...

Karen Hewell



NEW FTP SITE

Not content with being the most successful commercial World Wide Web site outside the USA, FutureNet is now dipping its toes into the realms of ftp (file transfer protocol) sites.

The new site will enable us to put all the software and files that we can't squeeze on to the Cover

Disk on to the Net, for you to download at your leisure.

To take a gander at what's available, point your Web browser at <ftp://ftp.futurenet.co.uk/incoming/futurenet/>. If you're using ftp software, type in: <ftp://futurenet.co.uk> and go to the directory <incoming/futurenet/>.

ST FORMAT DIRECT

Future Publishing's daily electronic magazine



What's new on FutureNet

More than 20 new features added every week - don't miss them! Hot off the press...

• **Street Racer** - the mother of all racing games? From *Star Power*



FutureNet World News

Your online daily news service, updated at 1pm BST every weekday

Latest headlines for Thursday 5 October...

- **World** - Will anyone choose to resettle in Bosnia...
- **UK** - Did you miss yesterday's football results...
- **Sport** - Cliffiah out of first two World Cup games
- **Computing** - @business in fear of Internet crime



Magazines & books
Check out Future's superb print magazines and book offers



.net magazine
The world's best Internet magazine is on-line

Okay, so you know what FutureNet offers generally, but what's available for hard-core Atari buffs?

• Features

It's all here in our bite-sized features guide - everything from making music on your ST to the hardware and software behind the CD-ROM revolution.

• ST Answers

Dr Clive Parker and the gang crowd into the cyber ward for insane STs... and their owners. Whether you're troubled by viruses, assembly code, comms or badly-behaved STs, this is the place for you.

• Machines of the future

We take a closer look at the latest Atari clones, GeSoft's Eagle and C-Lab's Falcon Mk2, and ask whether they have what it takes to topple the TT and Falcon.

• Hands on

Discover exactly how to take your ST or STE apart - and put it back together again - with our practical guide to fitting a composite video port. Or how about designing your own 3D game? We show you how.

• E-mail the team

Now you can get in touch with the team that produces *ST FORMAT*. Whether you want to pose technical queries, suggest features or send us compliments, you're only a mouse-click away from our desktops.

• Bargains

Order a back issue, submit a subscription or take advantage of our reader offers, all without ever leaving the comfort of your ST.

<http://www.futurenet.co.uk/computing/stformat.html>



The world's biggest-selling ST magazine



Welcome to the *ST FORMAT* home page, the Web centre for the world's biggest-selling ST magazine. Our mission is to bring you news and reviews about every piece of software and hardware produced for the ST, STE and Falcon, as well as practical, creative and technical advice to help you make the most of your Atari

With over 100,000 hits every day, FutureNet is one of the most popular Web sites in the UK. Point your Web browser at <http://www.futurenet.co.uk> to find out why...

ST Answers

Clive Parker powers up his STA propeller for the last time in this the ST Answers floppy disk special.



AS YOU WHIRR

Q Sometimes, when I'm playing games on my ST, the disk drive continues to whirr long after the game has loaded. Sometimes it whirrs the whole time I'm playing the game. Am I imagining things, or is there actually something wrong with my disk drive?

Steve Manion, Clevedon

A Because of sloppy programming, some games do access the disk drive continuously during play, while others access it simply to ensure the disk hasn't been removed. There's nothing you can do about this, but you needn't worry because it's completely harmless, and won't damage your disk drive or ST in any way.

MAGIC MAC?

Q Is there a PD program available that will enable my ST to read disks formatted on an Apple Mac? If there is such a program, could you put it on the Cover Disk?

Eamonn Svensson, Great Yarmouth

A Sorry, Eamonn, but at the moment the only way you can read Mac disks on an ST is to use Spectre GCR, the Mac emulator developed by Gadgets by Small. Sadly, however, Spectre GCR isn't currently available in the UK because Gadgets by Small has ceased trading.

There are rumours, however, that a new version of Spectre GCR capable of emulating colour Macs with System 7 is under development (see STF75).

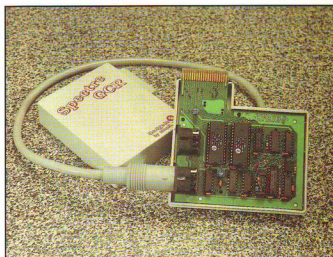
Alternatively, you may be able to get a second-hand copy of Spectre GCR by placing a free Wanted ad in our Reader Ads section (turn to page 64).

RIGHT ANGLE?

Q Whenever I put a disk in my floppy drive, the drive makes a loud whirring noise and refuses to load any software unless I lift the disk so that it's at an angle.

Sam Daniels, Welwyn-Garden-City

A There should be no reason why you need to physically move a floppy disk while it is in the drive – in



This little box will enable your ST to read disks formatted on an Apple Macintosh. Getting hold of it may be difficult, though, as its developer, Gadgets by Small, has ceased trading.

fact, you could easily damage the drive mechanism or heads by doing this.

Take your machine to be examined and repaired at once. If you don't have local repair centre, The Upgrade Shop (☎ 01625 503448) offers a reasonably priced courier service.

Your problems may be caused by something as simple as a faulty connection, but if you don't know what you're doing when you take

your ST apart, you could make things even worse.

COVER STORY

Q I'm having trouble making a backup copy of my Write On Cover Disk from issue 33 of ST FORMAT. All I get is an annoying message stating that the destination disk is a different format from the source

TWISTY TURNY THING

I've noticed that some PD disk formatters offer normal or skewed formatting options. What the hell is the difference between a normally formatted floppy disk and one that has a skewed format? Answer that one, Dr Parker.

Andy Winston, Brixton

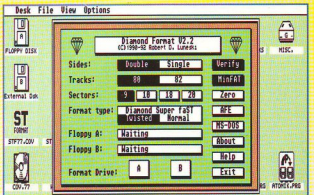
When you format a floppy disk in the normal manner, the sectors are laid out on each track in sequential order: sector 1, sector 2, sector 3, and so on. The trouble with this system is that the disk has to make at least one complete revolution between reading each sector. This is because the read/write head of the drive doesn't have time to start reading the data from sector 2 after it has finishing reading sector 1. This is because the disk is spinning so rapidly that the read/write head has already passed the start of the next sector, before it's finished the first.

If the sectors are laid out in a different, or skewed, order (sector 1, sector 7, sector 4,

sector 2, for example), the drive head can read the first sector and then immediately begin accessing the next one, because it doesn't have to wait for a complete revolution of the disk. It doesn't matter to the software how the different chunks of data are laid out on the disk – the FATs (file allocation tables) record exactly where each piece of data is and load it in the correct order.

Essentially, this means you can speed up disk access quite considerably just by using a skewed format disk because the read/write head can read three sectors for each revolution of the disk,

instead of just a single sector on a normally formatted disk. Does that answer your question? Eh? Eh?



SPOT THE DIFFERENCE

In issue 43's Protect and Survive feature you told us never to boot up the ST with a disk in the drive because it may cause a blank spot on the disk. So how come my ST manual tells me to do just this? Is the manual wrong, or is the great Eric Parker at fault? Michael Saunders via Futurenet

What? Me, wrong? Never! If you study the feature carefully, it tells you not to turn on the power to your ST with a disk inserted in the drive. This is different to booting a disk which can be done by simply

pressing the reset button or using the [Control] [Alternate] and [Delete] key combination on the STE. When you switch on your machine, you need to let the disk light flash once before inserting the disk fully into the drive. It's quite safe to reset a machine with the disk inside the drive, because the power isn't interrupted. It is always a good idea to remove a disk from the drive before turning off the power, though, as this can also cause a blank spot on a disk. It's not likely, but it is possible. As for the Atari manual... it's not exactly full of helpful information, is it, Michael?

Desk Commands		Show	Read	FBI's	Format/Copy	Options
Analyze Floppy Disk						
Reading Track 79 Side 1						
Track 67	Sector 06	Side 1	-	CRC error,	incorrect 0010 field checksum.	2
Track 71	Sector 09	Side 1	-	CRC error,	incorrect 0010 field checksum.	
Track 71	Sector 09	Side 1	-	RNF/CRC error,	incorrect 10 field checksum.	
Track 72	Sector 06	Side 1	-	CRC error,	incorrect 0010 field checksum.	
Track 72	Sector 06	Side 1	-	CRC error,	incorrect 0010 field checksum.	
Track 72	Sector 06	Side 1	-	CRC error,	incorrect 0010 field checksum.	
Track 72	Sector 06	Side 1	-	CRC error,	incorrect 0010 field checksum.	
Track 79	Sector 08	Side 1	-	RNF/CRC error,	incorrect 10 field checksum.	

Knick ST is the perfect program to use if you need to analyse your floppy disks for corrupted sectors. This one is corrupted thanks to Nick jumping up and down on it.

disk, even though it isn't! Both disks are double density, double-sided and 720K. I'm also having the same problem trying to back up other Cover Disks. What on earth am I doing wrong?

Robert Spencer, via Futurenet

Just because a disk looks the same doesn't necessarily mean that it is the same. The problem arises because the Write On disk is formatted with extra sectors and tracks compared to the built-in formatting option of the ST. If you try to copy ST FORMAT Cover Disks by dragging the Drive A icon to the Drive B icon then this problem occurs. This is because the standard ST disk format is 80 tracks and 9 sectors, while the ST FORMAT Cover Disk is formatted with 80 tracks and 10 sectors.

As you've discovered for yourself, the ST's operating system can't copy between disks with different formats. The quick and easy solution is to use the Cover Disk Backup program. Alternatively, you could use specialised formatting programs to give you the same extended format that we use. Try DC Format 3, it's available from all good PD libraries and on the Internet.

THE FAN CLUB

After using my STFM for about an hour, I find the disk drive starts to make strange noises while it tries to access a floppy disk. If I use a fan to cool down the power supply, though, everything seems to

start working again. Do you know what the problem is? Nigel Decat, Par

Oh dear, this sounds rather ominous. Obviously, your power supply is getting far too hot if cooling it down with a fan solves your problem. The components inside your ST are very sensitive to heat and only work well within a specific temperature range – and the hotter they get, the more likely they are to fail.

One possible solution is to head down to your local electronics shop and buy some large, stick-on rubber feet to raise your ST above the surface of your desktop. This will ensure there's plenty of air flowing around your ST. If the problem persists, contact the folks at Analogic Computers (☎ 0181 546 9575). They'll be able to perform a diagnostic check on your ST for a small fee.

