

ATARI

ST REVIEW

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

BRILLIANT SOFTWARE WORTH
£50

MINI PRINTERS

TOP MODELS
TESTED...

ATARI ST REVIEW



S.T.A.C. ST ADVENTURE CREATOR

Now you can write your own games for fun and profit thanks to ST Review and the full version of Incentive's adventure-creating utility. Use the program, its tutorial mode and our Step-By-Step guide to create your own worlds of adventure.



ATARI ST REVIEW



ASTEROIDS

ST Review's version of Atari's famous coin-op.

DELUXE PAINT

A fully-useable version of the best graphics creation package

PLUS!!!

Kaosdesk - a fully-functional desktop; STOS updater files; Darklord screen saver



ATARI ST REVIEW



DISK DRIVES

WHAT TO BUY
AND HOW TO FIT
THEM



ON DISK WRITE YOUR OWN GAMES WITH STAC DPAINT - FULLY USEABLE ART PACKAGE KAOSDESK REPLACEMENT DESKTOP
INSIDE BOOST YOUR ST ENHANCED OPERATING SYSTEM EDUCATION PROGRAMS STE MEMORY FOR £15.50 MAD MOUSE OFFER!





Atari ST Software

1 HOT 2 HANDLE	FIVE NATIONS RUGBY	PLAN 9 FROM OUTER SPACE
1 OFF ROAD RACER	FLAMES OF FREEDOM	PLAYER MANAGER
TOTAL RECAL SHADOW WARRIOR	FLOOR 13	PRINCE OF PERSIA
AD CONSTRUCTION KIT	FORMULA 1 GRAND PRIX	PRINCE OF PERSIA
WHEEL DRIVE	FUN SCHOOL 2 (2-6, 6-8 or 8+)	PRINCE OF PERSIA
LOTUS ESPRIT TURBO TEAM	FUN SCHOOL 3 (2-5, 5-7 or 7+)	PRINCE OF PERSIA
SUZUKI TOYOTA CELICA COMBO RACER	FUN SCHOOL 4 (2-5, 5-7 or 7+)	PRINCE OF PERSIA
A320 AIR-BUS	GAUNTLET 2	PRINCE OF PERSIA
ACTION MASTERS	GAUNTLET 3	PRINCE OF PERSIA
F15 COMBAT PILOT	GLOBAL EFFECT	PRINCE OF PERSIA
BARBARIAN 2	GOLDS	PRINCE OF PERSIA
DOUBLE DRAGON 2 TURBO	GOLDEN AXE	PRINCE OF PERSIA
OUTRUN WELLTRIS	GOLF WORLD CLASS	PRINCE OF PERSIA
ADVANTAGE TENNIS	HEAD OVER HEELS	PRINCE OF PERSIA
AFTERBURNER	HEIMDALL (1 MEG)	PRINCE OF PERSIA
AIR BUCKS	HEROQUEST + DATA DISK	PRINCE OF PERSIA
AIR SEA SUPREMACY	HILL STREET BLUES	PRINCE OF PERSIA
QUINSHIP SILENT SERVICE	HITCHHIKERS GUIDE	PRINCE OF PERSIA
P47 F15 STRIKE EAGLE	HOLLYWOOD COLLECTION	PRINCE OF PERSIA
CARRIER COMMAND	HOOK	PRINCE OF PERSIA
ALCATRAZ	ELITE	PRINCE OF PERSIA
ANOTHER WORLD	ROCKET RANGER	PRINCE OF PERSIA
ARKANOID 2	F19 STEALTH	PRINCE OF PERSIA
ARMOUR-GEDDON	REALMS	PRINCE OF PERSIA
AWESOME	INDY JONES ADV	PRINCE OF PERSIA
B17 FLYING FORTRESS	SUPREMACY	PRINCE OF PERSIA
BAAL	STEVE DAVIS	PRINCE OF PERSIA
BARBARIAN 2 (PSYGNOSIS)	ULTIMA 5	PRINCE OF PERSIA
BATTLE ISLE	SHADOWGATE	PRINCE OF PERSIA
BEYOND ZORK (INFOCOM)	CORPORATION	PRINCE OF PERSIA
BLUE MAX		PRINCE OF PERSIA
BLUES BROTHERS		PRINCE OF PERSIA
BONANZA BROS		PRINCE OF PERSIA
BREACH 2 (ENHANCED)		PRINCE OF PERSIA
CAPTIVE		PRINCE OF PERSIA
CARRIER COMMAND		PRINCE OF PERSIA
CELTIC LEGENDS		PRINCE OF PERSIA
CHAMPIONS		PRINCE OF PERSIA
MANCHESTER UTD		PRINCE OF PERSIA
BOXING MANAGER		PRINCE OF PERSIA
J KHANN SQUASH		PRINCE OF PERSIA
CHAMPIONSHIP MANAGER		PRINCE OF PERSIA
CHART ATTACK		PRINCE OF PERSIA
LOTUS ESPRIT GHOUls AND GHOSTS		PRINCE OF PERSIA
VENUS THE FLY TRAP		PRINCE OF PERSIA
CHUCK ROCK		PRINCE OF PERSIA
CHUCKIE EGG		PRINCE OF PERSIA
CHUCKIE EGG 2		PRINCE OF PERSIA
DEJA VU		PRINCE OF PERSIA
DELIVERANCE		PRINCE OF PERSIA
DEUTEROS		PRINCE OF PERSIA
DISCOVERY - IN THE		PRINCE OF PERSIA
STEPS OF COLUMBUS		PRINCE OF PERSIA
DUNGEON MASTER AND CHAOS STRIKES BACK		PRINCE OF PERSIA
DYNA BLASTERS		PRINCE OF PERSIA
ELF		PRINCE OF PERSIA
ELITE		PRINCE OF PERSIA
EPIC		PRINCE OF PERSIA
ESWAT D/S		PRINCE OF PERSIA
EURO FOOTBALL CHAMP		PRINCE OF PERSIA
EXILE		PRINCE OF PERSIA
EYE OF HORUS		PRINCE OF PERSIA
F15 STRIKE EAGLE 2		PRINCE OF PERSIA
F16 FALCON		PRINCE OF PERSIA
F19 STEALTH FIGHTER		PRINCE OF PERSIA
FANTASY PAC (COLORADO)		PRINCE OF PERSIA
BOSTON BOMB CLUB		PRINCE OF PERSIA
CRYSTALS OF ARBOREA		PRINCE OF PERSIA
FERRARI FORMULA 1		PRINCE OF PERSIA
FINAL BLOW		PRINCE OF PERSIA
FINAL FIGHT		PRINCE OF PERSIA
FIRE & ICE		PRINCE OF PERSIA
FIRST SAMURAI AND MEGA LO MANIA		PRINCE OF PERSIA
FISTS OF FURY		PRINCE OF PERSIA
DYNAMITE DUX NINJA WARRIORS SHINOBI		PRINCE OF PERSIA
DOUBLE DRAGON 2		PRINCE OF PERSIA

Atari ST Peripherals

EXTERNAL 3.5" DISK DRIVE FOR ATARI ST. SONY/CITIZEN DRIVE MECHANISM. QUIET, HIGH QUALITY, SLIM.	54.99
NAKSHA AMIGA/ST MOUSE WITH OPERATION STEALTH	24.99
SQUIK MOUSE FOR AMIGA/ST	15.99
SPECIAL RESERVE MOUSE MAT	4.99
CLEANING KIT FOR COMPUTERS (INCLUDES VACUUM)	19.99
TECNOPLUS ATARI ST STARTER PACK WITH STOS, PRINCE OF PERSIA, QUICKSHOT 131 DELUXE DIGITAL JOYSTICK, DUST COVER, MOUSE PAD, FILE-A-DISK RECORD SYSTEM, DISK CLEANER, 5 BLANK DISKS	34.99
ROTEC EXTERNAL STEREO SPEAKERS (WITH BUILT IN AMPLIFIERS) FOR AMIGA, CDTV, ATARI ST AND PC	34.99
DUST COVER FOR AMIGA OR ATARI ST (CLEAR)	4.99
DUST COVER FOR MONITOR (CLEAR)	5.99
DUST COVER FOR 80 COLUMN PRINTER (CLEAR)	5.99
RF LEAD FOR AMIGA/ST (STANDARD LEAD TO TELEVISION)	3.99
TV RF INPUT SWITCH FOR AMIGA/ST (SWITCH BETWEEN TV AERIAL AND COMPUTER WITHOUT DISCONNECTING)	3.99
POPULOUS/FALCON LEAD (NULL MODEM CABLE)	7.99
FOUR PLAYER AMIGA/ST JOYSTICK ADAPTOR (FOR KICK OFF 2 ETC)	8.99
JOYSTICK EXTENDER CABLE FOR AMIGA/ST (ALLOWS JOYSTICK TO BE UP TO 3 METRES FROM COMPUTER)	6.99
ROBOSHIFT INTERFACE FOR AMIGA/ST (PLUGS MOUSE & JOYSTICK INTO ONE PORT)	14.99
PORT EXTENSION ADAPTOR FOR AMIGA/ST (CHANGE JOYSTICKS WITHOUT NEEDING TO REACH BEHIND COMPUTER)	5.99
3.5" DSDD GOLDSTAR DISK WITH LABEL	69p each
PACK OF 50 GOLDSTAR 3.5" DSDD DISKS WITH LABELS	24.99
3.5" DISK HEAD CLEANER	4.99
DISK BOX 3.5" (10 CAPACITY)	1.99
BANK DISK BOX 3.5" (80) STACKABLE	12.99
DISK BOX 3.5" (100) LOCKABLE	9.99
DISK BOX 3.5" (40) LOCKABLE	7.99
DISK BOX 3.5" (80) LOCKABLE	6.99
DELUXE DISK BOX 3.5" 80 CAPACITY, LOCKABLE, DIVIDERS	10.99

COMPETITION PRO 5000 (COLOURS MAY VARY) 8.99

SUZO ARCADE TURBO 18.99

COMPETITION PRO EXTRA JOYSTICK (CLEAR BASE) WITH AUTOFIRE AND SLOW MOTION 9.99

CHEETAH BUG 13.99

QUICKJOY JET FIGHTER 11.99

QUICKSHOT111A TURBO 2 9.99

QUICKSHOT128F MAVERICK 1 12.99

QUICKSHOT PYTHON 9.99

LOGIC 3 ALPHA RAY 10.99

QUICKJOY MEGASTAR 22.99

QUICKJOY TOP STAR 19.99

QUICKJOY FOOT PEDAL 19.99

LOGIC 3 SIGMA RAY 11.99

STARFIGHTER REMOTE WITH TWO INFRA-RED JOYPADS 29.99

C O N T E N T S



ON THIS MONTH'S COVERDISKS

OVER £50 WORTH OF USEFUL SOFTWARE

Our coverdisks are so crammed with goodies every month that we have to compress to the nth degree to fit everything on. With *ST Adventure Creator (STAC)*, we're giving you a full and professional game-writing program. Add to this a fully useable *Deluxe Paint* (with SAVE and LOAD disabled; a full alternative (and better) GEM worktop; *KAOSDesk*; STOS STE upgrades to make STOS work with STEs, and a screen saving utility *Darklord*, an on-screen database *Organiser* that can print out to filofax-sized paper and even a printer speed-up called *Fast-print*. For more details just start reading from page 22.

THERE'S EVEN SOME GREAT GAME ACTION

There's a real treat for any long-in-the-tooth fans of the amazing Atari coin-op *Asteroids* - we've got a fully playable version of the game on disk two this month.

AND IT'S SO EASY...

On page 30, we'll show you how to use disk two with a step-by-step guide.



FEATURES

36 MINI PRINTERS

At last printer manufacturers have decided that portable computers like the ST Book need portable printers. We look at the latest models and come up with a few surprises.

46 FLOPPY DRIVES

Want to upgrade that internal disk drive and fit a new one? We not only show you how, but also look at the benefits offered by second drives.

58 WIN A MINI PRINTER!

It's your chance to win an amazing Citizen portable printer in our fun and free to enter contest.

76 GAMES WITHOUT FRONTIERS

Everyone likes to play around a little and with the Barcelona Olympics under starters' orders, we take a look at ST Review's top 12 Olympic events...

95 £100 WORTH OF SPORTS GEAR FOR FREE!

Sports gear of your choice from Olympus and 25 copies of Ocean's *The Games - España '92* are up for grabs.

98 MAKE YOUR OWN STOS GAME

Want to know how to write your own game? Part three of our tutorial sees *Super Squirrel* start to move around his assault course in his search for nuts...

102 TOP 30 EDUCATION PROGRAMS

The final part. This month: general studies.

THIRD GREAT MONTH!!

UPGRADE YOUR 520 BY UP TO FOUR MEGS STARTING AT THE RIDICULOUSLY LOW PRICE OF £15.50, INCLUDING POSTAGE AND PACKAGING. YOU WON'T FIND A BETTER OFFER ANYWHERE! TURN TO PAGE 60 FOR DETAILS NOW!!



TS



ST REVIEW
ISSUE 3
JULY 1992



REGULARS

8 NEWS

The 6th International Computer Show previewed, a look at Atari Workshop's new High Density drive, plus there's the latest pre-release information on DI's *Tornado*.

16 FIRST IMPRESSIONS

First a sneaky glance at Domark's *European Football Champ*, System 3's *Silly Putty*, the *Cool Croc Twins* and Core's latest, *Premiere*.

22 COVERDISKS

Produce your own professional looking adventure games with *ST Adventure Creator*, and become a computer Picasso with our useable demo version of *Deluxe Paint*. There's a host of other goodies on there too!

44 SUBSCRIBE TODAY

Get ST Review brought to your door and get a fantastic new game, an art package or a printing program.

63 SCREEN SCENE

The very latest games on test are put through their paces by a team of championship joystick wagglers...

84 GAME TIPS

Player guides to *Stealth Fighter* and *Shadowlands*, and a page full of cheats.

106 PD ZONE

The PD Zone this month looks at music packages, and how to learn new computer languages using freeware, shareware, and public domain.

SCREENSCENE

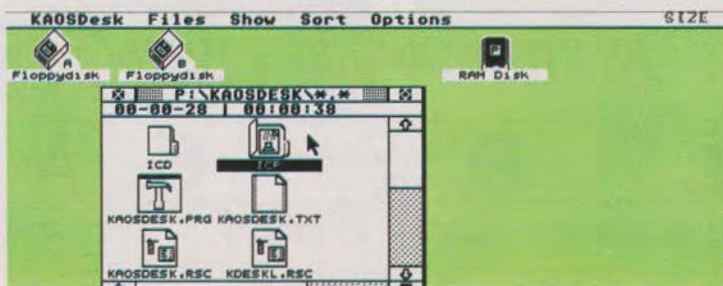
What's hot and what's rot in the world of computer games?

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GET THE BLUES WITH ST BUYER

The mag within a mag that's brimming with information, hints and tips for the serious user. Thirty-two pages of blistering blues...

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Editor: Garth Sumpter
Production Editor: Heather Turley
Technical Editor: Vic Lennard
Art Editor: Gordon Barrick
Designers: Fiona Bourne, Kerrin Hands, Charles Day.
Cover Photography: Eddy Parks
Picture Scanning: Becky Willis
Contributors:
Andrew Wright, John Mallinson, Pat Winstanley, Jon Bates, Paul Rand, Steve Merrett, Gordon Houghton, Tony Dillon, Terry Freedman, Christine Barton

Managing Editor: Steve James
Advertising Manager: Tom Glenister
Senior Sales Executive: Michelle Gardiner
Sales Executive: Karen Neill
Production Assistant: Remzi Salih
Classified Production Manager: Esther Rodd

Marketing Manager: Marc Swallow
Marketing Exec: Sarah Hillard
Publisher: Garry Williams

Atari ST Review,
Priory Court,
30-32 Farringdon Lane,
London EC1R 3AU.

Advertising and Editorial
Tel: 071 972 6700
Fax: 071 972 6701

Distribution
BBC Frontline Ltd,
Park House, Park Road,
Peterborough PE1 2TR.
Tel: 0733 555161.

Subscriptions: PO Box 500,
Leicester LE99 0AA. Tel: 0858
410510 or 0858 410510 (answer-
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Back issues:
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GUIDE TO ICONS



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



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



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



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



Games that involve pure brain power and planning to win, with little emphasis on physical reaction. *Populous II* and *Sim City* fit into this category.



The oldest concept for any game and the graphical grand-daddy of them all is still used as inspiration for products. Remember the smash-hit *Arkanoid*...



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



This is where all the pure action games hang out, usually arcade licenses. An adrenalin pumpin' blast, such as *Turrican*, would have this icon.



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



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



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



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



Not so many games as full flight trainers. These games are highly sophisticated and include classics like *F19 Stealth Fighter*.



Everything you ever needed to know about Communications on your Atari, from Electronic mail, to networking Ataris together.



If a review has anything to do with music or your Atari's MIDI ports, then this is the badge that you'll see.



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



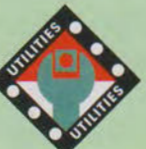
Look out for this icon if you want to read a feature that lets you know which add-ons are worth buying and how to use them...



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



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



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



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



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



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



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

ST Review's subject icons are designed to help you find your way around the magazine and are used both for games and more serious software and hardware. Here's a full explanation of how they're used in our reviews...

GUIDE TO GAMES SOFTWARE

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

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

GUIDE TO PRODUCTIVE SOFTWARE

At ST Review, we believe in giving readers choices. That's why when we review non-game programs, we never review them alone.

We believe in comparative reviews - so any new products are, wherever possible, reviewed alongside established ones. This gives the reader every chance to draw a comparison between programs and products that they know and don't know, making sure that your buying decision is as informed as it can be.

NEWS

LETTER FROM THE EDITOR



"Hello and welcome to the latest edition of *ST Review*. Once again, we're packed with informative reviews on all the latest products in the world of the ST. This month we're taking a particularly close

look at seven mini printers, which are truly portable for people going places.

And if you're new to the ST or you've decided that it's time you rolled up your sleeves and got a little more involved with it, then our tutorial on *Timeworks 2* (page 130), gives you a whole series of hints and tips for better publishing. If your needs are less pedestrian and what you really need is to get your ST out-performing even the fastest Macintosh, (oh yes, it's easily achievable), then our series on *Powering Up Your ST* (page 120) is the one for you, looking at replacement desktops for your ST.

On disk, there is a fully-working copy of *KAOSdesk* and on page 119 there's a comparative review which pits it against *Neodesk*.

This month also sees the appearance of a brand new section, *MIDI Monthly*, which is the definitive guide to everything musical on your ST, and includes reviewing products, answering your problems and helping you to get the musical most out of your computer - all hosted by Vic Lennard who's been a session musician on several albums, a sound engineer and is currently director of the UK MIDI Association. There's also a full step-by-step feature on fitting a new internal disk drive. Whether it's because you want to upgrade a single-sided drive or replace a faulty one, you can now do it yourself with our help. And on the subject of disk drives, there's also a Buyer's Guide to second drives.

In the meantime, just read through the magazine and see what YOU think - and why not let us know? Our address is on page four."

Garth Sumpter, Editor

FIRST THRU ST REVIEW PREVIEWS

This year's International Computer Show at Wembley from July 10-12 will be entirely devoted to the home computer marketplace

The exhibition, which incorporates the popular 16 Bit Computer Show, will have over 180 exhibitors who will be showing and demonstrating products aimed at maximising the potential of the ST, Amiga and PC.

The event will highlight applications in the fields of multimedia, the home "office" and leisure and entertainment. Multimedia applications will be demonstrated on the ST, showing you how to improve musical performance by creating, reproducing and storing sound. Applications will also be demonstrated that can transform the computer into an edit suite for home videos.

DOWN TO BUSINESS

The latest technology and services available will be on display for the increasing number of home office users. These will include word processors, spreadsheets, desktop publishing, upgrades, networking and modems. In addition, small business advisors will be on hand to help visitors think-

ing of setting up their own business.

There will be a major emphasis on entertainment and leisure uses for the home computer. Many exhibitors will be showing the latest games and software, and there will be a special focus on hand-held games consoles - the fastest growing home computing niche.

Special attractions will be available for those people who want to explore non-leisure pursuits. Parents of the new computer literate generation will find the range of computerised education products on show particularly interesting, encompassing study from early learning to GCSE and beyond.

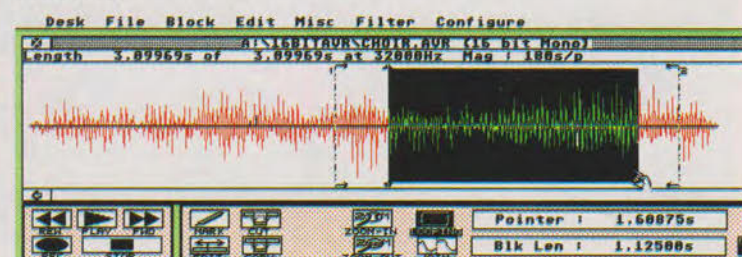
GOODIES GALORE

Hi-Soft is releasing *Diamond Back II* which it claims to be the fastest and most flexible hard disk backup program for the ST. Also on show will be *Hi-Soft Basic 2* and *High Speed Pascal*.

On the educational side, LCL Educational Software will be



The scoring page from the brand-new Microdeal package, *Concerto*.



Working with the Waveform Editor on Microdeal's *Replay 16*.

OUGH THE DOORS

THE 6TH INTERNATIONAL COMPUTER SHOW

showing its three main programs: **Primary Maths Course**, **Micro Maths** and **Micro French**, the latter two of which take you from beginner up to GCSE standard.

Microdeal will be launching its brand new sequencer package, **Concerto**, which retails at £39.95. Renowned for value-for-money business programs, Microdeal is using a similar approach with the music market.

Concerto offers 24 tracks and includes scoring, grid and keyboard editing and a drum machine-style editing screen - watch out for a review of it in the next issue of ST Review.

Also on show will be **Replay 16**, which is a 16-bit mono sampler with waveform editor, drum machine programmer and **MIDIPlay**, an on-screen keyboard - all for £129.95.

POWER TO THE PEOPLE

Power Computing is well known for its disk drives and utilities, and the company will be showing these along with its new Power Scanner for the ST. This allows for scans up to 400 dots per inch, 16 greyscale levels and a host of editing facilities. Other features include a variety of picture saving formats and a high resolution printer driver. Power Scanner will

cost £99.

Roland will be showing two new sound modules which are specifically aimed at the computer market, the CM-300 and CM-500. Each of these will provide up to 16 simultaneous sounds and include all of the most popularly used sounds such as piano, strings, brass along with a good selection of sound effects. Prices are £375 and £733.

Rombo will be demonstrating the complete colour solution for the ST in the form of VID-RGB, their electronic colour splitter.

Trojan Products will be letting the unsuspecting public see their Trojan Light Pen, a rather neat product which allows users to interact with the screen, so avoiding the use of a mouse.

USER GROUPS

Other stands of interest to Atari users will include The Association of Atari User Groups, which represents the amateur enthusiasts side of computing, and The British Association of Computer Clubs which offers services to members of the public who wish to set up a user group of their own.

● More information on the show can be obtained from Penn Communications on 081-569 9768.



The Trojan Light Pen - will it make the mouse a thing of the past?

MASTERING MUSIC



Silica Systems has released a low-price, home-computer pack featuring one of the all-time best-selling music programs.

Steinberg's **Pro 24** MIDI sequencer is bundled in with **ST Basic**, **First Word** and the **TenStar** games pack, along with an Atari 1040 STE in the **Music Master Pack** which has a recommended

retail price of £399. However, Silica is offering this at the reduced price of £349.

Pro 24 v3.0 is a full MIDI sequencer which behaves in a similar manner to a 24-track tape recorder.

With a MIDI keyboard, music can be recorded onto any track and then corrected in either the grid or score editors. Other facilities

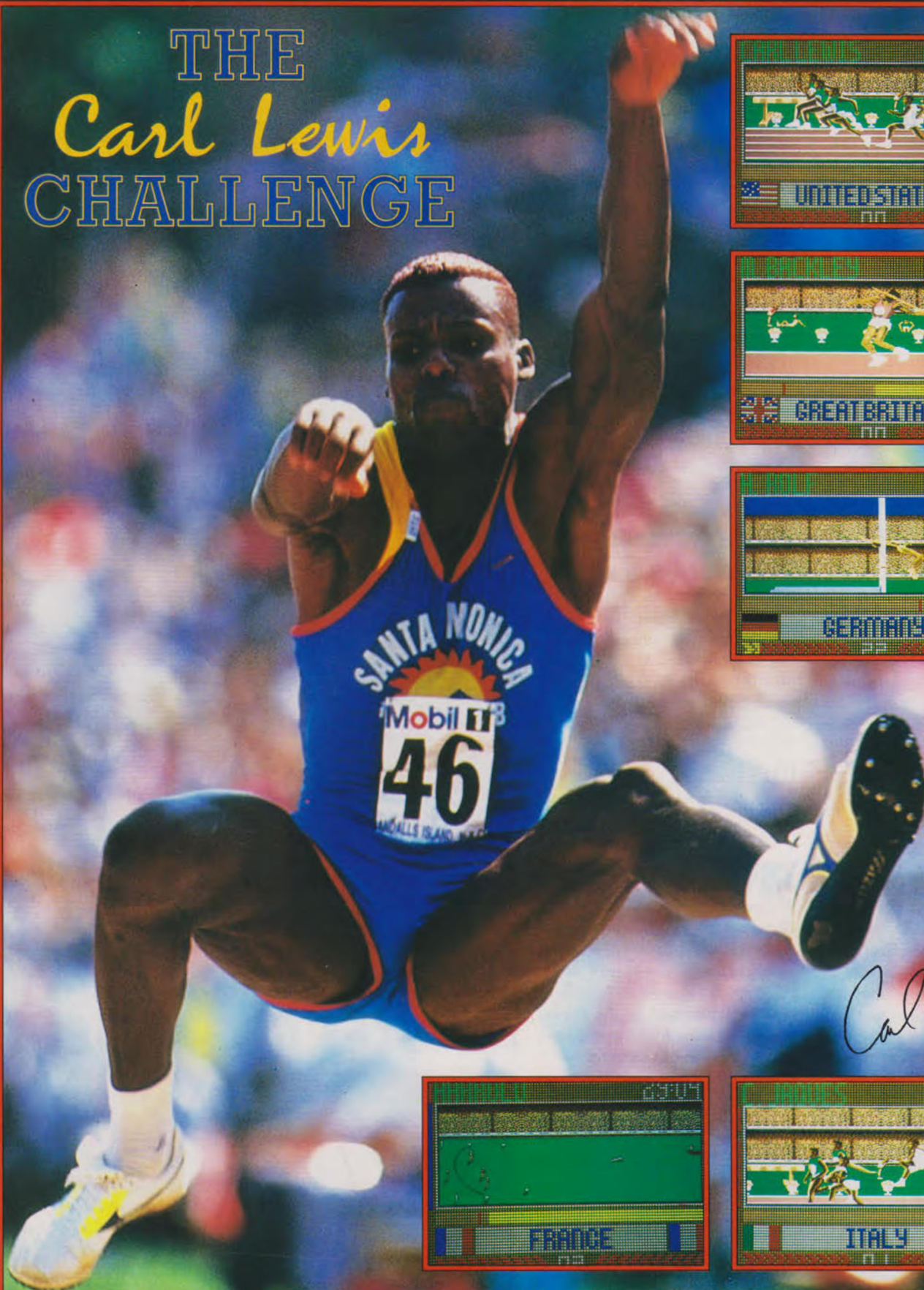
include automatic timing correction and remote MIDI control, just two of the reasons why **Pro 24** was used by the likes of Dire Straits, Midge Ure and Climie Fisher.

More information can be obtained from Silica Systems on 081-309 1111.



The new 400 dpi Power Scanner from Power Computing.

THE Carl Lewis CHALLENGE



Carl Lewis



Your knee rests on the hard surface of the track. Fingers splayed, you adjust your foot slightly on its starting block. A bead of sweat squeezes from your brow as you focus on the race ahead. Weeks of intensive training have culminated in your anticipation of the starter's gun, poised to put everything you've got into the next few seconds. 100 metres suddenly seems a very long way . . .

Take the *Carl Lewis Challenge* and select, manage, train and control a team of athletes in their all-out attempts to win gold in Javelin, 100m Sprint, 400m Hurdles, High Jump or Long Jump.

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FLIGHT SIM TO TAKE OFF

Pinpoint accuracy claimed for Digital Integration's Tornado simulator

Renowned for its award-winning **F-16 Combat Pilot**, Digital Integration is currently working on **Tornado**, a real-time combat flight simulator based upon the variants of the Tornado aircraft. All aspects are included, from ground base simulator training to a multi-aircraft, multi-mission campaign. Both cockpit stations are implemented - front seat for aircraft control and rear seat for navigation and weapons selection. With design input from actual Tornado aircrew, **Tornado** is expected to be the first comprehensive Tornado flight simulator.

Tornado is based upon combat zones of 100 miles square, each containing over 16,000 static objects plus relief terrain, fields, rivers, roads, railways, lakes, forests and multiple cloud layers. In addition, there are a variety of mobile objects such as aircraft and ground vehicles resulting in a high visual density of items.

Various modes are implemented such as ground attack, air interception and reconnaissance, along with night flying and low visibility conditions.

Tornado is the first product to use Digital Integration's new 3D modelling system which can create scenes with high-quality detail. Scenic creations such as rolling landscapes with extensive natural and man-made features are incorporated in the simulator.

Completion is scheduled for September 1992 with a launch date yet to be announced. More information from Digital Integration on 0276-684959.



A Tornado in mid-flight with land sonar, in-flight measurements and excellent rolling terrain.



Satellite view of a hangar showing an emerging Tornado.



Here's a low-flying manoeuvre that'll scare cars on the dual carriageway.



Tracking view of a Tornado with all vital information being shown on-screen.



Coming in to land, this Tornado is being watched in Tracking view.

BARGAIN DO-IT-ALL MONITOR

HCS has released a new 14" colour monitor for the Atari ST/TT ranges of computers. Multiscan has an anti-glare screen coating and excellent screen linearity with less than 7 per cent stretching. RRP is £280.

Connection to an Atari ST requires the Multirez sync converter, which costs £44.99. This converts the output of the ST for use with a multisync monitor without the need for additional software. Consequently, it should be 100 per cent compatible with all software and allows a single monitor to be used with all three ST screen resolutions.

HCS also has a new PC keyboard interface for the ST. This retails at £55 and allows the use of a low cost PC external keyboard; a keyboard is available for an extra £25. This is cheaper than replacing the ST's own keyboard which costs around £120.

All HCS products come with a 14-day money-back guarantee. HCS can be contacted on 081-777 0751.

CRAZY DOTS FOR COLOUR DTP

Following in the footsteps of the release of *Calamus SL*, System Solutions has released a 24-bit colour graphics card. Two versions are available: for the older Mega ST using the Mega expansion bus and for the new Mega STE and TT using the VME bus.

Being 24-bit, *Crazy Dots* can select 256 colours at a resolution of 1280 x 800 pixels or 16 colours at a resolution of 1664 x 1200 pixels, from a palette of 16.7 million colours. Included is the Video-Mode-Generator software which lets you configure individual screen drivers for your monitor. Cost is £389; more information from System Solutions on 0753-832212.

MIDI THRU, OVER AND OUT?

The combined MIDI Out/Thru port of the ST is non-standard, making it difficult to utilise the Thru connection and, due to a spate of incorrect leads being passed off as "MIDI" leads, there have been many problems for users of Atari music software. Intonation has recently launched a special split lead which was shown at the MIDI Music Show. MIDI Monitor retails for £30 and gives you individual MIDI In, Out and Thru ports. More information from Mark Sheldon at Intonation on 071-624 6194.

ENTER TURBONET

For reasons of a technical and political nature, the longstanding communication network known as Fnet is undergoing some dramatic changes and has spawned a new network called TurboNet, with a large number of nodes converting to the new network format.

All European Fnet Bulletin Board Systems have already converted, with many Canadian and American BBSs following close behind. Existing links between Fnet and TurboNet are being maintained by specialised software converting to and from the different formats. It was not known when we went to press if those links will be of a permanent nature.

The new ST based communications network takes its name in part from the BBS software used to run the network and is fully compatible with larger networks such as Fidonet. The BBS software is being totally re-worked and, when completed, will be fully Multi-Network capable and able to communicate direct with other networks such as TurboNet, Fidonet, Fnet, iLink, NeST etc.

The new network, founded by the Sysop of Aylesbury-based InterNet, Ben Van Bokkem, is intended to be a major improvement over the existing facilities for ST Comms users.

Further information on the new network can be obtained by logging on to InterNet. Contact them on 0296-395935.

A BUGGY OF AN ST



Buggy Kit with Input/Output port



The Buggy Kit from Switchsoft

Switchsoft, whose aptly named Input/Output port allows your ST to interact with the outside world, have added a model car to their list of projects.

Experiments Kit #4, known as the *Buggy Kit*, comes complete with all necessary hardware and

can be combined with the I/O port to give your ST total control. Price is £39.90 for the Buggy Kit and £26.95 for the Input/Output port.

More information can be obtained from Switchsoft on 0325-482454.

HD DRIVES FROM THE WORKSHOP

Atari Workshop has announced a breakthrough in internal high-density drives for the Atari ST/TT computers. Such drives, providing 1.44 MB on a 3.5" disk, have been available for a while, but the fitting procedure has been awkward.

Atari Workshop's solution is to use the elCo High Density module, which allows Ataris to interface with both 3.5" and 5.25" drives. This product comes complete with drivers, accessories and formatting software.

The elCo High Density module costs £39.95, while the 3.5" HD

internal replacement kit retails at £99.95 with an extra charge of £30 for fitting. If you have a Tower system, a 5.25" HD internal kit costs £129.95

Also new is the Octopus, a hardware add-on for the Lighthouse Tower System. Functions include up to four floppy disk drives accessible from the GEM desktop, HD disk drive support, multisync conversion for different resolution monitors and two Centronics printer ports. All functions are controlled via a desk accessory, and cost is £129.95.

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CUT-DOWN FSM GDOS RELEASED

FSM GDOS, the font scaling module which is expected to be seen in Atari's forthcoming Falcon computer, is still awaiting release. However, **FONTGDOS** is now available under license from Atari (UK).

The main use of this is in providing many new printer drivers for previously unsupported printers. Included within **FONTGDOS** are drivers for the Canon BJ-10 and Hewlett Packard Laserjet and Deskjet 500 along with a "memory driver" which can print a file directly to disk. As yet, no drivers are available for any colour printers.

Other functions offered by **FONTGDOS** are less useful. Supporting GEM Metafile Bezier curves is essential for certain types of vector graphics, but no programs on the ST currently use this technology. The other facility of Font Caching may improve the speed of printing but the user pays in terms of lost memory. However, it would appear that not all programs are compatible with **FONTGDOS** and

installation is certainly not for the casual user.

The main difference between **FONTGDOS** and **FSM GDOS** is that of vector fonts. ST programs generally print out using bit-mapped fonts, where letters are made up from dots. Vector fonts print out in terms of lines and curves rather than dots giving higher quality and faster print speed.

The main disadvantage of **FSM GDOS** is the necessity for at least two Megabytes of RAM which moves it into the domain of the very serious user and so places it low down the list of priorities for Atari.

However, various manufacturers are keenly awaiting the release of **FSM GDOS**; Compo Software are "optimistic about the future of **FSM GDOS**". We intend to support it fully with a compatible version of That's Write which current users will be able to upgrade to".

For more details of **FONTGDOS**, contact Paul Glover at the ST Club on 0602-410241.

AAUSAC OFFICIALLY RECOGNISED

The Association of Atari Users in Schools and Colleges now boasts official recognition by Atari (UK).

AAUSAC was established to promote contact between teachers and lecturers who use the ST in their work. It has made contact with numerous teachers' organisations, software companies and other Atari User groups.

Members enjoy discounts on software previously available only to schools or colleges rather than individuals, with discounts ranging from 10 per cent to 35 per cent. Many software companies are offering free demonstration programs for inclusion in AAUSAC's diskzine. Unfortunately for pupils and students, only teachers and lecturers are allowed to join AAUSAC. A spokesman for the organisation told us: "A great deal of excellent work is currently being done in schools and colleges using the ST, and AAUSAC was formed to prevent them all re-inventing the wheel! So far, it's been highly successful."

To find out more about AAUSAC, send an SAE to: AAUSAC, 16 Hall Rise, Witham, Essex CM8 1DH.

STOS GRAPHICS ADDITION

New from Blackwing Publishing (UK) is a machine-code program allowing users of the STOS games creator to show Spectrum (SPU) pictures from within the STOS environment. 512 colours are available from standard STs and 4096 colours from STEs. Programs such as Spectrum 512 from Antic Publishing and the Vidichrome-ST digitiser from Rombo create Spectrum pictures

Price is £15; more information from Blackwing Publishing (UK) at All Hallows Church, 1 Pepper Street, London SE1 0EP.



Pictures like this could be part of your STOS adventure

HOW FAST IS QUICK ST 3?

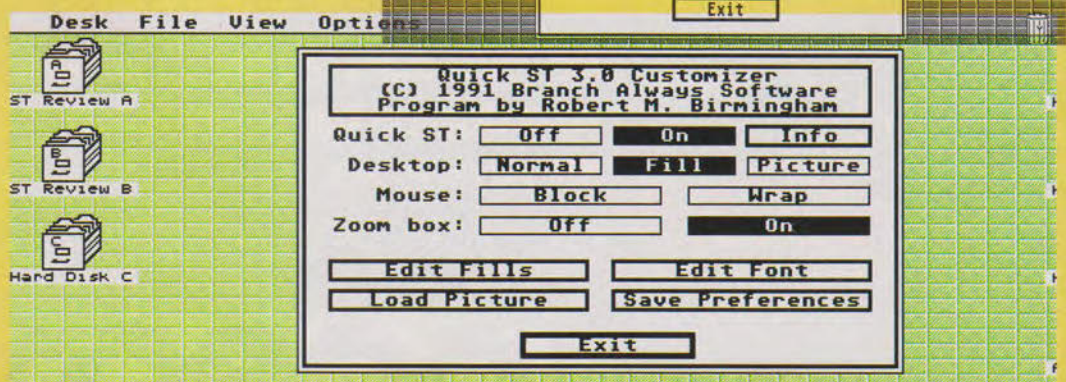
There are several software accelerators available for the ST these days, and the newly-released **Quick ST 3** has been acclaimed as the fastest - but just how good is it in comparison with the others that are currently available?

Most test programs use trials which bear little resemblance to real-life working conditions. While software accelerators can often be shown to speed up the redrawing of dialogue boxes, menus and windows in general, it's the speed benefits that would be of use to someone using graphics or different on-screen text fonts and styles, as used by the majority of users, that should be highlighted.

A respected computer journalist has devised a series of benchmarks testing such functions and has found that Hi-Soft's **Turbo ST 1.84** redraws

graphics nearly 13 times faster than **Quick ST 3**, and also shows a significant gain in speed when handling text.

Such a situation invariably lends itself to an article; see next month's ST Review for a comparative report on all of the current software accelerators on the market.



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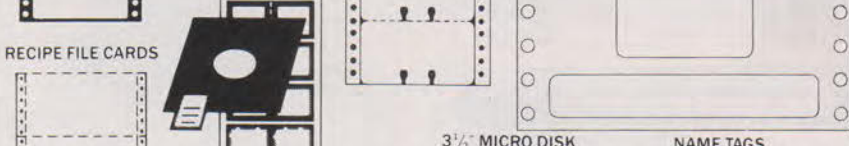
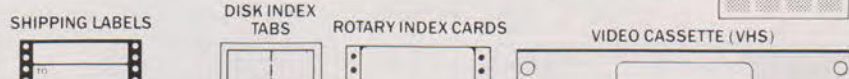
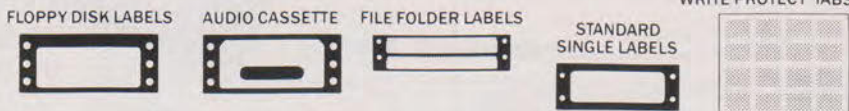
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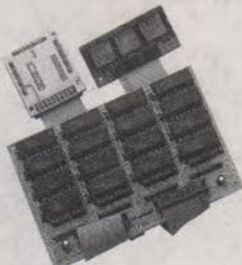


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- Solder in kit (all versions)£25.00

REPLACEMENTS

The HCS power supply and disk drive upgrades come complete with fitting instructions and plug straight into the ST without soldering. The Power supply produces less heat than the original so is more reliable.

- Replacement power supply£39.95
- Double sided disk drive kit£47.00

ACCELERATORS

The AD speed made by ICD fits in place of your microprocessor. It uses a 68000 chip running at a switch able 16MHZ with cache or standard 8MHZ to give virtually 100% compatibility. The 68030 SST for the Mega ST gives phenomenal speed with a 68030 running at 50MHZ!! The SST has space for 8Mb on board RAM, TOS 2 included.

- AD Speed ST£145.00
- AD Speed STE£165.00
- 68030 SST - 50£550.00
- Fitting for above£35.00

INTERFACES

The "AdSCSI ST" ICD host adapter gives SCSI output from the STs DMA port, complete with full documentation, DMA cable and hard drive formatting software. Keyboard interface allows the use of external PC compatible keyboards on the ST. Multirez allows the ST to display all 3 ST resolutions on the multisync monitor. The forget me clock sets your STs time and date, with cartridge-through port.

- AD SCSI£69.99
- AD SCSI Plus (with clock)£79.99
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- Multirez£44.99
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MONITORS

14" super high resolution 0.28 dot pitch Multisync monitor is compatible with the TT, PC VGA/SVGA and Multirez. SM144 is compatible with all monochrome ST software, all normal controls at the front. Both have picture size and position adjustment.

- Multisync colour monitor£280.00
- SM144 14" FST Monochrome£115.00

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HCS modem 9600 has FAX capability with 2400 throughout data. Fully featured with autodial for all computer formats.

- Modem 9600 MNP£139.00

PC EMULATORS

PC emulators fit onto the microprocessor in the ST. The computer can then be switched between PC and ST mode. For fitting on the STE or Mega please contact technical by phone.

- AT Speed C16£205.00
- AT Speed 8£135.00
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The Vortex 386 emulator runs at 16 MHZ and allows true multitasking in PC mode on the ST. Space on board is provided for a 387 CO Processor and 512 K of FASTRAM. Norton factor 151.

- VORTEX 386 SX-16£330.00
- 387 CO-PROCESSOR£117.00
- FASTRAM CACHE£30.00

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The Spectre GCR cartridge allows the ST to emulate the Mac giving 20% more speed than the Mac plus with 30% bigger screen area! It is fully compatible with ST hard drives. When used in conjunction with the SST it can beat the fastest macs. The megatalk board fits the Mega ST to allow connection to Mac specific peripherals, LAN network and Mac SCSI.

- SPECTRE GCR (Inc. 128K Roms)£300.00
- Megatalk Board£250.00

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ICD host adapters to connect SCSI devices to the ST via the DMA port complete with DMA lead, software manual. AD SCSI Plus comes complete with built in clock.

- AD SCSI£70.00
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FIRST IMPRESSIONS

ST Review goes where no man has gone before – Steve Merrett brings you the low-down on all the best forthcoming ST games. . .

PREMIERE

Core Enters The Movies. . .



Before programming started, Jerr and Dan jotted all their potential ideas down on paper. However, whereas with *Heimdall* the original brief was adhered to rigidly, *Premiere* has evolved more freely, with the duo inserting ideas as and when they deemed necessary.

THE GAMEPLAY

Set within a sprawling, eight-way scrolling film set, *Premiere* stars the unfortunately-named Clutch Cable, a harassed film editor whose latest project has been stolen. On the eve of the film's debut, a rival studio has stolen the reels Clutch was busy preparing and has spread them across the six nearby sets.

Each of these sets is based on a particular genre of film – including westerns, horror, and B-movies – and also contains a series of level-related nasties who are out to prevent you from rescuing the stolen film. The closest comparison that can be drawn with *Premiere* is probably *Prince Of Persia*: the film sets are as large and detailed as the dungeons in the Broderbund game. However, Clutch is considerably more controllable than *Prince's* main sprite and can run, jump, and kick his way through the set's dastardly inhabitants. To aid him on his quest, spe-

cial weapons can be collected and used: for instance, during the space level, a ray gun can be picked up, whilst dynamite proves particularly effective during the western stages.

At the end of each stage awaits the almost obligatory end-of-level boss, but programmer, Dan Scott, and graphic artist, Jerr O'Carroll, have made a conscious effort to create something a little different. For instance, instead of shooting a baddie several times, it can be disposed off by solving an object-related puzzle.

PLUS POINTS

Jerr O'Carroll's last game for Core was the graphically stunning *Heimdall*, and *Premiere* features more of the artist's stunning sprites and backdrops. Clutch himself is a massive sprite – probably one of the largest ever to appear in a platform game – and is extremely responsive to control. In addition, the backdrops are equally good,



Each level is made up of roughly 8x8 screens, which scroll as Clutch wanders up and down their many ladders and platforms. Each level's nasties tie in with the theme, with B-movie rubber monsters eventually giving way to cowboys and star-shaped Sheriffs in the western world.

Sprite-wise, *Premiere* features one of the largest animated heroes outside of a Readysoft game. Clutch stomps from one area to the other, and is killed or hit in numerous cartoon-style ways. However, he can also protect himself using whatever comes to hand, prompting more excellent animation.

and tie in with each of the film style's themes perfectly. This attention to detail is carried through to the gameplay, too, with cowboys strutting along like John Wayne. The size of the game will ensure that the player is kept interested, too. As well as the customary 8x8 screen levels, Clutch can also walk through a door to the back of the stage, where, among the many supporting struts which hold the sets up, even more nasties can be found.

BEHIND THE SCENES

Premiere is a six-month project, and is the work of Jerr O'Carroll and newcomer Dan Scott. The game design emerged after a series of meetings between the duo and Core, who had wanted to return to the platform genre for a long time.

After the success of *Rick Dangerous* and *Chuck Rock*, the initial brief was to design a "Prince Of Persia Beater", and take the concept one step further. However, as the

game progressed, it rapidly grew out of such confines, and is consequently a larger, more varied and detailed game.

FIRST IMPRESSIONS

Jerr's large sprites are stunning and could conceivably disguise even the most tedious of games. However, although *Premiere* is billed as a *Persia* beater, comparisons are a little unfair. Whilst Clutch isn't as well animated or as fluid as *Persia's* sword-wielding hero, he is far more detailed and pleasing to the eye. In addition, although the levels are pretty much the same, the different enemy attack waves and guardians ensure that boredom won't set in.

The additions that Dan and Jerr have made to the game – such as the ability to walk behind the set and the aforementioned puzzles – work extremely well, and *Premiere* certainly looks set to be another hit for the Derby-based publisher.



Whenever a goal is scored, the screen expands to a size which would rival most Sega coin-ops. It then follows the players as they rush around celebrating.

A full variety of kicks are available, including short chips and long, elegant passes. Most impressive of all, though, are Lineker-style bicycle kicks and the "Power Shot" which actually rips through the back of the net.

EURO FOOTBALL CHAMP

Domark Aims For Europe In Its Latest Football Release...

THE GAMEPLAY

Converted from the Taito coin-op, **Euro Football Champ** is currently being converted by Teque for Domark. The coin-op was an unusual beast in that, as well as all the usual rules and kicks, it also featured the largest array of fouls ever seen! As they make their way across the horizontally-scrolling pitch, a rather obese ref struggles to keep an eye on the proceedings. If, however, he is out of range, your attacker can either yank at your opponent's shirt or simply hack them down by pressing the fire button twice.

The football action is controlled via the joystick, and a full complement of overhead shots, passes and long balls can be effected, depending on the striker's proximity to the ball. Teque is claiming that the game is one of the easiest to play, and simplicity was definitely one of the coin-op's better traits. A full selection of international sides are available, ranging from Brazil to good old England, and once your team is selected, you are asked to pick your "Star" player from a

selection of four - who will then slightly out-perform your other players and make the most of opportunities.

PLUS POINTS

The violent aspects of **Euro Football Champ** make for a really entertaining game. It's hilarious to watch the overweight ref waddle across the pitch, only for your players to sail past him and take out your opponent's attacker. A perfect example of the game's attention to detail is reflected in the last few seconds of the game when, if your player scores an equaliser or a winning goal, they tear around the pitch in celebration. In addition, a rather impressive sprite expansion system is used for the action replays, and whilst they lose a lot of detail, it adds a certain USA-style glamour to the game.

BEHIND THE SCENES

Euro Football Champ is a relatively short project - it has been in development for just over four months. Teque has a proven track record when it comes to football games, with both **Man Utd** games

under their belt, and the ST version of **John Barnes** soon to be released. In this game the sprites are slightly larger than Teque has produced before, as they have been ported directly from the coin-op. During the development of the game, the coin-op underwent rigorous play-testing which resulted in it being taken away for repairs.

FIRST IMPRESSIONS

Although **Euro Football Champ** features large sprites, the

effect is lost slightly due to a jerky scrolling system. Although this is initially off-putting, it doesn't affect the gameplay too much.

My only reservation about the game is that it may not contain enough exciting features to raise it above the rest of the forthcoming football games. If a footy game can succeed on novelty value alone, then Euro's violence will take it to the top of the league - it's certainly fun to play.



The violence can take two forms: either by a little shirt tugging, or by a full attack on your opponent's legs. If the ref is in the vicinity, he'll book you - but not if you hack him down first!

COOL CROC TWINS

Reptilian japes from *Arcade Masters*



The 60 screens vary in the graphical themes, with an Icelandic world eventually changing towards another featuring gangsters. In addition, as the two Crocs progress, the screen layouts get steadily harder to negotiate.



Graphically, *Cool Crocs* is excellent. Although the sprites are small, they are particularly well-defined and move well.



Each of the blocks requires its three smaller areas to be lit. However, although Funk and Punk can wander around the edge of the screen (defying gravity as they go), so can the enemy sprites – causing several headaches in the process.

THE GAMEPLAY

With cutesy games still all the rage, *Arcade Masters* is set to jump on this bustling bandwagon with the adventures of Funk and Punk – the twins of the title. The scenario tells of a fickle female crocodile who can't decide which of the duo she wants to date. Such is her confusion that she decides to do a runner, leaving both in the lurch. Thus, controlling either Funk or Punk, the player must guide their lovelorn potential crocodile skin handbag through 60 platform-laden stages in an attempt to win her back. However, each of the screens contains a weird selection of coloured blocks and scampering nasties, and if either croc is to progress, the blocks must be lit and the villains avoided. Lighting the blocks requires the heroes to wander around the perimeter of the screen and jump onto those they want to light. Each block is made up of three separate elements, though, and a screen is only complete when all three on every block are lit. As the game progresses, the block arrangements get steadily more complex and the nasties more tenacious. However, special powers, such as extra lives and icons to light all three blocks, can help make your task easier.

PLUS POINTS

For a cute game to succeed, the nasties must be extremely intelligent, and *Cool Croc* has clever meanies in abundance. The layouts of the screens are cleverly gauged to ease the player into the proceedings and then confuse everyone with particularly tricky ideas. However, an arcade element is added when the crocs take

a risk and squash the nasties. Graphically, the game is simplistic, but the sprites are bold and colourful and the reptilian sprites endearing. In addition, the backdrop sprites change from level to level with gangsters and related sprites appearing before giving way to, say, eskimos and snow-based larks.

BEHIND THE SCENES

Newcomer, Benoit Varasse, is the canny Frenchman behind *Cool Croc*, and so far it has occupied 12 months of his time. The coding has been a relatively easy project, but apparently he had a few problems with the two-player mode, where both Funk and Punk circuit the screen simultaneously. Happily, he has now bypassed this problem, and *Cool Croc Twins* plays just as fast in its dual-player mode as it does as a one-player game. Following *Cool Croc*, rumours are rife about further adventures starring Funk and Punk, but nothing is concrete at the moment.

FIRST IMPRESSIONS

All of the best cutesy games – *Rainbow Islands*, *New Zealand Story* and *Robocod* – have been simple affairs which relied on their playability. *Cool Croc* looks set to join these. It's extremely easy to pick up and play, but the addition of tortuous later levels makes for a challenge. The graphics suit the game without making it appear childish, and the sprites are appealing and well-drawn. Hopefully, the myriad of extras and the variation in graphical themes will stop it getting repetitive, and it certainly looks like the *Cool Croc Twins* are set to make an impression.

SILLY PUTTY

System 3 stretch themselves...

THE GAMEPLAY

In the 70s, when *The Double Deckers* was essential Saturday morning viewing and you could still buy Golden Nuggets and Texan chewy bars, one of the more popular fads of the time was Silly Putty. This inanimate globule of what appeared to be plasticine was the toy to own. Why? Well, to quote the adverts for it: "it bounces, it snaps, it can erase pencil - it's Silly Putty." Basically, if you threw the Putty at a wall, it would bounce back, but unlike conventional rubber it was extremely pliable and could be moulded into weird shapes. This reminiscence brings us to System 3's game which stars a blob of Silly Putty. The Putty has been banished from its home of Putty Moon by the Putty King to find out where the rest of the bouncy populace have gone. The answer lies in a massive tower which a series of robots are currently constructing for the dastardly Dazzle Daze. This evil wizard is selling off the Play Doh lookalikes as chewing gum, and using the tower to reach Putty moon to get the King. If Putty can ascend the building to its peak, not only can he defeat Dazzle Daze, but he can get home, too.

As the Putty, the player can make the strange blob perform a number of moves via the joystick. He can inflate himself, traverse bridges, and flop, Slinky-style across gaps in the landscape. However, also patrolling the area are a series of Dazzle's cronies, who must be avoided or eaten. The latter is a preferable option, as your Putty relies on his pliability, and contact with the nasties depletes this whilst a good meal replenishes it. Another advantage of eating what bugs him is that the Putty can then adopt their form and use whatever method of attacked they prefer. For example, by swallowing a gun, Putty can then fire bullets.

PLUS POINTS

The intriguing game idea

aside, *Silly Putty* is still extremely playable.

The little blob is easy to control, and the movements are all very instinctive. As he progresses up the tower, the backdrops are subtly altered to add variety, and the nasties change to reflect the new "levels". For the most part, the game is flick-screen, but there are certain areas which scroll and offer a longer challenge.

BEHIND THE SCENES

System 3's Phil Thornton came up with the Putty idea whilst on holiday in India, and promptly used an Amiga and Moviesetter to put together a proposal for the game design. System 3 was impressed with the idea, and coding began - primarily on the Amiga - over a year ago. The Amiga and ST versions are virtually identical, with the ST game roughly three months behind. The game is being coded on a PDS-based 286 PC, with ideas and graphics designed on the Amiga consequently compiled into ST format, ensuring that no ideas will be lost. *Silly Putty* is currently 80 per cent complete with the last few stages currently being compiled, and it should be released in two months' time.

FIRST IMPRESSIONS

Originality is a rare thing these days, and System 3 deserves to be congratulated for breaking new ground with *Silly Putty*. OK, so it's just another platform game, but such is the flexibility of the main sprite and the massive game task that there's no way it will be dumped amongst the countless other ladders 'n' levels games doing the rounds.

The flexibility of the main character is reflected in the gameplay perfectly, and rescuing the robots using your rubbery properties ensures that the tower is built ever higher and links the main task extremely well. In the past, System 3 have been billed as "The Ninja People", but Putty will break that mould very nicely.



As well as stretching and oozing between platforms, the Putty's rubbery physique is also used to save the droids from falling too far.



The levels are being pieced together jigsaw-style so that the developers can play them as they build them.



Occasionally, the evil Dazzle Daze makes an unwelcome appearance, and throws all manner of objects at our bouncy hero...

COVER DISKS



ST ADVENTURE CREATOR

STAC • INCENTIVE SOFTWARE • 512K • GAMES CREATING PROGRAM

At last! A fully useable tool with which to write your very own games.

ST Adventure Creator will allow you to bash out the adventure that you've always wanted...

The *ST Adventure Creator* (STAC) is a highly powerful adventure shell system, used to construct your own text-based adventures. This fully-featured tool lets you piece together descriptions and text and form them into the sort of game that Magnetic Scrolls would be jealous of - well, almost. These pages are

designed to take you through the features the package offers, and go most of the way towards telling you how to build your own game.

If, after working through these pages, you still aren't sure of how it all works, don't fret. In the next issue, we'll be carrying a full tutorial showing you how to make a game.

THE QUEST

Load the package by double-clicking on the STAC.PRG icon on the desktop to get to the main menu. Go to the Disk Operations manual by pressing D, and then press L to load adventure data. When the File Select box appears, double-click on TEST.ADV to load the demonstration adventure. This is the base we're going to work from.

To see the demo text adventure, press RETURN from the main menu (pressing ESCAPE will take you there) to play the game. The aim is to find the gold bar and take it back to the start position. (If you need a clue, why don't you try feeding the snake!)

This is a very primitive adventure, with few locations and few puzzles. I think we can try a little expansion, but first you need to know how the adventure is created.

Each game is made up of a number of components, room descriptions, objects, vocabulary and conditions. There are two descriptions for each room, a long and a short one. The long one is displayed when you first enter a room, or specifically ask for it. The short one is used at all other times. In the adventure, enter the cave (east), leave it and enter it again and you'll see how this works.

Objects are basically all of the items you can pick up

and manipulate, such as the lamp or the dead rat. The snake is not an object, as you can't pick it up.

The vocabulary is a list of words that make up all of the commands a player can use, such as "Get" or "Move". These are treated as verbs and adjectives, but not nouns. The list of nouns is made up from the object list. If you typed "Get Worm From Old Man", then "Get" and "From" are verbs and "Worm" and "Old Man" are treated as nouns. If the words aren't in the respective lists, then the program will respond with a message stating so.

You can have many synonyms, which increases the friendliness of the program. If you only have "Turn Lamp On", there will always be people scrabbling around for the right phrase. If you have "Turn Lamp On" as well as "Light On", "Switch Lamp", "Light Lamp" etc, then people will find the game far easier.

Conditions are the heart of the system, and these short instructions tell the adventure how to run. They usually run along the form of "If (first condition) Then (second condition)". In the case of switching the lamp on, the condition might say "If command is 'Lamp On' then turn on lamp". These can be quite complex, going as far as 'If command is "Lamp On" and lamp is carried and room is dark and player has matches then turn lamp on'. Conditions dictate the difficulty of your adventure; we'll discuss these later. First of all, some examples of how the four components are used.

TELL IT LIKE IT IS

Room descriptions go hand in hand with graphics. They serve no other purpose than to tell the player where they are. Press R on the main menu to go to the Room Description menu. You'll see a list of short names for the locations of the Test adventure in memory. Press space to view the first one.

The short and long descriptions are displayed here, along with a box entitled Connections. This mysterious little element provides the basic connections between rooms which can be accessed at any time.

A room that you can walk in and out of freely is connected, a room that involves finding a key and unlocking a door isn't. The latter involves passing certain tests, and

therefore comes under Conditions.

One interesting point about rooms is location 0 (zero). This is essentially a non-existent room, a place where you can keep unactivated objects. In the case of the Test game, there are two lamps, a lit and an unlit one. One is always in use, and the other is held in location 0, and the two are swapped whenever the lamp is turned on or off.

To see how it all works, we're going to add a new location, an airport, just north of the crossroads in the cave. Press ESCAPE to go back to the Room Description menu and press Insert to

insert a new room. When prompted for the room number, enter 7.

For the short description, enter the phrase "A Busy Airport". Enter your own long description, noting the exit to the south. For the connections, enter "South 2". This means that should the player type South, they will go to room two. Answer "0" for the picture as we don't yet have one.

Press Y when prompted if it is OK, and you'll be returned to the Room Description menu. Move the highlighted bar down to room 2 and press SPACE to view it. Press RETURN until Connections is

highlighted, and add "North 7" to the list. Press ESCAPE to return to the main menu and ENTER to run the adventure. Voilà, a new room!

GRAPHICS

Although graphics aren't vitally important to an adventure, they can add a marvellous sense of atmosphere. **STAC** allows you to import both **Neochrome** and **Degas** pictures through the Disk Operations menu, or create your own using the in-built graphics editor. This rudimentary art package has all the standard features such as line tools, fills and air-brushing. To create a new picture, select a canvas by entering the number of the picture you want to paint on. Use the mouse to create your image. In this case, select picture 7 and then draw a rough picture symbolising an airport. Once done, click on the icon to the right of the Undo button, to push the picture into the bank and return to the main menu. Now go back to the Room Description menu, move the highlight to the airport (room 7), press SPACE to edit, followed by RETURN, until the highlight is over the "Associated Picture Number?" request. Enter 7. Now run the adventure to see how you have added a graphic.

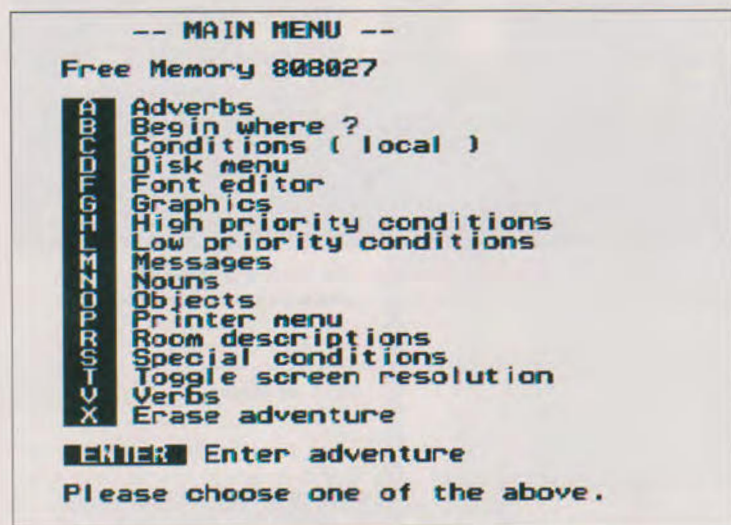
OBJECTS

Objects can be entered as easily as rooms. Go to the Objects menu (O on the main menu) and press INSERT to insert a new item, in this case item 6. Again you are asked for a long and a short description. We want to create a completely useless suitcase, so enter "Suitcase" as a short description and describe what the suitcase looks like.

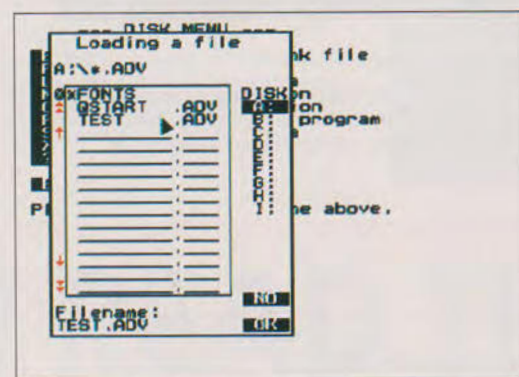
Weight is a simple way of controlling how much a character can carry. In our adventure this is unimportant, so just enter it as 1. For the start room, place it in number 7, the airport. If you run the adventure now, and go to the airport, you'll be told you can see the suitcase, but you can't do anything with it yet. This is where Conditions start to come into play.

VERBS, NOUNS AND ADJECTIVES

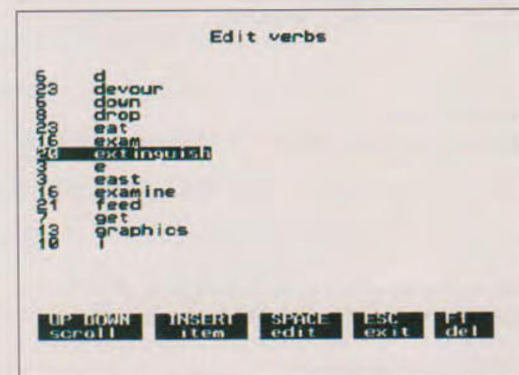
Vocabulary plays a vital part in any adventure game. Anyone who has ever come across a game that doesn't



The main menu. All submenus can be accessed by pressing the highlighted letter. It might look like a lot, but notice that there are three different word lists and four separate conditions menus.



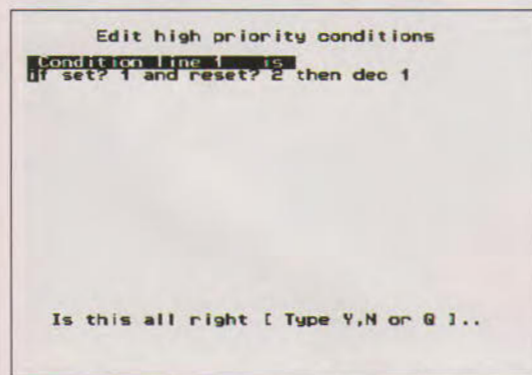
The disk operations menu. At the moment I am loading the test adventure menu, and this is the one we are going to work with.



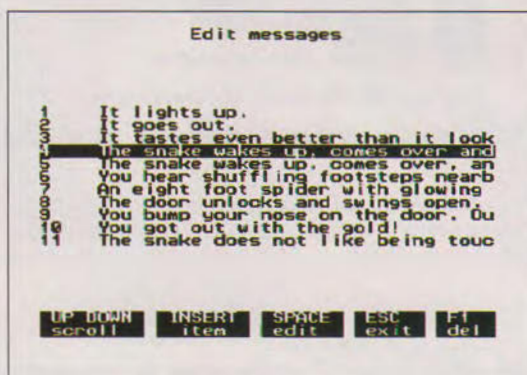
The verbs as they stand so far. The numbers are there so that you can use synonyms, increasing your game's vocabulary and making the game more and more user friendly all the time.



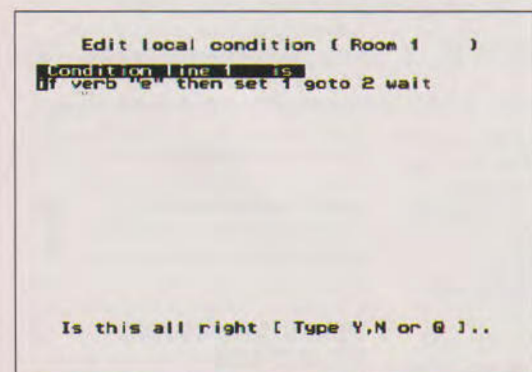
The graphic editor is a simple art package containing all the basic functions you need, and none of the ones you don't. Click on the option you want, click on the colour you want, then click on the canvas to draw.



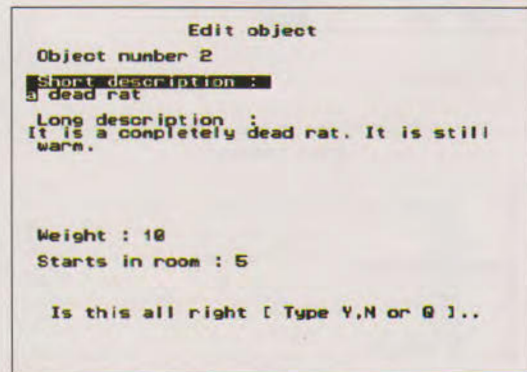
The high priority conditions used in the test game. It might not make much sense at the moment, so next month we're dedicating four pages to them.



You can enter up to ten thousand messages in your game, and the best adventures usually have something to say about almost everything.



The local condition for the start location. Basically it finds out if you are going east to room two, and then sets a flag to let you know that the cave is pitch dark.



This is how an object is defined. The two descriptions serve the purpose they describe, and the weight is there for when you want to limit the amount a player can carry.

let you "Discuss mountaineering techniques with the Gnu" will know how important it is to have a comprehensive word list.

To clarify:

1) Verbs are actions, such as get, jump or throw. These are listed in the Verb list accessed from the main menu by pressing V. Each verb has a number alongside it.

You'll notice that these numbers are completely out of sequence and duplicated. The reason for this is simple; these numbers symbolise synonyms (groups of words with the same meaning). Word 1 might be Move, but it could also be push, shove, lever or drag. All of these could be word 1, and this is how you can extend any vocabulary list.

2) Nouns are all the proper names of objects and items in the game. These can be the names of all of the items in the object list, as well as all non-object items such as the door and snake in the Test game.

These are objects that you can't manipulate, but you can still interact with them. A poor adventure will tell you that on your right is a large bank of switches, but will respond with a blank stare when you ask to push one.

3) Adjectives are optional when it comes to adventure games. Slowly and quickly are the sort of words found on the adjective list.

For most people, simply pushing a door open is enough, but for more intricate designers, pushing a door open slowly can have a completely different effect to pushing a door open quickly.

MESSAGES

Messages are the little bits of text that pop up throughout the game, from the program telling you it didn't understand what you just said, to snatches from a conversation you can hold with imaginary characters.

There is enough space for almost ten thousand of these, so feel free to put in as many as you like. Obviously, some will be standard system messages, such as "You have died" or "You can't do that here", but all of them can be edited by moving the highlight to the message you want using the cursor keys and then pressing the space bar to display the whole message.

CONDITIONS

For the most part, you don't need to worry about how the adventure runs. You can rely on the fact that the program is going to display the graphics and text you want it to, when you want it to, and happily read any input from a player. When it comes to interpreting the commands, however, you need to set up conditions. These can be split into four groups, all of which follow the same syntax:

1) Low Priority Conditions

These are used after the player has entered their command, and are usually used to interpret and act upon a statement, such as Get Brick or Examine Housefly. Most low priority conditions are to do with examining and manipulating objects.

2) High Priority Conditions

These are the conditions accessed before a player has input a command, such as the warning of a dangerous event. In the test game, try going into the cave without the lamp lit to see what I mean. Another use is to keep items in the game moving, for example an electric door opening one turn and closing the next.

3) Local conditions

These only affect their assigned room. For example, the command "Strike Match" might not do very much in any outside location, but when entering a room with a strong gas leak, it could cause instant death.

4) Special Conditions

These are groups of instructions set to happen in certain situations irrespective of position. For example, should

a player die, a message would appear informing the player. If you wanted to have manual protection, you might have it appear when the score reaches 50 or so.

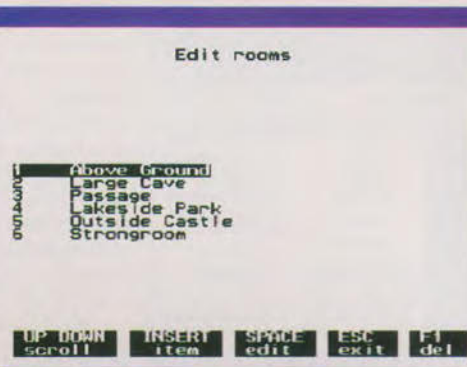
CONDITION SYNTAX

This is the most complicated part of creating an adventure, which is why we're going to dedicate four pages to it next month. For now, we will give you enough information to keep you going.

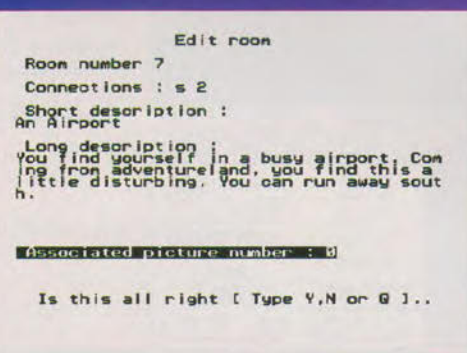
The basic condition instruction is along the lines of "If (test is true) Then (do something) (ending)". The two most important things to remember are If and Then.

Anyone who has programmed in BASIC will know that an If and Then command tests for a certain condition and acts upon it if it is true. For example, if you want to light the lamp, the condition would read something like "If Verb 'Light' and Noun 'Lamp' then swap 5 and 20 OK". This would read the words for the verb and noun, and then swap object 5 (the unlit lamp) with object 20 (the lit lamp) and display "OK" (to let you know that the action has been carried out).

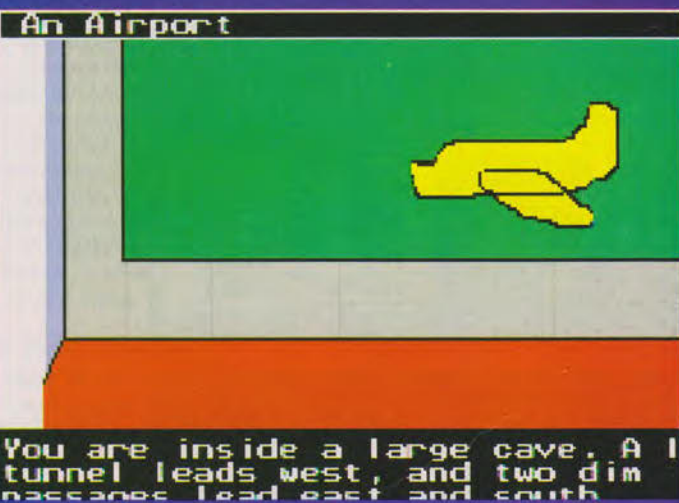
The syntax is fairly straightforward, but making sure you have the correct terms is vital. You'll find a file on the program disk called "Quick.Adv". This contains all the conditions and messages contained in all adventures, such as North, South, Inventory etc. Once you start working with flags and counters things get a little tricky, which is why we'll be looking into this with a lot more detail next month. In the meantime, have fun!!



The rooms as they stand. We're going to add a new room, so press insert to begin a new description.



Just for the sake of argument, lets make the new room an airport. Enter the information as it is here.



All right, so it doesn't look amazing, but it is a new location, placed into the game system in a little under two minutes. See how easy it all is!



NOW READ THE BOOK

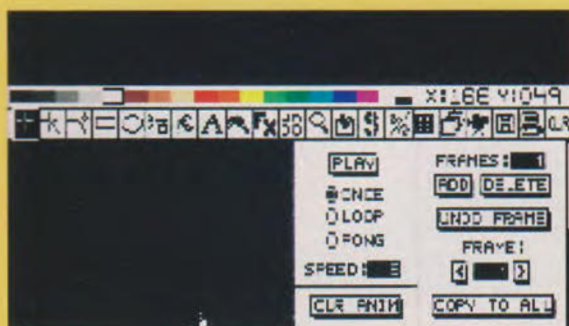
If you really want to let rip with your free £39.99 worth of program then why not send off for the manual? It covers how to use the software far better than we ever will as it's a bristling package of 74 lusciously printed pages, which will show you how to get the very best from STAC.

The manual is available at the ridiculous and once only price of £3.99 including post and package.

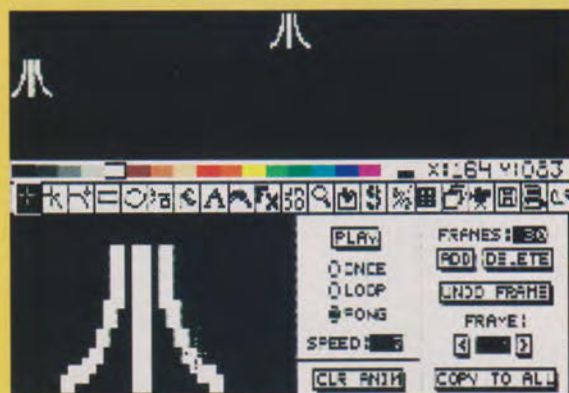
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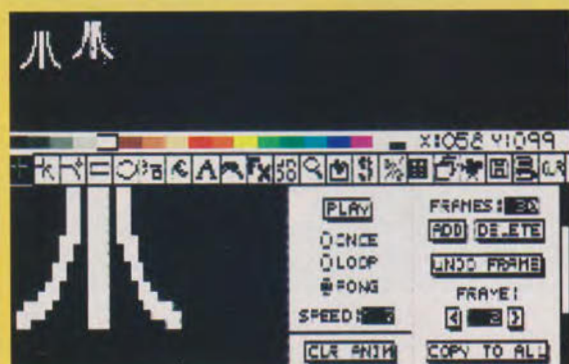
Please allow 28 days for delivery.



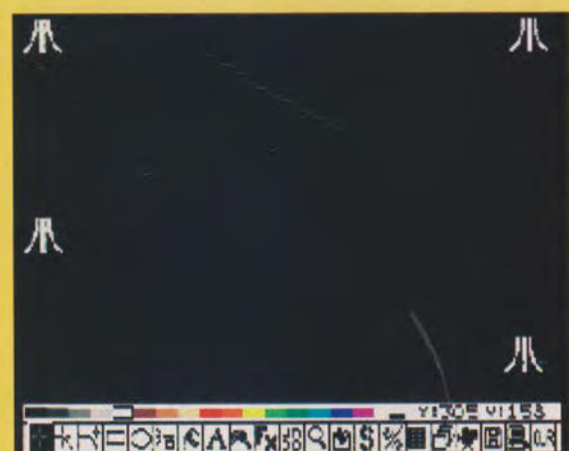
The Animation Sub Menu. On the left are the playback options, as well as the clear animation button. Clicking on this deletes all the animation frames.



The first frame of your 30-frame animation, as displayed in the two edit fields on the right hand side of the sub-menu.



Frame number two. Notice how the Atari logo has moved across the page slightly. By repeating the process through all 30 frames, you can create an illusion of smooth movement.



To add a little more spice to your animations, try to get a lot of things moving at once. The logos on the outside move toward the centre of the screen, while the original central logo pans smoothly from left to right.

Animation in *Deluxe Paint* works in exactly the same way as animation anywhere else. A series of successive images are displayed at high speed to create an illusion of movement. Anyone who has ever toyed with a flickbook will know the formula well. In a sense, that is the basic function of the program – a digital flickbook, only it can do a lot more.

There are two different ways to create your animations, frame by frame or tweening. Each is as powerful as the other, and both have definite advantages and disadvantages. Frame animation is how most cartoonists work, by creating each image by hand, altering it manually each time. This can create realistic movement and expression. However, if you want something smooth and controlled, then tweening is the way to do it. This method takes a specified image and manipulates it from a set of instructions that give the start and end positions of the picture. It then works out the position of the image on every frame in between, hence the phrase "tweening". This month we're going to take you through a few stages of each and show you how they can be used together to great effect.

FRAME BY FRAME

For this method, you'll need to open the animation sub menu (right click on the animation icon). On the left-hand side there are the three play types: "Once" plays your animation from start to finish, and then stops. "Loop" plays your animation from start to finish over and over again and "Pong" plays it from start to end, then

from end to start until you tell it to stop. Below that is the speed indicator. The number in the edit field tells you how long each frame is held on screen, so the higher the number, the slower your animation is played back.

On the right are all the frame controls. The edit field tells you how many frames you have, and typing in a number here is the fastest way to create frames. Just below that are the add and delete buttons which, of course, add and delete frames.

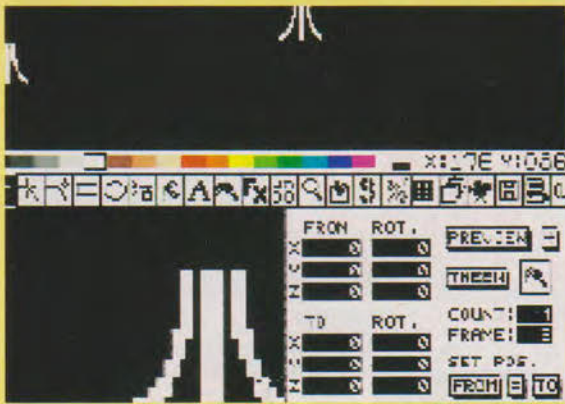
At the bottom is the current frame number and two arrow buttons that move you forward and backward through your animation, and a button marked copy to all, that makes all the frames in your animation identical to the currently displayed one, useful for still backdrops.

The Undo Frame button is a way of correcting mistakes and freeing memory. The system is simple. When you have drawn your frame, nothing is stored to memory until you move to another. If at that point the machine realises it doesn't have the memory to store the altered frame, it won't let you continue. Clicking on this returns the frame to its original state (i.e. the position it was in before you last changed it), effectively freeing the space you tried to save into and allowing you to carry on.

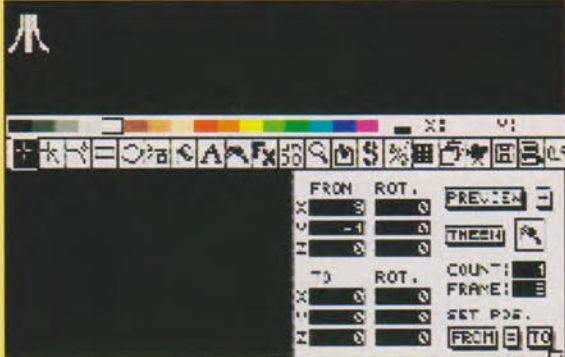
Let's start with an easy animation. Draw any shape you want, in our example an Atari logo, and pick it up as a brush. Now go to the animation sub menu and create 30 frames, by clicking in the frames window and typing 30. There's a brief pause, and now you have 30 cells to play with.

One of *Deluxe Paint's* best features is its ability to create animations. In the second part of our tutorial, Tony Dillon looks at how to make full use of the animation facilities that this package offers.

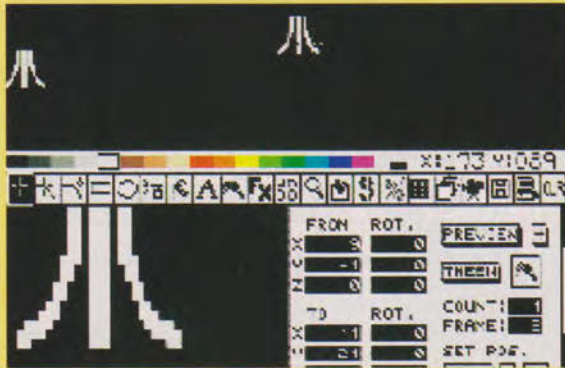
DELUXE PAINT BY NUMBERS



The Tweening Sub Menu. The twelve edit fields let you place your brush start and end positions with pixel accuracy. By altering the rotation, your animation can move into three dimensions!



The start position has been set by clicking on the From button and placing the brush. I am just about to do the same with the end position by clicking on To.



The brush being placed. When you click with the brush, no image is left. Instead, the brush co-ordinates relative to the origin are recorded. Depth and rotation have to be entered by hand.



A frame from the tweening preview. It may not be much to look at, but this instant reference tells you exactly where your animation is going, so you can see if you are going wrong.

Move your brush to co-ordinates X 10, Y 100, and stamp the brush.