MAGNETIC WIPE

For the last few months my ST's been having increasing trouble while loading disks. This has gradually worsened, and now only a few of my disks will load. Is this being caused by a virus? I've got LUVK 6, but unfortunately, this won't load either. Have I got a virus or a hardware problem, and what can I do about it? Peter Brookes, Bristol

It sounds like your disks are gradually becoming corrupted. Rather than being the result of a virus, this is

probably caused by either some kind of magnetic interference or by a physical problem with your floppy disk drive itself. If your disks tend to fail and then never work again, the chances are that they're being affected by a magnetic field. You don't stack disks on top of your monitor or TV, do you? Or on a loudspeaker?

To ensure it's not a virus causing the problem, switch on your ST and format a new blank disk using the Desktop's built-in formatting option. Then get a new program disk, such as a buggy ST FORMAT Cover Disk, and copy some programs to the newly formatted disk. Continue using the new disks and see if they start to fail, making sure you don't insert any of your old disks in the meantime. If they do fail, then you definitely have some kind of physical or magnetic problem.

On the other hand, if the disks work at some times but not at others, then this could point to a faulty disk drive. You can test whether this is the case by trying your disks on a friend's ST. If they work without any problems, it's your disk drive that's the culprit. If they don't work on your friend's ST, then check for likely sources of magnetic fields near where you store your disks.

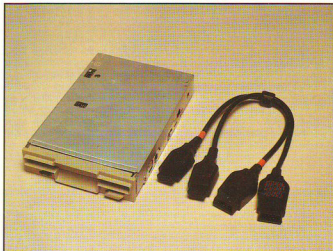
Remember: anything with an AC/DC power supply transformer inside creates a pretty powerful magnetic field. If all else fails, go to a local computer shop and explain the problem, the staff will be happy to help you out.

EXOTIC STUFF

I have an Atari 520 STFM and I'm having a lot of trouble with my internal floppy disk drive. I have to insert and remove a disk several times before the data on it can be read, and sometimes there's a rather exotic crunching noise when a disk is inserted. When it does finally load everything seems to be fine and dandy, but some of my friend's disks won't work in my drive. Should I get an external drive? How much would a drive repair cost? Simon Manners, Gravesend

If you want to play games on your STFM, an external disk drive isn't going to be much help; most ST games only run from an internal disk drive.

You really need to replace your internal floppy drive before you cause any lasting damage to your software and file disks. It's generally cheaper to replace your ST's internal drive than to get it repaired – most repair centres simply throw away the old drive and stick in a new one, anyway. It's pretty simple to replace an internal drive, we covered the installation process in issue 71's Customise your ST feature. If you want to get a drive, Future Computer Centre (☎ 0113 231 9444) supplies an official Atari internal drive for £49.99.



An internal floppy disk drive, just moments before it was arrested for making illegal advances towards a pair of joystick port extenders.

HIGH LIFE

Q I've been wondering about something for quite a while now, and thought you might be able to help me out. Can I use high density disks in a normal 720K floppy drive if they've been formatted as normal from the Desktop? Do I risk losing data or damaging my drives by doing this?

Steve Sully, Teddington Lock

A Although you can use HD disks formatted to 720K, there is a slight risk that data could be lost. This is because the denser magnetic coating on a high density disk cannot be formatted correctly by the heads of a 720K drive - the magnetic field generated isn't strong enough. The disk may well work at first, but you will start lose data after a while. The HD disk won't physically damage your floppy drive, though.

POOR RESPONSE

Q When I use some of my disks, I get a 'drive is not responding' alert. Then, when I select the cancel button in the alert box, the system re-boots. Could you tell me why this happens?

Sharon James, Croydon

A Usually, this problem is caused by corrupted data on the disk, or by trying to read a protected game disk from the Desktop. Essentially, what happens is that garbage is loaded into memory and this leads to a system crash.

Test the disks on another ST to see if they're working okay. If they are, then you have a disk drive problem, in which case you

should call Analogic Computers (0181 546 9575) and ask about its ST repair service.

ON THE DOUBLE

Q I have an STFM with a single-sided disk drive, but I'm having trouble getting many of my new games to work. Do I need to buy a double-sided drive, or is the problem due to something else? If I do need a double-sided drive, which would be the more useful: an internal or external drive? Also, will I be able to install an internal drive myself?

Conrad Barnes, Isle of Dogs

A The single-sided drive is definitely the cause of your problems. Almost all the new games released in the last few years have been on double-sided disks, and they all need to be booted up from an internal disk drive.

You needn't worry about fitting a new internal drive, it's probably the easiest upgrade you can do on the STFM. (Again, see issue 71 for more information.) All replacement drives are supplied with detailed fitting instructions, and First Computer Centre supplies the official Atari internal drive for £49.99. Give the folks there a call on 0113 231 9444.

IT'S CORRUPT

Q Every time I put a disk into the floppy drive my ST corrupts it. I know this is a problem, but will the whole machine have to be replaced or just the disk drive? My machine is an old 520 STFM.

Dave Stewart, Newton-le-Willows

A You know it's a problem? Hmm, there's not too much information to work with here.

It's either the floppy disk controller chip or the actual disk drive itself which is faulty. Your disks may not actually be corrupt, it may just be that your ST is unable to read them. Use the old standby test of trying them out on another ST, making sure that the disks are kept write protected. If they work, then you know that it's definitely your ST causing the problem.

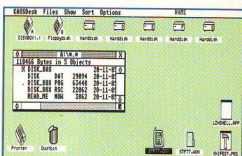
Unfortunately, all you can do from there is either contact a computer repair shop and demonstrate the problem or send your machine to a company like The Upgrade Shop (01625 503448).

THE NAME GAME

Q Is there an ST utility program that displays the disk volume name under the floppy disk icon instead of the usual Floppy Disk legend? I'd really like one capable of changing to the new volume name when another disk is inserted like the Apple Mac does? And what is the disk volume label for anyway?

Aleksandr Vosky, Kiev

A You can do this within KAOSDesk, but as far as I know, there's no utility capable of performing this function on the ST. Still, it'd be easy enough for a programmer to write such a program.



KAOSDesk is the only program we know of that displays a disk's volume name. We gave away a version on Cover Disk 67.

The disk volume name is used purely for identification and is an out-dated carry-over from the original CP/M disk systems, upon which MS-DOS and TOS are based. It's not necessary to use a volume name on modern operating systems because a unique ID number is generated when a disk is formatted. The operating system uses this ID number, not the volume name, to spot when you have changed the disk. Does anyone fancy the challenge of writing an Auto folder program to provide this facility for the ST? stf

After years of dedicated work technical guru Clive Parker is finally hanging up his ST Answers diagnostic scanner to take up his post on the Kingdon High Council. Obviously we'll all miss him and would like to wish him lots of luck in the future...

Federation envoy Frank Charlton will be performing the level three diagnostics from next month. So start sending in those questions...

E-mail your questions and tips to Frank at: frank@tachyon.demon.co.uk (please put STA in the subject line).

IT JUST DOESN'T ADD UP

Why is a 720K floppy disk referred to as a 1MByte disk? It doesn't make any sense. Or does it?

James Burke, Ealing

No, it doesn't make sense. The reason for this two-fold. To a mechanical engineer who designs disk drives, 1MByte of disk space equals one million bytes. To a programmer who uses binary code, though, 1MByte equals 1K squared (or $1,024 \text{ bytes} \times 1,024 \text{ bytes} = 1,048,576 \text{ bytes}$).

Now, when the physical capacity of a disk is calculated, it's worked out in the decimal format used by engineers, and hence starts off as 1,000,000 bytes. Of course, when you format a disk though, it only comes out at 720K ($720 \times 1,024 \text{ bytes}$) which equals 739,440 bytes, which is some way short of a 1,000,000. So where's the extra disk space gone?

The answer lies with the header information attached to each sector of the floppy disk. The header information, which enables the disk drive to find a file, takes up between 30 and 50 bytes of disk space, depending on the format. All this information eats up the rest of the space on the disk. Simple. Or not, depending on how you look at things.

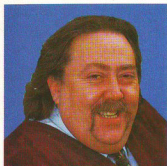
How do I know how much space is left on my floppy disks? When I use the Show Info command from the File menu on the ST's Desktop, the number of bytes used and the number of bytes free never add up to the total number of bytes that should be available on a newly formatted floppy disk. This has piqued my curiosity, and I was hoping you could tell me the reason behind this odd state of affairs. Am I

missing something obvious here?
Thomas Rider, Maidenhead

The reason that you get odd figures is because of the way that files are stored on a floppy disk. Most files don't fit exactly into multiples of 512 bytes, which is the length of one sector on a floppy disk.

If a file has just one or two bytes written to a sector then your ST 'sees' the whole 512 bytes as unavailable. Perversely, though, they are not actually marked as used. Only the actual number of bytes used by a file is recorded, so the capacity of a disk appears to shrink.

As an extreme example a thousand files of ten bytes each would actually use up 500K of disk space ($1,000 \times 512 = 512,000 \text{ bytes} = 500K$) even though only 10,000 bytes (just under 10K) of data has been stored. Bizarre, eh?



Once again, Mac 'The Bat' Marsden opens his coffin lid and stabs his fangs into your GFA Basic questions. He's odd like that.

GFA Workshop

GFA FALCONRY

Q I have an Atari STFM which I use for my business records. I'd like to upgrade to a Falcon, but from the correspondence I've seen in *ST FORMAT*, it appears that programs written in GFA Basic crash on this machine.

However, I recently saw a letter in *ST Answers* that implied that GFA 3.6 will run on a Falcon. Could you confirm this? I have written a number of irreplaceable programs, designed specifically for my business, in GFA 2.0 and *Advanced*.

Obviously, there is little point in investing in a Falcon if I can't use it for my programs. Peter Palmer, Croft Furniture, Lyonshall

A Yes, Peter, you can use GFA Basic on a Falcon. You need to convert all of your old GFA Basic 2 source code to run in version 3.6TT, as this is the only version that works reliably and consistently on a Falcon. Programs written in GFA 2 are extremely flaky on a Falcon and only run when they want, not when you want them to.

If for some reason you can't upgrade your source code to version 3.6TT, why not take the

chance to do a full re-write?

This would enable you to upgrade your software to include those features you wished you had included in the old version. Let me know how you get on, Peter.

FILE MANAGER

Q I am writing a program in GFA Basic 3.5, which I hope to release into the licenceware market, but I've come across a few problems. The program is intended to be a file manager, but I can't find any commands or routines in the GFA Basic manual that will enable me to copy an individual file, or format or copy a disk. Any help or assistance would be gratefully received.

Sam Pointer, Dartford, Kent

A We covered copying files with BLOAD and BSAVE in issue 76 (turn to page 67 to order a copy), so let's move on to your other two queries. To format a disk, you need to use BIOS commands. Open your GFA Basic manual at page 446, and examine the follow-

PANEL ONE

BLOAD "A:\STFORMAT\GFA\MAC\TEXT.TXT"
BSAVE "B:\STFORMAT\GFA\MAC\TEXT.TXT"

Loads data into memory in blocks of 32K.
Saves data in memory to the destination drive.

ing XBIOS and BIOS commands: XBIOS(18), XBIOS(9), BIOS(4).