Now move to the next frame, either by clicking on the forward button, to the right of the frame number indicator, or using the keyboard shortcut, '+' on the numeric keypad. Press it once, and make sure the frame indicator now displays that you are on frame two. Now stamp the brush at co-ordinates X 20, Y 100. Repeat the process for the remaining 28 frames, adding 10 to the X co-ordinate every time. When finished, click on play, or press '*' on the keypad to watch the Atari logo fly from left to right. Feel free to experiment with the three play settings and the speed as much as you like, but make sure you don't click on the Clr Anim button.

MAKING ALTERATIONS

At the moment, this animation is a little dull, so let's add some more moving objects to it. Go to frame 30 and, sticking with the Atari brush, position a logo at X 10, Y 10, one at X 300, Y 10, one at X 10, Y 190 and one at X 300, Y 190. Now, keeping the Y co-ordinates the same, move back through the frames using the '-' key on the keypad, adding 5 to the X co-ordinates of the logos on the left and subtracting 5 from the X co-ordinates of the logos on the right. Play your animation again, and notice how smaller movements between frames creates slower animation.

IN BETWEENING

The tweening tool is the easiest way to create smooth movement of still objects, with no meticulous planning or mundane plotting. By creating a start and end position, the tweening tool works out all the frames in between, creating smooth sweeps and arcs automatically. For example, if you have a logo that is far into the artificial distance, upside down and back to front, you can create a sequence whereby in one graceful movement it flips over, reverses itself and zooms towards the screen simply by using the tweening tool. This could take hours if done by hand.

THE TWEENING MENU

On the left are a dozen edit fields. These represent the start and end positions of your animation. The top six fields display the X, Y and Z co-ordinates of the first frame of your brush, as well as the rotation through the brush's three axes. The lower six tell you where the brush will end.

On the right are your frame controls, as well as the tweening commands. Preview does a quick wire frame animation, displaying the path of your brush as set by the current co-ordinates. The '+'

button sets the origin (vanishing point) and changes the path of a brush when receding. 'Frame' and 'Count' specify at which frame the tweening animation is to begin, and how many frames it will run for.

The From and To buttons let you enter the X and Y co-ordinates quickly. Clicking on either of these, then clicking the brush on the canvas where you want it to begin or end will enter the figures for you. The brush icon lets you tween the brush directly, without animation, which is something we'll be covering next month. Clicking on the Tween icon places the animation onto the frames.

To demonstrate how tweening works, clear the current animation by clicking on 'Clr Anim' in the animation sub-menu, and get your logo again. Now set up 50 frames by entering them in the frames edit window and go to the tweening menu. Click on the 'From' button, and position the brush on the left hand side of the screen and click the left button. Now do the same with the 'To' button, placing the brush on the right hand side. For some interesting effects, enter 200 in the From Z field and -120 in the From X Rot. field. Click on preview to see the wire frame brush zoom and flip smoothly across the screen. If you're happy with it, click on Tween. When the program has laid down the frames, go to the animation sub menu, make sure you're on frame 50 and type 60 in the frames edit field. This will copy the last frame onto 10 more frames to create a pause at the end of the animation. Click on 'Pong', set the speed to 2 and click on play.

KEYBOARD SHORTCUTS

Because animation calls for so many options to be used, you'll find a number of keyboard shortcuts are there to make your life easier. Here are the most important ones, and you'll find the rest in your Deluxe Paint ST manual.

ON THE KEYPAD:

- + : Advances to the next frame.
- : Goes back to the previous frame.
- * : Play animation.
- . : Set origin (Vanishing point)
- Cursor left : Decrease animation speed.
- Cursor right : Increase animation speed.

ON THE KEYPAD:

- Shift 1 : Go to first frame.
- Shift 2 : Go to last frame.
- 4 : Play loop.
- 5 : Play once.
- 6 : Play pong.

TWEENING PART 2

STEP BY STEP



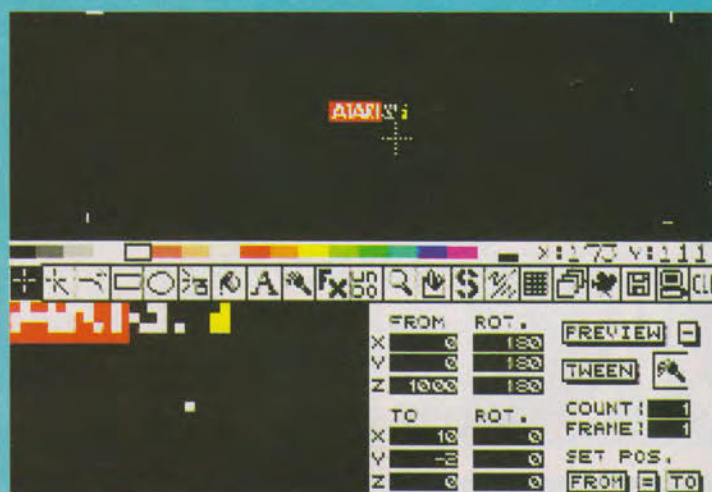
- 1** We're going to try something using both methods. Get a graphic that you've already created and pick it up as a brush. Make 50 frames of animation and go to the tweening menu. Click on the equals sign (=) between the 'From' and 'To' buttons and place the brush in the centre of the screen. This sets both the start and end positions to the same point.



- 3** In our animation, we want a box to draw itself smoothly around the brush. For this you'll need to measure the width and height of the brush. Let's say for this example that it's 230 along by 80 down. We want a 10 pixel border around the brush, so our box will be 250 x 100. Easily divisible by 50 (the number of frames) thankfully. Go to the last frame, and draw the box around the brush, noting down the co-ordinates of the corner. Go to the first frame, and place dots where the corners are.



- 2** Now we're going to create the first part of the animation. Set the From Z to 1000, and all three From rotations to -180. Click on preview to make sure the brush rotates as it zooms to fill the screen, and then click Tween to place the animation.



- 4** Now divide the lengths of each side of the box by 50. To draw smoothly, the lines have to extend smoothly, and the size of your divisions and the lengths by which the line will extend for each frame, holds the secret. In this case, frame two has lines extending from each corner by five pixels across and two pixels up. Frame three has lines of 10 across and four pixels up and so on.



- 5** Repeat the process through all 50 frames, then add 10 frames to the end of the animation by going to frame 50 and then entering 60 in the frames edit field (as shown on the left).
- 6** Now run your animation (above). Easy when you know how, isn't it?

POOLSMASTER

The Football Pools Predictor

- 'A LICENCE TO PRINT MONEY' - Mr F C Hammond of Essex.
- WE HAVE WON MANY THOUSANDS' - Mr P E Roberts of Dorset
- Just a couple of the many unsolicited testimonials about this truly amazing Football Pools Predictor Program which has consistently astounded us with its accuracy. Check out its features:-
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- Uses scientific formula which is the result of many years study of the Football Pools to give a strike rate which is consistently higher than the laws of average.
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'Recommended highly for the novice and professional alike' Micromart

This program is a must for anyone interested in handwriting analysis, amateur, professional or novice. To use the program, a sample of handwriting is obtained, preferably in ink. From the main menu of the program, you are then prompted to examine each detail of the sample. You will then be taken through deeper and deeper sets of sub menus, all prompting you for relevant details of the writing and the points to watch for. At each menu selection, you can choose to add the selection to the analysis if it applies. Upon completion, you are left with a disk file up to 15 pages long (depending on the depth of detail you choose). This file can even be edited within your word processor. But be warned! This program is deadly serious and pulls no punches with complete character reports on everything from career suitability to sexual deviancy and megalomania!

Graphologists can charge almost what they like for a full analysis, so this could prove a very lucrative business venture.

If you are an enthusiastic amateur, or just curious, then this program could provide hours of entertainment whilst teaching you the finer art of this fascinating subject.

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MULTI-SCOOP is first and foremost a FOOTBALL POOLS SYNDICATE using our amazing POOLSMASTER program. Each member pays just £1.00 per week and shares equally in the winnings. But MULTI-SCOOP is not just a syndicate, it is also a home based business with generous commissions, bonuses and prizes for all members plus discounts on software. Interested? then why not find out more without obligation by calling *0839 502201 anytime to request a full brochure and application form to be sent direct to you. Don't delay, call now!

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AVAILABILITY

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WORKING WITH COVER DISK 2

There's over a Megabyte of goodies on our second cover disk this month with the KAOS-Desk replacement desktop, Darklord screen saver, the STOS STE upgrade kit, an extra slick version of Asteroids and four printing utilities. Oh, and there's also an easy-to-use method for shifting them to your disks

TEN STEPS TO HEAVEN

To cram more than a Megabyte of quality data onto a standard ST floppy means that we have to compress the data.

Here's how to get at the programs in ten easy-to-follow steps....

- 1** Format two standard double-sided, double-density disks from the desktop. Stick labels on them and call them disks #1 and #2. As you transfer programs, write their names onto the labels.
- 2** Turn your ST off, place the ST Review Cover Disk #2 in the disk drive and switch on. If you start up in low resolution, change to medium resolution.
- 3** You should see two windows on the desktop labelled A and P. P is a Ramdisk which will be used to help you transfer files to your disks. A shows all of the programs on our Cover Disk #2, in order of size with the largest files at the top of the window.
- 4** Select DPAINT.TOS and drag it to Ramdisk P.
- 5** Remove the ST Review Cover Disk #2 from the disk drive and place your labelled Disk #1 in the drive.
- 6** Drag DPAINT.TOS to the Disk drive A icon in the top right-hand corner of the screen. This copies DPAINT.TOS to your Disk #1 and makes it appear in Window A.
- 7** Double click on DPAINT.TOS in Window A. This takes it through a self-extraction process leading to a folder called "DELUXEPAINT".
- 8** When finished, drag DPAINT.TOS from your Disk #1 to the trash can to delete it. Do the same to DPAINT.TOS in Ramdisk P.
- 9** Follow the same procedure for STOS.TOS to place it on your Disk #2. Double click to extract the folder called "STOS" and then trash both versions of STOS.TOS as in instruction 8).
- 10** ASTEROID.PRГ doesn't need to be decompressed - you can transfer this directly to one of your Disks. The remaining files are small enough to be decompressed directly in Ramdisk P, which is a faster process than above. Drag files one at a time to Ramdisk P, double click on them to make them self-extract to a folder and then drag this folder onto one of your Disks. Trash the .TOS version on Ramdisk P after each transfer.

WHY USE DATA COMPRESSION?

A standard Atari ST double-sided double-density (often shown as DS/DD) disk can hold 720 Kilobytes. Our second cover disk has over 1000 Kilobytes, or 1 Megabyte, of software for you which cannot be fitted onto a standard disk. We have two options:

Use a non-standard format. This usually prevents you from making copies of individual files and can cause problems with some disk drives.

Compress the data. This lets us fit more onto a disk than would be possible usually.

There are many different types of compression. ST Review uses a method called LZH which isn't the fastest and doesn't compress to the smallest size. Why do we use it? Because there is a good self-extraction (or decompression) program written for it which allows you to simply double-click on a compressed file and to have all of the files automatically extracted in their original folders. In other words, we chose the best method for you!

IS THERE AN EASIER WAY WITH 1 MEGABYTE OR MORE OF MEMORY?

The Ramdisk that we use can be preset for memory size, which is set at 350 Kilobytes to allow for use on any ST from a 520 upwards. The size, and disk drive letter, are kept in the file called "RAMDISK.INF" which is created using a standard word processor. If you have 1 Megabyte or more of memory, you can alter the size of the Ramdisk to 750 Kilobytes or more which will let you decompress all files on the Ramdisk. If you change "RAMDISK.INF", make sure that the word processor saves the file as an ASCII (or pure text) file without any control codes.

USING THE COVER DISK WITH A HARD DRIVE

Chances are that the booting up of your hard drive will prevent the Ramdisk from loading. However, if you have a hard drive, you can simply transfer all of the programs from our cover disk onto your hard drive and decompress them there.

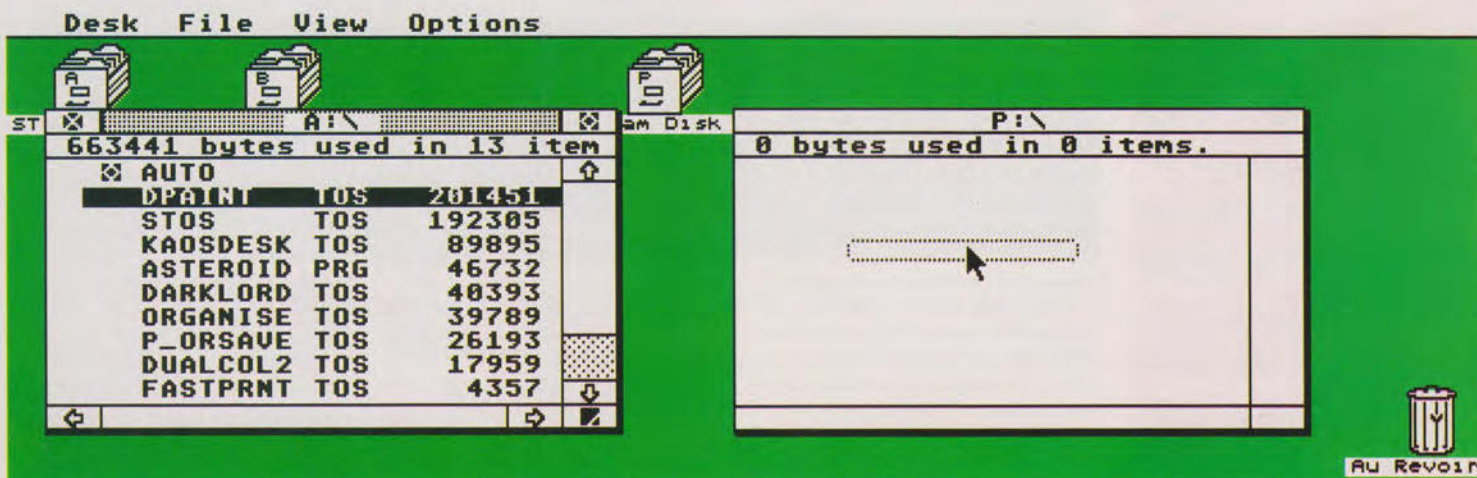
USING THE <ESC> KEY

When you double-click on one of the disk drive icons, you get a window on the desktop showing you all of the files on that disk. If you then remove the disk from the drive and put a different disk in, you don't automatically see the files for the new disk. Most people close the window (by clicking in the top left-hand corner) and then double-click the disk drive icon again. There is an easier way - when you put a new disk in the disk drive, press the <Esc> key on the ST keyboard. This makes the ST re-read the current disk drive which then shows the files on the new disk. Don't forget to close any open folders before you do this.

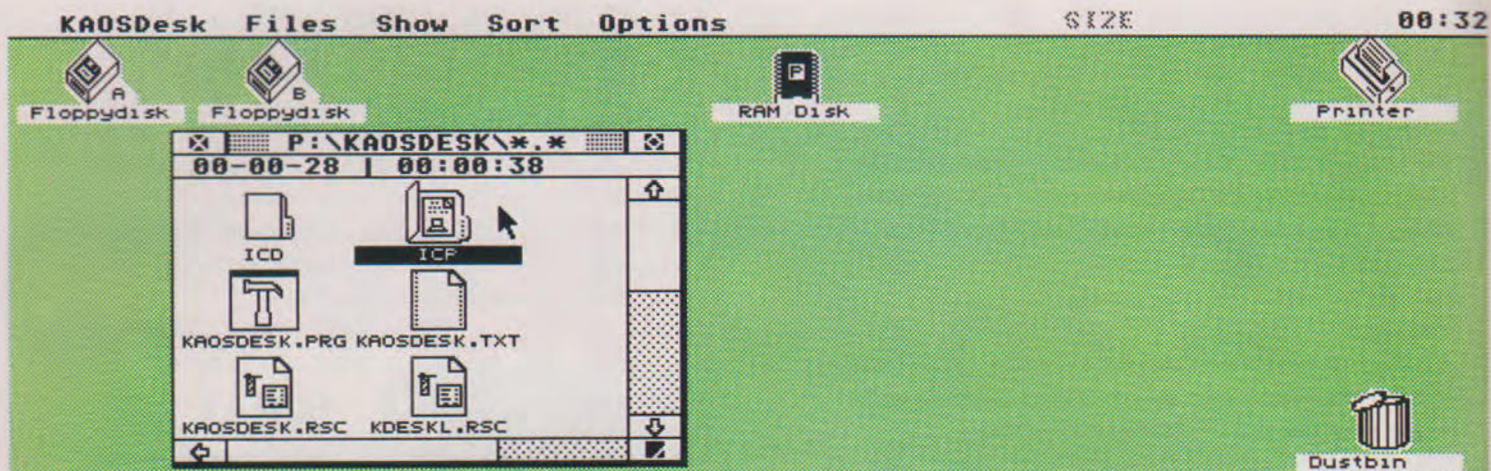
WHAT'S A RAMDISK?

A Ramdisk is an area of the ST's memory (or RAM) which has been put aside to act as a second disk drive. You can copy files to a Ramdisk in the same way as you would to another disk drive with the advantage that transfer takes place very quickly indeed.

Some Ramdisks are "reset-proof" which means that you can carry out a warm reboot of the ST, by pressing the black button on the rear, without losing the data in the Ramdisk. The one we use isn't of that type, but does allow us to preset its size and disk drive letter to save you the problem of having to set it up.



If you're in medium resolution, this is what your screen should look like



KAOSDESK

Are you bored with the sight of your desktop? Would you like to see some new icons and have the option of designing your own? KAOSDesk offers you this and much more...

KAOSDESK ● MIN MEMORY 0.5MB ● PROGRAM

There are various replacement desktops for the ST, *Neodesk* and *Gemini* to name but two. The disadvantage is that these are going to cost you money to buy and are quite radical in their changes. *KAOSDesk* comes as part of this coverdisk, and is very much in keeping with what you're used to...

MAIN SCREEN

Double-click on KAOSDESK.PRG and the new desktop appears. The first thing you'll notice is that the icons for the floppy disk drives have changed to a far more pleasant picture of a floppy sitting on top of a disk drive and the "trash can" has become a dustbin with an open lid. You'll also find eight hard disk icons, even if you don't have a hard drive connected! No problem; go to "Options - Install Drive", enter each of the hard drive letters and click on "Remove". Now click on "Save Desktop" in the same menu. In fact, all menu options have keyboard equivalents - Alternate S carries out the "Save Desktop" function.

NEW FUNCTIONS

KAOSDesk is quite similar to the standard GEM desktop, but has several extra functions. For instance, you can now grab a file and deposit it on the desktop, a definite plus when you are gathering files from different folders. Also, by hitting Alternate W, you select all files in the current open window - no more dragging the window to its maximum size and then finding you can't quite select all

105 file icons on display.

GEM lets you choose between icons and text, but *KAOSDesk* also lets you select the size of the text which, at a pinch, allows more items to be displayed within a window.

MISSING FUNCTIONS

Ignore the Printer icon; this facility hasn't been implemented in this version. Also, the "Program" function in the "Options" menu can be disregarded.

Apart from these, *KAOSDesk* is fully functional. See page 119 for a comparison between *KAOSDesk* and *Neodesk*.

OTHER PROGRAMS

There are two extra programs which allow you to take the customisation a step further. ICNEDIT.PRG lets you design icons for the different file and program types; if you're not happy with the icon for a desk accessory, load it in and change it.

If you do decide to be adventurous and design your own icons by using ICN-EDIT.PRG, *KAOSDesk* will not understand these until you run MKICONS.TOS which generates the icons for use with *KAOSDesk*.

IF YOUR DISK WON'T LOAD

In the unlikely event of one of your ST Review disks not loading, remove all cartridges and peripherals and try again. If it still won't load, pop it into an envelope and send it to: ATARI ST REVIEW, PC Wise, Merthyr Industrial Park, Pentreebach, Mid Glamorgan CF48 4DR, along with a brief note that outlines the problems you're having. They will then test the disk and send a replacement as soon as possible. Ring the PC Wise Helpline for any urgent problems. It's open between 10.30 and 12.30 during weekdays and can be reached on (0443) 693233. While ST Review makes every effort to check cover disks for all known viruses, we can accept no responsibility for possible damage caused by viruses which may have evaded our detectors.

STOS STE UPGRADES

STOS ● MIN MEMORY 0.5MB ● PROGRAM

STOS is one of the most successful games creation programming languages, but has problems working with the new breed of STE machines.

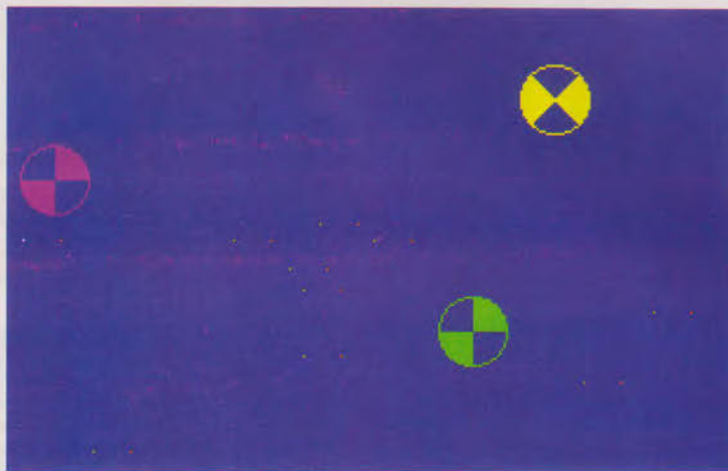
Until now...

The problem appears to be with **TOS 1.62** which is in the later STEs.

Even if you don't own such a machine, it's important to upgrade your **STOS** programs - otherwise, any programs that you write will not work on these later STEs.

This update deals with **STOS Basic** and the **STOS Compiler**; all you have to do is run the programs on our disk and these will automatically update your **STOS** programs. The STOSREAD.ME file outlines the changes and bugs that have occurred.

Does the ST need another screen saver? When the one in question runs as a desk accessory and lets you program the background screens and moving sprites, the answer is an emphatic "yes"!



DARKLORD

DARKLORD ● MIN MEMORY 0.5MB ● DESK ACCESSORY

WHAT IS A SCREEN SAVER?

If your ST's monitor is left standing with the same screen for a period of time, you run the risk of that image being permanently "burnt" into the tube leaving a faint residual image of that screen all of the time. This kind of damage cannot be repaired. A Screen Saver is a small program which usually

blacks out the screen and has pictures moving around to prevent such damage. **Darklord** is probably the ultimate version of this because you can design your own backgrounds and moving sprites.

GETTING STARTED

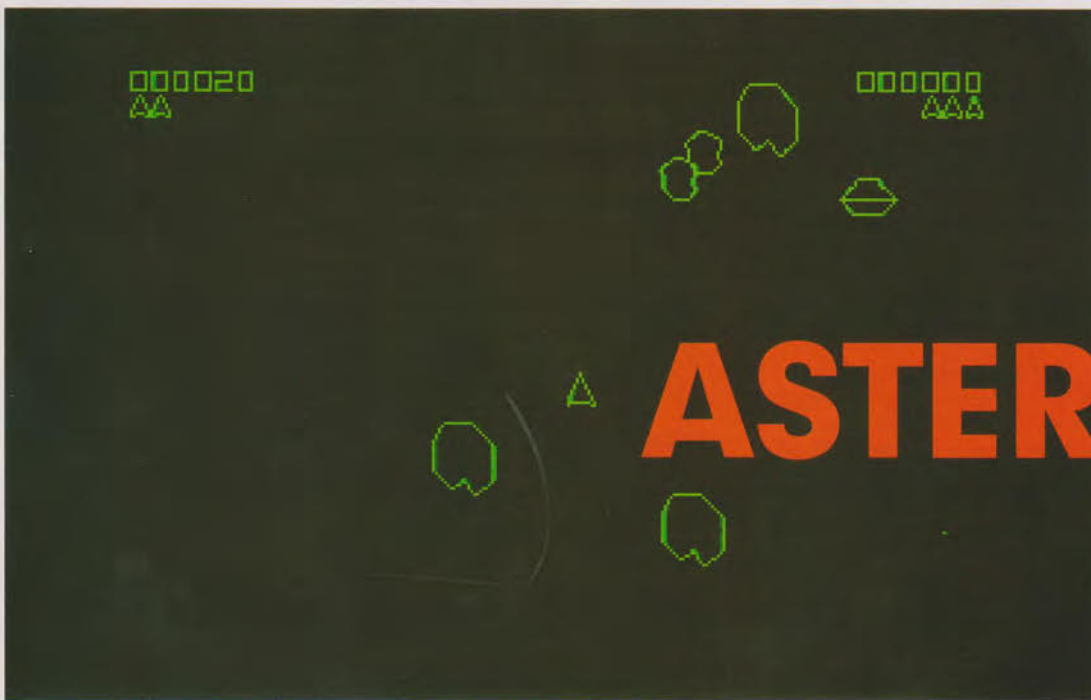
Drop DARKLORD.ACC and DARKLORD.INF onto your boot disk and re-start your

ST. Then drop down the Desk menu and click on "Darklord". A further click on "Options" gives you access to the various alterations that you can make. "Delay" sets the time before the screen blanks and **Darklord** takes over, "Load" allows you to choose different **Darklord** screens and "Test" lets you see your choice immediately. Four screens are included on the Cover Disk; more will follow with later issues.

CUSTOM SCREENS

If you are into working with text-based graphics programs, you should be able to program your own screen. Using a word processor, look at the README_DARK instructions and also load up one of the .INF files which hold the programming for the screens. These are simple ASCII files - in fact, you can see the programming by simply selecting a .INF file and double-clicking on it from the desktop.

Each **Darklord** screen can have different colours, **Degas** pictures, grids, fills, stars, rays, starfields and sprites. If you are not into programming these yourself, enjoy the four that we provide and look out for future additions!



ASTEROIDS ● MIN MEMORY 0.5MB - COLOUR ONLY ● MOUSE OR KEYBOARD

ASTEROIDS

One of the first games to be shown on the ST, Asteroids has never lost its appeal. This version, courtesy of Sinister Developments, is fast and slick and well worth playing

ASTEROIDS

- 1000 PTS
- 1000 PTS
- 1000 PTS
- 1000 PTS
- 1000 PTS

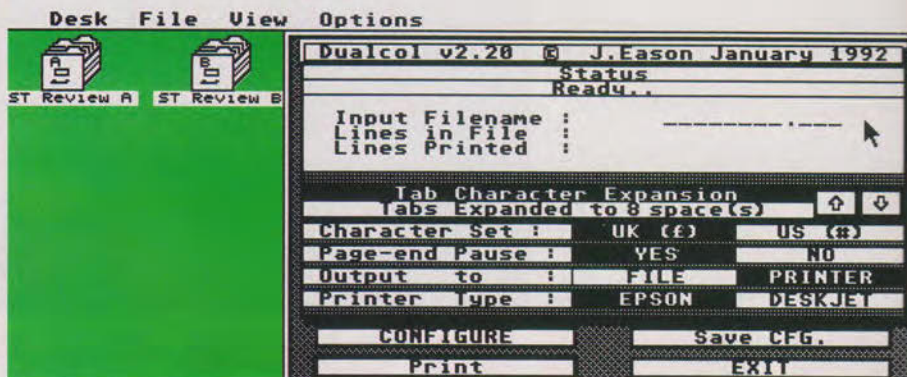
Classic coin-ops, such as the original and best of the bat and ball games, **Pong** and the very first shoot 'em up, **Space Invaders**, are always remembered as milestones in arcade programming history. Whilst they both were great hits for the companies that made

them, what can you say about **Asteroids**? It's the original Atari "shoot 'em up"! This version from a Scottish software team has been re-written to be as smooth and as slick as possible. The key and joystick controls can be redefined and you can save scores to a high score table.

DUAL COLUMN

DUAL COLUMN 2.20V ● MIN MEMORY 0.5MB ● PROGRAM OR DESK ACCESSORY

Need to print a file while you are in the middle of using a different program? Or how about printing a file without having to load up your word processor? Dual Column fits the bill...



Dual Column is a printing utility which can run as a free-standing program in its current form, or as a Desk Accessory by renaming it DUALCOL2.ACC.

CONFIGURING FOR YOUR PRINTER

Before using *Dual Column*, it has to be set-up for your particular printer. The number of characters per line and lines per column have to be written into the program, and CHECKPRT.TOS is included for this purpose.

Running this causes a row of numbers to be printed followed by a column; by looking at these, you can

decide the values for these two characteristics.

EPSON-COMPATIBLE OR DESKJET?

Dual Column works with any Epson-compatible 9- and 24-pin printers, and with any which conform to the HP Deskjet. Only laser printers are excluded at present.

Once the program has been configured, *Dual Column* works from its own control panel. From here you set the Printer Type (Epson or Deskjet), Character Set (UK or US) and whether you want to print to a Disk File or to a Printer. Clicking on "Print" then prints the file.

ORGANISER

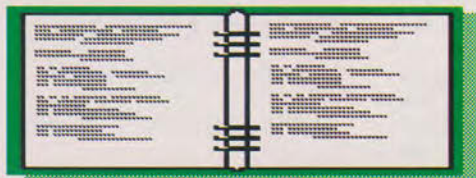
ORGANISER ● MIN MEMORY 0.5MB ● PROGRAM

Do you have a filofax-style organiser?

This program will print out addresses on the special size paper, and even operates as a database ...

Organiser lets you maintain an address book and print out addresses onto filofax size paper from any Epson-compatible 9- or 24-pin printer. It can sort out the addresses that you type in, and uses a rather nifty method for this; any word that you type in the "Name" field in capitals is taken to be the name that you wish that entry to be remembered by.

Up to 1,000 addresses can be saved within a file so you can use *Organiser* as an on-line address database. Addresses can be freely added to, amended or deleted.



FASTPRINT PATCH

FASTPRINT ● MIN MEMORY 0.5MB ● AUTO PROGRAM

If your printer doesn't print as fast as you think it should, this patch may help ...

There are various reasons why a printer may not be running at its optimum speed. This patch simply outputs characters to the printer port in a more efficient manner than usually provided by the ST's operating system.

PRINT OR SAVE?

PRINT OR SAVE ● MIN MEMORY 0.5MB ● AUTO PROGRAM

Do you decide at the last moment whether you want to save your screen to disk, or print it out? Are you using different printers and need a facility to print the screen from either of them?

Print Or Save gives you both of these choices and works with all printers ...

Using the Alternate-Help key combination usually prints the ST's screen to an Epson-compatible 9-pin printer. Print Or Save gives you the alternatives of 24-pin, Deskjet and Laserjet printers as well as allowing you to save the screen to disk as a Degas file.

There are two versions of this; if you have a 9- or 24-pin printer, use the folder called "Others"; owners of Deskjets or Laserjets use "HPackard". Open the relevant folder and place the ****SAVE.PRG into your AUTO folder on your boot disk. Then run the appropriate SET program which will configure the auto program in the way that you require. Once you've done this, reboot your ST.

FUNCTIONS

For 9- and 24-pin printers, you simply have the standard facilities of saving to disk or printing. Deskjet and Laserjet owners have the added facilities of Letter or Draft mode for print out, to save ink/toner and two different sizes. Various ST key presses access the different functions.

NEXT MONTH

WE REVIEW EVERY POPULAR 9-PIN DOT MATRIX PRINTER



Buy next month's ST Review and find out which is the ideal 9-pin printer for you, as we test the best...

Do you want to buy a printer but only have a limited budget? You know what you want from a printer, but you're not sure which one is right for the job? We'll tell you.

You know which printer you want but how much will it cost to run? Once again, we'll tell you!

This is the last part of the most comprehensive printer survey ever undertaken by the UK Atari press - so make sure that you don't miss it!

PLUS SO MUCH MORE!

- **Tune Up Your ST** - Andrew Wright continues the third part of our series in which we set out to boost the power of your ST.
- **MIDI Monthly** - In your very own MIDI and Music section of the magazine we'll be looking at a host of new software plus giving you the low-down on two new inexpensive hardware items: one that will give your ST a THRU port and the other that can expand your MIDI port to give you an extra 16 channels on some popular sequencer packages.
- **FAXMODEMS** - The very latest in

designer technology. Faxmodems give you all the benefits of a high-speed modem coupled with the convenience of having a fax that will print straight to your screen. And all for less than the price of a mid-range fax machine. Interested? See our report next month...

AND FOR GAMESPLAYERS...

- We'll be looking at two of the most accurate simulations ever written. Virgin's **Space Shuttle** has every single button, dial and computer fitted in the American Shuttles, so much so that if you can master this simulation, then

you could actually pilot the real thing. And Digital Integration have recently been writing simulation programs to train RAF pilots to land on moving ships - we look at their latest fighter simulation, **Tornado**.

- Plus **The Games - Español '92**, **Mega Sports**, **The Addams Family**, **Pushover** and many, many more!

ON DISK

- Don't miss out on a fully commercial music package with which everyone can be a popstar... Plus our usual host of games and utilities...

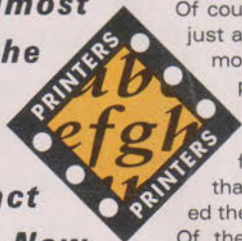
ST REVIEW GUARANTEES VALUE AND QUALITY FOR ALL
SO DON'T MISS IT!
THE NEXT ISSUE IS ON SALE ON 15TH JULY



PORTABLE POWER

SEVEN SMALL PRINTERS TO TAKE ON THE ROAD

So you want to use a printer while you're away from home or the workplace? For almost a decade the shops have been filled with compact computers. Now printer companies have, at last, caught on, so here is your guide to seven of the best



Although printer manufacturers have been slower off the mark than the computer manufacturers, there is now a decent range of battery-powered machines available, which are well designed, easily portable and offer high-quality print.

Of course, you could say that just about any printer can be moved about, but for the purposes of this review, a portable printer must be able to run from batteries, and that's how we have selected them.

Of the seven machines that we have looked at, three will be familiar from the Inkjet round-up featured in Issue One, and these machines are therefore reviewed together.

Portable printers are almost exclusively used for text, so we have tested them with word processing software (*First Word Plus* and *Protext*) rather than with the full gamut of graphics and DTP programs as well.

CITIZEN PN48

Portable certainly, but just how varied are its uses?



The Citizen PN48 – the latest in high-quality thermal printing technology.

Citizen already produces a well-known range of dot matrix printers: recently it has branched out with an inkjet printer and this thermal fusion portable machine. Thermal fusion refers to the way in which this printer sticks ink to paper. There are 48 heating elements on the print head - they lie behind a ribbon with special resinous ink which is transferred to the paper by a combination of heat and pressure. The close grouping of these elements results in a high print definition (360dpi in graphics mode) and well-formed characters, while the ink itself is unlikely to smudge.

This is a long thin device, the idea being that it will fit into your briefcase along with your notebook computer and sandwiches. It's nicely styled in two-tone plastic, but it does seem a little flimsy: on the model we tested, one of the catches on the top cover which you open to change the ribbon didn't engage properly, and the catch on the back paper feed flap was quite difficult to close. A printer like this is going to be knocked about in transit, so it could do with being a little more resilient, although there is a ribbed plastic bag which will give it some protection. The rechargeable battery fits behind a cover in the front and an adapter is available so that you can plug it into a car's cigar lighter socket.

PAPER FEEDING

There are two slots for paper feeding, one at the back and one on the bottom which gives a more direct path for thicker paper or envelopes. In each case you just have to push the paper in a short way and it's then loaded to the right position automatically: the bottom feed (with the printer sitting on its back) is easier to use.

The small front control panel has three buttons, an on/off switch, a print darkness control and a large LED. This gives letter codes for the printer's status - things such as on-line, low battery and various error codes. Lift the top and you can change the ribbon cassette and alter the eight dip switches: in fact the default dip switch configuration worked fine. Pressing the menu button enters a 10-item menu which lets you change between the Courier and Roman typefaces, adjust pitch, line spacing and so on. The LED shows you where you are in changing these options, but with only a single number display it's quite easy to get lost along the way.

As the PN48 emulates an Epson LQ or NEC P6 24 pin printer there is no difficulty in using it with any standard software. Printing is slow, but you're unlikely to pro-

duce lengthy documents, and there's no draft mode.

TYPEFACES

The two typefaces can be selected from software or the control panel. Both are handsome but not strikingly different. Looking closely at the characters showed that some contained holes where the ink had not taken - this may have been a defect with the one that we tested, although it was new.

You have the choice of two types of ribbon cassette, a multistrike ribbon which can be reversed when it has reached the end, and a carbon ribbon which can only be put through the printer once. The carbon ribbon gives better and blacker print but is very expensive to run. We calculate that it prints 2,500 characters to an A4 page, and on this basis the cost per page for the two ribbons is about 7p and 27p respectively. This is a simple printer to set up and use. Not for heavy use, but very easily portable.



The Citizen produces well-formed characters, but they're a little moth-eaten in places.

TOSHIBA EXPRESSWRITER 201

The simple controls on Toshiba's second portable printer has much to offer users



The Toshiba ExpressWriter 201 comes in graphite grey, and is well-made but slow.

Toshiba has been big in the portable computer world for several years and this is their second portable printer. (For some reason they are counting backwards as the previous model was the 301.) While it shares some features with the Citizen, such as the long narrow casing, overall layout and thermal printing, there are many differences.

Starting with the print head, Toshiba uses what Citizen would probably claim to be an inferior thermal transfer method with half the number of heating elements and a lower graphics resolution. This is certainly noticeable on close inspection of the print when you can see the slightly irregular character outlines; while graphics printing is at a lower resolution of 180 as against 360dpi. The two internal fonts are slightly different: Courier and Prestige Elite, as opposed to Courier and Roman.

The ExpressWriter can be used without a ribbon if you put in thermal paper, and you can then turn off "ribbon mode" from the control panel and make it print faster. The otherwise good manual doesn't explain why or how this happens.

This machine feels rather more solidly constructed than the Citi-

zen and looks as if it might be better able to deal with rough handling.

There are the same back and bottom paper feed paths on both machines, but loading the Toshiba is not automatic as with the Citizen: you have to insert the paper manually. This is very easy to do either by opening the paper release and pushing it in, or by using the paper advance button. An unusual feature is a flap in the case at the right-hand end of the platen. If you open this you can squeeze a few extra characters onto a line as it lets the print head move slightly outside the body of the machine.

The AC adapter/recharger is suitable for use at all voltages from 100 to 240 - those for the other machines are 240 volts only. The battery pack itself is an optional extra which helps explain the relatively low price of the machine. It is 1.5 cm thick, fits under the body of the printer, and is claimed to have a longer life than most.

SIMPLICITY ITSELF

This machine has simple controls: on/off, print density, paper feed, paper eject and select (on-line). There are indicator lights to show

NAME: CITIZEN PN48
PRICE: £325 (RRP EX VAT)
SINGLE STRIKE RIBBON: (32,500 CHARS) £3.50
MULTISTRIKE RIBBON: (130,000 CHARS) £3.50
BATTERY LIFE: 30 PAGES
SIZE IN CM: 5, 29.7, 9
WEIGHT: 1.17 KG

"A very compact printer with good print quality, if a bit on the slow side"

NAME: CITIZEN PN48
COMPANY: CITIZEN EUROPE LTD
CONTACT: 0895 272621

DESIGN	☆☆☆☆☆
CONSTRUCTION	☆☆☆☆☆
EASE OF USE	☆☆☆☆☆
PRINT QUALITY	☆☆☆☆☆
FLEXIBILITY	☆☆☆☆☆
INSTRUCTIONS	☆☆☆☆☆
PORTABILITY	☆☆☆☆☆
VALUE FOR MONEY	☆☆☆☆☆

OVERALL **75%**



when the ribbon is finished and the paper is out. There is a bank of eight dip switches inside, but you shouldn't need to touch them.

Like the Citizen, this is expensive to run. Our calculations cost it at about 10p per page using normal paper with a ribbon, or around 7p an A4 sheet if you use thermal paper and no ribbon.

Toshiba ExpressWriter
Courier abcdef
Prestige elite abc
Italic, bold, underlined
Outlined
Shadowed

The Toshiba's results are good enough for all but the most fussy.

NAME: TOSHIBA EXPRESS-WRITER 201
PRICE: £265 (RRP EX VAT)
MULTISTRIKE RIBBON: (70,000 CHARS) £2.80
BATTERY PACK: £40.00
BATTERY LIFE: 60 PAGES
SIZE IN CM (H, W, D): 4.4, 30.3, 8
WEIGHT: 0.85KG

"Very compact and simple to use, but print quality suffers slightly"

NAME: TOSHIBA EXPRESS-WRITER 201
COMPANY: TOSHIBA INFORMATION SYSTEMS (UK) LTD
CONTACT: 0932 841 600

DESIGN	☆☆☆☆☆
CONSTRUCTION	☆☆☆☆☆
EASE OF USE	☆☆☆☆☆
PRINT QUALITY	☆☆☆☆☆
FLEXIBILITY	☆☆☆☆☆
INSTRUCTIONS	☆☆☆☆☆
PORTABILITY	☆☆☆☆☆
VALUE FOR MONEY	☆☆☆☆☆

OVERALL **75%**

KODAK DICONIX 180SI

Kodak's amazing 24-hour replacement-printer warranty adds considerable value to the latest in their line of printers. . .



The Kodak Diconix 180si is a simple, speedy inkjet.

Although you may not immediately associate Kodak with this sort of machinery, it was one of the earliest manufacturers of portable printers. The 180si supersedes its Diconix 150 which has been around for some years.

Its inkjet mechanism seems to originate from Hewlett-Packard (the cartridges even have a minuscule HP logo) but is the one found in the long-in-the-tooth ThinkJet rather than the more modern DeskJet. Print quality from this cartridge is equivalent to a 9-pin dot matrix printer, which the machine emulates. Colour cartridges are also available as Kodak's Diconix 701 colour desktop printer uses the same type.

The 180si comes with either parallel or serial interface and is supplied without batteries - five C type Nicads from any manufacturer will do. The design is smooth: the printer is less than A4 in size and two inches thick. The on/off switch and three control buttons are on the top and there's a lift-up lid (grandly dubbed the canopy) which allows access to change the ink cartridge and which can serve as a paper support.

Paper handling with this printer is very simple - you push a sheet in through the back, it finds its way round the roller (platen) and then has to be positioned by hand - no auto-loading here. The platen also serves as the battery container, a simple but sensible idea, and has sprockets so that you can use continuous paper.

The 180si is extremely easy to use: you select the font, adjust the paper position from the panel switches, and that's about it. Control panel settings of the typeface seem to over-ride any software

commands and, since there aren't any specific Diconix word processing printer drivers for the ST, this is quite useful.

SWITCHES

There are no dip switches for making the default settings: instead it uses the currently fashionable printed-out menu system, which is very straightforward, if a bit slow to operate. You switch on the machine with the On Line button held down and a nine-item menu is printed out with instructions on how to use it. The position of the print head shows which menu item is currently selected and you can move between them by pressing the control buttons. There's no possibility of confusion as each new setting is printed out as you make it. All this printing takes time and uses up paper, but it's easier than prodding at dip switches.

There are three typefaces, Prestige in 10 or 12 pitch, Helvetica (Helvetica), and Gothic. Each can be printed in NLQ or draft mode. NLQ gives average quality 9-pin type output at a rather slow speed, draft mode prints more quickly than any of the other machines, but is faint and distinctly dotty.

This year Kodak has introduced a new warranty for its printers. During the guarantee period (one year) they will respond to any breakdown by sending you a new machine by courier within 24 hours, wherever you are. This certainly seems the sort of service a portable printer should have.

If you need a machine small enough to fit in your pocket, with fast draft print, tractor feed and a remarkable warranty, this could be the one.

Kodak Diconix 180si
Draft mode abcdef
Prestige abcdef
Helvetica abcdef
Gothic abcdef
Italic, bold, underlined

The Kodak's quality resembles that of an old-fashioned inkjet.

NAME: KODAK DICONIX 180SI
PRICE: £299 (RRP EX VAT)
INK CARTRIDGE: (625,000 CHARS) £12.50
RECHARGEABLE BATTERIES: £3.50 x 5
BATTERY LIFE: 50 PAGES
SIZE IN CM (H, W, D): 5.08, 27.4, 16.5
WEIGHT: 1.3KG

"Easy to use, with a fast draft mode, but inferior print quality"

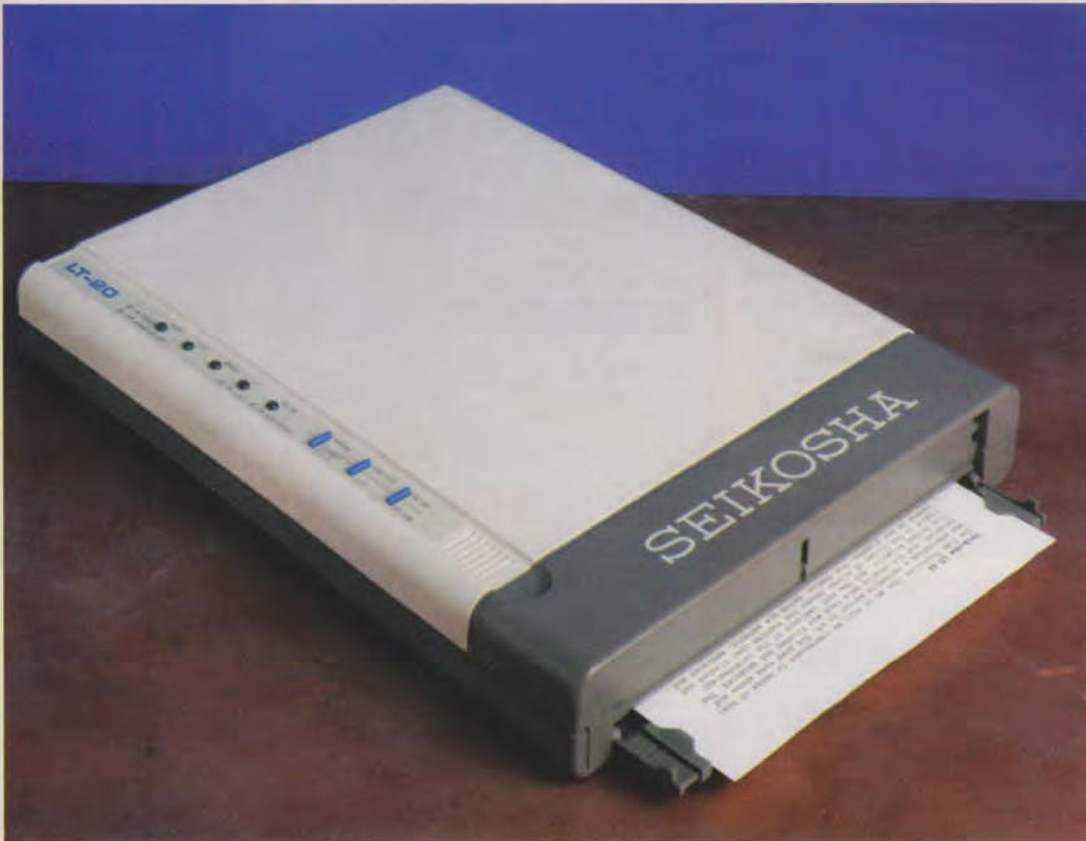
NAME: KODAK DICONIX 180 SI
COMPANY: KODAK LTD
CONTACT: 0442 61122

DESIGN	☆☆☆☆☆
CONSTRUCTION	☆☆☆☆☆
EASE OF USE	☆☆☆☆☆
PRINT QUALITY	☆☆☆☆☆
FLEXIBILITY	☆☆☆☆☆
INSTRUCTIONS	☆☆☆☆☆
PORTABILITY	☆☆☆☆☆
VALUE FOR MONEY	☆☆☆☆☆

OVERALL **70%**

SEIKOSHA LT-20

This unusual printer is an experiment in 24-pin dot matrix portability and is in some ways the most versatile of them all



The Seikoshita LT-20 is a dual-purpose 24-pin machine.

The Seikoshita LT-20 is the biggest and heaviest of the portables, mainly because it has an integral A4 sheet feeder and built-in power supply. Battery operation is possible by removing the power unit and slotting in a Nicad pack. You also have to buy an external charger which makes this option pretty expensive. However, the manufacturers state that the battery life of this one is far longer than any of the others.

The box describes this as "The World's First Under-Your-Laptop Printer". The idea is that you put it on a desk and can then sit your portable computer on top of it - provided that it doesn't weigh more than 3kg. Since most laptops weigh more than this, it looks like somebody's got their calculations wrong.

FEEDING METHODS

A catch on the left opens the paper tray which can hold 50 sheets in the bottom of the machine. The print head and ribbon are at the other end where the paper emerges. If you remove the paper tray you can feed single sheets or multi-part forms in from the right: they are automatically drawn into the machine and then reappear from the same slot as they get printed. You may find

that you waste a lot of paper trying to make this work: the manual here, as in other places, is unhelpful.

Because the print head is hidden away you can't actually see your hard copy until several lines have been printed; if you do feel nervous about what's going on you can press the View/Feed button to make the paper pop out about two inches - it then pops back again when you release the button.

Controls are limited to three buttons accompanied by five indicator lights - there are no real problems here, except that some of the functions are not well explained. Under the machine is a row of 11 switches which perform the usual dip switch functions plus a few more. They are clearly labelled.

FONT RANGE

The LT-20 has an impressive range of fonts. There are eight in all: Courier, Gothic, Orator, Prestige, Script, Roman, Helvetica, OCR-A and OCR-B). This collection emphasises that Seikoshita sees the machine as more than just a portable; there is no reason why the LT-20 shouldn't be used as a desktop printer at home or in the office.

Print quality is good, but some

slightly jagged characters make it look more like 9-pin than 24-pin output.

Noise is always a problem with dot matrix printers and the LT-20 is no exception, but it does have a quiet printing mode which reduces both noise and speed by about half.

Once you've found your way around this machine it is very easy to use. Overall, it is the fastest of these portables, and the cheapest to run. If you are considering buying one, make sure that you get the new LT-20DX model: although all applications on the ST can drive an Epson printer, quite a few can't cope with an IBM Proprinter.

Seikoshita LT-20
 Courier abcdefg
 Roman abcdefg
 Helvetica abcdefg
 Prestige abcdefg
 Script abcdefg
 Gothic abcdefg
 ORATOR ABCDEFG

The Seikoshita has a large range of fonts, which are adequately but not superbly printed.

NAME: SEIKOSHA LT-20
PRICE: £299 (RRP EX VAT)
INK CARTRIDGE: (1,000,000 CHARS) £3.00
RECHARGEABLE BATTERY PACK: £102.00
CHARGER: £65.00
BATTERY LIFE: 300 PAGES
CAR ADAPTER: £42.00
SECOND SHEET FEEDER: £30.00
SIZE IN CM (H, W, D): 5, 37.1, 28.7
WEIGHT: 3KG

"Versatile, fast, with lots of fonts - this is let down by the noise and the poor manual"

NAME: SEIKOSHA LT-20
COMPANY: SEIKOSHA UK LTD
CONTACT: 0753 685873

DESIGN	☆☆☆☆☆
CONSTRUCTION	☆☆☆☆☆
EASE OF USE	☆☆☆☆☆
PRINT QUALITY	☆☆☆☆☆
FLEXIBILITY	☆☆☆☆☆
INSTRUCTIONS	☆☆☆☆☆
PORTABILITY	☆☆☆☆☆
VALUE FOR MONEY	☆☆☆☆☆

OVERALL **75%**





SOFTMACHINE



ATARI HARDWARE

520ST-E Start Pack	£254.99
520ST-E Upgraded to 1Mb	£299.99
520ST-E Upgraded to 2Mb	£329.99
520ST-E Upgraded to 4Mb	£389.99
1040ST-E Music Master	£344.99
1040ST-E Family Curriculum	£344.99
Mega 1 ST-E	£539.99
Mega 2 ST-E + 48Mb HD	£899.99
ST Book June '92	£1194.99
TT030 with options from	£1079.99
SM144 14" Mono Monitor	£109.99
SC1435 14" Colour Monitor	£214.99
PTC1426 Multisync Monitor	£374.99
Portfolio	£129.99



SOFTWARE

WORD PROCESSORS

1st Word Plus	£59.95
Calligrapher Professional	£99.95
K-Word 2	£29.95
Protect v4.3	£49.95
Protect v5.5	£102.95
Protect V4.3	£49.95
That's Write	£89.95
Wordfair	£59.95
Word Perfect	£178.95
Word Writer	£37.99
Write On	£44.95

ATARI APPLICATIONS

Word Processing	£21.95
Database Management	£21.95
Spreadsheet	£21.95
Home Productivity	£17.95
Personal Finance	£17.95
Basic Programming	£17.95
Programming Utilities	£21.95
Sound & Music	£17.95

DESKTOP PUBLISHING

CompoScript	£234.95
Pagestream v2.1	£164.95
Pagestream Font Sets	each £44.95
Timeworks Publisher 2	£91.95

DATABASES

Adimens Plus	£96.95
DG Base	£34.95
Data Manager Prof	£34.95
K-Data	£37.95
Prodata	£67.95

ASSEMBLERS/COMPILERS/ LANGUAGES

Devpac 2	£42.95
FTL Modula 2	£48.95
FTL Modula 2 Developer	£69.95
GFA Basic Compiler	£23.95
GFA Basic Interpreter	£39.95
Hisoft Basic 2	£52.95
Hisoft C Interpreter	£41.95
Hisoft Forth	£28.95
HighSpeed Pascal	£74.95
Lattice C v5	£111.95
Nevada Cobol	£34.95
Prospero C	£79.95
Prospero Fortran	£79.95
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BROTHER HJ100I, CANON BJ10EX, STAR SJ48



The Brother HJ100i is a worthy competitor to the Canon BJ10ex.



The Canon BJ10ex – everyone else has one, so why not...?

We reviewed them in Issue One, but these three portable inkjet printers are certainly worth a second inspection. . .

These are virtually the same machine, the original being from Canon who pioneered their type of thermal inkjet technology. The other two have minor differences in styling, typefaces and emulation. A thermal inkjet printer is a "non-impact" device – there is no printing mechanism noisily striking the paper, instead minute drops of ink are spat at it. These three machines produce smaller ink droplets and thus print at a higher resolution than the more old-fashioned inkjets like

the Diconix. They are quiet, fairly fast and produce print which is only bettered by much bigger, more expensive machines.

TWO IN ONE

It is clear that they have been designed as dual-purpose printers: on the one hand they are small enough to fit in a briefcase (but won't leave room for much else) and can be fitted with inter-

nal rechargeable batteries, on the other hand they are just about fast enough and certainly print well enough to be used as desktop printers – they are best-sellers in both markets.

Their basic design is an A4-sized two-inch-thick box. The top has two flaps, one opening backwards to serve as a support for paper as it goes in and comes out, the other opening forwards to let you get at the innards, change the ink cartridge and alter dip switch settings.

Along the front edge is a row of switches which, in the case of the Canon, are buttons, the others having the less pleasing membrane type. There are also several indicator lights to help you see what's going on. They are all fair-

ly easy to operate, but because they have more options than, say, the Diconix you are more likely to have to refer to the manual to get things properly set up.

POWER

All of them have an external power supply box but none of them is supplied with rechargeable batteries. These have to be purchased separately and then fit inside the back of the machine. Canon and Brother can supply carrying cases, but it would be cheaper, if less trendy, to get a school satchel. All three seem reasonably robustly made.



The Brother produces excellent quality in four typefaces.



The Canon's printouts are good enough for almost any purpose.

"A competent bubblejet that's practically identical to the BJ10"

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

DESIGN	☆☆☆☆☆
CONSTRUCTION	☆☆☆☆☆
EASE OF USE	☆☆☆☆☆
PRINT QUALITY	☆☆☆☆☆
FLEXIBILITY	☆☆☆☆☆
INSTRUCTIONS	☆☆☆☆☆
PORTABILITY	☆☆☆☆☆
VALUE FOR MONEY	☆☆☆☆☆

OVERALL 80%

NAME: BROTHER HJ100I
PRICE: £345 (RRP EX VAT)
INK CARTRIDGE: (700,000 CHARS) £17.99
RECHARGEABLE BATTERY PACK: £39.99
SHEET FEEDER(30 SHEETS): £54.00
CARRYING CASE: £39.95
BATTERY LIFE: 40 PAGES
SIZE IN CM (H, W, D): 4.75, 31, 21.6
WEIGHT: 1.8KG

"The original inkjet, this model is deservedly popular"

NAME: CANON BJ10EX
COMPANY: CANON (UK) LTD
CONTACT: 081 773 3173

DESIGN	☆☆☆☆☆
CONSTRUCTION	☆☆☆☆☆
EASE OF USE	☆☆☆☆☆
PRINT QUALITY	☆☆☆☆☆
FLEXIBILITY	☆☆☆☆☆
INSTRUCTIONS	☆☆☆☆☆
PORTABILITY	☆☆☆☆☆
VALUE FOR MONEY	☆☆☆☆☆

OVERALL 80%

NAME: CANON BJ10EX
PRICE: £299 (RRP EX VAT)
INK CARTRIDGE: (700,000 CHARS) £17.99
RECHARGEABLE BATTERY PACK: £39.99
BATTERY LIFE: 40 PAGES
SHEET FEEDER(30 SHEETS): £54.00
CLOTH COVER: £5.00
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SIZE IN CM (H, W, D): 4.75, 31, 21.6
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Star's contribution to the bubblejet wars.

Their other very useful extra is a 30-page cut sheet feeder. This is about the same size as the printer itself so you might not want to take it on your travels, but when working from a deskbound PC it will save time and aggravation. It clips onto the under-surface of the printer which you then use standing on its front end supported by a swivelling foot. It works very well.

Any of these printers works well in combination with an ST as their popularity has ensured that all decent software has drivers for them. All three have Epson LQ

emulation and the Canon and Brother can also be used with Bubblejet printer drivers which will give a higher graphics printing quality. The Star has only two typefaces (Roman and Sans Serif) whereas the others also have Courier and Prestige.

Print quality is exceptionally good from all three and certainly surpasses that of the other portables tested; they print faster than most, and are quite versatile. On the other hand they are bigger and more expensive, especially if you want to use batteries.

NAME: STAR SJ48

PRICE: £345 (RRP EX VAT)

INK CARTRIDGE: (700,000

CHARS) £17.95

RECHARGEABLE BATTERY PACK:

£39.00

BATTERY LIFE: 40 PAGES

SHEET FEEDER (30 SHEETS): £54.00

SIZE IN CM (H, W, D): 4.75, 31, 21.6

WEIGHT: 1.8KG

Star SJ48
Roman character
Helvetica Gothic
Draft mode
Italics, bold
Outlined
Shadowed

The Star has fewer fonts than the Canon or Brother but they're just as well printed.

"Lack of Bubblejet emulation reduces range of fonts"

NAME: STAR SJ48

COMPANY: STAR MICRON-ICS UK LTD

CONTACT: 0494 471111

DESIGN	★★★★☆
CONSTRUCTION	★★★★☆
EASE OF USE	★★★★☆
PRINT QUALITY	★★★★☆
FLEXIBILITY	★★★★☆
INSTRUCTIONS	★★★★☆
PORTABILITY	★★★★☆
VALUE FOR MONEY	★★★★☆

OVERALL **70%**

GROUP SUMMARY

The smallest and thus most portable of the machines are the Citizen PN48 and the Toshiba ExpressWriter 201. Unfortunately, their print quality is not the best and they are slow and expensive to run although fairly cheap to buy. The Kodak Diconix is light, small, easy to use and has a fast draft mode, but NLQ printing is slow and inferior to all the others. The Brother, Canon and Star print best, are adequately fast, but are quite costly when the price of batteries is added in (though there are large discounts in the shops). The oddball is the Seikoshia which is the biggest (because of its built-in paper feeder), fastest, has the most fonts and is the cheapest to operate; the optional battery pack and recharger make it an expensive portable however.

All of these printers are designed to meet slightly different needs, so there can't be a single best buy. This is how we think they compare:

For portability:

Toshiba, Citizen, Kodak

For speed:

Seikoshia

For versatility:

Brother/Canon/Star,
Seikoshia

For print quality:

Brother/Canon/Star, Toshiba

BUYERS GUIDE

	Citizen PN48	Toshiba Expresswriter 201	Kodak Diconix 180si	Seikasha LT20	Brother HJ100i	Canon BJ10ex	Star SJ48
Price (RRP)	£325	£265	£299	£299	£345	£345	£345
Inc batteries	£325	£305	£316.50	£466	£384.99	£384.99	£384
Street price	£199	£210	£212	£248	£190	£185	£180
Print method	Thermal fusion	Thermal Transfer	Inkjet	24 pin dot matrix	Thermal inkjet	Thermal inkjet	Thermal inkjet
Size in cm (h, w, d)	5, 29.7, 9	4.4, 30.3, 8	5, 27, 16	5, 37, 28.7	5, 31, 21.6	5, 31, 21.6	5, 31, 21.6
Weight (kg)	1.17	0.85	1.3	3	1.8	1.8	1.8
Noise level (dBA)	49	47	45	55	45	45	45
Battery life (pages)	30	60*	about 50*	300*	40*	40*	40*
Graphics resolution	360dpi	180dpi	192dpi	360dpi	360dpi	360dpi	360dpi
Memory buffer	4K	0.5K	2K	1K	37K	37K	37K
Emulation(1)	EP, I, N, CZ	EP	EPX, I, K	I	EP, I, C	EP, I, C	EP, I
Typefaces (2)	2	2	3	10	4	4	2
Paper feed (2)	SS	SS	SS, T	SS, SF	SS, SF*	SS, SF*	SS, SF*
Interface(3)	PP	P or S	P	P	P	P	P
Speed (cps)(4)	53	53	145/29	120/50	83	80	83
Timed A4 text page	2'17	3'07	2'48 (5)	44'2'40	1'01/1'38	1'21	1'23
Cost/page (2,500 chars)	7p/27p	20p	5p	2p	6p	6p	6p

KEY: * Optional extra, (1) EP = Epson LQ, EPX = Epson FX, I = IBM Proprinter, C = Canon Bubblejet, N = NEC, CZ = Citizen, K = Kodak, (2)SS = single sheets, SF = Sheet feeder, T = Tractor, (3) P(arallel), S(erial) (4) Manufacturers' rating at 10 cpi (5) With "ribbon mode" cancelled, see text

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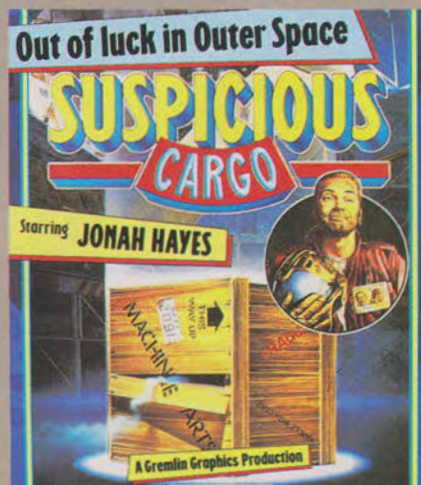
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REVIEW

FLOPPY

WANT TO FIND OUT WHAT YOUR FLOPPIES ARE

Maurice Collins takes the best in floppy drives out for a spin for our in-depth look at internal and external disk drives

Without a floppy disk drive, your ST is virtually useless. It's the only convenient way of getting programs and data into your ST and, as such, it's a very important part of the system. The original STs (STFs) were fitted with single-sided disk drives, and the maximum capacity of the disk without using special formatting techniques was around 360K. Most STFMs and all STEs, however, now have double-sided drives (often referred to as one Megabyte drives) to give a capacity of 720K using normal methods. Users of older STs may still have single-sided disk drives. If you want to upgrade, there are two options open to you. You could fit an inexpensive internal disk drive from, say Power Computing, and turn your ST into a standard model. But how about going one better and fitting a high-density (HD) drive? There are kits available from System Solutions, complete with simple instructions, for as little as £99.95 including the drive and software.

A high-density drive will let you format disks with a total capacity of 1.44 Mb, twice that of a normal (DD) ST disk. It also reads data around 75 per cent faster, although writing tends to be slower. The main difficulty with HD drives is the ST's floppy disk controller, which normally operates at 8 MHz. Special modifications are needed to uprate it to 16 MHz in order to handle the HD drives. Once these modifications are made, however, the 1.44 Mb drives work well with all ST software.



OBSTACLES

Unfortunately, those of you who want to upgrade your internal drives from single to double sided, or perhaps replace faulty double-sided drives, will find more obstacles in your way.

Although fitting is easy (see our step by step guide on page 48) there remains a problem with the ST's casing which was designed for a particular type of eject button.

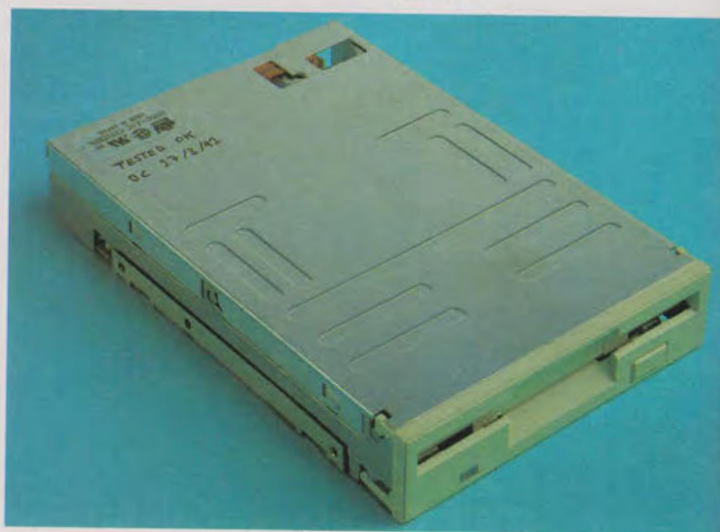
Most replacements are of a different design and the ST's case will usually need some cutting before a snug fit is obtained. If your existing ST has the small eject button, the £45 internal upgrade will be the best bet. No cutting is involved. Those of you with the large eject button will be better off with the £35 upgrade from the same source or a similar one from a different supplier - although you will almost certainly have to cut the case.

One of the first upgrades that many users consider, after a memory upgrade, of course, is

adding an external floppy disk drive. The ST's operating system directly supports the addition of a second, external disk drive, referred to as Drive B. Those of you with standard STs will be familiar with the second Drive B icon which appears when using the GEM desktop.

External drives simply plug into the floppy disk port on the back of the ST's case. Most have their own power supply so all that remains is to plug them in and you're in business. One model, from Power Computing, actually takes its power from the ST's joystick port, useful if you're short of electrical sockets.

A second type of external upgrade is also available, the 5.25 inch floppy disk drive. Models are available from Evesham Micros and Power Computing. They can store up to 1.2 MB of data on a single floppy disk costing roughly the same as a standard 3.5 inch disk. The 5.25 inch disk isn't quite as durable, however, especially when sent by post and it is losing popularity rapidly as more and more IBM-compatible PCs cease to use them.



One modification that is essential for anyone with a single-sided drive is to upgrade your internal drive or to buy a second external drive. Here's the Citizen replacement model.

DRIVES

FOR? ST REVIEW TAKES THE LID OFF DISK DRIVES

SECOND DRIVES – PROS AND CONS

The advantage in having a second external floppy disk drive should be pretty obvious, but many users expect too much of them. If you are doing a lot of desktop publishing, graphics or music, you'd be far better off with a hard drive. A second floppy drive is no substitute at all, primarily because floppy drives are slow, but also because they can't hold large amounts of data or large files such as sound and music samples, colour or greyscale images and PostScript output.

On the other hand, many programs run a lot faster with a second floppy drive attached, particularly if it eliminates much of the tedious disk swapping and allows the program access to data and font files when it needs them. Timeworks is a good example of a program that benefits from the extra drive, although adding a sizeable memory upgrade might still be more useful as the files it needs to run can be stored in a reset-proof RAM disk. Run from a RAM disk, Timeworks

simply flies along.

Another advantage is in disk copying. Whether you are running a PD library, a disk-based magazine or just helping out other users at the local club, everyone at some time will need to copy disks.

A second drive halves the time taken because one of the drives will be reading while the other is writing. If you need to copy the same disk several times, however, a utility such as *Fastcopy Pro* from the ST Club (0602 410241) enables single drive owners to carry out multiple copying just as fast as those with two drives by storing the data from the source in memory.

PROBLEMS WITH FLOPPIES

Many single-sided disk drive owners, faced with the expense of an upgrade, look at adding a second double-sided external drive rather than upgrading the internal one. While this gives you two drives, the double-sided one is Drive B and the ST cannot be booted from Drive B without special modifications.

There are ways around the problem. Power Computing can supply a special cable that will let you boot straight from Drive B. Another solution is to try one of the many software utilities available in the public domain. The chances are high that one or more will work with the software you need to run. On the other hand, there are no guarantees and most commercial games, which need to be autobooted to run properly, are unlikely to work.

Floppy disk drives are very reliable and rarely need repairs. The most common symptom is frequent messages stating that "data on Drive A (or B) may be damaged" or unexplained data corruption.

This is usually the result of dirt on the heads which requires an inexpensive cleaning kit, widely available by mail order, or a quick overhaul by a specialist repairer. Occasionally a disk drive refuses to read or write at all, despite the motor running and the drive light coming on. This may well be due to the heads being out of alignment. If any of these symptoms are ignored, permanent damage

might well result.

A common complaint is that a perfectly sound disk drive refuses to load some new software, often a commercial game. Most disk drives are built to format, read and write disks to 80 tracks and nine sectors. Commercial games often use strange formats because part of the software protection is contained on hidden tracks and sectors. If you are unlucky, your drive will be unable to read them and there is little that can be done except replace the drive or add an external model that meets a higher specification. Cumana drives have a good reputation for being able to read and write beyond the limits of 80 tracks and nine sectors something which was borne out in our tests.

FLOPPY FACTS

How a disk drive works

A floppy disk drive consists essentially of a motor to spin the floppy disk at around 300 revolutions per minute and a read/write head to record or retrieve information. Once the inserted floppy disk is spinning at the right speed, the head is moved into the correct position over the disk by one of several methods, either a helical screw, spring strip or rack and pinion. When the head is in position it then contacts the surface of the floppy disk and the data is read or written.

The floppy drives are controlled by the ST's operating system and the Western Digital floppy controller, the WD 1772. Some of the ST's existing circuitry is also brought in to help out the poor old, overworked Yamaha sound chip which gives the drive select and side select signals.



DRIVE RE

A STEP-BY-STEP GUIDE TO

The price of the new, simple replacement internal drives has been cut substantially and sooner or later your original drive is going to give up the ghost. Here's how to replace it. . .

If you've had your ST for some time, you've probably had the "Bad Data on Disk" alert box appear on-screen. This often means that the disk is damaged, but if it continues to happen it's reasonable to suspect that the internal disk drive is in need of replacement.

A replacement drive will now set you back less than £50 and can be fitted by anyone who feels at home with a screwdriver - no soldering or messing around with circuit boards.

STE OR STFM?

If you take a close look at the casing around the disk drive on an

STFM and an STE, you'll notice that they are different. The cutout for the disk eject button on an

STFM is directly underneath the drive, while the same for the STE is below and to the right. All replacement drives are now intended for the STE, so if you are replacing the drive in an STF or STFM, you are going to have to cut the casing. The plastic is pretty soft and a junior hacksaw blade will do the job nicely. That's what we used.

Replacing an STF or STFM drive can often leave an ugly gap above the drive. The one that we used from Software Solutions has

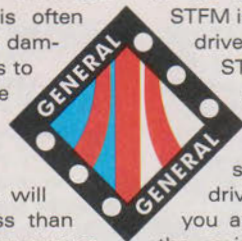
spacers underneath the drive to lift it up that extra half a centimetre. The result? No unsightly gap!

So if you're in need of a new internal drive, follow through our simple step-by-step guide.

IF IT DOESN'T WORK...

Whilst the replacement is fairly straightforward, there are a couple of places where you may go wrong.

- Read the instructions for the drive carefully to find out whether the 34-pin data cable has to be twisted through 180°. The one we used didn't, but some do.
- Make sure that both the data and the power cables are pushed fully home.



1 One new internal drive from Software Solutions. Note the small spacers on the underneath which ensure that the top of the drive lines up nicely with the casing.



2 One battered old STFM, sent in by a reader. Note the coffee and hot chocolate stains The "STFM" badge fell off long ago, so we were told.

Thanks to Software Solutions for the loan of one of their replacement drives.

PLACEMENT

FITTING AN INTERNAL DISK DRIVE

3 Turn the ST upside down and undo the screws. Take care to keep the three different types separate from each other. There are three small self-tappers at the front of the machine, four longer ones in the square holes at the rear and three threaded screws which hold the disk drive in. These go through the round holes on the left of the picture.

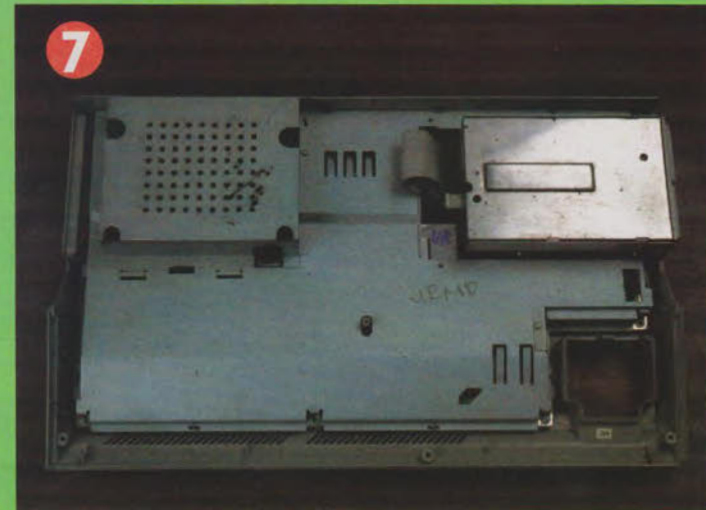
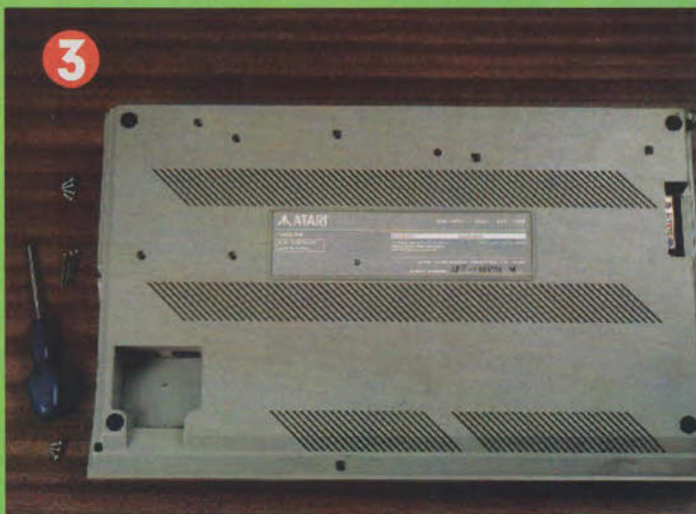
4 Carefully turn the ST over and remove the top casing. You need to lift this from the left-hand side and wiggle it over the disk drive button.

5 You can now see the disk drive on the right-hand side. Most STs have a small metal

plate behind the drive which covers over the ribbon cable. If yours has one of these, unscrew the two screws holding it down and place them to one side.

6 Changing the disk drive is easier if you move the keyboard out of the way. Remove the plug on the right-hand side and relocate the keyboard to a safe place.

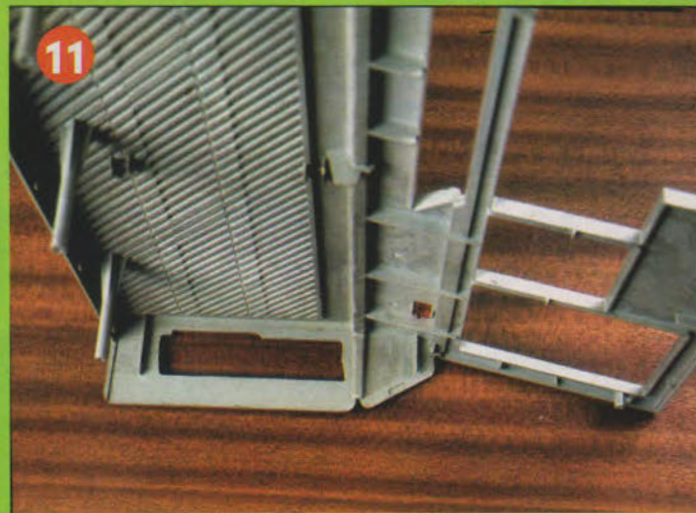
7 Take a close look at the rear of the disk drive; you should see two connecting cables.





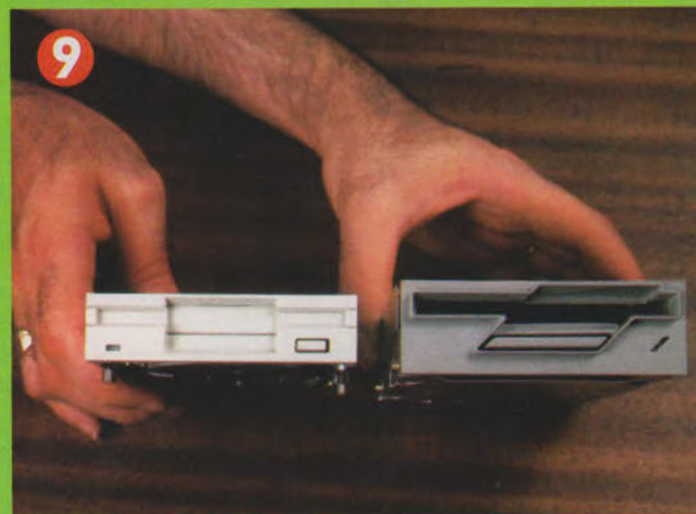
8

8 Unplug both of these. The smaller cable supplies power and is a bit awkward to remove; it will come free after a bit of wiggling. The 34-pin ribbon connector pulls straight off.



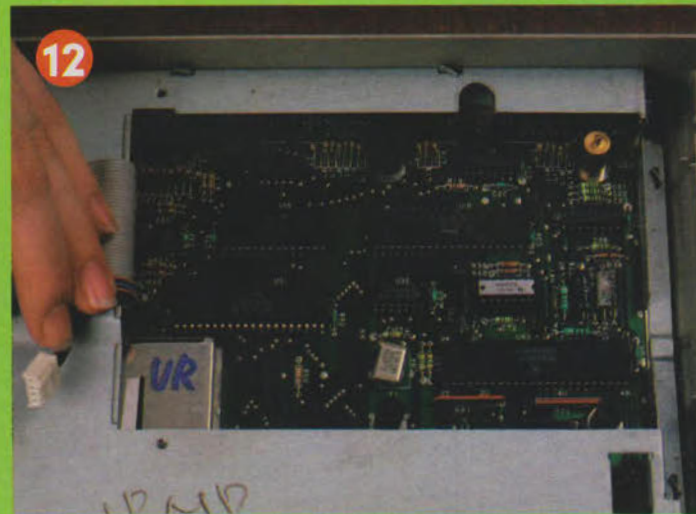
11

11 ... a slot looking like this. Remove any loose plastic shavings and clean up the edges by scraping a blunt knife along the cuts.



9

9 A look at the old drive (right) and the new one shows the differences. The height difference is made up by the spacers, but the disk eject buttons are in totally different places. This entails cutting away part of the casing.



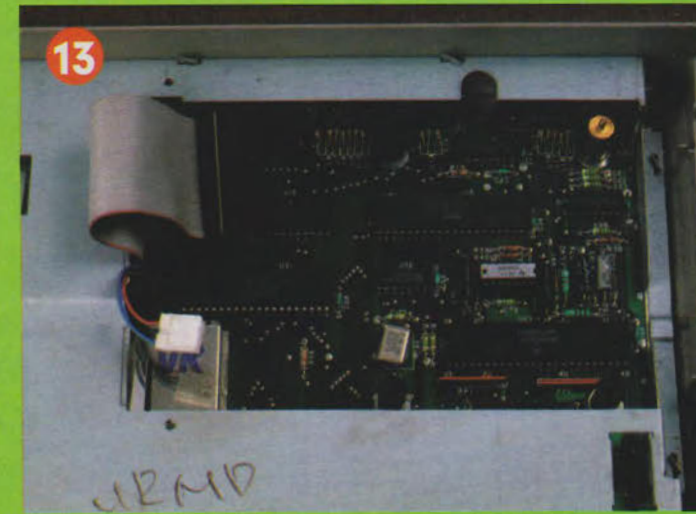
12

12 Before you put the new drive in its place, look at the four support pillars. The three black ones are where the screws come through from the base; the brass one is used to locate the drive in the correct position.



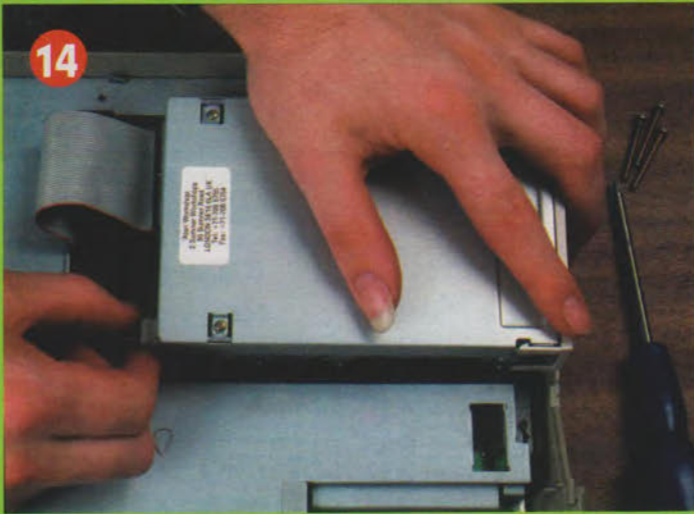
10

10 Cut horizontally along from the bottom edge of the drive eject button opening and vertically down at the sides. This should give you



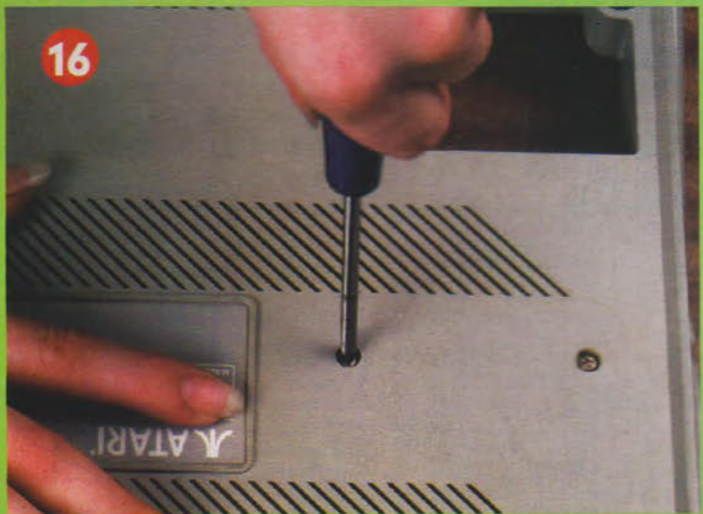
13

13 Line up the two cables. The ribbon cable should not be twisted, and the notch in the power plug should be uppermost.



14

Push the two plugs into their relevant sockets and locate the disk drive on the four pillars.