Copying an entire disk is a little different from copying a file. You need to read all the files and folders from the disk you are copying and store them in a string. You can then begin re-creating the directories on the new disk.

For example, take the string A:\STFORMAT\GFA\MAC\TEXT.TXT. The backslash (\) tells us the files are within folders. Ignore the first three characters of the string (A:\), as these may be different on the destination disk. Begin scanning the string from three characters in and continue until you reach the next backslash, then store the directory name as another string. In this case, we have the folder STFORMAT.

Now check the destination disk to see if such a directory already exists. If it doesn't, create it using the command:

```
MKDIRS "B:\STFORMAT"
```

Continue scanning the original string, creating new directories for each backslash you encounter, until you reach the TEXT.TXT file. For example,



Data from drive A is loaded into your computer in 32K blocks, using BLOAD. It can then be saved on to drive B, using BSAVE.

after the STFORMAT directory you'd create STFORMAT\GFA and STFORMAT\GFA\MAC.

You can now use the BLOAD and BSAVE functions to copy the file into the newly created directories, as shown in Panel One.

This is a simplified overview, but it does illustrate the basic principles involved in copying an entire disk. Good luck with your file manager project.

ARE YOU THERE?

Q Could you tell me how to check whether my printer is on-line and ready to print. I have GFA Basic 3.5?

Steve Drew, Ashford

A No problem, Steve. All you need to do to use the routine listed in Panel Two.

PANEL TWO

```

@check_printer          ! CALL PROCEDURE
END                     ! END PROGRAM
PROCEDURE check_printer
DO
  RI =BIOS(8, 0)
  IF RI = FALSE
  PRINT AT(1, 22); "Printer off line - Please
    set on line or repair"          (all one line)
  ENDIF
LOOP UNTIL RI =TRUE
  PRINT AT(1, 23); "Printer now on line"

```

If you'd like us to cover a specific topic, or are stuck with a particular problem, send the details to Mac Marsden at: GFA Workshop, ST FORMAT, 30 Monmouth St, Bath, Avon BA1 2BW. Alternatively, send him an e-mail at: mac@mentor.demon.co.uk.



Another month, another round of really useful information for assembly connoisseurs. Andy Gisby explains a host of essential GEMDOS functions.

Assembly Line

Unless you're very lucky, you'll soon come to the point in your assembly project where you need to access files on your floppy or hard disks. The ST operating system has a very useful element called GEMDOS to help you do just this.

GEMDOS functions are accessed via the assembler TRAP #1 command. While there are many functions available, this month we'll concentrate on simple file handling routines, such as functions for creating, opening, reading, writing and closing files.

FILE KNOW-HOW

The following code fragment shows how to open a file that already exists using Function 61 (\$3D Hexadecimal).

```
move.w #0,-(sp) ; Open for Read
PEA path ; Address of file path
move.w #61,-(sp) ; GEMDOS Function 61 ($3D)
TRAP #1
add.l #8,sp ; tidy up the stack
```

The first word moved on to the stack dictates the method of file access. The attribute word can be 0, 1 or 2. These values relate, respectively, to the Read Only, Write

and Read and Write methods of data access. The next long word, path, pushed on to the stack points to an ASCII string identifying the file (note that the ASCII string must end in a NULL byte - value 0). The final value moved on to the stack, #61, indicates which function you wish to use.

Whenever you use an ST operating system function (via TRAP), you must tidy the stack afterwards. The amount you tidy equates to the number of bytes you have utilised for function parameters. For example, Function 61 calls two words and one long word, or 8 bytes.

All GEMDOS functions

will return a value in the D0 register to indicate the success (or

failure) of the function. A positive value represents success, while a negative number informs you of a failure. If the open file function is successful, D0 contains a positive value representing a 'handle' for the file. GEMDOS uses these handles to enable you to have many files open at the same time. The listing on the Cover Disk (see page 8) illustrates a file open, followed by a file read of 16 bytes (Function 63). Note the checks for GEMDOS errors.

ONE

```
PEA data ; Address of bytes to write
move.l #8,-(sp) ; write 8 bytes
move.w handle,-(sp) ; applicable file handle
move.w #64,-(sp) ; GEMDOS Function 64 ($40) Write Bytes
TRAP #1
add.l #12,sp ; tidy up the stack
```

TWO

```
move.w #0,-(sp) ; File attribute
; 0=Read/Write 1=Read Only
; 2=Hidden 4=Hidden System File
PEA (path) ; Address of file path
move.w #60,-(sp) ; GEMDOS Function 61 ($3C) - Create File
TRAP #1
add.l #8,sp ; tidy up the stack
```

THREE

```
move.w handle,-(sp) ; Applicable file handle
move.w #62,-(sp) ; GEMDOS Function 61 ($3E)
; - Close File
TRAP #1
add.l #4,sp ; tidy up the stack
```

The listing shows how the handle is passed to GEMDOS for a Read function (63). The Read function expects several parameters on the stack (a long pointer for the data's destination, a long integer of bytes to read and, most importantly, a file handle). On exiting the read function, D0 contains either a negative error code (see the Error Codes panel), or a positive (successful) value indicating the number of bytes read - after all, the file you have opened may not contain 16 bytes for you to read.

WRITE IT DOWN

The Write function (Panel One) is similar to the Read function, but instead of a destination pointer, a data source pointer is supplied. Make sure you have opened the file with at least write access.

If you're writing information to a brand new file, you need to create the file rather

than just opening it. If you take a look at the code in Panel Two, you will notice the Create file function is very similar to the one used to open a file.

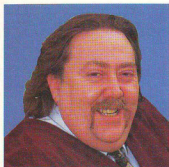
CLOSE THE DOOR

Probably the most important function is the one used to close files. You must always close your files when you have finished with them. It is not only good programming practice, but also minimises the risk of losing valuable application data when your latest assembler masterpiece crashes. Panel Three shows the Close function in action.

ERROR CODE

```
-1 Error
-10 Write fault
-11 Read fault
-13 Write protected
-14 Media changed
-17 Insert disk
-32 Invalid function number
-33 File not found
-34 Path not found
-35 No handles left
(too many files open)
-36 Access denied
-46 Invalid drive specified
```

If you have any queries related to assembly programming, send them to Andy Gisby at Assembly Line, ST FORMAT, Future Publishing, 30 Monmouth St, Bath, Avon BA1 2BW.



Going down, down, down... Mac Marsden takes the plunge with an in-depth look at programming drop-down menus in *HiSoft C*.

HiSoft C Centre

The drop-down menu system, as used by the standard Atari desktop, is a great way of presenting your program's functions. Not only does it offer you a neat (if somewhat predictable) display, but also it saves on programming time, so it's well worth learning how to create menus.

The listing in Panel One shows the beginnings of a basic menu system. It's very simple, but it will do for our purposes. When you run this program, a title bar with Desk, File and Options appears. Selecting File displays the menu items Load file, Save file and Quit, which you can then select with the mouse pointer.

THE INIT_MENU

The `init_menu` function reserves memory for the menu you are about to create and has four parameters, that is: `init_menu(1,2,3,4)`

These are defined as follows. The first parameter is a



Our first drop-down menu: we have selected the File menu to show the actual menu options. Drop-down menus provide a neat display and save programming time.

string representing the title of the first menu, which is:

```
" Desk "
in our example. The second parameter is another string, this time representing the first item on the menu, in our case:
" About "
```

The third parameter is the number of menu titles we wish to include on our bar, excluding the first one. We have only used two, File and Options, in the example shown in Panel One, but HiSoft C allows you to have up to seven menu titles across the screen.

The final parameter is the total number of items included in the menu. We've used five in our example, but the HiSoft

C editor menu contains 63.

The `init_menu()` function returns an integer, which is the index number of the 'About' menu item. We can use this value to see if the

item has been selected.

TITLES

The `title_menu` function is used to add titles to the menu bar. It only has one parameter, a string of up to 80 characters.

The `item_menu` function is used to work out which option has been chosen. When an `item_menu` object is selected an integer is returned. Once again, this value is used as an index number to determine which item has been selected.

The `draw_menu` and `delete_menu` functions display and remove a menu from the working screen. `Draw_menu` must be called after the menu has been created, but before the user interacts with it.

These functions don't require any parameters, but they return integer values of either 0 or 1. If everything has worked properly a 1 is returned; otherwise a 0 is returned, indicating that an error has occurred.

CHECK MARKS

There are three more options we need to investigate before examining the important `event`(`title`, `selem`, 0, 0, 0, 0); function: `check_menu`, `enable_menu` and `select_menu`. They are all used to change the state of a menu.

The `check_menu` function

places a tick or check mark in front of a selected item. If a check mark is already there and the item is re-selected, the mark is removed. The small listing below shows how to utilize this function:

```
int mmultem;
mmultem = item_menu(" menu item ");
check_menu(mmultem);
```

The `enable_menu` function, when selected, either 'greys' out an item making it unavailable to the user, or if it is called again, enables the item.

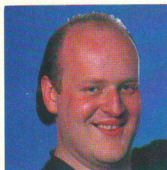
The `select_menu` function restores menu titles to their original state after an item has been selected. On first selecting a menu option it reverses out the title; if it has already been selected in this way, it returns the title to normal.

Each of these three functions require only one parameter, which is used in the same way by all of them. This parameter (an integer) indicates the new state of an item. A value of 1 is returned if it is enabled, while a 0 means it is disabled.

Next month we will examine the `event`(`title`, `selem`, 0, 0, 0, 0); command in detail and discover how you find out whether a menu item has been selected.

If you have any questions, no matter how complex or simple, drop Mac Marsden a line at: HiSoft C Centre, ST FORMAT, 30 Monmouth St, Bath, Avon BA1 2BW. Alternatively, send him an e-mail at: mac@mentor.demon.co.uk.

```
main()
{
/* initialise variables */
int title, selem;
/* define menu title */
init_menu(" Desk ", " About ", 2, 5);
init_menu(" File ");
/* define menu options */
item_menu(" Load File");
item_menu(" Save File");
item_menu(" Quit");
/* define menu title */
title_menu(" Options ");
/* define menu options */
item_menu(" Search");
item_menu(" Replace");
/* Display menu titles on screen */
draw_menu();
/* Wait for an option to be selected */
event(title, selem, 0, 0, 0, 0);
}
```



This month the well-connected Frank Charlton tackles the guardians of the gateways as he takes on the Internet's service providers.

alt.comms.stf@

SOUL PROVIDER

Q I want to get involved with this Internet stuff, but I don't know which is the best service provider. Can you help me make a choice?