16

Turn the casing upside down and replace the screws, making sure that the correct sizes are put back in the right places.



15

Now plug the keyboard back in and replace the top casing. You'll find that this will go on far easier than it came off as the awkward part of the casing has been cut away.



17

Finished job! One new disk drive ready for action.

CHECK LIST

Before you start work on your ST, here's a list of items which will make the job a little easier.

- a crosshead, or Phillips, screwdriver. All of the screws holding the casing together are easy to remove so don't worry about using a magnetic screwdriver or one of those special types which holds the screw to the head
- a container to keep screws in
- a well-lit, flat surface to work on

INVALIDATING YOUR WARRANTY

Any article which tells you to take your computer to pieces should always mention that to do so invalidates your warranty. In fact, many distributors place sticky labels over the screws on the base of the ST to prevent you opening it up. If your ST is less than a year old and the disk drive fails, take it back to the retailer.

PREMIER MAIL ORDER

Titles marked * are not yet available and will be sent on day of release.

Please send cheque/PO/Access/Visa No. and expiry date to:

Dept ST Trybridge Ltd., 8 Buckwins Sq., Burnt Mills, Basildon, Essex. SS13 1BJ

Please state make and model of computer when ordering. P&P inc. UK on orders over £5.00. Less than £5.00 and Europe add £1.00 per item. Elsewhere please add £2.00 per item for Airmail. These offers are available Mail Order only. Telephone orders: Mon-Fri 9am-7pm. Saturday 10am-4pm. Fax orders: 0268 590076. Tel orders: 0268 590766

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10 x 3.5" DSD - £5.99
20 x 3.5" DSD - £10.99
50 x 3.5" DSD - £23.99
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Branded

3.5" DSD - £1.25 Each

Floppy disk drives

Now that you know how to go about fitting a floppy drive, you probably want to know which is the best for you. Read on...

TOP DISK DRIVES TESTED

The Power 720P – Well-made, quiet and with the ability to format to 82 tracks and 10 sectors it gives you 820K of data space per disk and is a first choice for any late-night computer users.

tested, so if you have a liking for late-night computing and want to keep on the right side of the people you live with, this might be a good choice.

In terms of performance, this drive would be capable of reliably formatting disks to 82 tracks and 10 sectors, which is the highest disk capacity that we would recommend using.

"Quietness and good performance make this a winner"

NAME: POWER 720P
COMPANY: POWER COMPUTING
CONTACT: 0234 843388

NEATNESS	☆☆☆☆☆
NOISE	☆☆☆☆☆
CAPACITY	☆☆☆☆☆
CABLE LENGTH	☆☆☆☆☆
DOCUMENTATION	☆☆☆☆☆
VALUE FOR MONEY	☆☆☆☆☆

OVERALL
84%



POWER 720P

A surprisingly compact drive from the UK's market leader

The Power 720P is the standard model external drive and comes from Power Computing, which is probably now the UK's leading supplier of ST disk drives.

This particular drive is a surprisingly compact, slimline unit – it measures only 23 cm in length, 10 cm in width and is just three centimetres high. It has a small eject button and drive light on the front and a rather clumsy looking on/off switch at the rear. The drive

has a grey metal casing and it seems to be very well constructed.

Both the floppy cable and mains lead are built into the drive. The lengths are quite adequate, although they're by no means generous and there is no plug supplied. We also tried out the joystick port model – this is slightly shorter, but it's the same in other respects.

The Power drive was by far the quietest of all the models that we

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Floppy disk drives

CUMANA CSA354

The noisiest drive of the trio comes from Cumana



The Cumana drive was by far the noisiest on test, although the ability to cram almost 900K of data makes it a well worth owning.

Cumana drives have a reputation in the industry for being very reliable and efficient. This one came as a disappointment as it was by far the noisiest that we tested, although the level was still acceptable. In all other respects, however, it lived up to its reputation.

It is another slimline unit, but is slightly longer (24 cm) and heavier than the Power model. It is light grey in colour and has a built-in floppy cable and long (175 cm) built-in power lead, making it useful if you only have a few power points. It comes with a plug already fitted, something most users appreciate. The on/off

rocker switch is at the rear.

On test, the Cumana drive easily formatted disks to 84 tracks and 10 sectors, with 11 sectors being possible though less reliable.

For many users, the ability to get nearly 900K of data on a disk will probably be enough to make this drive their first choice despite the noise level.

"Noisy, but saved by its formatting capacity"

NAME: CUMANA CSA354

COMPANY: WESERVE

CONTACT: 0705 325354

NEATNESS	○○○○☆
NOISE	○○○○☆☆
CAPACITY	○○○○○○
CABLE LENGTH	○○○○○○
DOCUMENTATION	○○○○☆☆
VALUE FOR MONEY	○○○○☆☆

OVERALL **86%**

GOLDEN IMAGE DRIVE

The newest model on test is from Golden Image



The Golden Image drive is the only one to feature an LED track display – but its inability to format more than 80 tracks will give you only 720K disks.

The Golden Image drive is the newest model on the market. It is contained in a beige plastic case, 22 cm long by 14 cm wide and stands nearly five centimetres high.

Although this model can by no stretch of the imagination be considered slimline, it has some additional features which more than make up for its size. These include an LED track counter on the front and a through port at the

rear for STM owners.

The floppy cable is separate, as is the power supply which consists of a long mains cable leading from the plug (supplied) to a small black mains adaptor box and then a thinner cable leading from the adaptor to the drive unit.

This may seem to be a rather clumsy arrangement, but it will no doubt be an advantage for some users as the total length of the power cable is over three metres.

"Disappointing performance but some useful features"

NAME: GOLDEN IMAGE

COMPANY: LADBROKE

COMPUTING

CONTACT: 0772 203166

NEATNESS	○○○○☆☆
NOISE	○○○○○○
CAPACITY	○○○○☆☆
DOCUMENTATION	○○○○☆☆
VALUE FOR MONEY	○○○○☆☆

OVERALL **80%**

The on/off switch is at the rear.

The Golden Image drive was whisper quiet in operation, although its formatting performance was a little disappointing – it refused to format any disks with more than 80 tracks.

BUYERS GUIDE

Our guide to the disk drives tested should make choosing the right one for you more simple. . .

	Cost	Capacity	Power supply	Comment	Contact
External models					
Power 5.25 inch external drive	£95	1.2MB	Mains	Switchable between 40 and 80 tracks	Power Computing 0234 843388
Power 720P 3.5 inch external drive	£50	720K	Mains	Bargain buy – cheap and reliable. Boots from drive B with special cable	Power Computing 0234 843388
Power 720B 3.5 inch external drive	£69.95	720K	Mains	Built-in Blitz disk copier and virus detector, boots from drive B	Power Computing 0234 843388
Power 720E 3.5 inch external drive	£50	720K	Plugs into the joystick port	Identical to 720P	Power Computing 0234 843388
Zydec 3.5 inch external drive	£52.99	720K	Mains	Slimline with Sony or Citizen mechanism. Good, cheap buy.	Evesham Micros 0386 765500
Zydec 5.25 inch external drive	£74.95	1.2MB	Mains	Switchable between 40 and 80 tracks	Evesham Micros 0386 765500
Golden Image 3.5 inch external drive	£59.99	720K	Mains	Has digital track counter and daisy chain connector for STM owners	Ladbroke Computing 0772 203166
Cumana CSA354 3.5 inch external drive	£69	720K	Mains	Quiet and very reliable, should format disks well past normal capacity	WeServe 0705 325354
Internal drives					
Power 72001 official internal drive	£45	720K	Uses ST's internal power supply	Requires small eject button to avoid case cutting	Power Computing 0234 843388
Power 720I Internal drive	£35	720K	Uses ST's internal power supply	Large eject button – case will need cutting	Power Computing 0234 843388
Ladbroke internal drive	£53.49	720 K	Uses ST's internal power supply	Slimline. Citizen, Sony or Chinon made with full fitting instructions and spacers. Fitting £10	Ladbroke Computing 0772 203166
Dataplex internal drive	£45.82	720K	Uses ST's internal power supply	Includes full instructions, uses Epson mechanism	Dataplex 0793 488448
System Solutions HD internal drive	£99.95	1.44MB	Uses ST's internal power supply	Includes eiCo HD module, AUTO folder and desk accessory software plus full instructions. Fitting extra	System Solutions 0753 832212

EXTENDED DISK FORMATTING

The standard TOS floppy disk format consists of 80 tracks of nine sectors on each side. Such a disk will show 726,016 bytes free. To pack more files on to the disk requires a different approach to disk formatting. Although most ST disk drives are manufactured within certain tolerances and only tested to read and write 80 tracks of nine sectors, many are capable of writing many more of each.

Notes:

Cost includes VAT.

Capacity is the nominal capacity of the drive without extended formatting techniques. Most 3.5 inch drives can reliably be formatted to 830K and some to even more, depending on the quality of the mechanism.

Atari no longer supplies external floppy disk drives or replacements/upgrades for internal drives. They refer all such enquiries to third parties such as those listed above.

DAATASCAN

Pro Plus

THE scanner for your Atari ST

DaataScan Pro Plus

A superb high quality image capture package compatible with all Atari ST's. Scan images from magazines, books, photos, etc. for use with DTP and ART applications.

Scanner:

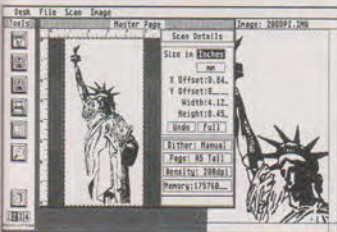
- 100-400 dpi resolutions.
- 64 grey levels.
- B/W text mode.
- 3 halftone photo modes.

Supplied with a high speed interface cartridge, which plugs into the parallel port, and a dedicated, regulated power supply.



DaataScan Professional 2.40

Image capture software package supplied with the DaataScan hand scanner.



Software screen shot

Features:

- 100% machine code - STE compatible.
- Saves in IMG, DEGAS & TIFF file formats.
- Runs in high and medium resolutions.
- GDOS printer support with print scaling.

Scanning & Editing:

- Real-time scanning display.
- Variable scan page size.
- Rotate, flip, invert and crop.
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FREE Colour modifier software included.

(Also available DaataScan Pro A4 £499.95)



Line art scan



Halftone scan



Colour-in image

FOOTBALL TACTICIAN

Until now, football simulations came in two categories: arcade and management. Few, if any, ever bothered with the all-important STRATEGY which a successful manager is to master, both before a match when deciding on squad selection, and during the match when high-drama, real-time decisions must be made on tactics, substitutions, set pieces and player deployment. But now, for the first time on any major computer, there is a superlative management game that encompasses all forms of soccer strategy: it is called **FOOTBALL TACTICIAN**.

Team selection, needless to say, remains a critical element in any successful campaign: and here you will be aided with a wealth of player data, never seen in any soccer program before. Gone are the days when a player was given a single skill level. Each player is now analysed in up to 20 different aspects, enabling you to select the side best suited for the match in hand. And then to the BIG innovation of **FOOTBALL TACTICIAN**: full on-line, real-time involvement during the match! For the first time ever, you will, as a manager, be able to alter your strategy: choose a defensive or offensive system, mark certain opponents, drop back some of your players if the pressure is tough, decide exactly when substitutions should be made, play the off-side trap, go for quick counters, etc... With full on-screen commentary and minute-by-minute feed-back, you're as involved in the match as any of your players! When you further consider that this game is written in 100% machine code (unlike scores of other slow-motion offerings which are written in basic), that up to twenty two users can play this game at the same time, that accurate records are kept on all 440 players in the first division, right down to their exact market valuation, that a built-in editor allows you to change any player's or manager's name, you will realise that this is no ordinary soccer manager. THIS is the REAL THING. You're in charge. You manage your side before and during the match. Nothing is left to chance. Can you rise to the challenge? Try **FOOTBALL TACTICIAN** and prepare yourself for the ultimate football experience.

Amongst the many features: intelligent computer behaviour, lively transfer market, ability to replay ANY match of the week with full commentary, three levels of commentary from highlights only to every single ball challenge with all players named, ability to retrieve any fixture from the last 21 seasons, top scorers chart, friendlies, speed control, twenty player squads including the VERY LATEST transfers right up to this very week, full European Cups program with every single European player accurately named, selectable positions, automatic and intelligent substitutions by computer opponents based on player fitness, fatigue and tactics used; computer opponents will automatically change tactics to respond to situation on the field, ability to utilize to full advantage any extra memory fitted, and many more!



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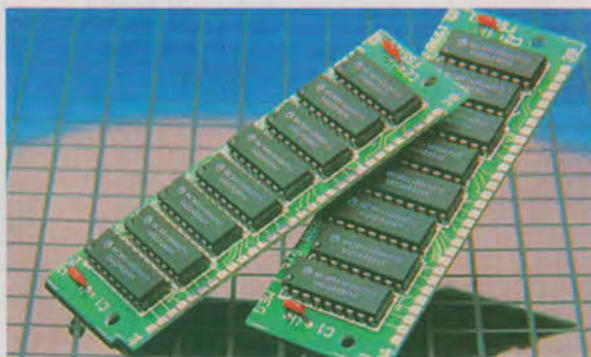
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SCREEN SCENE

ST Review looks at what to buy and what to avoid in this month's new, full-price releases...

ISHAR 64

Silmarils' latest fantasy epic has stunning graphics, in a game where you must unravel the plot as you go.

STEEL EMPIRE 68

Millenium has you pitting your wits against up to four other armies in a battle for territory...

BONANZA BROS 70

US Gold's new signing has two robotic rapsca-lions, stealing by accident. How do we judge them at the end of the day?

LURE OF THE TEMPTRESS 72

This month's ST Review Essential Buy for games, Lure of the Temptress, is the first adventure from Revolution Software to use their new method...

GAMES WITHOUT FRONTIERS 76

With the Barcelona games almost upon us, excitement is at Olympic heights. We round up the best of the events...

LEGEND 82

Mindscape's latest venture into the world of fantasy has excellent use of magic and a wide range of puzzles...

TIPS 84

This month we have comprehensive Stealth Fighter tips and begin to solve Shadowlands for you. There's a host of other games tipped too.



Ishar is a fantasy epic with stunning graphics.



Mindscape's Legend.



Lure of the Temptress.



Steel Empire is a god-like wargame.



Potsworth and Co., Hannah Barbera's dog...

It's time for your monthly trip to the **Screen Scene**, where we take a look at the hits and misses for games on the ST this month. Lure of the Temptress gets the **ST Review Essential Buy** treatment this issue with four pages devoted to it by our team of game playing experts.

To get an Essential Buy award you have to be the best, because we think we have the hardest to beat and easiest to understand rating system around, with all the information that you need in one at-a-glance box. Couple this with the **Step-By-Step** guides running you through game sequences and the easy to follow **Pros and Cons** box and you're left with all the ingredients to make the right game purchase, first time, every time.

VFM

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TURRICAN II 90

Best budget buy award winner, and all-round, frantic shoot-em-up action in this excellent budget release.

MICROPROSE SOCCER 91

Is this release up to playing in the first team?

DISC 91

This Tron-like disc-slinging game combines skill and strategy to make a great game.

ADVANCED DESTROYER SIMULATOR 92

A game larger than the ocean itself and twice as exciting.

POTSWORTH AND CO. 92

Hannah Barbera's latest smash hit TV show has been converted to the computer screen. Was it worth the trouble?



ISHAR

Tony Dillon takes a wander through Silmaril's latest fantasy epic, and finds it could give even the enigmatic Bard's Tale a run for its money...

When you first look at *Ishar*, you might well describe it as "yet another *Dungeon Master*": a large graphic window displays the world directly in front of you, and a huge collection of icons with arrows on them control your movement. Within minutes of starting to play, however, you begin to realise that there is far more to this



game than having a resemblance to *Dungeon Master*: it actually has more in common with Interplay's Bard series, in that there is a much meatier adventure contained within it than just wandering around finding the right objects to put in the right places.

As a dashing knight in leather armour with a strong sense of patriotic pride, your task is to rescue your homeland from the grip of an evil wizard, who has taken the once-proud castle of Ishar and turned it into a fortress of black magic. You choose to do this alone (initially), carrying only a few coins and a sword. Having begun your quest at the wrong end of the map and conveniently forgotten where anything is, who anybody is, you have only the brief introduction in the manual as a guide to who you are.

DAZED AND CONFUSED

The most interesting thing about the plot is that you don't actually know what you have to do when you start. You begin the game placed in the middle of nowhere without a map or a clue, and from here you have to save the world. The game is played out as a detective story, with clues found from talking to people and using some common sense. Gradually the plot and a variety of sub-plots begin to appear. For example, at the start of the game, a kindly thief tells you that there is a pub in a nearby village to the south. This sounds like a good source of information, so off you trot. On reaching the village you get into a scuffle, win, take money from your foes' bodies and then pop off for a celebratory drink in the pub, where you overhear a conversation telling you that a

friend of the old king lives in the village. You can now search the small township and find the friend, who tells you of a medium in another county. Stepping out of the hut, you do a quick bit of ori-

Stunning Graphics
Huge, intricate adventure
Twisting plot resembles a detective story

PROS AND CONS

Mouse reaction can be heavy
The player is sometimes left wandering around with nothing to do



Walking through one of the game's many villages, you can't help but wonder what's hidden inside those huts, or even why they look like windmills without sails.



Would you buy a used jerkin from this man? His eyes may be manic, but his wares are worth perusing.

entering and realise that the county he mentioned is to the north, so off you set, stopping off at the pub again to eat and recruit a fighter, for help in any battles you may find yourself thrown into.

Your character is displayed at the bottom right of the screen, along with the four panels that start empty, gradually filling to show the faces of any people that you recruit along the way to help you.

Clicking on your face brings up a status screen. There are all the standard strength, magic and experience points, along with a host of percentages showing your skills in first aid and lock-picking. These are usually balanced out to suit a party rather than an individual – for example, you may be excellent at reading but awful at helping the sick. To balance your team you need to find someone who is good at First Aid.

Dealing with other people is an important part of the game, and there are a lot of people to deal with. They can be broken into three categories. Firstly, there are the kindly people who sit in huts and either give you information or try to sell you things. For the most part, all these folk will do is display a text box and then leave you to your own devices. The second group are the various enemy characters that pop up from nowhere and would rather kill now and ask questions later.

WHOLE LOTTA LOVE

Most important for your survival are the people you can recruit. There are two ways of recruiting them. The first is to walk up and ask them, by selecting recruit from the action menu (see box). The second is when they approach you, asking you if they can join. This doesn't



Schools are the place to be if you want to increase your magic or fighting abilities. Thanks to a Conservative government you have to pay for it all, and it can cost a pretty penny.



The Action Sub-Menu. These 10 options give you all you need to be a successful adventure.

happen much, but it's still an option.

NPCs (Non Player Characters) build up relationships in much the same way as anyone else. After wandering around together for a while, people are bound to like or dislike each other, and the way this bonding forms can have some strange effects later on in the game. As soon as you try to recruit your second member, you'll notice that the first person you have called to join you will voice approval or disapproval. If you are a fair person you'll run your party democratically and find yourself putting a lot of decisions to the vote.

WHAT'S THE LOOK?

You only need to glance at the screenshots on these pages to see how exquisitely drawn the graphics are. There are 40,000 locations in this game, each viewable from all the four main com-

"A truly great adventure, with the best graphics about"

NAME: ISHAR
COMPANY: SILMARILS
CONTACT: 071 490 2944

PRICE: £25.99
RELEASE DATE: NOW
MIN MEMORY: 0.5 MB

GRAPHICS ○○○○○
SOUND ○○○○○☆
VALUE FOR MONEY ○○○○○
PLAYABILITY ○○○○○☆

OVERALL **87%**

ACTIONS SPEAK LOUDER

Clicking on the action button immediately above each character's face, you can call up an action sub menu, with these options

1 Give Item: the inventory appears, and you must select which item you are giving, and then click on the character you are giving it to.

2 Give Money: the same as giving an item, except you have to enter the amount first.

3 Kill: assassinate a member of your party. This should be used carefully, making note of the psychology of the team, otherwise the murderer could get murdered by a friend of the victim.

4 Dismiss: the fairest way of asking someone to leave – by putting it to the vote. Nobody will get killed this way, but you could find that the rest of the party won't want the individual to go.

5 Recruit: like dismissing, this action is put to the vote, with your team selecting whether or not the wierdo standing in front of you pretending to be a monk is suitable for your team.

6 Cast Spell: only magical classes will have this option, which allows them to cast a spell at any given time. A list of the spells available appears, and all you have to do is click on the name of the spell and aim it if necessary with the mouse.

7 Lock Pick: very handy for getting into buildings people don't want you in. Whether you are successful in your attempt or not depends entirely on your personal skill at lock picking.

8 Orientation: this gives you a rough guide to where you are. Unfortunately, if you haven't already explored a bit, or know exactly where you are looking for, then "South To Krynard, West To Barbsynt" isn't going to be much use.

9 First Aid: a basic medical once-over, giving a little bit of healing. The higher the First Aid skill, the more health regained. A character can't be healed twice by First Aid, until (s)he has been injured since the previous time.

pass points, giving you 160,000 different convincing views of the imaginary world – hand-drawn perfectly by graphic artists Pascal Einsweiler and Jean-Christophe Charter. There are a variety of stunning landscapes to work through, from open grassy plains to dense forests and cities to underground tunnels, all adding to the already strong sense of atmosphere. Clever use of colours means the 16-colour ST display easily emulates the 256 colour look of the PC original. Who says 16 colours aren't enough?

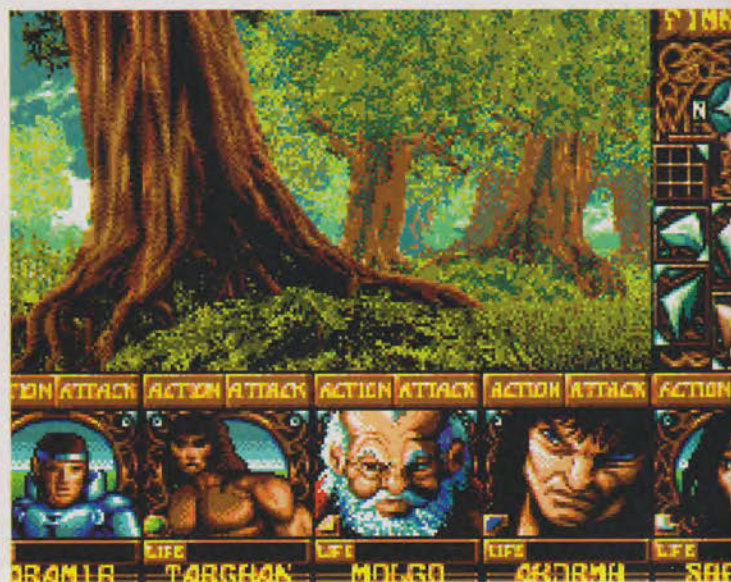
Ishar is very easy to get into and even easier to get wrapped up in. The only real problem with it is the speed.

The graphics update quickly enough, but the time it takes for an icon to respond to a mouse click can be annoyingly slow. This doesn't cause much of a problem, but when you're trying to fight off five hungry bears, it can signal death all too easily.

This is, however, a small gripe about an excellent game. *Silmarils* has taken a standardised game format and come up with something that feels fresh. *Ishar* is an atmospheric and entertaining detective romp, with a moral and a message for us all. Superbly presented, and almost as well executed, this is the sort of game that proves the ST as the thinking person's computer.



This map is almost completely useless. The only location marked on it is where you start, which is a little pointless because you already know where you started...

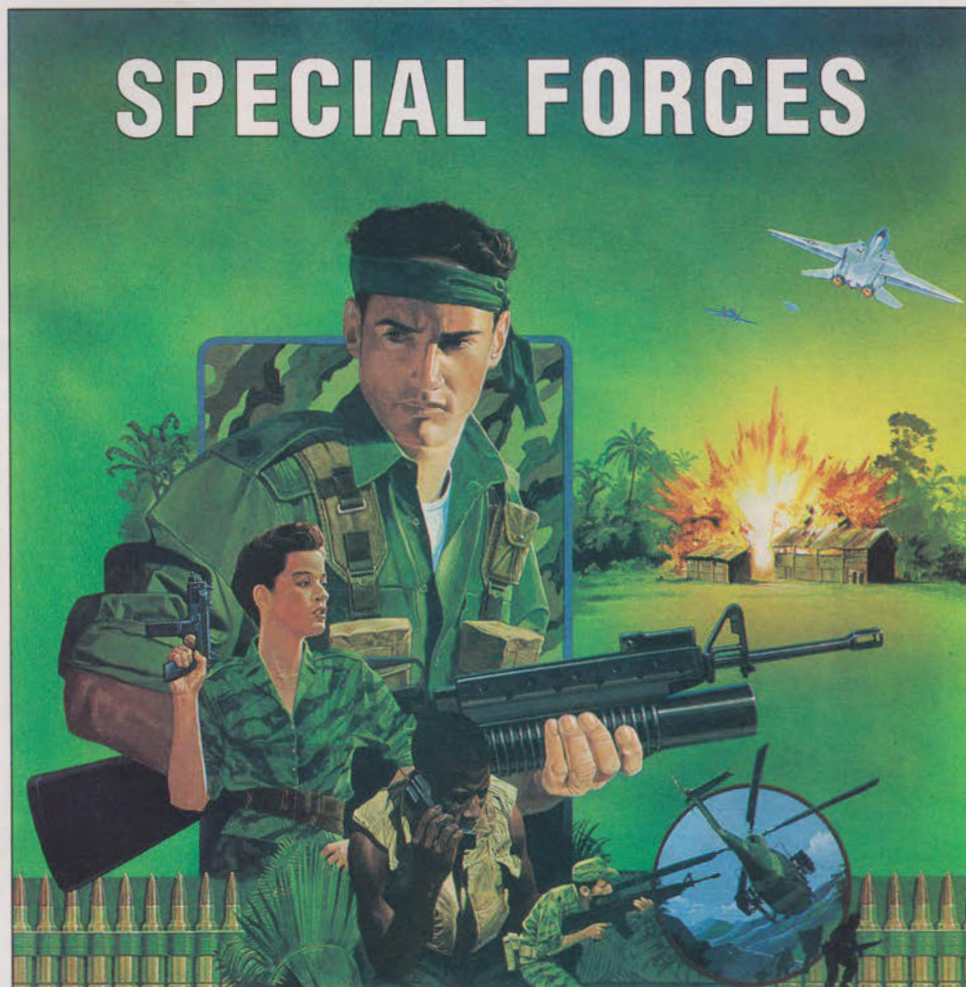


This is no ordinary wood. Deep in the heart of it is an invisible enemy, who can only be seen if you...find out for yourself!



The sea is a good example of how gorgeous the graphics can look. You can't go out on the water, no matter how inviting it looks. What you have to is find a bridge.

*Pick your most powerful
weapon...*



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The main map. This is where all the real strategy takes place. The flag in the middle of each country shows who owns it, and the spanner under the pyramid indicates that a factory is ready to build.

STEEL EMPIRE

Megalomania is proving to be a popular topic in the world of computer games. Tony Dillon tries Millenium's latest...

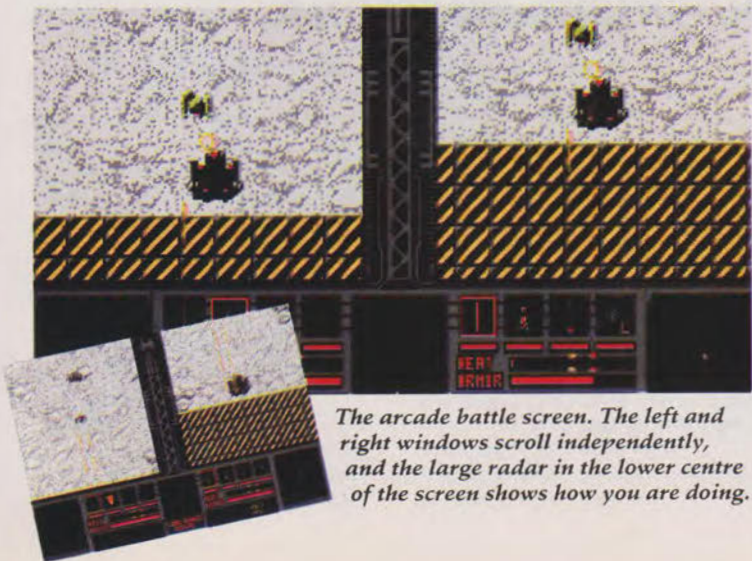
When we in Britain think of the steel empire, we cast our minds back to Sheffield, and to the huge smelting pots from which so much fine cutlery poured forth. For years, if you ate with Sheffield steel, you were eating with class. Those days have fast disappeared but

there is a new steel empire - the arms empire. *Steel Empire* could belong to one of two genres. On one hand it's very much a purist strategy that involves building huge armies and sending them out to fight. On the other hand it's



an arcade strategy: large armies are handy and power is useful, but the key to success is your own ingenuity and you can win as a one-man army. The aim is a familiar one: you take on an opposing force, in this case up to four other armies, all computer or human-controlled, in a bid to vanquish the foe and conquer as much land as you can grab.

FIGHTING MACHINES
The small, but politically important, planet of Orion, out in the furthest reaches of the Andromeda galaxy has a problem on its hands - it has been chosen as a battleground for opposing governments to wage war... The wars are fought by huge Cyborgs. These man-machines are custom-made for fighting, and one can take the place of an army. They aren't cheap to build, so countries have to be



The arcade battle screen. The left and right windows scroll independently, and the large radar in the lower centre of the screen shows how you are doing.

BUYERS GUIDE

How does this game compare to other strategy/arcade crossovers? Our handy buyers guide tells you...

	Gra	Pla	Str	Arc	Dep	Overall
1 Steel Empire	6	5	6	4	5	73%
2 Special Forces	7	8	7	7	8	82%
3 Pacific Islands	8	8	8	7	8	85%
4 Laser Squad	7	9	9	7	9	90%
5 Defender Of The Crown	9	8	5	6	5	78%

Gra=Graphics, Pla=Players, Str=Strategy element, Arc=Arcade element, Dep=Depth Of Play

colonised to fund the building of these psychotic contraptions.

TWO IN ONE

There are two main sections in *Steel Empire*, the strategy section and the arcade one: you can choose to play either separately or combine them.

The strategy section is obviously the most important. You play on a top-down view map, which you can see about an eighth of through the main window. The map is broken into countries, as in *Defender Of The Crown* and *Rocket Ranger*, and in the centre of each country a number of icons can be displayed; they tell you, at a glance, where the factories are, who is in control of a country, where all the cyborgs are (but not how many are in each country) and which countries have automatic defences. Below that are the 14 control

icons and the message window. These give you access to the main commands.

GETTING STARTED

The first thing to do when you enter a new country is to build a capital city; this will contain an all-important central bank. Next you should build a factory to produce your Cyborgs. There are three types of factory, and the most expensive can churn Cyborgs out the fastest. It's up to you whether you invest heavily early on or save your money for later.

There are nine different types of Cyborg, ranging from small, relatively weak machines that don't cost much in the way of money or time to produce, to huge Titans, that can take up to five turns to produce, and up to 100,000 credits. Of course, you pay for what you get, and a 90,000 credit battle machine is harder to kill than a 2000 credit tank armed with only a laser cannon.

The basis of the strategy section is to accumulate large piles of cash in order to create large numbers of Cyborgs. If you're playing a strategic campaign, this is all you get to see, with battles carried out in the blink of an eye by the computer. If you are playing a complete campaign, or taking part in battle practice, you take control of the battles yourself.

The screen is split in two, with the main Cyborgs of the opposing teams displayed in each. The top-view window scrolls eight ways, and by using the long-range radar displayed, you have to drive your machine around until you find the enemy, and then blast them to bits.

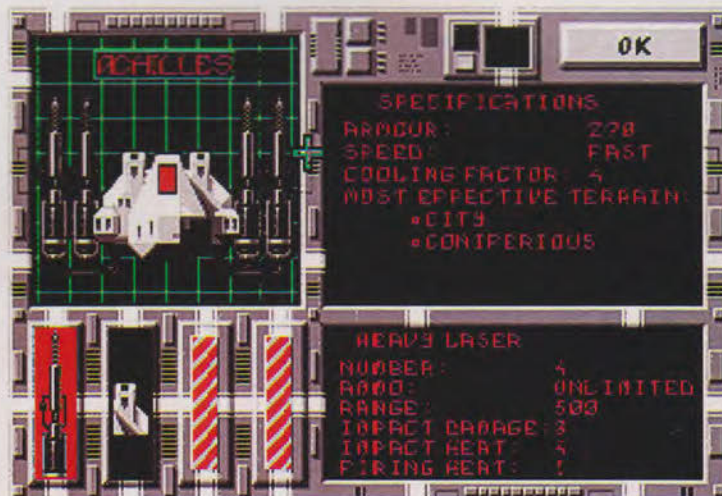
LITTLE AND LARGE

This is where you appreciate the difference between the various Cyborgs. Cheap machines are more responsive, but hold little in the way of defence, whereas larger machines can take quite a bit of punishment and dish it out too. Unfortunately, the action sequences aren't up to much: the scrolling is jerky, the gameplay is slow and the controls are unresponsive.

The problem with a game that's split into two distinct parts is that the two halves have been skimped on. The strategy section is minimal, and the arcade section is less than action-packed. Although the two might seem to complement each other, they are a long way off the mark. . .



Your window on the world: here, icons in each country tell a tale.



One of the nine Cyborgs. Take into consideration the type of terrain the unit can best cope with: it plays a major part in winning combat.



The state of play so far. At the start of the game you decide how aggressive the enemy is, as well as how wealthy the planet is.



When you choose to build a Cyborg, you are given the choice to build one of these nine. The number you can build depends on the level of your factory.

Up to five players

Large amount of weapons and strategies

Combination of game styles

PROS AND CONS

Poor arcade section

Strategic section too simple

Excessive loading times

"Average attempt at a strategy / arcade crossover."

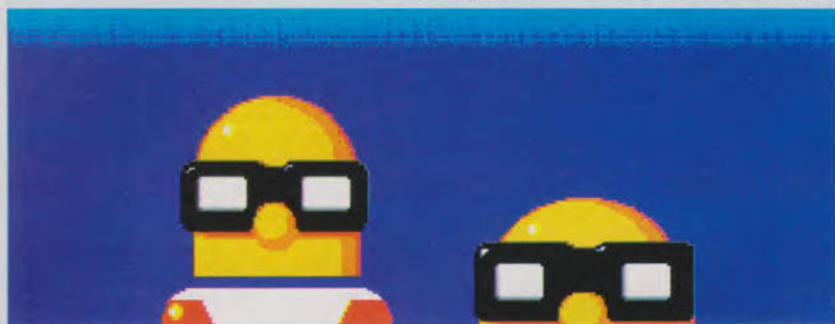
NAME: STEEL EMPIRE
COMPANY: MILLENNIUM
CONTACT: 0223 421526

PRICE: £25.99
RELEASE DATE: NOW
MIN MEMORY: 0.5 MB

GRAPHICS: ○○○○☆☆
SOUND: ○○○☆☆
VALUE FOR MONEY: ○○○☆☆
PLAYABILITY: ○○○☆☆

OVERALL **73%**

Before each level, the Bros have to sit through a movie telling them what to do.



BONANZA BROTHERS

US Gold's latest SEGA signing, Bonanza Brothers, takes two techno-criminals and tries to turn them into lovable characters. Will they steal the show or should they be locked up?

The lives of Mobo and Robo Bonanza have not been happy ones. Perhaps the fact that their childhood was plagued by bullies and people teasing them about their unusual Brazilian names led them to a life of crime. That's all behind them now, they are reformed characters. In fact, in this



game you get to help them out in their new jobs, testing security in buildings by breaking in and stealing key items.

Of course, it never occurred to them that it might be less than legal. The game is played over a split-screen, eight-way scrolling play area, showing a cutaway of a building viewed

side-on. At the top of the screen is Mobo and at the bottom, his brother, all very reminiscent of the *Spy Vs Spy* games. You have to work your way through the building, knocking out guards while avoiding getting knocked out yourself, collecting all the key items and then escaping to the helicopter waiting on the roof.

STICKY MOMENTS

The instructions state that up and down on the joystick move you in and out of the screen. It does, but only at very precise points, usually one or two pixels across from where you would expect, leaving you in some very tricky situations when trying to avoid a bullet and finding you can't move.

The fire button has two uses. Firstly, if tapped it fires your weapon – a large but relatively ineffective pistol that fires very slow bullets. Secondly, if held down for a while, it makes you jump – this provides your only means of getting over certain obstacles, as well as a way of avoiding bullets when you can't move into the screen. Unfortunately, by placing it as a secondary control, it means that you can't do that when you want to.

The game is slow by any standards. The joystick

response is sluggish, your bullets fly slowly, and the only things that can't outrun you are the doors.

This certainly isn't what most people would expect from an arcade game. There is no fast-paced action to set your adrenalin pumping and progress is slow. Control is awkward, especially as you must time your jumps in advance.

Fairly nice music
Two-player interaction

PROS AND CONS

Slow gameplay
A poor example of the genre

"A slow game that lacks any arcade excitement"

NAME: BONANZA BROTHERS
COMPANY: US GOLD
CONTACT: 021 625 3388

PRICE: £25.99
RELEASE DATE: NOW
MIN MEMORY: 0.5MB

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

OVERALL **58%**



The levels scroll left and right, and there are stairs for you to climb, as player 2 (the lower) is doing.

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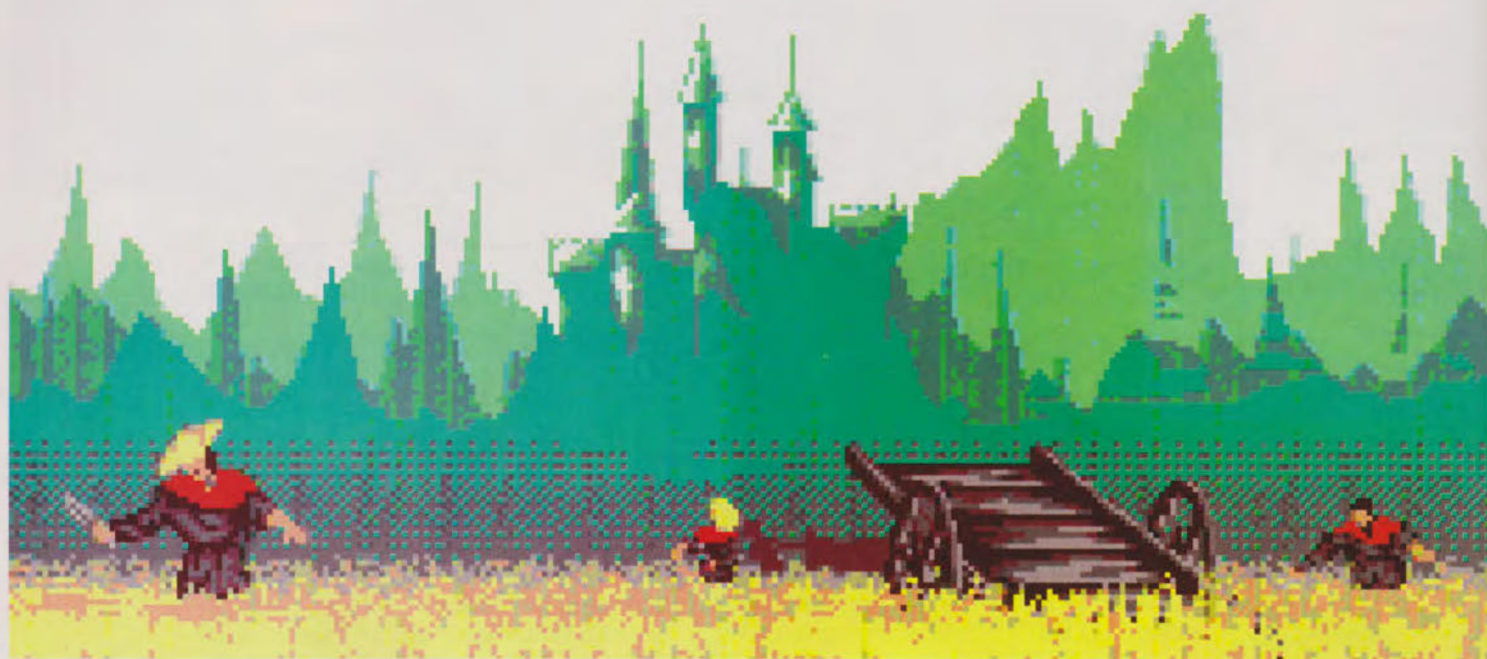
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S /92

ATARI ST
REVIEW
ESSENTIAL BUY


LURE OF THE TEMPTRESS

Tony Dillon fights against something green and slimy in the new Virtual Theatre system. So what else is new?

Lucasfilm caused a storm a few years back with the release of *Maniac Mansion*. A first, the game was a textless adventure, with all the characters manipulated via a point-and-click system. Since then the company has refined this interface, creating masterpieces such as *Indiana Jones*. Of course, the system has its faults, but nobody has ever come up with anything to beat it. Until



now, that is. Virtual Theatre (VT) is the name given to the engine used in Virgin's blockbuster-in-waiting, *Lure Of The Temptress*. The game emulates a completely consistent environment, where the characters exist and interact all the time, not just when on screen. People are real people, with real relationships that develop and deteriorate throughout the game. For example, you may

say something to strongly offend the local barman. He may then bar you, causing you not only to fall out with him, but his regulars too.

WRONG PLACE, WRONG TIME

The adventure casts you in the role of Dermot, a peasant caught up in the murder and overthrow of the king by a wicked demoness. You start the game locked in a cell. Break free and rescue your homeland from the trap of the Temptress.

The key to any adventure game is the degree to which it involves you in solving problems, and, with VT, *Lure Of The Temptress* moves into a class of its own. There seems to be none of the random

experimentation needed with most games of this type. If

Superb graphics
 Exceptional game design
 Intelligent characters who seem real

PROS AND CONS

Some puzzles are a little too simple
 Lack of a map means a lot of wandering

you need to know something about a certain character, ask the local gossip, rather than asking everyone in sight and being faced with the same blank stare.

The game has a very friendly user-interface, with each mouse button performing a different function. The left one is used to move the player around, while clicking with the right button brings up a scrolling menu, filled with all applicable verbs, such as Drink if you are carrying any liquid or Talk To if there is anyone present. After selecting a verb, a scrolling menu of nouns appears, asking you to what it applies. Some menu options allow you to create complicated sentences, such as those which Give or Tell. Once the verb and noun have been selected, you can add more to the phrase, for example "Give the Apple to the tramp" and "Give the Gold to the Princess".

STOP FOR A CHAT

Character interaction is handled in a similar way. A large proportion of the game involves holding conversations with NPCs (Non Player Characters), and simplistic though the design is, it is very effective. For the most part, all you'll have to say to people is "Hello" and "What is your name, friend?". As the game progresses, you are advised to ask people about certain topics and this is done automatically. Conversation is mainly a case of selecting Talk To and watching what happens. Occasionally you are asked a question to which there are a number of replies. In this instance, a window appears at the top of the screen with all the available responses, and you select one of these by clicking on it. Giving the right response leads you further into the game, and a lot of the time it isn't hard to guess which one is right.

In the combat system, as in every other part of the game, mouse clicking activates all the actions, but thanks to the clever design, you have eight different moves available. Placing the mouse in front of or behind the character and clicking the left button moves him forward or backward. Holding it at either the top, middle or bottom of his body initiates one of the six combat moves, either attacking or defending. If the player is facing to the left, fighting a character who also faces to

the left, then use the left button to attack and the right to defend.

It's very rare that a game system lives up to the hype that precedes it. *Lure of the Temptress* is one of the many jewels in Virgin's crown, and a fine adventure at that. It may lack the intricacy of a *Magnetic Scrolls* game; it probably doesn't have the size of *LeChuck's Revenge*, but the amount of innovation and thought that has obviously gone into it more than makes up for that.

INSIDE INFO

Revolution Software may not be the best known team around, but take a closer look and you'll find a very strong line-up. The managing director is Charles Cecil, previously of US Gold and Activision, and David Sykes and Tony Warriner are the brains behind the Virtual Theatre system, as well as being the developers of some Aeronautical control tower systems. Dave Cummins, formerly of Activision, handles a lot of design, as does Dave Gibbons, co-writer and artist of many famous American comics, including the exceptional "Watchmen".

"A well thought out and impressively designed arcade adventure"

NAME: LURE OF THE TEMPTRESS
COMPANY: VIRGIN
CONTACT: 081 960 2255

PRICE: £29.99
RELEASE DATE: JUNE 1992
MIN MEMORY: 1 MB

GRAPHICS ○○○○○○
SOUND ○○○☆☆
VALUE FOR MONEY ○○○☆☆
PLAYABILITY ○○○○○○

OVERALL **90%**

STEP BY STEP

Let's take a quick look at the basics of the game...



1 This is where you start. Alone, locked in a cell with a window that's too high to see out of and only your straw bed and the torchlight for comfort. But hang on, what's that crack in the wall?



2 Ah, the wonders of the Virtual Theatre. Although I'm in one room, I can see exactly what's going on in another. So, the guard's out there busy stretching somebody on a rack, but I have to get him to open the door...



3 Let me see, how can I get his attention? Maybe I can throw the torch. Let me get it from the wall with the easy-to-use menu system. Removing the torch is a case of clicking with the right mouse button, selecting Get and clicking on the torch. Whoops, it's fallen on the bed. The guard's going to kill me...



4 Good, the fire's distracted his attention. I'm out of here before he spots that I'm not actually on the bed. As all the characters have definite purposes and logical thoughts, obviously the guard is going to want to put the fire out before he puts the light out, giving me time to slip quietly out of the door.



5 Now I have to try and stop him from following me. Using the wonderful right-click menu again, I can close the door. That won't stop him coming, but it will if I lock it as well. There, the guard is trapped in there now, and there's nothing he can do about it.



6 I fancy a gloat, so wandering into the next room I find the guard's observation grille and take a look. Ha, serves him right for trying to unjustly imprison me. Right, now to deal with the prisoner on the rack I spied earlier...



AUTOROUTING

It may not sound that exciting, but autorouting is what makes this game really special. . .

A game system which means that computer-controlled players won't walk into each other, but also won't take stupidly long detours seems pretty dull, but in reality it's quite interesting to watch characters walking nimbly around each other.

The system means that NPCs can be set up to follow one long path, and then left to it. By programming a start and end position for a character, as you do by clicking with the left button, the program works out the best route and constantly recalculates this route as obstacles move into the way. It does this for all the characters, meaning that you can easily follow somebody through their daily life, but with some of the strange people about, would you want to?

For the technically minded, the system is based on a series of "tramlines" that cross the screen both horizontally and vertically. The program works out which line the character is on and the nearest tramlane junction to where the character is headed, and then calculates the most direct route moving along the tramlines until the character reaches its destination. Only one character at a time can walk along any one point of a tramlane, so you will find characters stepping out of each other's way.

You will still get characters following a blocky path, though. Unfortunately, nobody walks as the crow flies unless they are directly to the left or the right of where they want to go. This system is still in quite a crude phase - remember this is the first game to use it, but as it develops we can look forward to seeing true theatrical choreography in games, a far cry from the "walk right as far as you can go, then move up" world of the early Sierra or Lucasfilm titles!



By examining the pictures carefully, you can find all kinds of goodies, such as this knife hidden at the top of a barrel.



By using the knife against different objects, you can create different effects. Using against the leather cords frees the prisoner.



Showing every sign of charm and personality, Ratpouch introduces himself and swears his life to you, and all because you rescued him.



Sometimes you are given a choice of replies when someone speaks to you. In this case, I have just been offered a job.



Using the menu system you can build up quite long and complex commands, such as this obscure order to Ratpouch.



The mouse pointer can give clues. When over an important part of the screen, such as an exit or an object, the pointer will change.



In the game world, everybody has something to say to you, even though it may not be worth listening to.



Occasionally you are rewarded for your efforts with a short animated sequence. This is Diermid falling at high speed down a sewage pipe.

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You don't have to fly to Barcelona to enjoy the Games this summer.

Gordon Houghton presents the best dozen events in the ST Olympics, plus some news of imminent releases.



100 METRES
THE MEGA SPORTS COMPILATION (SUMMER GAMES) ● US GOLD ● £25.99

Summer Games was never released on the ST, even though it was a huge hit on 8-bit machines over six years ago. However, Manchester-based programming team Creative Materials has revived it in time for this year's Olympics, and has created a faithful copy of the original on US Gold's *Mega Sports* compilation.

As with all the Epyx Games series, you can enter your name and choose the country of your choice (from a selection of 18), and whenever you win you're rewarded with a brief rendition of your national anthem.

This 100m dash is a simple left-right joystick-wagging affair, but it's an essential part of any self-respecting games compilation.

If you have no human opponent you're given a computer pacer to race against, which is a particularly nice feature, since however fast or slow you run the computer opponent will always be at your heels.

The graphics aren't outstanding – for example, the animation on the runner's legs makes it look as if you're jogging along – and the sound effects aren't all that impressive either, but no sports fan should be without at least one 100m race in their software collection. This one has to be a front runner.

☆☆☆

ARCHERY
THE GAMES – SUMMER EDITION ● KIXX ● £7.99 ● ALSO AVAILABLE ON THE MEGA SPORTS COMPILATION ● US GOLD ● £25.99

Archery is one of the oldest sports known to man. Bows and arrows were used for hunting 10,000 years ago, and the sport was recorded as long ago as 1150 BC, in Homer's *Iliad*. Here it's just one of eight events, which also include velodrome cycling, diving, hammer throw, hurdles, uneven parallel bars, rings and pole vault. You are given one and a half minutes to fire three arrows at a target 90 metres away. The reason you have so long is the wind factor: the wind is variable both in speed and direction, and you have to



Even Carl Lewis fitted with an afterburner couldn't catch you in this 100m sprint.



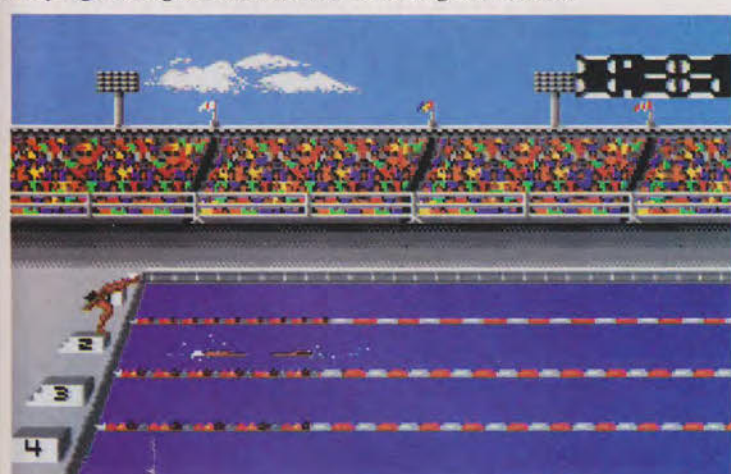
California Games' dirt-track race, for BMX fans everywhere.



It might not look like much, but fencing requires a good deal of skill.



Keeping the bag airborne is what Foot Bag is all about.



Eight lengths lie between you and victory in Freestyle Relay.

wait for exactly the right moment before releasing the bow. Arrows which land on the borderline between two different scores are awarded the higher mark, and the maximum score is 30 points.

☆☆☆

BMX BIKE RACING

CALIFORNIA GAMES ● **KIXX** ● £7.99 ● **ALSO AVAILABLE ON THE MEGA SPORTS COMPILATION** ● **US GOLD** ● £25.99

One of four non-Olympic events in this selection, this is also the first of three from Epyx' alternative Olympics, **California Games**. The objective is simple: you have to pedal your bike to the end of a desert dirt track within a strict time limit, performing as many stunts as possible along the way. As a result, there's no fixed maximum score, and this flexibility makes for a great game. The stunts include a wheelie, a table top (holding the bike in the air as long as possible), forward and backward flips, 360° turns and simple jumps. You also get extra points for stopping on the finishing pad. Should you fall on your head or suffer three less serious falls, the game is over.

☆☆☆☆

FENCING

THE MEGA SPORTS COMPILATION (SUMMER GAMES II) ● **US GOLD** ● £25.99

The first of four events from the **Summer Games II** part of the **Mega Sports** compilation is based on a game design which is now more than five years old. This is reflected in its appearance - the sprites are small and the sound effects relatively crude. Nonetheless, it's a fair translation of the sport.

You take part in a tournament, facing either human or computer opponents. Standard moves are available to you, such as parrying, feinting and thrusting in a variety of different sequences.

The secret here, unlike many of the athletics alternatives, is a combination of patience and timing - you have to wait for the right moment to attack, usually when your opponent's defences are down.

Bouts last either three minutes or as long as it takes for one fencer to make five hits, and the scores are determined according to the relative number of hits that are both achieved and received.

☆☆☆

BARCELONA 1992 TIMETABLE OF MAJOR EVENTS

25 Jul: Opening Ceremony
 26 Jul: Modern Pentathlon begins; Weightlifting begins; Cycling begins; Shooting begins; Swimming begins (until 31 July)
 27 Jul: Judo begins
 28 Jul: Team Gymnastics (W)
 29 Jul: Team Gymnastics (M)
 30 Jul: Gymnastics, individual (W); Fencing begins
 31 Jul: Gymnastics, individual (M); Judo; Women's Marathon; Shot (M)
 1 Aug: 100m (M/W); Javelin (W); Heptathlon (W) begins
 2 Aug: 800m (W); 3,000m (W); High Jump (M); Hammer (M)
 3 Aug: 10,000m (M); 110m Hurdles (M); 400m Hurdles (W); Triple Jump (M); Discus (W); Diving (W); Equestrianism begins
 4 Aug: Diving (M); Archery; Badminton
 5 Aug: 200m (M/W); 400m (M); 800m (M); Discus (M); Decathlon (M); Baseball; Table Tennis begins
 6 Aug: 400m (W); 100m Hurdles (W); 400m Hurdles (M); Long Jump (M); Synchronised Swimming
 7 Aug: 10,000m (W); 3,000m Steeplechase (M); Long Jump (W); Shot (W); Pole Vault (M); Basketball (W); Canoeing; Hockey; Tennis; Volleyball
 8 Aug: 1500m (M/W); 5,000m (M); 4x100m Relay (M/W); 4x400m Relay (M/W); High Jump (W); Javelin (M); Basketball (M); Boxing; Football; Handball
 9 Aug: Marathon (M); Water Polo; Closing Ceremony

FOOT BAG

ATARI **BUDGET BUY** **CALIFORNIA GAMES** ● **KIXX** ● £7.99 ● **ALSO**

AVAILABLE ON THE MEGA SPORTS COMPILATION ● **US GOLD** ● £25.99

Foot bag, or hackysacking, is not, and probably never will be, an Olympic sport. However, it's easily the most complex event in this whole selection. The basic aim is to keep a small, round bean bag in the air with your head, feet, legs, shoulders and arms. Depending on how inventive you are at achieving this, you can create your own tricks and gain points. It doesn't matter if you drop the bag before the time limit expires, but if you drop it after, the game is over. The controls are tricky to get the hang of, but once you know

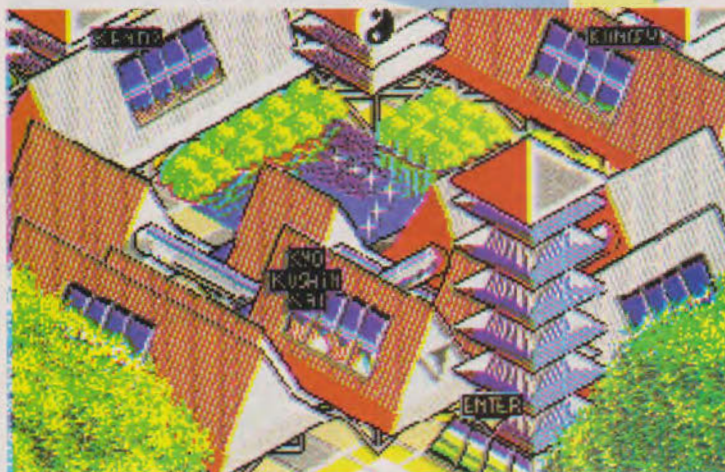




1.20 metres is all you'll manage until you can leap like a salmon.



Find the correct angle and you might beat Steve Backley's record.



Kung Fu is more than just high kicks and fancy fist work.



Quick reactions are needed for maximum points in the skeet shooting.

what you're doing a click of the fire button at the right time allows you to perform one of 11 different stunts, including the aptly-named five-in-a-row, three kinds of axle (spin), horseshoe (left back-kick or right back-kick), and doda (left outside kick, head-butt, right outside kick). In addition, you gain extra points for variety, and you can amass huge scores once you've learned the basic art of keeping the bag in the air. The sequel, *California Games II*, is due out this summer.

★★★★★

FREESTYLE RELAY

THE MEGA SPORTS COMPILATION (SUMMER GAMES) ● US GOLD ● £25.99

Most sports compilations feature enough athletics events to keep the most dedicated runners, throwers and jumpers happy, but swimming races are much more rare. *Summer Games*, on the *Mega Sports* compilation, has two: the 100m freestyle (two lengths of the pool), and this endurance event, the freestyle relay. It involves four swimmers racing over eight lengths of the pool, and the difficulty is in keeping the timing of the strokes for the whole race. It's easy to forget to press the fire button and lose your rhythm. The graphics are adequate – although the pool is unrealistically short and the animation is quite basic – and the sound effects are minimal, but it's included in this selection because it's one of the hardest events to maintain your concentration and achieve the fastest time. Followers of water sports will also be pleased to know that, in addition to its two swimming races, the *Mega Sports* compilation also has a diving competition.

★★★

HIGH JUMP

THE MEGA SPORTS COMPILATION (SUMMER GAMES II) ● US GOLD ● £25.99

The *Mega Sports* compilation's value lies in its sheer number of events, though some of these, such as the kayaking, are of a pretty poor standard. Among the best is the High Jump, originally featured on the 8-bit *Summer Games II*, and recreated here by Creative Materials. The bar begins at the minimum height of 1.20 metres – about a metre short of the official world record. You are given three attempts to clear that height before moving on to the next. You can alter the speed and angle of approach to the bar, though once you do get there your only choice is the Fosbury Flop. One neat feature is that you can refuse a jump even after you've made a couple of attempts at it. The graphics and sound effects are similar to those on the other *Summer Games* and *Summer Games II* events – reasonable but not outstanding. However, the event itself is compelling from the very first leap.

★★★

JAVELIN

THE MEGA SPORTS COMPILATION (SUMMER GAMES II) ● US GOLD ● £25.99

Anyone who has ever played the classic coin-op, *Track and Field*, will recognise this event. It takes place against a scrolling background and, like the real thing, it requires judgement of the javelin's release angle as well as speed. The speed part is achieved by pressing the fire button as rapidly as possible, the angle by holding the joystick left as you reach the end of the runway. Releasing the javelin too low gives a low arc and causes it to skid, while releasing it too high pulls it up short. You are



You're riding along on the crest of a wave, about to fall off!

given three attempts in all. A more modern or scientific approach to the sport might have allowed you to design your own javelin dynamics to increase distance, or to enhance your thrower's technique using computer models, but that's easily forgiven when you consider this is just one of 33 sports on the compilation.

☆☆☆☆

KUNG FU

ATARI ST BUDGET BUY **ORIENTAL GAMES** ● KIXX ● £7.99 (FORMERLY ON THE MICROPROSE LABEL)

Although *Oriental Games* doesn't feature Olympic events, it was MicroProse's oriental answer to the Epyx Games series, and is now due for imminent release on the Kixx label. It features three events – Kung Fu, Kendo and the bizarrely-named Kyo-kushin-kai, all of which offer a different and demanding challenge. Kung Fu is the most popular martial arts event for games designers, and is exploited to the full here. It features three difficulty levels, a 15-opponent championship, and a one-to-one bout against a human or computer opponent. Apart from 16 default kicks, flying kicks, punches and chops, you can edit the joystick controls to create whole sequences of moves. The animation is fluid, though the graphics as a whole can be a little untidy, and the sound effects consist of a small selection of grunts and blows. Presentation however, can't be faulted, with practice screens, helpful advice, multiple player participation, and decent spot effects.

☆☆☆☆

SKET SHOOTING

THE MEGA SPORTS COMPILATION (SUMMER GAMES) ● US GOLD ● £25.99

Skeet shooting is an established part of the Olympic tradition, and has been simplified here for the Mega Sports compilation. It doesn't have the most innovative presentation in the world, but it is nonetheless difficult to hit all 25 targets from each of the eight shooting positions. There are two types of target, released from traps when you press the fire button. Red discs move slowly and are relatively easy to hit, whilst blue discs zip across the screen and test your skills of anticipation. The event is

made harder by gravity, which pulls your gunsight downward, forcing you to continually reassess your aim; but just like the real thing, this is less noticeable if you follow a target. One point is scored for each hit, and you only get one shot for every target.

☆☆☆☆

SURFING

ATARI ST BUDGET BUY **CALIFORNIA GAMES** ● KIXX ● £7.99. ALSO AVAILABLE ON THE MEGA

SPORTS COMPILATION ● US GOLD ● £25.99

California Games is arguably the finest sports release that Epyx ever produced, and the surfing event captures this spirit entirely, with a simple background, consisting of an animated wave which scrolls left and right as you travel along it. The surfer is neatly animated and can perform a variety of stunts, including three kinds of jump, riding beneath or on the crest of the wave, and turning in mid air. Points are awarded by beach judges when the time limit expires. Scoring the maximum 10 takes a lot of time and patience, but because of the game's cute touches the urge is still there to go and do it all over again, even when you have achieved the perfect ride.

☆☆☆☆

TRIPLE JUMP

THE MEGA SPORTS COMPILATION (SUMMER GAMES II) ● US GOLD ● £25.99

The Long Jump is also on the *Mega Sports* compilation, but this event is far better because of its difficulty. You need great strength and co-ordinated, fluid movement to hop, step and leap huge distances – or so the instructions say. What you actually need is a press of the fire button, a couple of pushes to the right and a push to the left. This isn't as easy as it sounds, since all the actions follow each other rapidly and you can easily find yourself confused about the sequence of events, usually before a nasty fall. Accomplished performers should be looking for leaps of around 17m – and not the pathetic 15m that is the achievement of beginners. In all, this has average graphics, limited sound and adequate animation, but you just can't help trying to beat that record. Pass me the joystick...

☆☆☆☆

OLYMPIC PROPORTIONS

For all trivia freaks, here's some facts and figures on those good old summer games

The Olympic Games have been around since at least 776 BC, when Coroibos, a cook from Elis, is recorded as having won the foot race. However, they probably originated as early as 1370 BC. The ancient Olympics were terminated by Theodosius I, Emperor of Rome, in AD 393, and weren't revived until 1500 years later. At the instigation of Pierre de Fredi, Baron de Coubertin, the first modern Olympics were held in Athens on 6 April 1896.

● In the past 96 years five countries have been ever-present – Australia, France, Greece, Great Britain and Switzerland.

In addition, Great Britain is the only nation to have been ever-present at the Winter Olympics as well.

● The last Olympics, at Seoul in South Korea, attracted the greatest number of competitors ever. Over 160 nations entered 9302 competitors, 6892 of them men, and 2410 women.

● The most medals in both Summer and Winter Olympics have been won by the United States. Their total of 1904 includes 788 gold. The former Soviet Union comes second with 1212 (474 gold), followed by Germany (646 medals) and Great Britain (622 medals). ● In the ancient Olympics, victors were given an ornamental wreath of wild olive leaves, to be worn on the head. Leonidas of Rhodes still holds the record for any athlete, ancient or modern, with his 12 running titles won between 164 BC and 152 BC. Mark Spitz (USA) holds the record for the most medals won in any one Games, with his seven swimming golds in Munich in 1972.

● The youngest gold medal winner was an anonymous French boy, who coxed a Netherlands rowing pair to victory in 1900. He was 7-10 years old. Oscar Gomer Swahn (Sweden) was over 64 years old when he won a gold medal in the 1912 Olympics.

● 150,000 people turned up to watch the ski-jumping at the Holmenkollen in Norway, in 1952, forming the largest crowd for any event held in one place. However, in Tokyo in 1964, an estimated 1,000,000 people watched the marathon.

● The Olympic emblem of five interlaced circles represents the five continents.

● The longest time span covered by any Olympic competitor is 40 years. Dr Ivan Osier (Denmark) competed in fencing from 1908-32 and in 1948, and Magnus Konow (Norway) competed in yachting from 1908-20 and 1936-48.

● The 1992 Olympics in Barcelona will be the 23rd of the modern era.



A hop, a skip and a flying leap make you tops at triple jump.

UNDER STARTERS ORDERS...



California Games.

A whole host of new releases are set to coincide with the Olympic Games this summer

The **Mega Sports** compilation (US Gold, £25.99) should be available by the time you read this. It includes a massive 33 events, some of which are already available on the Kixx budget label, but many of which you won't have seen before. They are as follows:

Archery, BMX Racing, Biathlon, Bobsled, Cycling, Diving, Equestrian, Fencing, Flying Disk, Footbag, Free Skating, Free Style (swimming), Gymnastics, Half Pipe Skateboarding, Hammer Throw, High Jump, Hot Dog Aerial Skiing, Hurdles, Javelin, Kayaking, Pole Vault, Rings, Roller Skating, Rowing, Skeet Shooting, Ski Jump, Surfing, Triple Jump, Parallel Bars, Cycling, 100m sprint, 100m Free Style (swimming) and 4x400m Relay.

The good news for lovers of sand, surf and sunshine is the

imminent arrival of **California Games II**. It offers up to eight players the chance to compete in five events, including hang gliding, snowboarding, jet surfing, bodyboarding and skateboarding. The usual high score and excellent presentation screens are included, and the pictures on the left should give you some idea of the standard you can expect.

Finally, there's **Empire's International Sports Challenge**, which should be out in the shops soon. Unfortunately, precise details were unavailable at the time of going to press.

THE MAIN EVENT

Did you know that some Olympic events are available as games in their own right? What kind of sports are we talking about? Well, take these three, for example...

ADVANTAGE TENNIS

INFOGRAMES • £25.99
Tennis was introduced into the Olympics as recently as 1988 and, perhaps strangely, allowed professional players to compete with amateurs for the honour of a gold medal. Infogrames' version is just about the best of the many excellent tennis simulations available.

The game's one major advantage is an excellent control method, which includes sensitive and quick response to joystick commands, allowing you to play high lobs, net shots, smashes and all kinds of spin.

Like all sports games, this one is best appreciated when there are two human players involved, but even played against the computer it really is an excellent release.

However, if you do eventually get tired of it, you can always try out the impressive **Pro Tennis Tour II** or **Tennis Cup**.

AMERICAN ICE HOCKEY

MINDSCAPE • £25.99
Ice hockey is, of course, a major Winter Olympics event. Despite getting a tad long in the tooth, this is still one of the best versions of the sport around. It gives you the chance to play three games in one, as player, coach and manager. As player you only get to control the centre or the goalie, as the coach you direct the team tactics, and as manager you can buy and sell players. There's a one- or two-player option, you have a choice of two-on-two, four-on-four or six-on-six hockey, and there are league and cup competitions to win. In all a comprehensive, neatly animated sports simulation.

KICK OFF 2

ANCO • £19.99. • ALSO AVAILABLE ON A NUMBER OF COMPILATIONS

Amateur football has long been a part of the Summer Olympics scene, and is usual-

ly free of the tedious win-at-all-costs tactics found in the World Cup. Anyone who hasn't played this definitive football simulation must have been living on Mars for the past couple of years. A wide range of features includes aftertouch (allowing you to bend and dip the ball), sliding tackles, action replays, free kicks, corners, throw-ins, league and cup competitions, the ability to save your best moments, and half a dozen data disks and spin-offs. It's everything a footy fan could want... until **Kick Off 3** is released.

• Note: the **Mega Sports** compilation contains all the events found in the two Kixx releases - **California Games** and **Games Summer Edition** - plus 19 additional events. The marks that we have awarded to it below are based on what we have seen so far, and aren't intended as a final, definitive review.



American Ice Hockey.



Advantage Tennis.



Kick Off 2.

BUYERS GUIDE

Our at-a-glance chart shows you how we feel the various games compilations mentioned in this feature measure up to each other.

	Gra	Sou	Cha	Eas	Atm	Eve	Overall
1 Mega Sports	9	6	9	9	8	33	90%
2 California Games	9	7	8	8	9	6	89%
3 Games Summer Ed	8	7	8	8	9	6	89%
4 Oriental Games	7	8	8	8	8	3	84%

Key: Gra = Graphics, Sou = Sound, Cha = Challenge, Eas = Ease Of Use, Atm = Atmosphere, Eve = Number of events]

VOTED THE WORST MOVIE OF ALL TIME...



Screen shots from PC version



WHERE THE STRANGEST THINGS HAPPEN !!

Plan 9 From Outer Space ©1992 Wade Williams Productions, Licensed by Alter Ego Productions

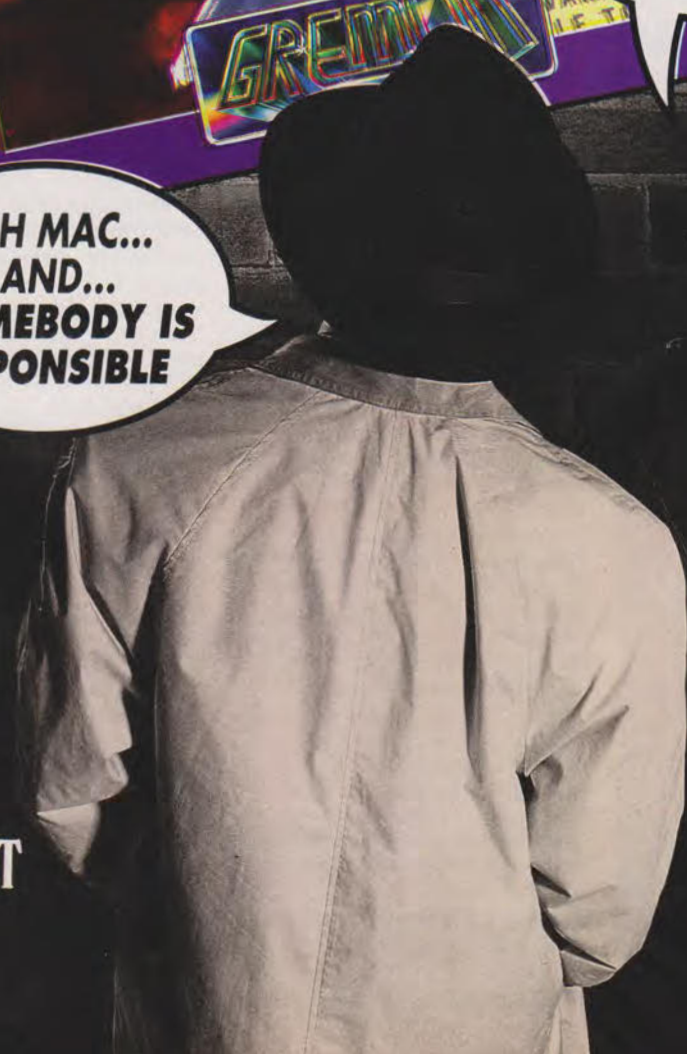
Gremlin Graphics Software Ltd., Carver House, 2-4 Carver Street, Sheffield S1 4FS.



Break new ground in interactive entertainment when you enter the world of Plan 9. You are the private investigator who must assist the legendary Bela Lugosi, the original Vampira and the totally forgettable Tor Johnson, to recover six missing film reels and rebuild the cult movie classic. CONTAINS ACTUAL FILM FOOTAGE TO SPLICE AND EDIT.

IT'S GOT TO BE THE STRANGEST GAME EVER JOE !

YEAH MAC...
...AND...
...SOMEBODY IS RESPONSIBLE



Whenever you load a saved game or simply travel around Trazere, you see this main map screen. Head south at the beginning and you'll come to Treihadwyl...



...which hides the entrance to the dungeons. This is where most of the action in Legend takes place, with spells, combat, and puzzles in an isometric 3D labyrinth.

LEGEND

The long-awaited sequel to *Bloodwych* has arrived. Gordon Houghton takes up sword and shield to see what the dungeon has to offer

Excellent use of magic
Good control system
Wide range of puzzles
Loads to explore
Save game option
Impressive colour manual

PROS AND CONS

Incompatibility with older machines (TOS 1.2)
Slightly confusing at first

Bloodwych made its debut over three years ago, when it was a little overshadowed by FTL's excellent *Dungeon Master*. If you didn't play the original, don't panic. The only feature that this sequel borrows from its predecessor is the plot. Both games take place in the land of Trazere, where the town of Treihadwyl is the focus of the action. In *Legend*, evil forces are going about knocking heads together, upsetting babies and spoiling milk. The only way to stop them is to hire a gang of roaming adventurers.

Meet your heroes: the Troubadour, a minstrel who plays a variety of magic melodies to help his chums; the Berserker, whose anger is only matched by the thickness of his skull; the Assassin, the small weapons expert with a talent for sneaking into shadows; and the Runemaster, who can boil bats' wings and brimstone to make the finest potions around. Four character classes might not sound like much, but you can alter their comprehensive statistics and visual appearance in a variety



of ways. At the beginning of the game the land of Trazere is spread out before you on the main map. This is a general guide to enemy troop movements and the strength of your defences, and features enough puzzling places to keep you scratching your head for weeks. Apart from the towns, there are plenty of locations which can't be entered until you've solved a riddle or two.

DOWN TOWN

In towns you can buy just about anything, as long as you've got the cash to pay for it. Taverns are a good source of gossip, Apothecaries will buy and sell magical ingredients, Blacksmiths give you weapons, Holy Temples resurrect the dead and Artificers offer everything that isn't a weapon.

Then there is the Guild, found only in Treihadwyl. Amongst other services, this monastic sect can train your heroes to higher levels of experience. But more importantly, they guard the gateway to *Legend*'s major testing ground, the dungeons. This is where you will

spend much of the game, discovering secrets, finding objects, negotiating the large, sprawling maze of rooms and corridors, and dying. Each arcade-style labyrinth is displayed in isometric 3D, and features a neat balance of monsters, puzzles, traps and magic. Your object is to explore them all.

MAGIC, BRAWN AND BRAIN

Legend's magic system is very well worked out. You are given a mixing bowl, a list of basic ingredients and knowledge of a couple of basic runes. You can then either experiment or follow the manual's detailed and helpful explanation of one of the game's earlier puzzles: how to get out of the very first room in the dungeon.

The way the magic works - you have to actually mix everything by hand, and you can create whole sequences of effects from just one command - gives a greater sense of involvement and control than any other game since *Dragon's Breath*. The system is reinforced with a reference screen, which you can consult to remind you of the ingredients for spells that you have learned, and a scroll



Checking your characters' inventories, you discover that you can carry objects, use them, or transfer them with ease.



You could try defending yourself with magic. Legend's magic system is one of the most innovative you'll find in any RPG: you actually have to learn and mix spells by hand.



Unfortunately, after a few rooms where there's nothing but treasure you stumble across a band of baddies from the underworld who are just dying to mince you.

Having defeated your foes, take a check on your progress, faithfully recorded on the finest parchment by Elliot the Dragon.

detailing the number and type of spells available. Physical combat is the speciality of the Berserker and the Assassin, helped along by the Troubadour's tunes. You can fight hand-to-hand (not recommended), or gain experience by wielding your basic weapons. Naturally, the dungeons are littered with old armour, including mail shirts, gauntlets and boots, and a variety of weapons, rings and wands, all of which improve your statistics. One particularly amusing touch is "chicken mode". When you flee from a foe, your party is accompanied by an animated bird, panicking and flapping its wings.

If you can't fight or cast spells to get you out of trouble, there's usually a puzzle to be solved. Some of these simply involve pulling a switch, but most are complex enough to keep you occupied for some time, particularly in the later stages. Luckily, there are clues lying around, and your confidence increases once you've mastered the magic system and found a few keys.

UNDER CONTROL

Legend has one of the most user-friendly control systems of any RPG currently available. You can carry out most actions with a single click of the mouse button or a key-press, and there is often more

than one way of performing a task. This is a tribute to the design and structure, which are both excellent.

The inventory/statistics system is particularly well designed, and the auto-mapper in the dungeons takes the hassle out of mapping. There's plenty of variety too, and as you get further into the game you begin to realise just how complex your task really is.

Unfortunately, not everything is perfect. The music and sound effects are a little underdeveloped, although adequate enough in combat, and your heroes can occasionally get in each other's way in the dungeons. There is also a compatibility prob-

lem with some older 520 STs. Check with Mindscape if you have any trouble: they will change your disks free of charge.

Legend is an excellent RPG with considerable depth. The neatly illustrated manual, low price tag (by role-playing standards) and enjoyable arcade-style action just make it even more compelling.

BUYERS GUIDE

This is how Legend compares with the greatest and latest role-playing games. All marks, except the overall score, are out of ten.

	Gra	Sou	Cha	Eas	Atm	Mis	Overall
1 Dungeon Master	8	8	9	9	9	n/a	94%
2 Cadaver	8	7	9	8	8	n/a	90%
3 Knightmare	8	8	8	8	7	n/a	89%
4 Bloodwych	8	7	8	7	7	n/a	83%
5 Heroquest	7	6	8	7	7	14	80%

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

"An enjoyable arcade-style RPG with plenty of depth"

NAME: LEGEND
COMPANY: MINDSCAPE
CONTACT: (0444) 246333

PRICE: £30.99
RELEASE DATE: OUT NOW
MIN MEMORY: 0.5Mb

GRAPHICS: ○○○○★
SOUND: ○○○★
VALUE FOR MONEY: ○○○○★
PLAYABILITY: ○○○○★

OVERALL: **82%**

GAMES TIPS

Lost in the dark in Domark's superb RPG? Finding it a little difficult to cross pits? Help is at hand courtesy of Atari ST Review and Teque London, in the first part of a complete solution to...

SHAD

LEVEL 1

To start with, collect all apples, sticks and the bow located at the far right-hand corner of the woods. Walk to the end of the path, remembering to take the two torches you find and go down the steps to the next level.

LEVEL 2

From now on, collect every torch you find and always extinguish them to conserve their energy. Get the three silver coins and pull the switch by the door. Go through the doors and collect the stick, bread and water flask. When the skeleton attacks, kill it with the sticks and take the flask it leaves behind. Fill it from the fountain and get the other flask from the gap in the wall by using the coins. Pick up the apple (always pick up food), look for the secret switch on the wall, and then push it. Get the strength potion, open the lock with the key, leave a torch by the gargoyle - which is in fact a light sensor - and walk through the double doors that this action opens. Leave a weight on the floor switch and enter the room.

Kill the skeleton, collect the shield and chest and exit the room. Go round the corner, drink from the fountain, leave another weight on the floor switch and go to the double doors. Pull both switches and

DIFFICULTY

7

RATING

walk through to the next double doors. Place a character on each of the floor pads and walk through when the doors open. Pull the switch by the side of the small door, get the light scroll and exit. Get the key by the fountain and open the double doors. Collect the chest and descend the steps.

LEVEL 3

Collect the key. Buy the light spell, pull the switch and go through the double doors. Pull the switch and send a character through the teleporter. Collect the key, pull the switch in the far corner and go back through the teleporter. Open the portcullis with your new key and then throw something over the middle pit onto the weight switch. Extinguish all light and collect the chest using the spellbook and the key. Use the key in the portcullis, stand a pair of characters on the front switch and the other pair on the back switch. Leave the two that teleport. Go through the open door, collect the chest and stand on the weight switch. Free the other pair, kill the skeleton and take the key and leave the room.

Kill both skeletons and pull the secret switch. Collect the shield and walk past the gargoyle in the dark. Throw a fireball over the pits and then



The exit to the next level looks like this. Each level is placed below the previous one, so look for the set of steps!

open the lock and portcullis. Place anything on the weight switch, go through the door and use the altar to recharge any depleted item or character. Pull the switch, and then pull both switches on the outside of the door to exit.

Kill the Valkyries, collect the coin and open the door with it. Stand the characters by the sign and a secret door will open. Collect the chest at the end and pull the switch to open the double doors. Send one character down the right steps and the others down the left.

LEVEL 4

Walk the single character to the fountain and move the other three to the secret switch between the second

and third switches. Push the switch and move the party to the single character. Carry on down the corridor avoiding the last floor switch. Make everyone read the sign, spend your coins and collect the chest. Note which of your party has a magic level of four or more and move the other three onto the floor switches. When the three are kidnapped, check which one has a cell mate, and then kill the cell mate.

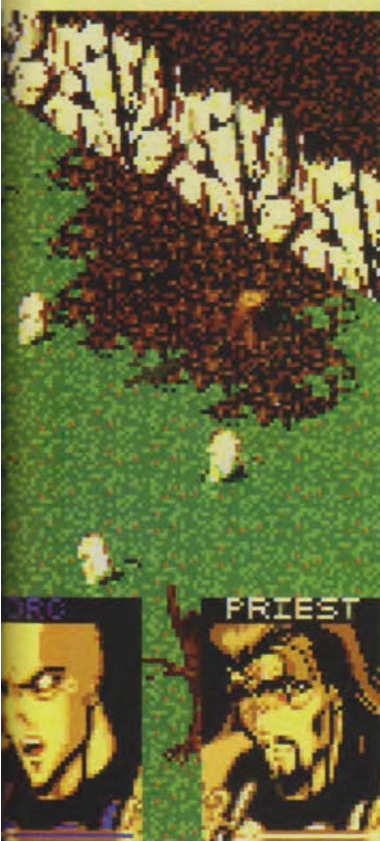
With the free character collect the key, open the door furthest to the left and collect the Waterball spell. Go through the small gap in corridor wall and kill the fire demon with waterballs. One of your party will join you. Leave the room, go round to the portcullis, pull the switch and enter the room.