Dave Ransom, Essex

A That's a question guaranteed to fire up a heated debate among Net users across the UK. It's also an almost impossible one for me to answer specifically, but I can give you some guidelines.

First, there's the question of technical support. At the moment, Demon Internet Services is the only service provider which offers support for the Atari range, although other companies, such as *netconnect* and *MagNet*, are waking up to the existence of our beloved computers.

Probably the most important financial consideration is whether a chosen service provider can offer you Net access for the price of a local call. Demon, for example, claims that it now offers local-rate access for the entire UK.

If you're interested in learning more about the different providers, *ST FORMAT's* sister mag, *net* is your best bet, as it regularly carries advertisements from many of the companies involved, enabling you to weigh up the alternatives.



Demon Internet is currently the only service provider offering Atari support.

BBS SPOTLIGHT

This month we focus on The Fractal BBS, run by Tim Putnam. The Fractal, which runs 24 hours a day, uses RATSoft ST BBS software, and is connected to a Supra 144kC modem for speeds up to 14,400bps. As well as being connected to the major mail and file networks, such as NeST, FishNet and AtariNet, The Fractal also plays host to its own network, called InfiNet. The BBS is aimed at all Atari users, but will specifically appeal to teenagers, as it echoes its young creator's own tastes and interests. The BBS has a fractal file area too, hence the name. Fire up your modem and call 01305 266304 to get on-line.



PC vs ST

Q Is it possible for me to log on to the BBSs and newsgroups mentioned in PC magazines with just a modem connected to my ST, and are they part of the same network?

Mathew Taylor, Clacton-on-Sea

A Yes, you can connect to any BBS with your ST, no matter which machine it's running on. Almost all BBS systems use a standard text-based interface, along with some colourful embellishments, such as ANSI or VT52 graphics.

Armed with a suitable terminal program, such as ConNect, you should have no problems connecting to PC or Amiga BBSs. Some Macintosh systems use a graphical front-end, such as the FirstClass system, but they usually offer a text alternative.

As for networks, almost all PC and Amiga BBSs are plumbed into FidoNet, the biggest mail and file network. You do occasionally find some that are connected to Atari-specific networks, such as NeST and AtariNet, but a dedicated Atari BBS is your best bet for ST-specific messages and files.

NETTING ABOUT

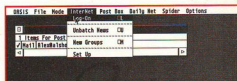
Q Please could you give me some information about logging on to the Internet. I use an Atari STFM with 2.5MByte of RAM, FizzDizz and a Supra modem. I think I need something else, though, as I can't connect to the number I'm calling. Andy Fraser, London

A Andy, I think you're working with a bit of a misconception here. The Internet is a massive collection of networked computers across the globe, and you don't connect to it directly. Instead, you need to set up an account with a service provider, such as Demon Internet. You can then access the Internet via its computers. The service provider supplies you with a real-time connection to the Net, and

charges you for the privilege.

For a 'real' Net connection like this, you will need to install additional software. Most people use AtariNOS and OASIS, which are both written specifically for Internet connections. They are both free, and can be downloaded from any Atari BBS, but be warned: AtariNOS really needs a hard drive to run properly. And you can't use AtariNOS and Oasis to call a BBS, as you would with FizzDizz.

However, you don't always need a 'real' connection. Some commercial BBS systems offer Internet gateways, and you can use a normal terminal program for this kind of connection. stf



You need specific software, such as the excellent OASIS package, for a full Internet connection.

E-mail your comms questions to frank@tachyon.demon.co.uk (please put STA in the subject line), or post them to him at: alt.comms.stf, ST FORMAT, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW.



The Score

This is Radio **ST FORMAT**, and after the news Andy Curtis, maestro of the MIDI world, will conduct a question and answer talkback extravaganza.

SAMPLES AHOY!

Q I use a Roland S50 sampler and am looking for programs that will enable me to retrieve and edit samples taken from that machine. Do you know of any suitable programs for the STE? Anon, Paris

A Thanks to Steinberg's continued support for the ST, there is a program that lets you do just that.

Avalon enables you to download samples from many samplers, including your S50, and edit them to perfection, ready for use. It also enables you to store the samples in a library on your ST's hard disk.

The program is as straightforward as possible, given the complex task it is undertaking, and is one of the major music innovations for your ST. It costs quite a bit, but it does open up a world of editing possibilities, and enables you to do many things that can't be done with the S50 alone.

You can order a copy of Avalon for £349 from System Solutions (☎ +44 181 6931919).

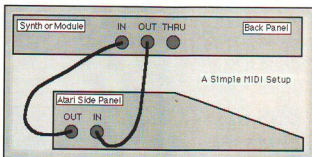
EDITORS GALORE

Q Are there any librarian packages or synthesizers that will work with my Korg 01R/W? Simon Walters, London

A In a word, Simon, yes. Neutronic has the largest collection of ST synth editors and librarians in the UK. It covers all synths, both old and new, and is constantly updated to allow for new hardware releases.

There are two main choices for your Korg 01R/W. For a pure librarian, ProSound's Korg 01R/W Manager, at £49, is the obvious choice. It comes with 500 patches for you to try, and you can buy a second disk with a further 1,600 sound patches for £21.

The other alternative, costing £99, is a program called Shape?, by Y-Not software. Although this



If you only have a single synthesiser, plug the MIDI cables in as shown here. It's as simple as that. Now, about that symphony you promised us...

comes with only 300 sounds, it's a complete editor package that enables you to create new sounds as well as storing those recorded elsewhere. If you're looking for a full software editing package for your 01R/W, it's worth shelling out a bit extra for Shape?.

Both packages are available from Neutronic - call ☎ 0181 6911087 for more details.

NEW SOUNDS

Q I have recently bought my first Atari computer and I don't know much about it. It's an Atari 520STE, which I've upgraded to 1MByte of memory.

While flicking through an old copy of ST *FORMAT* (issue 48), I saw a description of a basic MIDI set-up, which included a tone module. Do I really need such a gadget? I can't find a one anywhere!

Could you also tell me whether my PSR77 keyboard will work with my STE, and if it will, which leads and wires I need? I don't even know what they are called. I really would appreciate an answer as I'm keen to play some music with my new computer.

Matthew Taylor, Clacton-on-Sea

A First, congratulations on choosing an Atari computer for your MIDI and music needs. It is undoubtedly the cheapest and most efficient tool for

this purpose. You may find that you need to upgrade the memory in your ST even further to run your sequencer package effectively, but the architecture of the STE makes this a very simple procedure.

I'm surprised you can't find a tone module anywhere - most music stores are positively bulging with them. Remember, a synth is simply a tone module with a keyboard. Tone modules have become very popular because they are much smaller and cheaper than keyboards, enabling one mother keyboard to drive many different tone modules.

Unfortunately, Matthew, your PSR77 isn't equipped with MIDI, so you can't use it with your computer. At £249, the Yamaha PSR310, which is available from Sound Control (☎ 0191 2324175), is the cheapest MIDI-equipped synthesiser around. Most MIDI keyboards come with one MIDI cable, so all you need to make a proper link between the keyboard and your STE is an extra MIDI cable (see diagram, above).

IS IT SEBRA?

Q Could you tell me what TOS error 35 means, because it keeps appearing whenever I use Cubase. I have a 1MByte STFM with TOS 1.4, but think it may be Sebra, the monochrome emulator I use on my colour TV, that is causing the problem. Also, could you please do a tutorial on Cubase Score 2?

Andrew Sevell, Wolverhampton

A It's pretty unlikely that Sebra is causing your problems. TOS error 35 usually means that a file could not be found. Check your Cubase disk to make sure everything is in its correct place.

You'll also be very tight on memory with only 1MByte fitted. Having gone to all the expense of buying Cubase, you may as well invest in a memory upgrade and a proper mono monitor as well. Sebra works very well, but your eyes will benefit greatly from a full, flicker-free display.

As for a Cubase tutorial... well, you never know.

PROBLEMS...

Q My friend and I have both got sequencers, but while my friend has a PC, I use an STFM. We thought that if we saved our music in MID file format it would play on both setups, but it doesn't. My friend's recordings sound a complete mess on

BUDGET REVERB UPDATE

Yamaha has just upgraded the EMP100, the digital reverb unit which succeeded the highly affordable R100.

The new unit, descriptively titled the REV100, is now cased in a full-sized 19-inch rack-mount. Its 150 presets have shrunk to 99, and pitch shift isn't available. Yamaha assures us, however, that

the sound quality, which is 18-bit as opposed to 16-bit, is much improved. As well as reverb, it includes some delay effects that will significantly enhance vocal performances.

The REV100 is priced at £225 and you can get one from Sound Control Hi-Tech. Call ☎ 0191 232 4175 for details.

my machine, and the same happens the other way round. Also, when I get a file from my friend none of the instruments have a name, but when he gets one that's been done in Cubase from me all the names are there. Why is this?

Peter Simpson, Cleveland

A If you have exactly the same setup, and are using the same sound modules, then this should work.

If you are using more than one bank of MIDI, make sure you assign the output correctly for each track when you load the foreign MIDI file into Cubase.

I suspect that your music setups aren't identical. If this is the case, then you will have to go through each track and try to assign an equivalent sound from your own setup. After all, it's bound to sound weird if the drum track on your friend's file is playing back as a piano sound on your setup. I suspect this may be the heart of your problem.

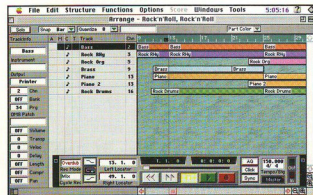
COLOUR CUBASE

Q I went round to my friend's house recently to see the new Mac version of Cubase, and guess what? It was in full colour! It looked absolutely wonderful.

Given that the program has been updated to work properly on a Falcon, why couldn't the colour interface be adapted for the Falcon too? I'm sure more people would be attracted to the package, especially Cubase Audio, if it had a pleasant interface.

Gary Harper, Exeter

A Colour isn't everything, Gary, although I grant you it is more attractive to look at. Fortunately, most musicians are more interested in the functionality of a program



Mac owners can enjoy a splash of colour with their version of Cubase, but it's unlikely that the service will be extended to the Falcon.

THE PROPHET HAS SPOKEN

Korg has launched a brand new synthesiser keyboard that will delight those interested in classic and analogue sounds. The Prophecy keyboard, which has just 37 keys and is monophonic, has already generated a lot of interest.

Aimed principally at the dance market, the Prophecy features Korg's new Multi Oscillator Synthesis System (MOSS). It also has two built-in oscillators for one sub-oscillator and a noise generator. Although the sounds were created digitally and are accessible from a bank of 128 pre-sets, they

are all analogue in nature. The weird analogue effects are achieved using a nylon strip across the length of the keyboard, which enables filters and other assignable effects to be manipulated in real time. Available effects include distortion, wah-wah, parametric EQ, chorus, flanger, delay and reverb.