Throw items into the teleporter to close the pits. Collect them again and pull



Feel free to explore the terrain - on the early levels there isn't a lot to harm you. Remember to make a map as you go.

OWLLANDS



the switch to open the cell, releasing another character. Continue down the corridor and turn left at the T-junction. Pull the switch, kill the Minotaur and collect the chest. The key inside opens the last cell door. Collect the key from inside the cell, turn right outside the room, open the lock with the new key and enter the dining room. Pull the switch in the corner, collect the chest and enter the Master Bedroom. Pull switches one, two and three (not switch four), enter the room and collect the key. Walk down the steps to level five!

LEVEL 5

Pull the switch and send a fighter



through the open door. Let the monsters out one at a time but watch out for the fire demons who will try to let them all out at once. One of the demons has the exit key. Kill him and take the whole party through. Send party through teleporter leaving an item on the floor switch. Turn out all the lights and exit through the new teleporter. Enter the "One Each" room, sending your men into the corridors one at a time. Kill the skeleton and collect the key. Now use the following keys in the numbered locks:

Key 1 = Lock Four
Key 2 = Lock Three
Key 3 = Lock Two
Key 4 = Lock One

To solve the next set of corridors, break the party into pairs. Pull switch one to close pit A and then switch two to close pit A. When everyone is through, get them onto the floor switch and then through the portcullis. Go to the four switches, and place a character at each one. Pull each switch and perform the function for each switch:

- **A:** Light both photoreceptors. Watch out for the invisible one in the doorway.
- **B:** Collect the key, extinguish all torches and leave.
- **C:** Get the chest, kill the skeleton and drop all items on the sign saying "Please Give Generously". Go through the door and the second door.
- **D:** Get the chest, throw fireball in the direction of the arrow and leave by the door.

Use the keys on the locks and wait for the doors to open. Go through them and down the stairs to...

This is where we'll leave you for the moment. Next month we'll be taking you through the final five levels of this exciting RPG.

Torches become a rare commodity, although the abundance on the early levels doesn't lead you to believe so.



Switches on walls can have all sorts of strange effects, but sometimes you can guess what they do, i.e. switches mounted next to doors.



Pick up every vial and receptacle you can, and make sure you fill them all at fountains.



You don't need to kill every creature you come across, but some do carry some very useful equipment, such as keys for important doors.

F-19

STEALTH FIGHTER

Stephen Murgan has come to aid all you would-be stealth bombers trying your hand in Microprose's excellent wartime simulation

DIFFICULTY
3
RATING

Make sure you are carrying sufficient fuel for the mission. If the Sarge puts an extra fuel tank on the plane it is probably there for a reason, so if you are unsure, ask him before shifting it to make way for a few more Mavericks or Sidewinders.

Ensure that you are carrying sufficient ordnance for your journey. Going up for reconnaissance without a camera isn't a good idea. Likewise, don't make things unnecessarily difficult for yourself by carrying weapons that are difficult to deliver. Use smart weapons where possible, otherwise use laser guided bombs. Unguided bombs are much more difficult to deliver with accuracy.

Check for enemy troop concentrations, airfields, missile boats and SAM sites, and try to select a minimum risk course, unless your RoE (Rules of Engagement) permit you to take these targets out.

The only way to get a Congressional Medal Of Honour is to fly the hardest missions the game can throw at you.



At this stage, there are three factors that will influence the difficulty of your mission. Firstly, having to fly long distances will increase your exposure to enemy forces, while the necessity of carrying extra fuel will reduce the amount of weaponry you can carry. Secondly, photographic missions leave you very vulnerable during the low pass, and the camera deprives you of one of your bays, and thirdly, carrier landings carry a high risk for inexperienced pilots, so a pilot on a long-range reconnaissance mission ending with a carrier landing has three strikes against him.

TAKE OFF

Just remember that you always take off facing north from a runway and south from a carrier. Use your flaps and to retract them and your gear soon after take off, or they will restrict your speed. Set your course and level out at between 500 to 1000 feet. As you proceed into enemy territory, bring the plane down to 300-500 feet - lower if you feel comfortable. While en route, remember to keep your eyes open for enemy aircraft. Use the tactical map to spot inbounds. Select air-to-air radar and AAMs (air-to-air missiles) in case the bad guys jump you. Beware of severe turbulence at low altitudes. This is especially dangerous when flying at night over water, as it is difficult to tell which way is up - you just have to keep a sharp eye on the altimeter. Don't fall into the trap of relying too much on the INS autopilot; it could malfunction or be shot to pieces.

TARGETS

If you want to smoke a recon-

naissance target, take your snapshots first - pictures of a smouldering wreck will not impress the guys in intelligence. If you spot an enemy aircraft, attempt evasion. Remember that they can only spot you if they are headed directly towards you (exception: IL76 Mainstay). Until you have achieved your objectives, stay as quiet as you can, taking out enemy aircraft only if you have to.

In Europe, you may encounter the Mainstay. This is the Soviet "eye-in-the-sky" equivalent of the AWACS, and has a powerful omnidirectional search radar that can spot you, track you and dispatch a squadron of fighters your way with frightening speed. If you are spotted by a Mainstay, you have two options - you can either attempt to hide or take it down. Neither is easy, but destroying it and escaping in the ensuing confusion is infinitely more satisfying.

If your mission target is an aircraft in flight, try and anticipate its movements, plotting an intercept course. If you drop in on his six, he may outrun you before you can lock a missile on him, in which case you will never catch him.

For ground targets, the Maverick is the best weapon. You can drop one from 30 kilometres out and be in the next country by the time it hits. Photography demands a low straight pass directly over the target with your bay doors open.

HOMEWARD BOUND

Once your mission objectives have been achieved you can go after other targets as permitted by your RoE. On a Cold War clandestine mission, these are restricted to radar

Arming your plane right is a key to success. Here we have a nice balanced payload for an Air-to-Air strike.



installations and aircraft that spots you. In a limited war situation, military targets are fair game. In conventional war, you can go after civilian targets as well, although the military ones are obviously more important. Remember, however, to leave yourself enough fuel to get home.

It is not uncommon to find yourself running for home with enemy bandits on your tail, so it's often a good idea to keep a couple of AAMs in reserve. If they get too close, take them out. One way to do this is to zoom-climb to about 3500 feet, roll through 180° so that you are flying upside down, and then pull back hard on the stick. You should now be flying towards him with a good missile lock a few seconds later. If he is alone, you can release your missile and continue your manoeuvre into a full loop while he plays tag with your missile.

RUNWAY LANDINGS

Approach the runway from north or south, 15 to 20 Kms out (Aces need to be only five kilometres or less out). Your right-hand MFD will give you a range and a telephoto view of the runway. Use this to line up with the centre line. Throttle back to less than 250 knots, lower flaps and gear. Reduce speed to about 150 (stall speed with flaps is 100). Check brakes, flaps and gear. Runways are 2Km long (although secret airstrips are only half this length), and the navigation beacon is in the middle. Thus, when the MFD shows "1.0km" you are crossing the threshold. Aim to touch down just after this point. Go around if you are running out of runway. Once down, shut down the engine and engage the brakes. Your aircraft will roll to a stop and

you will find yourself giving the crew chief a smile and the thumbs up.

CARRIER LANDINGS

Don't attempt these until you've mastered runway landings. Approach the carrier from the north, slightly to the west. Give yourself plenty of room, and remember that the carrier's deck is 125 foot above sea level. Keep your speed low. You should be able to see the carrier deck from a few kilometres out. Look for the arrestor cable (a red line across the deck). Aim to touch down in the small patch of deck before this cable. Too soon, and you will smash into the superstructure. Too late, and you will keep on rolling until you fall off the deck into the sea. Work out an emergency procedure to get you back in the air if you miss the wires, and don't be afraid of bringing the plane down quite hard if you have to. The undercarriage has been specially strengthened to withstand the severe shocks of carrier landings. Bail out if you have failed to land after several attempts, or are running out of fuel.

The arrestor hook on your plane has snagged the wire, the plane has stopped dead on the deck, and the engine has automatically shut off. You can stop holding your breath now; you're down. One thing to watch out for is that when you catch the wire your arrestor hook trips a mechanism that operates the brakes. There is a fault in the system: if your brakes are operational at the time, they are turned off. If you have successfully landed but are slowly creeping along the deck, simply hit the brakes to halt the plane and conclude the mission.

The carrier deck from the wrong side. The red lines are the landing cables, and you have to try and land just before these.



CHECK LIST

Follow these golden hints and you'll stand a much greater chance of aerial success

- Remember, opening your bay doors makes you much easier to spot by enemy radar, so close them as soon as you can. The best pilots use an "open-fire-close" sequence to minimise this problem. In addition banking, climbing, diving, flying at high altitude and using your jammers also increase your visibility. For maximum stealth, fly low, slow, straight and level with all jammers off. The autopilot is very useful here. Use flaps if you are too low, but watch your height!
- One useful dodge is to land on one of the secret airstrips. Be aware that you can only use one if it shows up in Nav mode. Once you have landed, your EMV (ElectroMagnetic Visibility) drops to zero. This means that you become totally invisible to enemy radar. Be careful though – the runway is very short. Don't try to land at any other airbase whilst you're behind the enemy lines: you're bound to crash!
- To win the Congressional Medal Of Honour, you must go up against

elite troops in Central Europe in a conventional war situation. Try to keep it quiet, taking out only those aircraft and radar installations that get in your way. Once primary and secondary objectives are completed, blast everything in sight. Remember that military objects have a higher priority, and make sure you have enough munitions to blast your way home if you have to. The F-19 combat motto is "In Like A Mouse – Out Like A Lion".

- Remember the golden rule: head straight towards or away from pulse radars, go around dopplers. Doppler radars are more dangerous than pulses, so take them out first.
- Watch your fuel! If you throttle back, you will save fuel. Typically, if you keep your speed between 200 and 300 knots, you can complete a 11,000lb mission with about 9000lb of fuel, allowing you to strap on a couple more Mavericks!
- When on the way back to base, allow 100lbs of fuel per minute of flight time at around 250 knots. When flying straight and level, the waypoints screen will tell you how much fuel you have and how long it will take you to get to the landing base at your present speed. Monitoring this will allow you to estimate your fuel status.
- There are canyons in the mountains that you can use to hide from prying radars. The main one is southeast of USAF Ramstein, but be aware that as you exit this canyon the Grossenheim Doppler radar will be directly ahead of you.

THE ACE FACTOR

Wise pilots always know what's going on around them. They instinctively know the status, attitude and limitations of their aircraft, as well as the position and posture of those around them. This is "situational awareness", which is also known as "the Ace factor". Good luck, and keep your eyes open.

An enemy MiG in your sights. Don't pull that trigger yet, just hold the nose steady until the white circle becomes a red one. Although this sort of lock can be effective sometimes, it isn't worth the risk of wasting a missile.



GAMES TIPS

GENERAL HINTS



You don't need to face a long, cold winter with our handy hint!



Are you having a little trouble hooking the right angle with Dr. Maybe? Help is at hand.



A Neanderthal game with a new cheat for Core's mega hit!



Fed up sitting at the bottom of the pile? Here's a tip to really spin your blades.



Show the world that this small potato is no small fry. Try our tip for infinite energy.

Have you recently dusted down an old favourite only to get stuck on level one? Fear not, for help is at hand – our collection of handy tips should be enough to help you out of the mire...

BLOODWYCH (MIRRORSOFT)

Want to amass large amounts of material objects without really paying (much) for them? Go through the normal buying process but stop when it comes to paying the creature. Instead of money, put an item into the transfer slot. The creature tells you

GET 'EM IN!

We know you're hungry for hints and cheats. So are we, believe us – but we can't do it without your help, so this is what we're asking for. If you have a cheat, player's guide or solution to any new game and it hasn't already been published in any other ST related mag, then send it to us at: GAMES TIPS, Atari ST Review, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. The best set of tips, playing guide or solution wins two of the highest rated games of the month along with the highest rated budget game. What more could you ask for?

that it's a pathetic price to pay, but he lets you have what you want anyway.

CHUCK ROCK (CORE DESIGN)

Chuck is mean and hard, just like the game of his name. The following codes, if entered on the band screen, will provide you with infinite energy:
FAST AINT THE WORD, ITS FAIRY COWBELZ, SHE LOVES CLEANING WINDOWS, LIFE IS MY DREAM, UNCLE SAM'S.

Other cheats are:
ESTRANO: The left shift key will make Chuck fly.
MORTIMER: Allows you to select zones with the keys F1 to F5.
TURN FRAME: Will allow you to choose levels with the number keys.

GHOULS N' GHOSTS (US GOLD)

Spooky it may be, difficult it definitely is. Why not try typing in DELBOY on the title screen for infinite lives? That should help even out the balance a little!

GUNSHIP (MICROPROSE)

Still stuck at the lower end of your salary scale? Finding it difficult to even receive a warm handshake, let alone pile up the medals and promotions? If you select your mission, take off, destroy the enemy and land, a menu will pop up. Insert disk A and then select 'End Game'. Put disc B in again when prompted, then take off vertically and land again. You get medals galore and go from Sergeant to Colonel in no time.

JAMES POND

(MILLENIUM)

This excellent fore-runner to the fabulous *Robocod*, has proved a more-than-worthy challenge to most gamers. For a little extra help, type MR2 and an angel will appear giving you invulnerability.

MIDWINTER (MICROPROSE)

Mike Singleton's land battle is a game of epic proportions, but there is an easy and simple way to complete it in no time at all. Keep restarting the game until you start next to a garage, grab a vehicle and find some stores to stock up with explosives. Now drive to Shining Hollow and blow up the General Master's base!

PUFFY'S SAGA (UBISOFT)

This little gem has just appeared on budget, and it's still as hard to complete as it always was. Help is at hand, however. When your health reaches 0, pause the game and press the keys F1 to F7 in sequence. Also, holding down the keys F6 and F7 gives you a map of the current level.

SPACE ACE (EMPIRE)

Not so much a cheat, this one, more a way of letting you watch the entire *Space Ace* cartoon. Pause the game and enter GODEMODEXTER; follow this by pressing the fire button, press enter and then unpause the game... the computer will take over for you on your last life, letting you watch the rest of the game.

STARWARR



94% C.U. AMIGA.
June 1992

RAGE

Rage Software mit 21 Edward Pavilion
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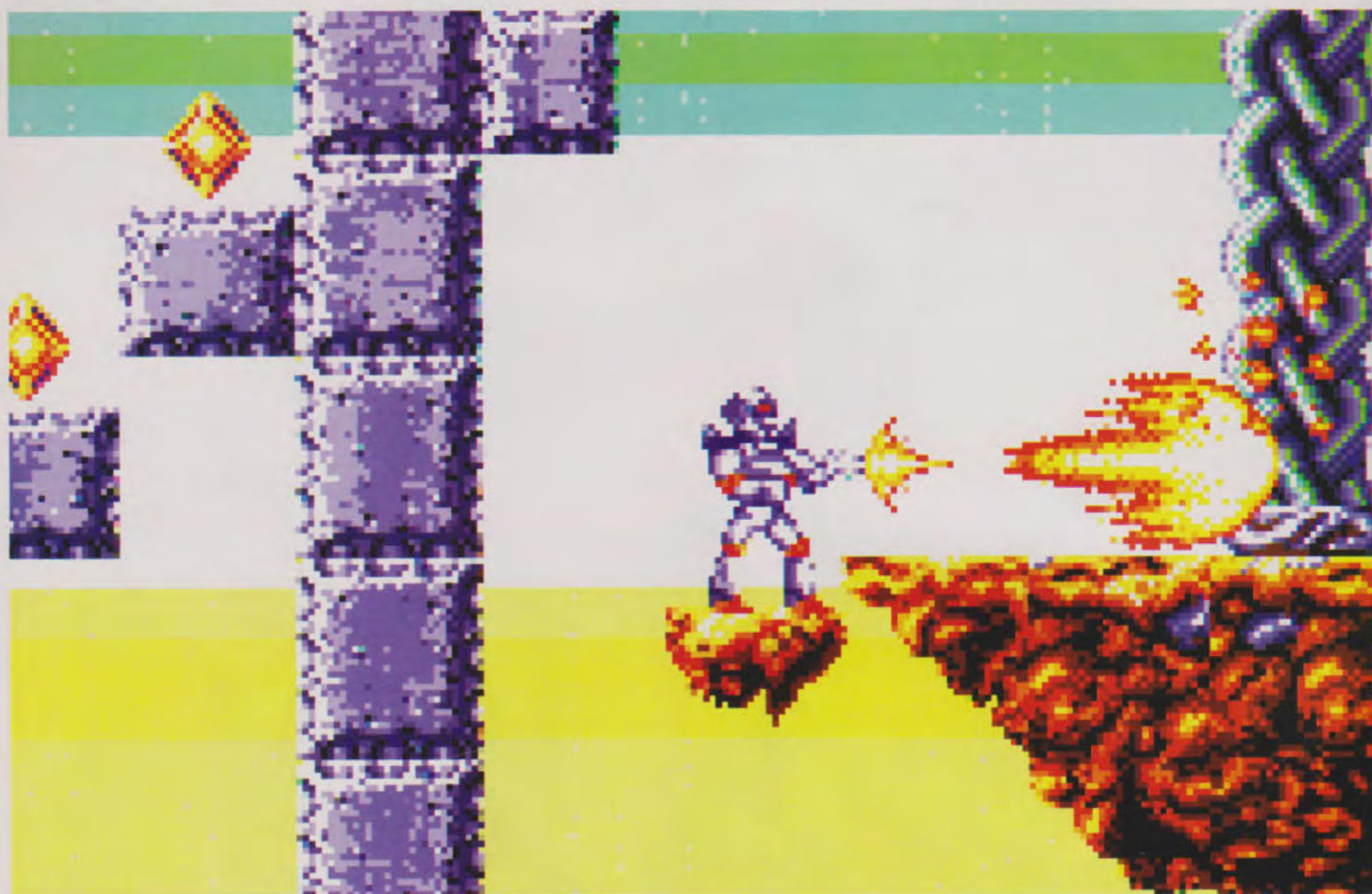
Available on the Amiga (one meg only) and Atari St

VFM

Cartoon and film tie-ins, football and fighting action: it's all here, and it's all amazing value. . .

ATARI ST
REVIEW
BUDGET BUY

TURRICAN II



High-quality android antics are the order of the day in Kixx's enjoyable *Turrican II*.

Kixx
£7.99

When the original *Turrican* appeared on the ST, the world and his wife went crazy. Accolades were festooned upon it from just about everybody, due to its great graphics and, more importantly, the non-stop addiction factor that gripped players whenever they picked up the joystick. The sequel, *Turrican II*, isn't entirely dissimilar to the first game, yet it possesses all of the quali-

ties raved about by players of the original.

Playing the role of the robot Turrican, the idea is to storm through five different worlds, cutting a swathe through the vast quantities of enemy aliens ensconced there. It's multi-directional blasting all the way, as Turrican battles through the levels, picking up new and more powerful weaponry along the way. Half-way through the main game, the action switches to a three-stage shoot-'em up, with the player taking control of a space fighter in order to take him to the latter stages

of the game.

Hidden items can be uncovered by powering up Turrican's gun and shooting certain areas of the screen, throwing up an assortment of icons.

Even with all these goodies, it's easy to get stuck in a corner: when you do, it's a good idea to hit the Space button and transform into an invulnerable gyroscope which destroys everything currently on the screen.

What is immediately noticeable about *Turrican II* is the difficulty level - this is an extremely challenging title

which will test even the most accomplished gamer to the limit. There's no letup in the amount of enemies thrown onto the scene, and without the quickest reflexes, the most powerful weapons and, to be honest, a hefty slice of luck, you'll be lucky to stay alive for any real length of time. Graphically, *Turrican II* isn't stunning, but it's the frantic gameplay that will have you pinned to the seat. A real must for shoot-'em-up fans who don't want to see the last level two days after buying the game.

★★★★★

MICROPROSE SOCCER

Kixx
£7.99

A big event such as the 1992 European Football Championships is ripe for exploitation, with a whole host of soccer games being released or re-released at around this time. Among the re-releases is **Microprose Soccer**, originally published by simulation specialists Microprose, and which gets a second airing this month on the Kixx budget label.

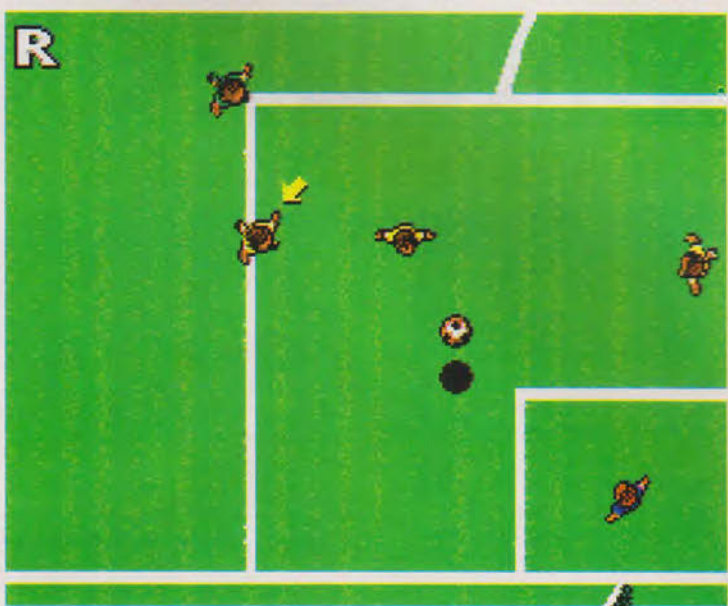
Microprose Soccer is actually a conversion of a C64 game which was a massive success on that machine. The rules are straightforward enough; the sport of soccer is split into two halves, during which each team of 11 men try to score more goals than the other. Couldn't be simpler, could it?

Had you ever seen **Microprose Soccer** at the time of its original release, however, you'd have thought otherwise, as it came complete

with an instruction manual around the same size of the FA's Blueprint for Football. For the budget version, a dramatically reduced instruction leaflet is provided.

You can play either against the computer, or with a human opponent. All the features you would expect to find in a football game are in there - from throw-ins to corners and even tackles from behind and curling banana-kicks! All great ingredients for an enthralling afternoon of soccer? Wrong. **Microprose Soccer** plays like a brick. For a start, the one-player mode is far too simple; and if you're the only one in the household with an interest in the national game, you're going to feel pretty peeved after taking on the best the computer can offer and trouncing it time after time.

The two-player mode fares little better; there's an agonising delay between the switch of control from one team member to another, allowing any well-placed opponent to steam in and



Microprose Soccer may be a timely release for the Euro Championships, but it doesn't make it past the first round.

rocket the ball into the net and, as the goalkeepers are manually controlled, there can be an outrageous amount of goals scored as the pair of you fumble vainly with the joystick. With the **Kick Off**

series and **Sensible Soccer**, **Microprose Soccer**, even as a budget player, doesn't make it off the team coach.

DISC

Action Sixteen
£7.99

While not the most incredible film ever, **Tron** did have some superb computer effects, one of the best being the excellent disc-fighting scenes. **Action Sixteen** has lifted the idea behind that and forged it into quite an impressive little game.

Called simply **Disc**, the game takes place in the 30th century, where players of this deadly sport reap rich rewards for their skills.

Play takes place in a pit, separated by an abyss. The two combatants face each other on either side of the abyss, standing on tiles suspended in mid-air.

The object of the game is to defeat the other player using a number of methods, the simplest being to remove the tiles on which the other is standing. Using a high-tech floating disc resembling a frisbee, the aim is to hit the vertical tiles which, when struck enough times, cause the tiles forming the platform to disintegrate. Alternatively, it's possible to hit your opponent with the disc, depleting

his energy each time it makes contact. He can parry the disc with a shield, causing it to fly back toward his attacker.

Players can choose from a number of options. Training gives the opportunity to practise throwing accuracy and defensive skills, while selecting Challenge puts you up against a player of your choice in a single match. The Championship option is a straight knockout competition, with the Tournament putting you up against the cream of the crop - the Great Guide.

Action Sixteen has come up with an excellent game in **Disc**. Fast and furious, yet demanding thought and forward planning, this is a title that works well in one of two-player mode.

The screen is sparse, but animation of the characters is admirable, and with a variety of tactics to master before you can take on the best, you'll not tire of playing in a hurry. It makes a change to see enjoyable, original budget software on the market, and **Disc** thoroughly deserves to be classed as such.



If only Tron, the film upon which Action Sixteen's Disc, is based, could have been as good as this...

☆☆☆☆

ADVANCED DESTROYER SIMULATOR

Action Sixteen Premier
£9.99

Action Sixteen isn't resting on its laurels this month, what with the excellent *Disc* and now this cut-price naval simulation. **Advanced Destroyer Simulator** is the latest in the Premier range – and it's a couple of pounds more expensive than usual, the idea being that, in budget terms at least, you get what you pay for.

Based around the exploits of the Royal Navy during the Second World War, **Advanced Naval Simulator** places the player in the position of captain and crew. You take part in one of three campaigns – Mediterranean, the English Channel and the North Sea – which are split into a total of 18 different missions, six per

scenario. Controlling a Type DD231 Allied destroyer, sail into battle with a variety of enemy vessels, using skill and your biggest guns to defeat the enemy in each mission. Use your radio to receive information about the status of your ship, as well as various mission details which allow the player to formulate strategies which help to sink the opposition.

The other side won't just sit there and take your attacks, though; defence is at least as important as offence. Any damage taken can be viewed and automatically repaired, but this takes time and can leave your vessel a sitting duck.

Advanced Destroyer Simulator doesn't possess many of the features found in other games of this ilk, choosing instead to rely more upon playability. One of the main complaints about this type of title is the number of key-



Relive all those war movies and boot up *Advanced Destroyer Simulator*, a game for the blaster with a brain.

presses that need to be made and, whilst there are quite a lot, they're kept to a minimum. A worthwhile feature is the realism intensity mode, allowing younger players or those new to this type of game to alter the difficulty settings and not be thrown straight into what would otherwise be a confusing and unenjoyable piece of soft-

ware. It may be more expensive than other budget titles, but **Advanced Destroyer Simulator** is more than your average cheapie. It's an involving slice of strategy and action that isn't going to be confined to the back of your games collection after a weekend.

★★★★

POTSWORTH & CO.

Hi-Tec
£12.99

Just in case you don't already know, **Potsworth** is Hanna Barbera's latest smash hit TV show. Massively popular in the States, and just as huge over here, the **Potsworth** effect has hit Saturday morning audiences as hard as the Turtles, if not harder! Hi-Tec, purveyors of the cartoon licence, have seen fit to release their digital incarnation of our four-legged friend.

The plot follows the same themes and ideas as the show itself. The Great Dozer, ruler of the Dream Zone (that place we all go to when we sleep) is having a little trouble with insomnia, and so the Zone looks like it could fall apart. Potsworth – the lovable and highly intelligent hound – and his four human friends have arrived to save the day.

It's basically a thin disguise for a scrolling platform game,

but not in the *Mario* vein. This game has more of a **Monty Mole** feel to it, as the levels are more maze-like than most platform games, requiring the use of the little grey cells to figure out how to get from point A to point B.

The game is set over five levels, with each of the five characters handling a level in their own little way. Firstly you have Rosie, described in the manual as "our girl with an attitude", which basically translates to "bad tempered brat". Her weapon is her voice, and she knocks bad guys off their feet by shouting at them.

Each level is a basic eight-way scrolling platform affair, with a set amount of objects to locate before the exit is opened. All are populated by fast moving enemy creatures. However, your firing rate is less than adequate. Repeatedly stabbing at the fire button achieves nothing worthwhile, nor does holding it down. Pressing it once

every four or five seconds does though, and try as we might, we just couldn't get the thing to fire any more than that. Well, that could be more than fast enough, if your firing range was more than about 30 pixels. Our girl with attitude obviously has a problem with her throat!

Each level has around three different types of creature, from walking pop guns to chainsaws to butterflies. Most are destructible, but the ones that aren't can pose a real problem. Typically, they are placed on a platform you have to use, and as you can't jump high enough to get over them, and you can't destroy them, you have to walk through them, resulting in a waste of energy and most of the time, a waste of a life.

The collision detection is appalling: there seems to be a box that extends a character space around you, and anything entering this space harms you. As your weapon only just reaches past that,

life can get very difficult, and the consistent unplayability results in the game being incredibly frustrating to play after a relatively small amount of time.

The show is a huge success and is a tribute to the genius at Hanna Barbera. The computer game, however, is likely to receive less applause. The game looks dated and has little in the way of fun or entertainment. Even the budget pricing does little to rescue it.

★★



Even the low price-tag can do little to save Potsworth and Co.

THE HOME COMPUTER

Over the last ten years, the computer has established a permanent place in the home, and the number of home computer users increases dramatically every year.

Many people have yet to tap the full potential of their home computer and are constantly looking for new ideas and applications.

The most popular systems have proven to be the ST, Amiga and PC, and at the International Computer Show, you will be able to see, try and buy a whole range of products and services which will help you to maximise your use and enjoyment of these machines.

Working from home? In the home office feature you will see all the latest technology available for the small home office, including word processing, spreadsheets, desk-top publishing, upgrades, tele-networking and modems.

Looking to help your child's education? Many companies will show all the latest computerised educational courses from early learning to GCSE and beyond.

What about Multi Media? It is now possible to create, reproduce and store sound using your home computer thus enabling you to unleash your own musical creativity and improve your musical performance. Video and visual interfaces are another rapidly developing field where you can edit and change your home videos.

All this and entertainment too! Many exhibitors will be showing all the latest games software and of course the hand held games consoles - the fastest growing home computing niche.

So whatever your area of interest, you'll find the hardware, software, peripherals and consumables you'll need at the International Computer Show and all at great show prices.

Pre-purchase your fast lane tickets to save money and beat the queues. Simply call the ticket hotline number 0726 68020 for your tickets now. Or send the voucher with your cheque or credit card number. Closing date 3rd July 1992.

Ticket prices:

Admission on the door £6,
Under 10's £4

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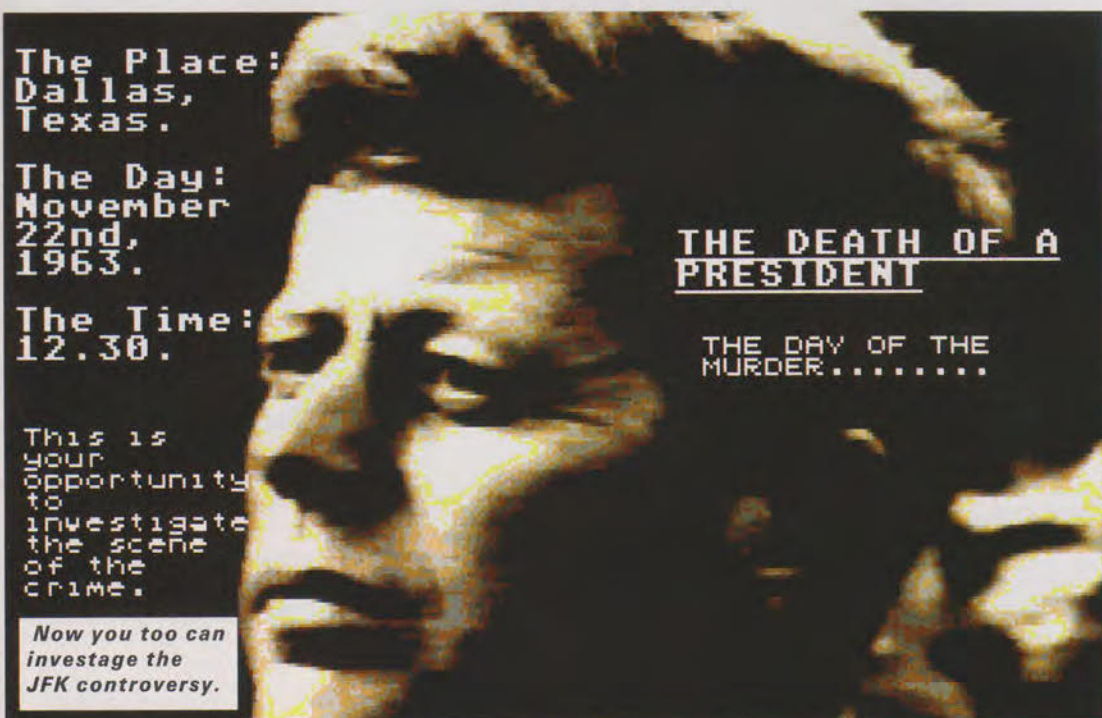
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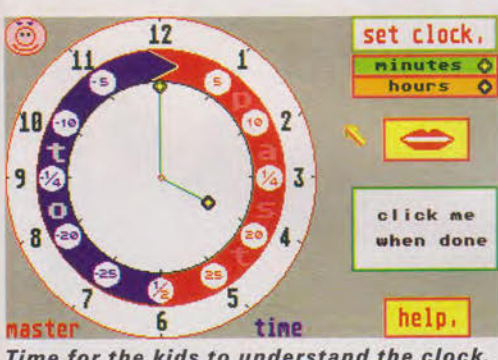
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CREATING YOUR OWN GAMES WITH STOS 98

For everyone that has been following our STOS tutorial, this month we put your graphics and designs onto the screen (or let you use the one's we gave you on last month's cover disk), and work out all of the game's control patterns

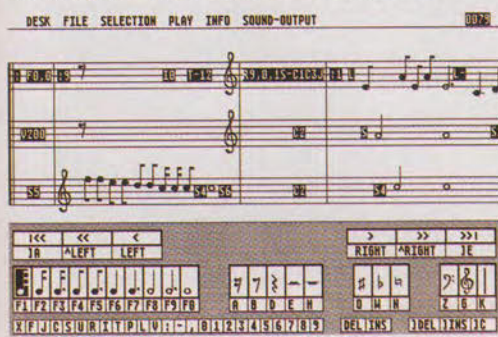
TOP 30 EDUCATIONAL PACKAGES 102

This month concludes our three-part look at educational software with a round up of a varied curriculum, including the popular Fun School packages, Pepe's Garden, a Geography Tutor, the Shoe People and the defiantly named, Answer Back Quiz amongst others.



PD ZONE 107

Our monthly look at the world of free software, this month looking at MIDI and music software including the top PD compositional and sequencing software. There's also the very latest in PD adventures as we look at the top five adventures available at the moment. For beginner and expert programmer alike, we look at tutors to help you learn a different language.



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CREATE YOUR OWN STOS GAME

PART THREE

If you have been following our tutorial, you should have both your graphics and design ready to transfer from paper to screen. This month we'll be working on all the game's control routines

The first, and definitely the easiest, thing to do is to get all the obstacles, such as moving platforms, in motion. In earlier forms of BASIC, making an object move smoothly from one point to another and then back again would have required you to create a programming loop similar to: Display object at position (X,Y), modify X and Y, Display object at new position, modify again and so on. This was a laborious task, and led to

nightmares when trying to move multiple objects at once. **STOS** lends a helping hand in the form of the Move command.

The program is packed with a number of useful sprite manipulation commands, all of which can be set and then left to run by themselves.

Load the sprite bank you created last month and display a platform in the middle of the screen by typing 'SPRITE 1,150,100,n, where n is the number of your plat-

form sprite in the bank.

Now comes the clever part. There are two Move commands, one to move the sprite horizontally and one to move it vertically, each consisting of two elements. The first is the number of the displayed sprite, not the number of the sprite in the bank. For example, if you have your platform as number 7 in your bank, you are still moving sprite 1, not 7.

The second half of the Move command is a set of instructions, called a string. This tells the machine how the sprite should travel. This is done with three numbers, called Speed, Step and Count. The Speed indicates how long the machine should wait between successive movements of the sprite, Step tells you how many pixels the sprite should move each time and Count is the number of times the movement should occur. For example, a movement command of "Move X 1, "(2,2,35)":Move On" means that sprite one should travel

horizontally (along the X axis) 35 times, moving two pixels each time waiting 2/50ths of a second between each movement. Type it and see the result. The Move On instruction merely informs the machine that you want the



```

list      list      listba flood" fovee"
run:      dir:      dir:      previo off"
run:      dir:      dir:      previo off"

00 list
01 mode 0 : flash off
02 for n=1 to 5
03 sprite n,n*50,100,7
04 next n
05 move 1 1,1,2,2,35,112,-2,35,11"
06 move 2 1,1,2,2,35,112,-2,35,11"
07 move 3 1,1,2,2,35,112,-2,35,11"
08 move 4 1,1,2,2,35,112,-2,35,11"
09 move on
10 wait key
11 reserved memory banks:
12 -sprites: 5:8011000 1:8011000 1:8001200
00

```

The listing demonstrates how STOS can move multiple sprites in different directions easily, quickly and without slowing down anything else.



movements to commence. If you leave it out, nothing will happen.

TYING STRINGS TOGETHER

The string needn't just be one instruction. You can add as many as you like, provided each is enclosed in a set of parentheses and the entire string is enclosed in speech marks. In our case we want the platform to move up and down quite slowly. Try this program:

```
10 Mode 0:Flash Off
20 Sprite 1,150,50,n (n is the number of your platform)
30 Move Y 1, "(2,2,40)(2,-2,40)L" (L indicates a movement loop)
40 Move On
50 Wait Key
```

Notice how the platform moves smoothly up and down now. When the program ends, the platform keeps bouncing: this is because it is now set to move up and down until you tell it not to by using the Move Off or Sprite Off commands.

In the Move Y command you'll see that a Step of -2 has been specified. As you should know by now, screen co-ordinates run from 0,0 in

the top left corner to 320,256 in the bottom right. By moving the object in a negative direction, you are moving it towards the origin, upwards in the Move Y command and to the left in the Move X command.

ONE PLUS ONE IS?

You now know how to get an object moving the way you want it to. But how do you get lots of objects to do this? STOS can display 15 sprites on screen at a time, numbered between one and 15. Each can have its own animation commands and movement instructions. For example:

```
10 Mode 0:Flash Off
20 For a=1 to 5
30 Sprite a,a*50,100,n (n is the number of your platform)
40 Next a
50 Move y 1, "(2,2,35)(2,-2,35)L"
51 Move y 3, "(2,3,35)(2,-3,35)L"
52 Move y 5, "(2,2,35)(2,-2,35)L"
53 Move x 2, "(2,-1,20)(2,1,20)L"
54 Move x 4, "(2,1,20)(2,-1,20)L"
55 Move On
60 Wait key
```



Our squirrel walking from right to left across the backdrop.

```
list\ list listba fload" fsave"
run\ dir\ dir$= previo off\

Ok
list
10 mode 0 : flash off
20 sprite 1, 150, 50, 7
30 move y 1, "(2, 2, 40)(2, -2, 40)L"
40 move on

Reserved memory banks:
1 sprites S:$0EE800 E:$0EFF00 L:$001700

Ok
```

Once a sprite is set and moving, it won't stop until you tell it to, even if you happen to be reading the listing at the time.

LOOPING THE LOOP

The fastest way to get the game to respond is if you have a small loop that reads the joystick and branches out to subroutines if a direction is selected. Here's a full listing of the squirrel under joystick control using all the tricks we've covered so far. See if you can work out what it's doing, and even improve upon it! (Sprites 1 to 3 are the squirrel walking left, 4 to 6 are the squirrel walking right and 7 is the platform.)

```
10 Mode 0: Flash Off
15 Sprite 1,150,100,1
20 Gosub 6000
30 Rem Joystick Loop
40 If Jleft Then Gosub 1000
50 If Jright Then Gosub 2000
55 If Fire And Jright Then Gosub 3000
56 If Fire And Jleft Then Gosub 4000
57 If Fire Then Gosub 5000
60 Goto 30
1000 Rem Walk Left
1010 Anim 1, "(1,5)(2,5)(3,5)(2,5)"
1020 Anim On
1030 Move X 1, "(2,-2,10)"
1035 Move On
1040 Wait 20
1050 Anim Off
1060 Return
2000 Rem Walk Right
2010 Anim 1, "(4,5)(5,5)(6,5)(5,5)"
2020 Anim On
2030 Move X 1, "(2,2,10)"
2035 Move On
2040 Wait 20
2050 Anim Off
2060 Return
3000 Rem Jump Right
3010 Anim 1, "(4,5)(5,5)(6,5)(5,5)"
3020 Anim On
3030 Move X 1, "(2,2,10)" : Move Y 1, "(2,-2,5)(2,2,5)"
3040 Move On
3050 Wait 20
3060 Anim Off
3070 Return
4000 Rem Jump Left
4010 Anim 1, "(1,5)(2,5)(3,5)(2,5)"
4020 Anim On
4030 Move X 1, "(2,-2,10)" : Move Y 1, "(2,-2,5)(2,2,5)"
4040 Move On
4050 Wait 20
4060 Anim Off
4070 Return
5000 Rem Jump Up
5010 Move Y 1, "(2,-2,5)(2,2,5)"
5020 Move On
5030 Wait 20
5040 Return
6000 Rem Sprites
6010 For A=2 To 5
6020 Sprite A,A*40,40,7
6030 Next A
6040 Move Y 2, "(2,2,20)(2,-2,20)L"
6050 Move Y 3, "(3,2,20)(3,-2,20)L"
6060 Move Y 4, "(4,2,20)(4,-2,20)L"
6070 Move Y 4, "(5,2,20)(5,-2,20)L"
6080 Move On
6090 Return
```

Changing the step size makes the sprites move faster. Feel free to change any of the components and try to make the platforms do exactly what you want.