Sound quality is said to be very good and the synth should prove popular to those involved in remixing dance or club music. The unit sells for £995 and you can order one from Sound Control Hi-Tech on 0191 2324175.



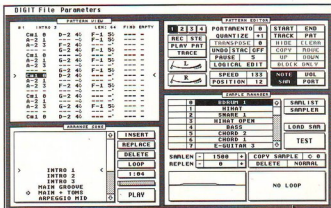
The new Korg Prophecy is a flexible and authentic-sounding analogue-style mono synth with complete MIDI compatibility. And you thought Star Trek had the monopoly on technobop.

than its looks. The more processor time spent drawing pretty screens, the less is available for MIDI operations. As far as we know, Steinberg has no plans to use full colour on the Falcon.

MIDI TRACKER

Q While I have a MIDI setup, I also enjoy using Noisetracker on my STM. However, I must admit to some confusion regarding the button marked MIDI. I have tried clicking on it, but it doesn't do anything. Is there a later version of the program with this feature enabled, or am I doing something wrong?

Colin Porre, Aberdeen



DIGIT is a great piece of software, and it responds to MIDI input as well.

A You're not doing anything wrong, Colin. Noisetracker doesn't have the MIDI function enabled, and never has.

If you're really interested in trackers, though, you should think about getting hold of an STE - you'll find the sound quality is much improved. You can also use MIDI compatible tracker programs with it, such as DIGIT, which costs £44 from 16/32 Systems (01634 710788).

TRANSPLANTS

Q I'm a tracker MOD enthusiast, and I'd like to know whether the hundreds of PC and Amiga

MODS I've seen in PD libraries and on the Internet would work on my ST?

Tony Levinson, Manchester

A Unfortunately, the answer to this one is, yes and no. If the MODs are straightforward four-channel ones, there is a good chance they'll work, particularly if you try loading them into a selection of players.

If the MODs use more than four channels, though, your only option is to try the PD program Octalyser, which may or may not work. Most PC and Amiga MODs will play on an ST, but you will experience some failures. Such is life, I'm afraid.

Get the most out of your Atari ST 2

If you want to soup up your ST without the aid of a soldering iron, take a leaf out of our book, and enter the world of software upgrades.

You've seen it advertised in our Reader Offers page, but you're still not sure whether to buy a copy of *Get The Most Out Of Your Atari ST 2*. So what could be better than an extract from this wonderful tome? We join the action as author Clive Parker prepares to take on the world of software upgrades...

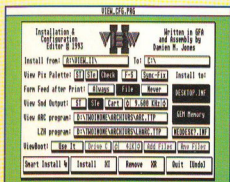
View 2

£14.99 FaST Club
☎ 0115 945 5250

There aren't that many ST utilities that you'd describe as a necessity, but *View 2* is definitely one of them. Usually, if you wanted to view picture-files, text-files, READ.ME files, word processor documents, play sound samples or unpack



With *View 2* you can open graphics files like this one just by double-clicking on them.



View 2 is a fantastic utility that enables you to view graphics, text, sound and archived files swiftly and easily.

ZIPped, LZHed and ARced files, you'd have to run scores of individual programs. Instead, if you have *View 2* installed then you simply double-click on the file you want to view, play or unpack, and it runs the relevant application for you. And it can play *Cyber* animations in SEQ and DLT format too.

You don't have to worry about complicated setup procedures – an installation program takes care of all the fiddly bits for you. And while *View 2* works best from a hard drive, it also works just as effectively from floppy disk.

All you have to do is indicate the boot disk you want to run the *View 2* utilities from and the installation program does the rest – taking up just 55K of RAM.

It's best to set up *View 2* so the utilities are installed when you boot up your ST, otherwise the files load from disk every time you need them, which slows down your system. As always, the advice we'd give is add more memory.

So how does it work? When you double-click on a file type that *View 2* recognises, one of its support viewer utilities kicks in to either display the file or play the sound sample. If the file you're click-



With *NVDI* installed, Calamus SL's screen updates are truly zippy affairs.

ing on is compressed, *View 2* ensures that the relevant unpacker program runs, decompresses the file and then shuts down. Brilliant stuff.

About a dozen picture formats are supported, including Degas PII-3, Degas PCI-3, Spectrum 512 and Neochrome, although there's no support for GIF, TIFF or IMG formats. Still, for most picture-files, sound-files and documents, *View 2* makes your ST easier to use.

NVDI 3

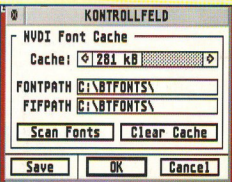
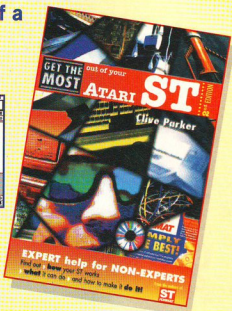
£49.95 System Solutions
☎ 01753 832212

If you really want your ST to zip along at high speed – especially when you're working with graphics software – then you need a software accelerator like *NVDI 3*.

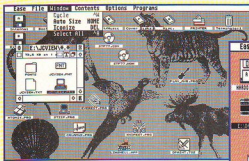
NVDI virtually replaces a major part of the original operating system, the VDI (Virtual Device Interface). The original code in the ST ROMs was written in C, and *NVDI* replaces these slow com-

mands with its own high-speed machine code routines. This means that every time there is a VDI call from a piece of software the new faster routines are used, speeding up the operation of the software.

Installing and setting up *NVDI* is effortless. A small installation program asks for the software serial number, your address and the boot drive, then you sit back while *NVDI* installs itself. When you re-boot, you find that you have an impressive new Mac-like system font and full GDOS

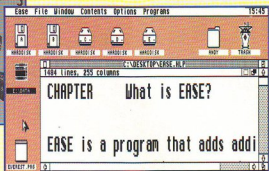


NVDI 3.0 scored a massive 97% when it was reviewed back in issue 71. That sounds like a fine recommendation to us.



(Left) Ease enable you to store programs on the desktop for easy access. You can also spruce it up with an attractive IMG file as demonstrated here.

(Right) Although Ease doesn't work in low resolution, you can easily configure it to run low resolution programs.



use it on a 512K ST. Of course, you're still going to need plenty of memory to make the most of *Genesis* – the number of programs that will run in 512K is obviously limited. We'd recommend at least 1MByte as a bare minimum, and a hard drive is a distinct advantage. *Genesis* runs from the Auto folder of your boot drive, or you can run it directly from the Desktop by double-clicking on the program icon. When you run *Genesis* you're presented with a blank screen with three menu bar items, which can be disconcerting if you're used to having a desktop full of icons when you boot your ST. This is because *Genesis* only replaces the AES (Application Environment Services), which controls the ST's windows, dialog

boxes and menus. It doesn't replace the section of GEM that displays the desktop items.

Because of this, *Genesis* has been designed to work seamlessly alongside Gribnif's *NeoDesk 3* or *NeoDesk 4*. You can use PD desktop replacement like *Teradesk*, but if you do you'll find that *Genesis*'s multitasking features are not supported – although you can run more than one program, only the top application is

sion of *GDOS* built in, but if your software doesn't work with *GDOS* – and there is some – then you can disable the *GDOS* functions while retaining all the other *NVDI* features.

NVDI is probably the best way to accelerate your ST without spending a fortune. Some VDI functions are accelerated by a thousand per cent. Of course, not all functions are accelerated by this factor, but you should expect at least a two hundred per cent increase in every VDI function, and the older version of TOS, the bigger the acceleration.

So what does this all mean in practical use? You can expect to see significant improvement in the performance of your ST. Word processors scroll faster, DTP and graphics packages update screen images at blistering speed, and all Desktop screen updates are only limited by

your hard drive's access speed. Once you've used *NVDI* for a while, you'll wonder how you ever managed without it. If there's one system upgrade you have to get, *NVDI* is it.

EASE

£49.95 (intro offer) System Solutions ☎ 01753 832212

Ease stands out among the rest of the desktop systems for Atari computers, mainly because of its speed and versatility. It supports all Atari resolutions, including those on the TT and Falcon in 256-colour mode. When it's accessing normal desktop Copy, Move and Delete functions, with the *Kobold* file transfer software (£59.95, System Solutions) present, it's automatically called and passed the correct parameters. It then carries out its business faster than any other file utility ever seen on an ST. *Ease* handles multitasking

under *Magic* effortlessly. Change one line in the *Magic* configuration file and *Ease* is loaded automatically at boot-up. While running *Ease*, a right mouse click is the same as a double-click. Programs can be launched from the desktop, a drop-down menu, or directly from a window, while Accessories can be launched as programs, and special launch parameters can be specified for each program that you run. *Ease* is a complete desktop solution, which will certainly be hard to better.

Geneva

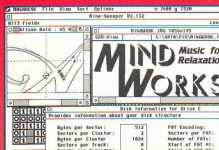
£59 Compo Software

☎ 01487 773582

Gribnif's Geneva is a multitasking system that takes up so little memory you can actually

***Ease* is a complete desktop solution, which will certainly be hard to better**

MAGIC



Magic is a multitasking program capable of running many programs simultaneously as this picture demonstrates.

Magic

£69.95 System Solutions, ☎ 01753 832212

Magic is a complete multitasking operating system replacement for your ST, and because it's written in 100 per cent machine code it's proved to be blisteringly fast too.

Multitasking software enables you to run more than one program at a time, which means that you can run a DTP

program and have a word processor and graphics package running at the same time, enabling you to modify text and work on images without exiting the DTP package.

Magic installs itself in memory from your hard drive or floppy, from the Auto folder, using a special boot program. Once it has loaded it resets your ST and loads the *Magic* operating system, closely followed by the rest of your Auto folder programs. TOS is ignored completely.

When *Magic* finishes booting up, the *Magic* desktop appears – a special multitasking version of the Public Domain *Kaos* desktop program.

However, you don't have to use the desktop that's supplied with it – you can use any multitasking-compatible desktop, like *Ease* and *NeoDesk 4*.

When you're running several programs under *Magic*, you can switch between them using the *Magic* pull-down menu from the menu bar, which lists all the currently loaded programs. You can also set programs running in the

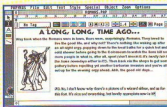
background – you might be raytracing an image for example – while you work on something else in the foreground.

You can also assign processor time to each of the programs you are running; so you might assign 25 per cent of the processor time to your background task, for instance, leaving 75 per cent to your foreground program.

With *Magic* running, your ST actually runs software faster than it does under TOS, demonstrating just how inefficient the original operating system routines are. As ever, a hard drive and at least 1MByte of RAM are essential to get the best return from *Magic*.

A final note. There's a version of *Magic* available for the Apple Macintosh called *MagicMac* (reviewed this issue, see page 29), which enables you to run any current written ST, TT or Falcon030 software on a Mac – except for software that used Falcon030-specific hardware like the DSP sub-system. This means that if you upgrade to an Apple Macintosh, you can still use all of your favourite ST software. Great stuff.

SpeedoGDOS 5 enables you to use TrueType fonts, as found on the PC and Mac.



operational at one time.

You don't actually need desktop icons to run any software - you simply launch programs or Desk Accessories using the 'Open' command from *Genex's* File menu. Once you have a series of programs and Desk Accessories in memory you can access them in two ways. The simplest is to use the *Genex* menu option, which gives you a drop-down menu listing all the items in memory, then you just select the one you want.

The other method is to use the Task Manager Accessory. When you select the Task Manager, a small GEM window opens, displaying a list of currently active programs and Accessories. Programs are listed first, followed by Desk Accessories (which have a small circle before the filename). Clicking on a filename enables you to use the options in the Task Manager File menu. You can open the application, send it to sleep, wake it up or terminate the program.

Genex excels when it comes to compatibility. If you encounter a problem with any incompatible software you're presented with an error message rather than a system crash, and you're returned to the *Genex* system manager ready to run another program. All GEM software and most TOS software runs perfectly, either in multitasking mode or in background mode. Couple this inherently stable system with your favourite ST software and you have a near-perfect multitasking environment on your ST.

SpeedoGDOS 5

£59.95 (£29.95 to upgrade)
Compo Software,
☎ 01487 773582

Until *SpeedoGDOS* came along the ST lacked a decent, system-based font system that was sta-

NEODESK

£59 Compo Software, ☎ 01487 773582
Griffin Software have been producing replacement desktops for the ST for many years, and *NeoDesk 4* is their latest - and greatest - version.

NeoDesk 4 offers all the refinements of TOS 2.06 and more. Apart from the placement of program icons on the desktop, enabling you to launch software with a double-click, *NeoDesk 4* adds a slew of refinements: files can be moved or copied, you can view picture-files by clicking on them, up to 20 letters can be used for disk names and comprehensive search facilities are built in.

NeoDesk 4 is also compatible with MultiTOS, *Genex* and *MagiC*, making it the ideal desktop companion for any of the three major multitasking operating systems for the ST. *SpeedoGDOS* is also fully supported, and not only can you use *SpeedoGDOS* fonts in applications like *Papyrus Gold* and *That's Write 3*, but *NeoDesk 4* can use them itself for all menu, dialog and window text output.

ble with any word processor, document processor or desktop publishing program. Previously the only option was *GDOS* (Graphics Device Output System) and variations available as an interchangeable font format. Having originally been designed to be distributed with STs as part of the operating system, *GDOS* was late arriving and was slow, as

well as being difficult to install. On top of this, it used bitmap fonts, which became blocky when they were enlarged.

Worse, because of *GDOS's* lateness software developers went ahead and designed their own, non-compatible font systems to go with their programs, which led to the wide variety of font systems that are now available for the ST.

After several years, and an almost released system called *FSM-GDOS*, *SpeedoGDOS* was released, virtually in tandem with the Atari Falcon. *Speedo* might be large and unwieldy, but it makes it easy for software developers to write the correct code into a program enabling it to use *SpeedoGDOS* fonts and printer drivers as its native output device. And along-

side its vector fonts, *SpeedoGDOS* is supplied with a wide range of up-to-date printer drivers, and new drivers can easily be added as separate modules when required. Having been available for a couple of years now, *SpeedoGDOS* is now on version 5.

SpeedoGDOS also made the switch from bitmapped fonts to scalable outline fonts, which means that characters can be enlarged to any size as at 12 points. This is because a vector font is stored as a series of mathematical drawing commands rather than a series of dots, so when you enlarge the font size, the printer draws the letter bigger instead of simply enlarging the dots that make up a bitmapped letter.

SpeedoGDOS 5 has taken the original version and added some excellent functions to it. Alongside the thousand-odd *Bistream Speedo* fonts that are compatible with it you can now use PostScript Type 1 fonts (as used on the Apple

Whether you have a top-spec ST with a hard drive and 4MB of memory, or you're running a humble 1MByte STFM, *NeoDesk 4* can only improve your system.



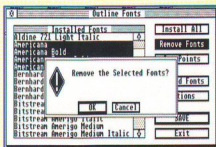
NeoDesk has been around for much longer than *Ease*, and is the required companion for the *Genex* multi-tasking utility.



Programs such as *Papyrus Gold* can now utilize vector fonts thanks to *SpeedoGDOS*.

Mac) and TrueType fonts (as used in Microsoft Windows). This means that there now several thousand more fonts you can use within *SpeedoGDOS*, both PD and commercial.

SpeedoGDOS is now a necessary part of any serious ST word processing or desktop publishing setup. All *GDOS*-compatible software can use *SpeedoGDOS* fonts and printer drivers - although not all functions, such as scaling, can be used with older software. Newer applications such as *Papyrus Gold* and *That's Write 3* are completely compatible. *stf*



Installing and removing fonts with *SpeedoGDOS* is done via an accessory, freeing up memory for other tasks.

ORDER IT

As well as this chapter on software upgrades, *Get The Most Out Of Your ST 2* also includes a general introduction to your ST, Desktop and TOS. Plus details of hardware upgrades, TOS switchers, graphics software, DTP and word processor packages, business and accounts programs and everything to do with MIDI and the Internet. If you'd like to grab a copy, turn to page 66 for details of how to order.

Project DSP

In the fourth installment of his DSP series, Paul Hills takes you on a tour of the 56001's instruction set.

The 56001's language is essentially a set of instructions. We have already come across quite a few of them in previous articles, but this month I want to introduce a whole load more, and explain some of the restrictions.

You may remember that the 56001 can do up to two data moves in parallel with the first instruction on the line. Well, this isn't always true – it only works with some instructions. As we cover each instruction, I will state whether or not these parallel moves can be used.

No operation

We might as well start with the simplest instruction. NOP means No Operation, and does just that. This instruction cannot operate with parallel moves, so:

```
nop Y,(R0),Y1
```

is an illegal operation.

Move

MOVE is a very complicated instruction: there are many restrictions, and many acceptable variants.

In assembly programming, the word 'primitive' means a template for an instruction, and it represents all the available options. The primitives

for MOVE are:

```
move X:ea,D
move S,X:ea
move #imm,D
move S,D
```

● **imm** is an immediate value, and its range depends on the register being loaded. For a 16-bit register, it is 0 to \$FFFF. For a 24-bit register it is 0 to \$FFFFFF.

● **ea** is an effective address. The available addressing modes are listed in the What and Where? panel below.

● **S,D** are the Destination and Source register. The available registers are also shown in the What and Where panel.

Note that no memory-to-memory moves are allowed, only memory-to-register, register-to-memory, register-to-register and immediate to register. This is because a memory-to-memory move would need two instruction cycles, and it can be done easily with two instructions through a register.

Here are a few examples to illustrate this. There were plenty of move examples in the first article, so you can have a look back at them too.

```
move A1,X:$1000 ;Move 24-bit value to X memory
move B,A        ;Copy B register to A register
move A10,L:$1000 ;Move 48-bit value to X and Y memory
```

This last example needs a little explaining. Each memory space is 24 bits wide. When dealing with 48-bit numbers (like registers X, Y, A10, B10, and AB), these can be stored across both X and Y memory spaces.

In this case, the X memory space takes the most significant portion, and the Y memory space takes the least significant portion. Look at the following example:

```
move AB,L:$1200
```

Before:

```
A1 = $1988E2
B1 = $223344
X:$1200 = xxxxxxxx
Y:$1200 = xxxxxxxx
```

Afterwards:

```
A1 = $1988E2
B1 = $223344
X:$1200 = $1988E2
Y:$1200 = $223344
```

Load updated address

LUA is a version of the move instruction for address registers. For example:

```
lua (R0)+R0,N4
```

However, it doesn't work like a normal move instruction. Instead of loading the data at (R0)+N0 into N4, it will load the address of that data. That is, R0+N0 in this case.

There are no implicit instructions to add, subtract, increment or decrement address registers. It is only by using LUA that these operations can be done.

Add, subtract

It's pretty obvious what these instructions do, but the registers that they can be used with are quite restrictive. The templates are:

```
add S,D
```

```
sub S,D
```

where S is the source and D is the destination accumulator. The S and D pair must be one of the following:

```
A,B  B,A
X,A  X,B  Y,A  Y,B
X0,A X0,B X1,A X1,B
Y0,A Y0,B Y1,A Y1,B
```

When a 24-bit value is added to the accumulator, 24 zero bits are appended to it, it is sign-extended to 56 bits, and then



accumulate instruction already encountered. The template for these instructions is:

```
MPY +/-S1,S2,D
MAC +/-S1,S2,D
```

S1 and S2 must be selected from X0, Y0, X1, and Y1, and D is either A or B.

A '+' or '-' sign may precede the registers. For the MPY instruction, the accumulator is loaded with the value of S1*S2 (or S1*S2*-1 if preceded by a minus sign). The MAC instruction loads the accumulator with S1*S2 (or -S1*S2*-1 if preceded by a minus sign) and adds it to the previous contents of the accumulator – see the second article (STF 75) for an example. Both MAC and MPY allow parallel move instructions.

Loops

Every programming language needs to have some sort of looping control, and the 56001 provides two zero-overhead loops (each cycle of the loop takes as many clock cycles as the instructions in the loop – the counting and branching is all done in the background). They both take a few cycles to set up, but the setting up is done outside the loop.

The first form is REF. This repeats the following instruction a number of times. For example:

```
rep #100
move Y1,X:(R0)+
```

This would set the memory word pointed to by R0 and the 99 words following it to the value in Y1. The REF instruction itself takes four cycles, so the whole loop will take 104 instruction cycles.

The number following the REF can be obtained in several ways: it can use an immediate value as above (up to 4,095), or it can use a value in memory or a register. For memory words and 24-bit data registers, the number of times the loop is run is found by chopping off their most

WHAT and WHERE?

Effective Address

```
(Rn)-Nn
(Rn)+Nn
(Rn)-
(Rn)+
-(Rn)
(Rn)
```

Source and Destination

```
X0, X1, Y0, Y1
A0, B0, A1, B1, A2, B2
A, B, X, Y
Rn, Nn
```

significant 8 bits, and using the lower 16 bits.

If a memory word is to be used, it can be pointed to using the addressing modes described last month, or with a 6-bit address directly (this covers addresses 0 to 63 in X or Y memory). If a register is specified, it can be any data or address register except X and Y (however, use of A and B is a bit complex). For example:

```
rep Y: (R7+N7) ;Use the value stored at
                ;Y: (R7+N7) (lowest 16 bits)
rep X0          ;Use the lowest 16 bits of X0
rep N4         ;Use the value of N4
rep X: 53      ;Use the value stored at X: 53
```

If you want to repeat more than one instruction, DO must be used. The DO instruction takes six instruction cycles at the start, but there is no loop overhead while the loop executes. Let's dive straight in with an example:

```
do X1, LoopEnd
move #10, R0
move Y: (R0)+, Y0
LoopEnd
add A, B
```

The DO instruction is followed by a value specifying how many times the loop is to be executed, then by a label. The loop count can be specified in any of the ways used above with REP.

The strangest thing about the instruction is that the label must be pointing to the instruction *after* the last one in the loop. In the example above, the two move instructions are inside the loop, but the add instruction isn't.

DO instructions may be nested within each other. However, there is a limit to the number that you can nest. The system stack is used each time a DO loop is set up, and also each time a subroutine is called with JSR (see opposite), and the stack is only 15 levels deep. A DO loop uses two levels, and a JSR one level, so up to seven DO loops can be nested, or 15 subroutines can be nested, or a mixture of both, as long as the total is no more than 15. This may seem quite restrictive, but in practice, it isn't a problem when programming typical DSP applications.

Note that you cannot have a parallel move on the same line as REP or DO. A DO loop can be interrupted before it has finished if necessary. This is

achieved with the ENDDO instruction. This updates all the hardware counters in the 56001 which control the DO loop, but it does not jump to the end of the DO loop. This must be done by inserting some form of jump instruction after the ENDDO.

Note, however, that the ENDDO instruction cannot be used as the last instruction in the DO loop.

Bit by bit

All micro-processors have the ability to perform functions on the bits held

within registers and memory, and the 56001 is no exception. Its bit operations are similar to the 68000's, so I'll just list them and tell you what they do.

The following instructions can only be operated on the two accumulators, A and B (so 'D' represents accumulator A or accumulator B). All can have parallel moves.

NEG D

Performs the twos complement of D.

NOT D

Performs the complement of D.

ASR D

An arithmetic shift right by one bit of D, that is it divides the signed value D by 2.

ASL D

An arithmetic shift left of D (multiply by 2).

LSR D

A logical shift right of D.

LSL D

A logical shift left of D.

ROR D

A logical rotate right of bits 47-24 of D through the carry flag.

ROL D

A logical rotate left of bits 47-24 of D through the carry flag.

The following instructions act on two registers, a source register S, which can be X0, X1, Y0, or Y1, and a destination register D, which can be A or B. However, only A1 or B1 is actually changed by the instruction. All can have parallel moves.

AND S,D

Logically AND the source and destination registers.

OR S,D

Logically OR the source and destination registers.

EXOR S,D

Logically XOR the source and destination registers.

The following instructions

can operate on the same memory or registers as described for the REP instruction above. The value n can only be an immediate value, and must be between 0 and 23. These instructions cannot have parallel move instructions.

BCHG #n,D

Change bit n of the destination D (if it was a 1, change it to 0 and vice versa), and copy the original value to the carry flag in the condition code register.

BCLR #n,D

Clear bit n of the destination D, and copy the original value to the carry flag in the condition code register.

BSET #n,D

Set bit n of the destination D, and copy the original value to the carry flag in the condition code register.

BTST #n,D

This does not affect the bit n, but just sets the carry flag to the value of the bit.

Transfers

The TFR instruction transfers data from one data register to another. Parallel moves are allowed. The primitive is:

TFR S,D

S and D can be any of the following pairs:

A,B X0,A X0,B X1,A X1,B
B,A Y0,A Y0,B Y1,A Y1,B
If you transfer a 24-bit register into A or B, it will end up in A1 or B1 respectively.

Division

The 56001 doesn't have an all-in-one divide instruction like the 68000's. The 68000's divide actually takes a lot of clock cycles to execute. The 56001's divide instruction takes just one instruction cycle, but has to be run as many times as the number of bits required in the answer. Let's jump straight in with an example of a division for the 56001:

```
Divide
andi #FE,CCR ;Clear the carry flag
rep #24      ;Repeat the next operation
div X0,A     ;Partial divide A by X0
add X0,A     ;Restore remainder in A1
```

This code fragment divides the A accumulator by the X0 register. The quotient (answer) is left in A0 and the remainder ends up in A1.

The carry flag must be cleared first because the DIV instruction is a fairly simple bit-shifting operation. It does

none of its own housework. Note the DIV instruction is repeated 24 times. If only four bits of answer were required, it could be repeated just four times. The ADD at the end forms the correct value for the remainder. If you don't care about the remainder you can leave that bit off.

The routine above has a few restrictions. The most important is that A must be less than X0. If it wasn't, the result would be greater than 1 and it wouldn't fit in the 56001's fixed-point registers. Second, the values are assumed to be positive. If signed numbers are needed, a more complicated routine is required. Third, the remainder in A1 is actually shifted 24 bits to the left (that is, the actual value should have 24 more 0s before it).

Quite often you find you don't need the exact answer when dividing – just a few bits may suffice. In such cases, this kind of division instruction is better than the 68000's, because it will be quicker. For DSP applications, the division operation is not very common, so it wasn't worth the designers of the 56001 allocating much hardware space to it.

A more general purpose division routine that can handle signed numbers is shown in Panel One. DIV cannot have parallel moves.

Taking control

The 56001 is equipped with a bewildering array of control registers that not only control how it operates, but also access all its ports. The most important ports for us are the Host Interface (HI) port, through which the 56001 and 68030 of the Falcon communicate, and the Synchronous Serial Interface (SSI), which the

56001 uses to talk to the CODEC. These are accessed using the move instruction

MOVEP (move peripheral data). All the on-chip peripheral registers are located in X memory from X:FFC0 to X:FFFF.

The peripheral registers for the SSI and HI are quite complicated, and will be described in a future article. The MOVEP

instruction can take most of the same addressing modes as the MOVE instruction, but can also move an immediate value or a value in memory to a peripheral, for example:

```
movep (RO)+, X: $FFEB
movep #017C, X: $FFED
```

Like DIV, MOVEP can't have parallel moves.

Negative

This is a simple instruction, and can only be used on the two accumulators. It negates the contents of the register (so 0.125 becomes -0.125). NEG can have parallel moves.

Absolutely

The ABS instruction finds the absolute value of an accumulator. That just means if it is negative, make it positive. If it is positive, leave it. It can only operate on A or B, and can have parallel moves.

Jumping around

There are several jump instructions, all of which are fairly self-explanatory. They do the same as jumps on the 68000. We'll cover each in turn:

JMP

This is just a plain jump to an address. The address can be a label, or an address specified using an addressing mode, for example:

```
JMP (R4+R4)
```

JCLR

This will jump if a bit in memory or in a register is clear (zero). It has the form:

```
JCLR #n, mem/reg, Label
```

The memory or register can be any of the standard addressing

modes or registers already covered. The value 'n' is a number from 0 to 23.

JSET

This is the same as JCLR but will jump to the label if the bit is set.

Jcond

This will jump on a certain condition, for example JHL, JGT. The most important of these conditions were described last month.

JSR

This is the Jump-to-SubRoutine instruction. It is the same as JMP, but remembers where it came from. It is used to call a subroutine. At the end of that subroutine, an RTS instruction will return to the instruction after JSR.

JSLR

This is the same as the JCLR instruction, but jumps to a subroutine. RTS will return from the subroutine.

JSSET

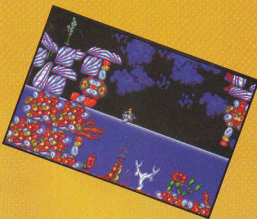
This is the same as the JSET instruction, but for subroutines.

JScnd

This is a conditional jump to a subroutine. The condition can be any of those for Jcond, for example JSLO, JSCT.

None of the jump instructions can have parallel moves

This month's article has introduced you to most of the 56001's instruction set. There are a few other instructions, but they are the less useful and more obscure ones. Armed with your knowledge of the instruction set and addressing modes, you are fully equipped to enter battle. *stf*



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PANEL ONE

```

;24 bit signed division routine
;Divides accumulator A by X0.

org X:$1000
Temp dc 0 ;Temporary data storage area.

org F:$40

abs A,A,B ;Make dividend positive.
eor X0,A,B,Temp ;Save remainder sign in temp
;memory. Sign is in N flag.
andi $SFE,CCR ;Clear Carry (quotient sign bit)
rep #24 ;Form 24-bit quotient in A0 and
div X0,A ;remainder in A1.
tfr A,B ;Save quotient & remainder in B.
jplr SaveQuo ;Jump if quotient is positive.
neg B ;Complement quotient if N set.

SaveQuo
tfr X0,B,B0,X1 ;Save quo in X1, get divisor.
abs B ;Get abs value of signed divisor.
add A,B ;Restore remainder in B1.
jclr #23,Temp,Done ;Goto Done if remainder positive.
move #0,B0 ;Clear least sig 24 bits of B.

Done
```


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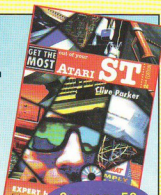
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See page 58
for an extract

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UDS followed up *Obsession* with *SubStation*, the first attempt at *Doom* on the STE and Falcon. It scored 75% in issue 72 and "holds its own as a 3D blast-'em-down," according to our reviewer. You must roam a dangerous underwater energy plant that's lost contact with the surface. *SubStation* also features the realistic DD-Audio 3D sound system.

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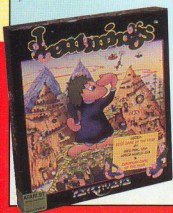
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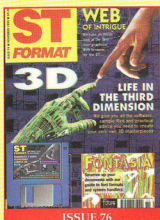
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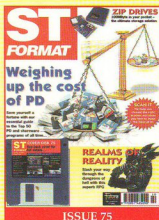
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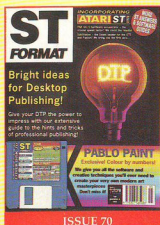
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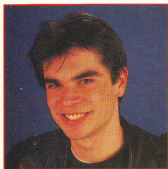
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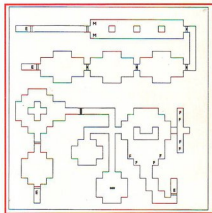
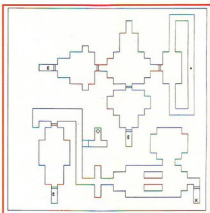
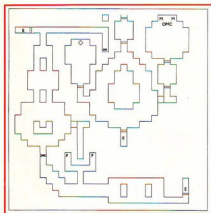
The final part of our exhaustive *SubStation* special takes you right to the end of the game. "Keep your head down and keep firing", says Nick Peers.

Gamesbusters

LEVEL TEN (SHOWA)

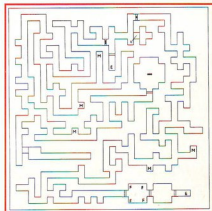
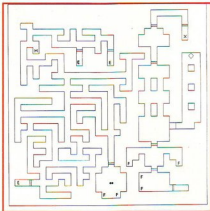
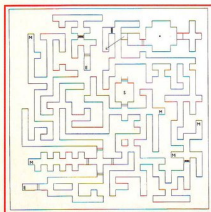
Thanks to company politics your CO is unable to give you any information about this level, except to say that

it's really deep. Despite the variety of monsters on this level, the spiders still prove the most annoying.



LEVEL ELEVEN (KENSHO)

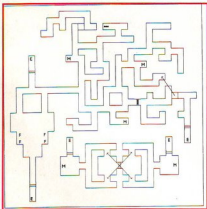
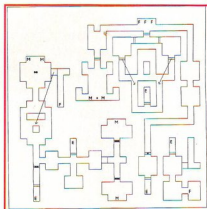
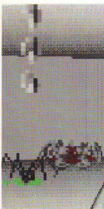
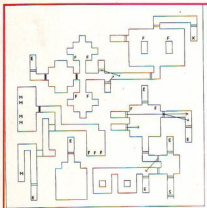
The e-mail message from the Mitushi Corporation makes for sobering reading. You haven't got time to kill everything on this level, so concentrate on getting out alive.



If you have any tips, maps, guides, solutions or other cheaty bits, send them along to Nick at: Gamesbusters, ST FORMAT, Future Publishing, 30 Monmouth St, Bath, Avon BA1 2BW, or e-mail them to him: nick@stformat.demon.co.uk. We may even give you a free subscription!

LEVEL TWELVE (ULV SITE)

You're in so deep now that there's no way any briefing can reach you. You're on your own on this one, and you're staying that way, because we're not giving you anything except the maps.



Guide to the maps

Here's everything you need to know to find your way around. Get to it, soldier.

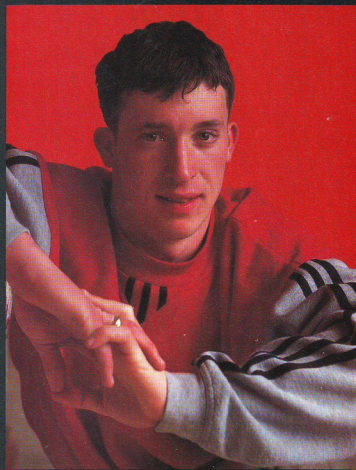
- | | |
|----------------|----------------------------------|
| ○ = red key | = green door |
| ∞ = yellow key | |
| ∞∞ = green key | Arrows: access to secret room(s) |
| = red door | M medikit |
| = yellow door | F food |
| | E elevator |
| | S start of level |
| | X exit to next level |
| | ◇ super kit |
| | G infra-red goggles |

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ST FORMAT
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Feedback



Some days Karen is the only person in the office, so send her a letter and cheer her up.

In a daze



Could you please tell me what has happened to Daze Marketing? In

your September issue (STF 74), I saw an offer for *Ishar 2* and *Stardust* for £11.98 for the pair. I sent my cheque for £11.98 in the third week of August, which was cleared on 9 September, but the games never arrived.

I waited four weeks, thinking that the offer may have been over-subscribed and that Daze might have had to re-stock these games, before writing to ask whether the order had been sent out. I still haven't received a reply. Has Daze gone out of business? And, if so, do I say goodbye to the money?

Ian Armitage, Barnsley

stf: Daze hasn't gone out of business, it has simply stopped distributing ST games. However, after the offer was made in issue 74, 16/32 Systems stepped in to take over the distribution of Daze's Atari catalogue. 16/32 also agreed to honour the offer originally made by Daze. Understandably, there have been a few problems in transferring all the records, and it could well be that yours has gone astray. We

suggest you contact 16/32 on 01634 710788 to ask when your games will be dispatched.

All wight?



I'm writing to you regarding my letter in issue 76 entitled *ST Blasphemy*. I'm sorry about the comparison I made between *Babylon 5* and *Star Trek*, and would just like to say - through gritted teeth - that I think TNG and DS9 are wonderful (ahem). Thanks for the nice picture of the *Vorlon* ships, too.

Right, now I've bowed to your obvious superiority, could you please tell me the name of any programs or utilities that can convert and/or view *Photochrome* pictures on my Falcon, and where I can get hold of them.

Oh, one more thing, could you please show my address as the Isle of Wight? I don't want people to think I'm Welsh, do I? Uh-oh, there goes another can of worms...
Mark Parry, Newport, IOW

stf: So, you reckon the Isle of Wight is an address to be proud of, do you? Listen, matey, after a week in Shanklin, I almost bought a house in the Welsh



If you're still waiting for your copy of *Stardust*, give 16/32 a call on 01634 710788.

valleys - that's how bored I was.

As for *Photochrome* pics on the Falcon, our superior advice is to give Apex Intro or Apex Media a go. Both are available from Titan Designs and they cost £39.95 and £99.95, respectively. Call 0121 6936669 for more details.

Great adventures

In issue 76 of *ST FORMAT* there was a letter from JE Nicholls, who wanted to use STAC on his 4MByte STE, but couldn't because of memory problems. There is a solution, however,

and it's in the public domain. *ULTIMEM* enables you to select five memory configurations: 0.5MByte, 1MByte, 2MByte, 2.5MByte and 4MByte. STAC will only work with up to 2.5MByte.

I know this will work because I had the same problem myself on my 4MByte STFM (with Blitter). *ULTIMEM* is available from Jazzbox Inc, 165 Ash Road, Saltye, Birmingham, B8 1DR. JP Martin-Woodgate, Ashford

stf: And, if you're interested in writing games, you'll be pleased to know that next month we'll be

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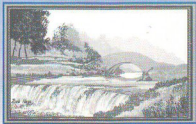
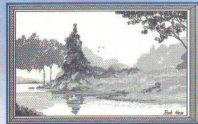
These rather fantastic pictures were drawn by Bob Ness from Glasgow by *Prism Paint* in just four colours!

Bob says his drawings start from doodlings with a small airbrush. As soon as he "sees something start to show through the chaos" he builds

the image up, a pixel at a time in magnification mode. Bob prefers medium resolution for drawing; he finds low resolution "too chunky".

Bob wins a free subscription to the magazine (if you're already a subscriber, Bob, let us know and

we'll tack it on to the end of your current subscription) for his efforts, plus our profound apologies for not discovering these pictures earlier. Our only excuse is that they lay undiscovered for months under the devastation of the Hairy's old desk.



NEXT MONTH

Create your own game

Next month we go game crazy with a complete guide to designing your own arcade classic in STOS, GFA Basic, assembly or C. Covering everything from control systems and level design to sprite movement and collision detection, this is the ultimate coding tutorial. Don't miss it!

That was the year, that was...

1995 is drawing to a close, so we'll be taking stock of the events, products and news of the year. We'll also be swinging the spotlight on to winners of 1995 Reader Awards to reveal your favourite companies, products and Star Trek characters...

Plus! The results of the latest Jaguar poll – will the beast return – and reviews of Twist 3, Apex Intro and Strip Cartoon, as well as the best PD and shareware.

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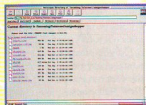
running a special feature on creating your own arcade game. We'll also be looking at writing your own text adventures in the new year.

Coming... soon



I was reading in *.net* magazine that FutureNet now has Amiga and PC software available for download. Is this service likely to be extended to cover the Atari? James Marson, via e-mail

stf: Aah, well, yes. It's like this, James. We will be offering this service, but it could take a while as there's only myself and Nick left in the office. Still, when we find a bit of spare time in between editing 13 mags a year (yes, you heard it here first) and compiling 26 disks of software, we will boldly step into the land of ftp where only .net and Amiga Shopper have gone before.



It may not look like much, but FutureNet's new ftp site will one day be an oasis of free software and files.

In control



In issue 75, Peter Crush reviewed the Brother HL-660 printer, but I'm a bit confused by his comment that the printer can only be controlled via the software, which he quoted as a low in the verdict box. Does he mean that suitable software is available for the Atari? If so, why is this a low? Surely, this is a plus – no more prodding at your printer, which may be in an awkward place. If the software's not available, then this is more than a low, because this makes the printer almost unusable. Please could you clarify this point, because I'm thinking of upgrading my Brother HL-4V printer. Daniel Cohen, via e-mail

stf: Like many printers nowadays, the Brother HL-660 has a very simplified control system, with few user controls and dip switches. This is fine for PC users, as the Windows printer driver supplied by Brother gives

them easy access to all of the printer's special features.

Unfortunately, *ST* users aren't catered for in this manner. If you have a modern word or document processor, such as Protex 6, That's Write or Papyrus Gold, this is no problem, as the word processor controls the printer directly.

If you have an older word processor, such as First Word, or a simple text editor, like EdHak, you'll struggle to take advantage of the fonts and sizes the Brother is capable of outputting. There is no way of adjusting the controls via the hardware, so all you'll get is the printer's default 'type-writer' font and point size. This is why software-only control was noted as a 'Low' in the review.

The classic



Although I'm not so blind as to have missed the decline in the Atari's development and usage, my appreciation for the grace and versatility of this vintage technology keeps me using it nonetheless. My friends view me as somewhat of a 'classic car' owner, scraping up the odd bits of hardware and software to add to my quietly impressive setup.

Even in the eternally frozen, lifeless wastes of Canada, the Atari lives on, and I just thought I'd wish you folks the best of luck with future issues of *ST FORMAT*.

Now, on an absolutely trivial note, could someone tell me the answers to the Riddle-Tongues' questions in Thalion's game, *Dragonflight*? Ronald M Green, Ontario

stf: Yes, you're right about that 'classic car' feel. PCs maybe incredibly powerful, but they're also rather antiseptic and characterless. The *ST* is a solid piece of technology with a quirky personality all its own and that's what we all love about it.

As for the Riddle-Tongues' questions, I'm afraid we haven't got a clue. Anyone else?

Send your letters to the editor, Karen Levell, at: Feedback, *ST FORMAT*, Future Publishing, 30 Monmouth St, Bath, Avon, BA1 2BW or e-mail: klevell@futurenet.co.uk. You can also reach her via our Web site at: <http://www.futurenet.co.uk>. Note: letters may be edited for length and clarity.

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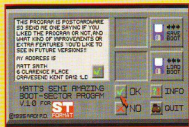
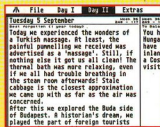
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