ANIMATION

Arcade games would look a little dull if they only had still sprites gliding about, and so will *Super Squirrel* if we don't add a little life to it in the form of animation. Last month you should have drawn and animated a set of sprites, and we're going to work with these.

If you are using the sprites included on the coverdisk last month, or if you used them as a guideline to draw your own, you should have a set of six squirrel sprites. With these sprites in memory, try this short program.

```
10 Mode 0:Flash Off
20 Sprite 1,10,100,1
30 Move x 1, "(1,2,100)(1,-2,100)"
40 Move On
```

This makes your sprite slide from left to right and back again. It's not very interesting to look at, is it? Now add these two lines to the program and run it again:

```
35 Anim 1,
"(1,5)(2,5)(3,5)(2,5)L"
45 Anim On
```

That's more like it! The Anim command works in a similar way to the Move instructions. The number after the command Anim is the number of the sprite you wish to animate, and the string after the comma contains sets of instructions telling STOS firstly which sprite you want to display and secondly for how long it should be displayed in 50ths of a second.

At this stage you have a walking squirrel, but it moonwalks in one direction. This can be changed by changing the animation sequence. You can do this at any time by using a new Anim instruction. Add these two lines:

```
50 Wait 100
55 Anim 1,
(4,5)(5,5)(6,5)(5,5)L"
60 Anim On
```

Now the squirrel turns around when it changes direction.

WHY WAIT?

The Wait command is very important when animating

and moving objects. Both the Anim and Move commands work using interrupts, and once set will continue to run despite what the rest of the program is doing. In this, they are different from most commands. If they worked sequentially, that is to say executing and completing a task before continuing to the next program line, the program above would display the sprite, move it, and when it has finished moving, animate it, which would be of no use at all. The Wait command gives the previous Wait and Move commands a chance to finish before moving on. Try to run the program without the Wait 100 instruction, and you'll find your squirrel turning around instantly, without waiting until it has reached the edge of the screen.

UNDER CONTROL

One task that may seem daunting at first is getting the squirrel under joystick control. We only want it to move when the joystick is pushed in a certain direction, standing still at all other times, and it only has three basic moves, walk, jumping up and jumping diagonally.

STOS has some powerful input commands, the simplest being the joystick readers. We want the program to tell whether or not you are pushing left or right, or using the fire button to jump. This is done by the commands Jleft, Jright and Fire. Each gives a response of 1 if they are true (the joystick is being used in that direction) or 0 if false. They work like this:

```
10 If Jleft Then Print "Left"
20 If Jright Then Print "Right"
30 If Fire Then Print "Fire"
40 Goto 10
```

NEXT MONTH

We'll be taking a look at how to get the sprites to interact together, turning the platforms into working platforms for the squirrel and begin piecing the level together.



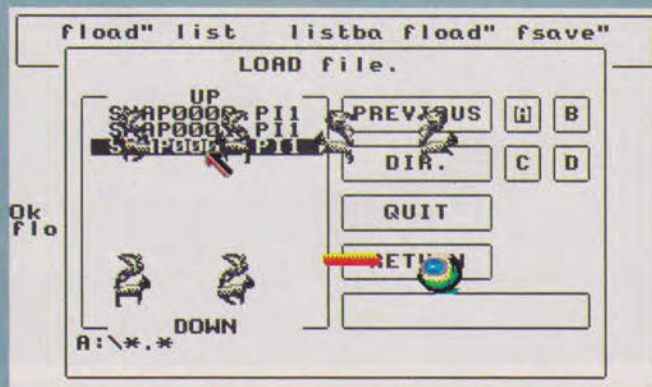
You can get a feel for how the game will really look simply by loading in the backdrop.

```
list\ list listba fload" fsave"
run\ dir\ dir#= previo off\
5 gosub 6000
0 rem loop
0 if jleft then gosub 1000
0 if jright then gosub 2000
5 if fire and jright then gosub 3000
6 if fire and jleft then gosub 4000
7 if fire then gosub 5000
0 goto 30
000 rem left
010 anim 1, "(1,4)(2,4)(3,4)(2,4)"
020 anim on
030 move x 1, "(2,-2,10)"
035 move on
040 wait 20
050 anim off
060 return
000 rem
010 anim 1, "(4,5)(5,5)(6,5)(5,5)"
020 anim on
030 move x 1, "(2,2,10)"
```

Type in the long listing, tweak it a bit, and already *Super Squirrel* is approaching being a completed game. See how easy it all is!

run\ run\	list dir\	listba dir#=#	fload" previo	fsave" off\
1	2	3	4	
5	6	7	8	

The current sprite bank. If you order your sprites like this, you'll be able to work directly with the listings we supply.



Always remember to turn your sprites off after running a program, otherwise they can tend to get in the way.

ST Repairs

Our Service department can repair ST's in minimum time at competitive rates. We can arrange for courier pickup and return delivery of your machine to ensure it's safety. We even have a same day service which will ensure your machine is given priority and subject to fault, completed the same day. We can fit memory upgrades, PC Emulators, Security devices, ROM upgrades, hard drives to Mega STE's etc. We offer a Quotation service for £15 for which we will examine your machine and report back with an exact price for repair. If you do not wish to go ahead with the repairs then just pay the £15. However if you do go ahead then the charge is included in the minimum charge. Please note: The minimum charge covers labour, parts are extra.

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52Mb Quantum Hard drive upgrade for Mega 1 STE	£ 299.99
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ST Secure is a hardware protection system for the Atari ST which stops unauthorised use of your computer and any hardware connected to it. ST Secure measures just 1 inch square and can be installed without soldering in about 30 minutes. Once installed ST Secure will allow approximately 45 seconds of computer use before resetting the computer. If during this time the password is entered correctly then ST Secure is disabled until the next power up.

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1040STE Curriculum	£299
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The Golden Image Hand Scanner for the Atari ST features a 105mm scanning head, variable contrast control, user selectable scanning resolutions of 100, 200, 300 and 400 Dpi, one letter mode for high contrast B/W images and 3 photo modes for various shades of grey. The high quality hardware is backed up by two of the most respected graphics packages around, Migraph's Touch Up for scanning and editing hi-res and grey scale images and Deluxe Paint art package for lower resolution colour.

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- Includes Touch Up
- Includes Deluxe Paint

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- LED Track Counter
- External Power Supply
- Daisy Chain Through Port

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Excellent backup utility
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The Data-Pulse Plus 120 and 240 incorporate the new Quantum mechanisms which feature 256K Read & Write disk cache, faster access time and improved reliability. All Data-Pulse Plus drives include Quantum mechanisms which include 2 year warranty from date of manufacture.

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The Aries Upgrade board is an in house designed, Multi layer board utilising high density ZPP RAM chips. The board has been designed to allow progressive upgrading from the base 512K up to 4Mb. The board does require some soldering but once installed is very reliable. The board is hand assembled in our workshops by skilled technicians and is fully tested before despatch. It also comes complete with fitting instructions and test software.

Our technicians can fit the board to any ST for a small fitting charge. We can arrange courier pickup and return to ensure fast turn around. A same day fitting service is also available. Please phone for further details of courier and same day service.

Aries Upgrades (any ST(FX(M))

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Courier return	£ 6
Fitting charge	£ 15
Same day charge	£ 15
16/4 chip upgrade	
STFM	£ 24.99

Please check the configuration of your machine before ordering. These chips are not surface mount.

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Data-Net is a high speed network solution for the ST/TT. Ladbroke's Data-Net hardware can transfer data at up to 10 Megabits per second. Connection is via the cartridge port of the ST and nodes are connected via Coaxial cable. The Multi tasking network software allows the sharing of Hard drives and Centronics printers anywhere on the Network. Nodes can also Auto boot accessories from a host's hard drive.

Data-Net starter	£ 399.99
The starter pack includes 2 nodes and Universal Network software.	
Data-Net node	£ 199.99
Universal Network Starter Software	£ 219.99
Universal Network Node software	£ 99.99

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GI Mouse

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THE TOP 30 EDUCATIONAL PROGRAMS

PART THREE: GENERAL STUDIES

Rounding off her look at the best in educational software, Pat Winstanley presents us with a pot pourri of packages. . .

FUN SCHOOL 3

AGES: VARIOUS ● £24.99 ● EUROPESS SOFTWARE ● EUROPA HOUSE, ADLINGTON PARK, MACCLESFIELD, CHESHIRE, SK10 4NP.
IN BRIEF: The *Fun School* series has set a standard by which other home educational packages are measured. There are three packages available, covering infant, junior and early senior age groups and each consists of six games based around a cute character. A wide variety of subjects are featured, including maths, spelling and even simple database techniques for older children. Controls are simple, the main one being the mouse, while consistent keyboard options are included where necessary. Above all, though, the games are fun. Although the packages are aimed at particular age groups there is considerable overlap, with seven year-olds in particular able to use and enjoy all three packs. When buying you should aim for a pack towards the top of the child's age group.

ST REVIEW COMMENT: "This is a fun package which children will love. The activities in *Fun School 3* are varied and imaginatively presented: for example *Treasure Search*, for older children, involves following a series of compass directions to discover where "X" marks the spot. For younger children a teddy will perform activities such as juggling or eating in the *Actions* game when the name of an action is selected."
 ★★☆☆

FUN SCHOOL 4

AGES: VARIOUS ● £24.99 ● EUROPESS SOFTWARE ● EUROPA HOUSE, ADLINGTON PARK, MACCLESFIELD, CHESHIRE, SK10 4NP
IN BRIEF: The latest in the series (*Fun School 5* is due next year), this is more polished than *Fun*

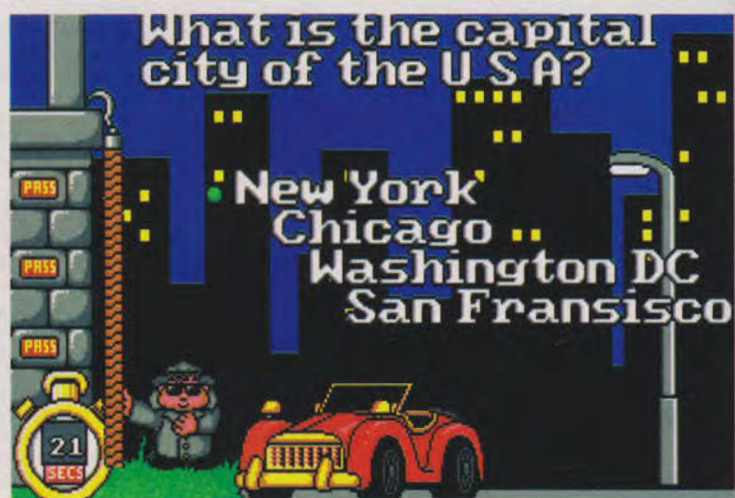
School 3 but not quite so good in other ways. The main problem with it is that the difficulty levels have been poorly thought out, causing great frustration. Again there are packages for three age groups, each consisting of six games. The theme characters are a teddy with street-cred, a frog and a spy, all of which are well animated and easy for children to identify with. The best of the packages is the "seven to 11s" which covers exchange rates, timetables and world geography as well as spelling and arithmetic. The designers have made a real effort to get away from the standard approach of educational games and have succeeded in presenting original and imaginative angles to tedious topics. However, in doing this they have lost sight of the ages of the children for whom the packages are designed.

ST REVIEW COMMENT: "This package does have some carefully thought-out design elements, but it suffers from overly difficult exercises. It's a good idea to try it out with your child before you buy it. My junior-aged children are still struggling with some of the moderate difficulty levels in the "five to sevens" package."
 ★★☆☆

PUZZLE BOOK 1

AGES: VARIOUS ● £11.99 ● SOFT STUFF ● 19 QUARRY HILL ROAD, TONBRIDGE, KENT TN9 2RN.

IN BRIEF: Whereas many packages strive to present solid drilling in a game format, the *Puzzle Book* series comes from the opposite direction, providing games with a strong educational content. Six games are included: among them are *Robot Nim* which relies on logic and counting and *Maze* which develops spatial co-ordina-



Fun School 4: Sammy the Spy has a tough set of questions to answer, and they get even tougher very quickly.



Sammy's not too hot on timetables, but this game will give everyone some practice.

tion, while *Wordhunt* entails making as many words as possible from one other. This is one exercise that can be used with different abilities - children of different ages can be given the task of, say, two and three-letter words for the youngest and six-letter words for older ones. Several difficulty levels are available and most control is with the mouse. The graphics are bold, clear and detailed although nothing special. However, they are attractive enough and very atmospheric when you are lost in the maze.

ST REVIEW COMMENT: "It may be aimed at children, but adults can derive a good deal of fun from this selection of puzzles, making it more of a family buy than most educational packages. The budget price tag makes it excellent value, and although it's now a little long in the tooth it still provides great educational value."
 ★★☆☆

PUZZLE BOOK 2

AGES: VARIOUS ● £11.99 ● SOFT STUFF ● 19 QUARRY HILL ROAD, TONBRIDGE, KENT TN9 2RN
IN BRIEF: This is another helping

of mind-twisting games which have proved very popular with both adult and child testers. As with **Puzzle Book 1** and various other early Soft Stuff games, the central character is Buddy Book Bug who is a great favourite with the children. Again, various topics are covered such as maths and spelling, the most popular of the six games being a **Hangman**-style guess-the-word. For each incorrect letter Buddy blows up a balloon, and if the screen fills with balloons before the word is guessed they pop simultaneously. Maths is covered by both **Pen-tominoes** - those geometrical shapes used in schools to form pictures and jigsaws - and **Numeric Anagrams**, which is enough to have adults tearing their hair out in frustration. There's also a tables tester where speed is of the essence to avoid seeing poor Buddy blown up.

ST REVIEW COMMENT: "Simple, but attractive and addictive, **Puzzle Book 2** is another very worthwhile buy for the whole family. There's even a fiendish game of patience for those times when the pack of cards mysteriously goes missing yet again, while difficulty levels to suit all ages enhance both the life and usefulness of the whole package."

☆☆☆☆

PEPE'S GARDEN

AGES: 3 - 7 ● £25.99 ● PRISMA SOFTWARE ● 29 ST JAMES AVENUE, UPTON HEATH, CHESTER, CH2 1NB.

IN BRIEF: With its **Prof** games, featured in this section in issue one, Prisma uses the principle of making everything as simple as possible, including keeping the speed of the games down. This is a great advantage for children who need time to think rather than coming to quick decisions, but a drawback for children who prefer a faster pace.

Unfortunately, **Pepe's Garden** is also too slow to have more than initial appeal. It consists of five games aimed at pre and early-school children and is designed to increase familiarity with simple numbers, counting, letters and words. Although animation is imaginative, the graphics themselves are very badly drawn, immediately losing the child's interest. While fun at first, the animation sequences soon become repetitive and can't be skipped. Different difficulty levels can be set, and the hardest levels are enough to challenge adults, but this does nothing for the attractiveness of the package.

ST REVIEW COMMENT: "Whilst highly suitable for children with learning difficulties, this package with soon produce boredom in

most average ability kids. This is a shame as the programs are fun, educationally sound and imaginative, only let down by poor gameplay design."

☆☆

ANSWER BACK QUIZ

AGES: VARIOUS ● £19.95 ● KOSMOS ● 1 PILGRIMS CLOSE, HARLINGTON, DUNSTABLE, BEDS, LU56LX.

IN BRIEF: Everyone loves quizzes, and the **Answer Back** series is one of the best implementations of this style on the ST. It consists of a shell program and a series of data disks holding the questions. The junior shell has an animated arcade layout, which is very simple but fun, while the senior shell does not. Apart from that, the only difference is that the two versions come with different sets of questions. However, question bases can be switched between versions and loaded freely into either shell. As well as the questions supplied with the shells, additional data disks are available, covering a wide range of topics and difficulty levels. The open nature of the program means that user questions can be compiled and loaded into the shell in the same way as the lists supplied. This can be very useful for school topic work or simply compiling questions to flummox friends. Also, questions may be asked in different formats such as true/false or multiple choice.

ST REVIEW COMMENT: "This is a very versatile program which provides a wide range of options, including a pass facility, a timer and a performance summary. The packages overlap to some extent in the difficulty levels of the supplied questions, making both packages suitable for any age."

☆☆☆☆

GEOGRAPHY TUTOR

AGE: 11 - ADULT ● £29.99 ● GRALIN INTERNATIONAL ● 11 SHILLITO ROAD, PARKSTONE, POOLE, DORSET, BH12 2BN

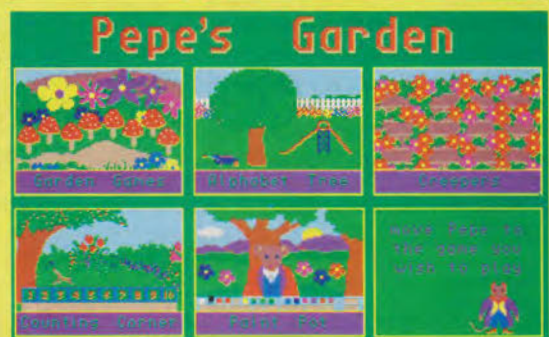
IN BRIEF: As any geography teacher knows, the problem with book-based atlases is that, in a changing world, they can never hope to reflect up-to-date conditions or even country borders. **Geography Tutor** is an electronic atlas which can be modified by the user as conditions change. Maps and databases are supplied for every country, with the database covering all sorts of statistical information from major religions to life expectancy. Data can be manipulated and edited so that the user can alter information to suit changing world conditions. In addition, you can compile notes to be added to the database, or even graphics such as a country's flag. Countries can be compared according to their data or it can

Fun School 3: kids love making teddy do what they pick, and it's a good way of familiarising them with a few simple words.



Pick pairs of shapes to make teddy climb the tree and knock coins into his piggy bank.

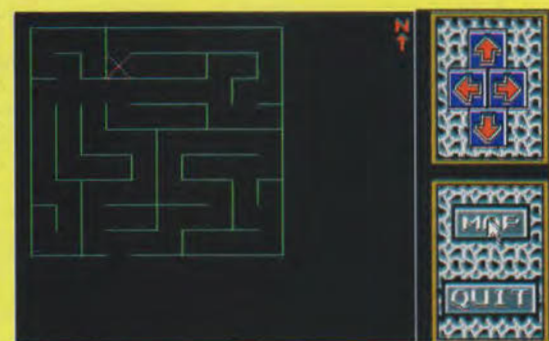
Pepe's Garden: not the most inspired graphics in the world, and I'm not too sure about the palette choice either...



Puzzle Book 1: whoops! Our favourite game in this package is the maze, but it looks like we've hit a dead-end...



...so a quick look at the overhead map seems to be in order. This option is removed in higher levels.



Puzzle Book 2: does this word contain ANY vowels? A, E and I have all seen balloons being inflated...



set up to ask questions on information in the database.

ST REVIEW COMMENT: "The one drawback of this program is that it is difficult to see on a TV set as the text is very small, and the contrast between text and background is rather poor. However, if you have a monitor it is all fairly legible, if a little confusing at times. Keeping the database up-to-date yourself might be a little daunting while the world is seeing rapid change, but data disks and upgrades are available from the publishers to make this task easier."

THE THREE BEARS

AGES: 5-10 ● £22.95 ● SCHOOL SOFTWARE ● TAIT BUSINESS CENTRE, DOMINIC ST, LIMERICK, IRELAND

IN BRIEF: Text and text/graphic adventures are widely used in schools, but there are few suitable for children on the ST. *The Three Bears* is an attempt to create an adventure-style game to encourage reading, spelling and logical thought and is based loosely on the fairy tale of the same name. The child's task is to find baby bear who has wandered off and been kidnapped by the wicked witch. This may be a hackneyed plot, but kids of all ages seem to love it.

A problem with the text adventure format for small children is their limited ability to read, and more particularly spell, accurately enough to instruct the computer. School Software has got around this problem by restricting typed answers and instructions in most cases to simple yes/no choices. In this way children who have difficulty with reading can still take part in the game with an adult reading the on-screen text but leaving the child to decide and key in the response.

ST REVIEW COMMENT: "While not a particularly good game in itself, *The Three Bears* is a fair example to use when introducing a child to the logic of adventuring, mapping techniques and so on. These techniques will stand any child in good stead at school."

MASTER TIME

AGE: 3-11 ● £17.95 ● B. WARE SOFTWARE ● 19 SOUTHFIELD ROAD, HINCKLEY, LEICS, LE101UA.

IN BRIEF: Although aimed specifically at younger children who are just struggling to learn to tell the time, the design of this package is such that it will also suit older children with learning difficulties. The package consists of three time-telling programs with both analogue and digital representation covered. The main clock

program is beautifully presented, in the style of popular teaching watches with coloured guides for to and past the hour as well as half, quarter, twenty to/past and so on. Operation is clear and simple and various difficulty levels can be set. One very useful option is the choice of unlinking the hour and minute hands which can otherwise confuse young children. In addition to the standard clock face, other options include a digital watch and a combination of the two styles for conversion practice. Two other activities are included for light relief. The first is a *Simon*-style game where the child must remember a sequence and repeat it, while the second is a simple doodling program.

ST REVIEW COMMENT: "Both the main time-telling activities and those intended for light relief are presented with clear, bright graphics, and all my testers have thoroughly enjoyed the package."

FIRST CLASS WITH THE SHOE PEOPLE

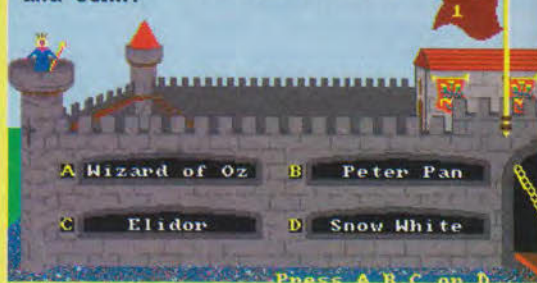
AGES: 4-6 ● £25.99 ● GREMLIN GRAPHICS ● CARVER HOUSE, 2-4 CARVER STREET, SHEFFIELD, S1 4FS

IN BRIEF: This is Gremlin's first venture into educational software and they've made a pretty good job of it. Six separate games are included in the package (although they must be loaded from disk in two groups of three) and cover matching, spelling, shape and pattern recognition, number recognition and adding, together with memory skills and a simple but easy to use art program. The difficulty grading is well designed with children meeting new Shoe People characters as they progress. Control is very simple - mainly Spacebar and Return with occasional recourse to the keyboard for spelling tasks. Animation and graphics are superb with very realistic representations of the various characters, even down to facial expressions. My testers were enchanted with the package and had to be dragged off the machine, despite being apparently too old for the target age group.

ST REVIEW COMMENT: "This is an entertaining program that will appeal to kids of all ages. One slight flaw is the section where pictures of objects appear and the child must name and spell the object. A picture of a bowl would not accept "dish" and that of an anorak wouldn't accept "jacket" but insisted upon "coat". It's a pity that the programmers didn't add a few synonyms. Overall though, it's highly recommended for kids up to mid-junior ages."

Answer Back Quiz: just one of hundreds of questions supplied in the Junior Quiz. Categories include nursery rhymes, spelling and many more.

Which story is about the adventures of Wendy, Michael and John?



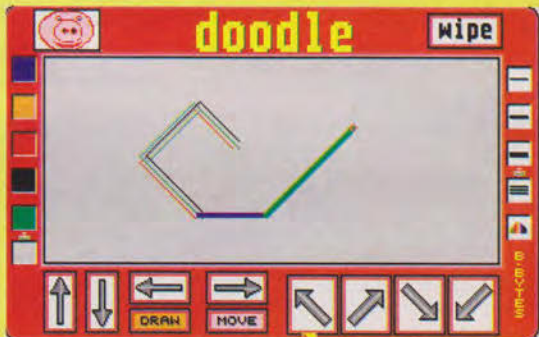
The Three Bears: not the greatest art in the world, but clear simple text prevents frustration during play.



Here's the witch who has kidnapped baby bear. This picture produces shudders of delight amongst kids.



Master Time: wow! I always wanted an Etch-A-Sketch when I was a kid - now they're computer controlled and in colour.



First Class With The Shoe People: Trampy can't figure out the correct spelling for this object. Maybe your child can help him.



Kids have great fun colouring and editing the pictures supplied, or creating their own with Margot's Magic Colouring.



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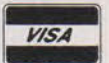


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PD ZONE

MUSIC

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MAESTRO PLEASE

FREE PROGS?

*Public domain, shareware, licenceware...
Are they really as cheap as they say?*

There is very little that you can get for nothing these days. How many times have you wandered around a hypermarket car park trying to give your parking ticket with two unexpired hours on it to someone who's parking? It takes a lot of convincing before some happy motorist takes it from you. Everyone is wary of gifts and eye "something for nothing" offers with the look of a once-bitten Trojan. The world of Public Domain (PD) software seems to suffer from the same reluctance...

Perhaps it's the air of mystique that surrounds Public Domain, Shareware, Licenceware and Bulletin Board software distribution that forms an impenetrable barrier which an unarmed newcomer cannot penetrate? Or maybe the people already using what is a cheap and nationwide source of software find themselves unwilling to share the secret. Here are the secrets...

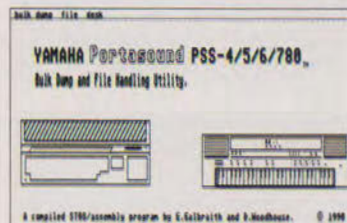
The most readily available source of free software is PD. For reasons best known to the individual authors, whether it be public recognition of their works or the hope that their disk catches the eye of an employer, programmers relinquish all rights they have to their programs so that they may be copied and freely distributed without charge.

Licenceware means more or less the same as Public Domain to users - the differences lie with the stockists. In Licenceware's case the author places his program in specific PD libraries and only they are licensed to sell it. The library must then pay a royalty to the programmers' company for every disk it sells, which works out at around 50p per copy.

Shareware is a different subject altogether. It is as freely distributed as PD, but if you use the program regularly you are expected to register the copy you have with the author and pay him a token fee (usually about £5.00). The user is often rewarded for this honesty by the author, who may send a full manual or even the latest version of the program.

Bulletin Boards are operated by computers linked to modems - anyone can set up their own Bulletin Board by combining their ST and Shareware. The system allows users to swap programs with each other. Although these systems are quite wide-spread, the amount of programs they can hold is limited by the size of the hard drive being used. The long phone calls required are also expensive, and it's not unusual for a library just starting out to receive a £3,000 bill for the first quarter. However, if you do have a modem, contact numbers are regularly published in *Micro Mart* and free ads.

PSS DUMP



PSS Dump gets around the problem of losing all your work.

● FLOPPYSHOP ● DISK NO: MID.26 ●
£2.50 MEMORY: 0.5MB ● SHAREWARE
IN BRIEF: The most annoying thing about synthesisers is that you lose all your work each time you switch off. **PSS Dump** overcomes this problem by allowing you to dump the contents of your PSS's memory (including any new voices you may have created) to disk. It also allows you to

send one of the six memory banks provided on disk to your keyboard or (more importantly) to restore one set of values that you have saved earlier.

PSS Dump can be used with Yamaha PSS480, 580, 680 and 780 keyboards. A version for PSS790 is also on disk. Adequate documentation is provided both in the form of a text file on disk and as an on-line manual from within the program itself. **PSS Dump** runs on all STs with **TOS** versions up to 1.62 and operates in high or medium resolution. It is GEM-based and all it does is send or receive data and load or save data banks, it's as simple as that!

ST REVIEW COMMENT: This is an incredibly simple program which does an invaluable job. If you own one of Yamaha's PSSs, you can't afford to be without it.

★★★★★

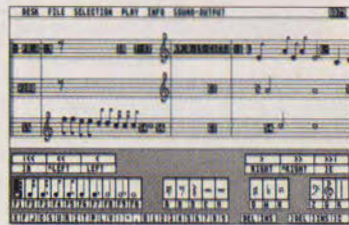
SOUNDMACHINE ST

● RIVERDENE PDL ● DISK NO:
MUS958 ● £2.50 ● SHAREWARE ●
MEMORY 0.5MB

IN BRIEF: **Soundmachine ST** was originally a commercial release. It is an impressive piece of software which lacks only one thing - documentation. This is available to registered users for a modest fee, but although the program itself is in English, the very brief readme is in German and we must assume the manual to be likewise.

Soundmachine is a composition program which allows you to enter notes directly onto the staves. The appropriate notes are selected with the mouse and placed on the staves using the left button or deleted using the right.

Output can be to your monitor or a special stereo cartridge available from the authors. **Soundmachine** allows your musical notation to be



Soundmachine features samples that can be used in your own compilations.

printed out, a feature lacking from most low cost music software nowadays.

ST REVIEW COMMENT: This is a professional program that is aimed squarely at the non-Midi musician. The quality of sound output must be heard to be believed.

★★★★★



Alchimie Junior: a fast and effective way of loading and saving your files.

ATARI
BUDGET BUY

ALCHIMIE JUNIOR

● CALEDONIA ● DISK NO: PDLMU55 ● £2.50 ● SHAREWARE ● MEMORY: 0.5MB (MONO ONLY)

IN BRIEF: *Alchimie Junior* is a 16-track sequencer which loads and saves files in its own SNG format or imports and exports in MIDI File Standard format. The manual on disk comprises 32 pages and goes into detail on each and every one of *Alchimie*'s countless features. It is primarily icon based and very easy to use. You drag items to the bin to delete them, to the printer to print them and to the disk drive to save them. Many operations can also be performed from the drop-down menus or keyboard shortcuts.

A unique feature is the grid. It displays the musical notes from

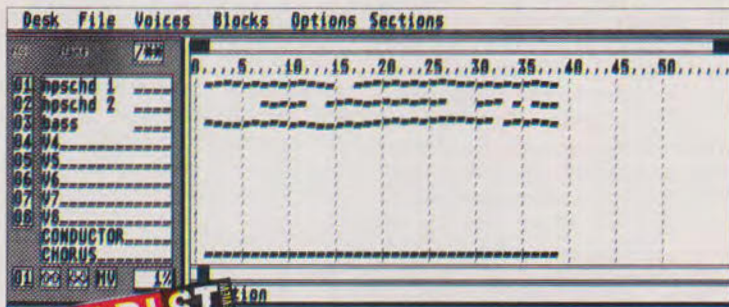
the patterns which make up the songs and these can be manipulated to suit. The program allows up to 256 patterns to be created per song and can superimpose patterns, allowing up to 16 patterns or 4096 tracks to be played simultaneously.

Almost any program may be executed from within *Alchimie* (which continues playing the music while running the other program) and you return to the sequencer when you exit.

ST REVIEW COMMENT: *Alchimie Junior* is easy to use, yet comprehensive. It loads and saves files very quickly indeed.

★★★★★

ACCOMPANIST



ATARI
BUDGET BUY

Accompanist is a versatile program with a huge range of editing features.

● MERLIN ● DISK NO: PDMPD0392 ● 99P + 60P P&P ● SHAREWARE ● MEMORY 0.5MB

IN BRIEF: Henry Cosh's *Accompanist* is a 16-track sequencer which loads and saves data in Midi File Standard format. It uses drop-down menus and is very straightforward to learn. The manual supplied on disk, although only about 10 pages long, is well written and straightforward. In addition, there is an easy to follow tutorial. *Accompanist* offers a range of editing features including the ability to cut and paste blocks. Single notes or chords may be edited as well as whole sections. The "Punch" option is used for this and you can listen to the section you have edited separately -

without having to play the whole piece.

A unique feature is the ability to play any three tracks through the ST's soundchip. This makes the program useful for track-by-track editing, even when you have no synthesiser attached.

ST REVIEW COMMENT: *Accompanist* comes complete with several hundred Kilobytes of specially arranged MIDI files for you to listen to. The program is the result of three years' work and registered users receive good support from the author. It includes a well-presented, quick-start tutorial which is invaluable for the newcomer to Midi.

★★★★★

PD ZONE TOP TEN

1

● MFP - MUS.78 ● THE ST CLUB ● £1.45 + 50P P&P

A composition package from Yugoslavia which uses the ST's sound chip. Whilst professional, it lacks English documentation but remains invaluable due to the impressive sound quality. The ability to play music directly from the Desktop, coupled with the pop music and game themes supplied, make this disk a worthy distraction.

2

● ESION SOUNDTRACKER ● FLOPPYSHOP ● DISK NO: MUS.162C ● £2.50

A Shareware product which was the forerunner to *Protracker*. *Esion* has numerous extras over standard *Noisetracker* clones and fully supports stereo on the ST. Separate programs are used for the ST and the STE. This program doesn't run on machines with more than one Megabyte of memory.

3

● DIGI COMPOSER ● PROPHECY ● DISK NO: PDL MUS011 ● £1.25 + 50P P&P

An almost perfect *Amiga Noisetracker* clone. Creates and plays standard MOD files as used on the Amiga. The music is created from short instrumental samples played back at different pitches.

4

● STE DMA SOUND PLAYER ● ST ADVENTURERS DISK NO: PDL MUS.88 ● £1.95

Load sampled sound into this handy utility and replay it through the STE's DMA sound channels. The sample may be converted from mono to stereo or vice versa. Numerous different parameters may be altered and the only restriction is the fixed sample rates.

5

● PROTRACKER DEMO ● CALEDONIA ● DISK NO: PDL MU54 ● £2.50

This is the follow-up to the *Esion Tracker*. You can load and edit as many MOD files as memory will permit. Sound output is as good as *Esion* (stereo on the STE), but countless new features have been added. Save is disabled in this version.

6

● NAME THIS SONG ● GOODMAN ENTERPRISES ● DISK NO: GD981 ● £2.75

A two-player game in which a tune is randomly chosen and you have to name it before your opponent does. Scroll through the list of about 100 tunes and press fire to select your choice. Requires two joysticks and can output to monitor or Midi equipment. You can even add your own tunes in Midi File Standard format.

7

● MUSIC WRITER ● L.A.P.D. ● DISK NO: S6 ● £1.50 + 50P P&P

A music composition package which runs in high resolution only. It has a wide range of editing features and plays through the ST's sound chip. The music runs under interrupt using the XBIOS 32 routine and can easily be incorporated into your own programs.

8

● AUDIO SCULPTURE ● CALEDONIA PDL ● DISK NO: MU0010 ● £2.50

A product demo for a *Soundtracker* clone. Although this version has Save disabled, it gives good quality output and has a range of features. It was one of the first tracker programs to handle stereo output on the STE.

9

● NOISETRACKER ● FLOPPYSHOP ● DISK NO: MUS.98C ● £2.50

The first fully functional *Amiga Soundtracker* clone to appear on the ST. It is beginning to look dated and doesn't run on the STE. This was the forerunner to *Esion*, *Digi Composer* and a host of others.

10

● COMPOSER V1.4 ● ST ADVENTURERS ● DISK NO: MIDI.06 ● £1.95

Intended for use by people who can't read music, the data is entered in beats and can then be replayed through the monitor speaker, a MIDI keyboard or a drum machine which requires trigger pulses. *Composer* does not use GEM or the mouse and is therefore fiddly to use. However, the results can be worthwhile.

YOU'RE A HERO

THE TOP ADVENTURES TESTED

Want to get a little more adventurous with your ST? We look at what's hot in the world of adventure

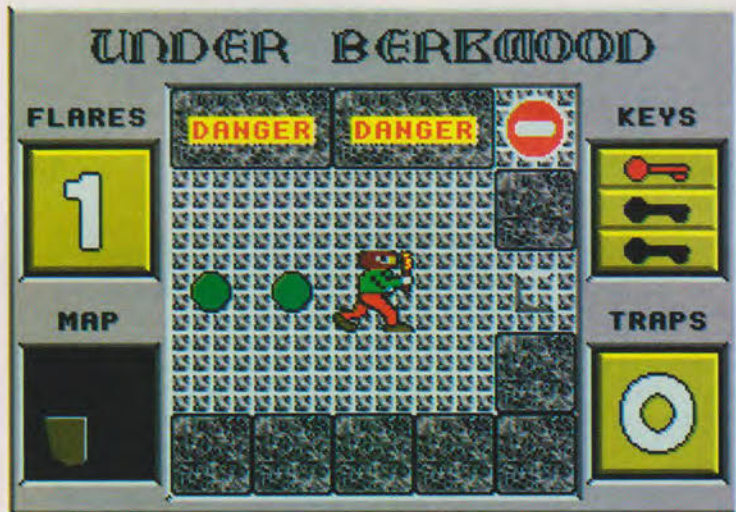
UNDER BERKWOOD

Goodman Enterprises ● DISK NO: GD239 ● £2.75 ● Public Domain ● MEMORY: 0.5MB, COLOUR ONLY

IN BRIEF: *Under Berkwood* is an arcade adventure. You are an apprentice Wizard and Berk has stolen your master's Book of Lore and carried it off to his deepest dungeon. You enter the tunnels beneath Berkwood in your quest to retrieve it. Progress through 10 levels, avoiding ghosts, monsters and hidden traps. Collect keys, flares and anything else you might find useful. Keys open doors of their own colour, flares show up lethal traps for a short period of time and map portions show you sections of the level, highlighting your present position.

An editor program is included on the disk. You can create your own levels, set the IQ level for the ghosts and specify the amount of traps. The graphic files are supplied so that you can alter them to suit. Alternative graphics and full source code in GFA Basic are also on disk in archived format. These should extend the playability of an already addictive game.

ST REVIEW COMMENT: "It's tough but you'll keep coming back for 'just one more go'."



Created with the Adventure Game Toolkit, *Ghost Town* takes you on a search for a fabled gold mine.

BATTLE FOR THE THRONE

L.A.P.D. ● DISK NO: G117 ● £1.50 + 50P P&P ● PUBLIC DOMAIN ● MEMORY 0.5MB, COLOUR ONLY

IN BRIEF: In the Kingdom of Thrania, the throne has never passed peacefully from one generation to another. King Tharn is dead and his sons prepare to do battle for his crown. Up to four players may take part and the game is played over several game-time years, each year consisting of between two and six turns. Build up your army and attack neighbouring lands, brave famines, droughts and other natural disasters and proceed to capture the entire Kingdom of Thrania.

As each year passes, you receive income in the form of taxes. This can be used to increase your troops or save for a rainy day. The game involves strategic planning and presents a real challenge. It is also fair to say that each game will last for several days (in real time) so the ability to save your position and resume at a later date is invaluable.

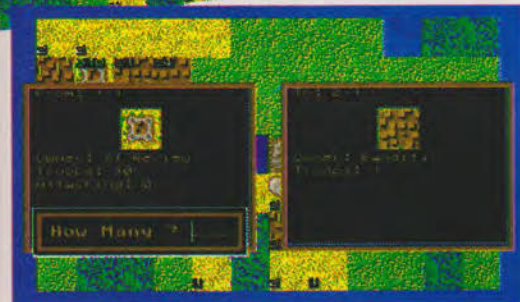
ST REVIEW COMMENT: "*Battle For The Throne* is a well thought out game and should appeal to the warmongers amongst you! It has the feel of *War In Middle Earth* at the price of a PD disk."

GHOST TOWN

COMPUTE 'IN STYLE' ● DISK NO: M355 ● £1.49 ● PUBLIC DOMAIN ● MEMORY 0.5MB

IN BRIEF: A text adventure with 88 locations, created using *The Adventure Game Toolkit*. Set out on your quest to find the fabled gold mine and, beyond it, the even richer mine. You begin your quest lost on a prairie and you must find the mine. As you wander around, collecting and examining everything in sight, you must kill a rather nasty snake to proceed. A careful descent down the side of the mountain and a few more moves may take you to the hidden entrance of a cave. Play your cards right and you will meet up with a rather gruesome miner. There's only one exit and he refuses to let you pass!

ST REVIEW COMMENT: "*Ghost Town* is well-written and doesn't suffer from the usual bad spelling in many PD adventures, and whilst it presents numerous puzzles, none are completely insurmountable for the beginner. It may have no graphics, but the game is so intriguing that true adventure fans won't miss them! *Ghost Town* presents challenging puzzles which can be solved using a little common sense. A nice introduction to adventuring for all."



This is one for anyone who likes a good fight – *Battle For The Throne*, available from L.A.P.D.

As each year passes, you receive income in the form of taxes. This can be used to increase your troops or save for a rainy day. The game involves strategic planning and presents a real challenge. It is also fair to say that each game will last for several days (in real time) so the ability to save your position and resume at a later date is invaluable.

ST REVIEW COMMENT: "*Battle For The Throne* is a well thought out game and should appeal to the warmongers amongst you! It has the feel of *War In Middle Earth* at the price of a PD disk."

★★★★

★★★★

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ART 07 Superb art package, idea for simple DTP. 23 built in fonts. A4 size paper works in mono chrome for best quality of print. Ideal for leaflets etc. DS disk.

ADV 01 DDST, DRAGONS & DRAGONS, Role playing adventure. PARANOIA, ENCHANTED REALM and ELBOZO CITY 3 more good adventures also on this disk.

ARC50 HACMAN, superb pacman clone. MR PACKY, another super pacman. SOCCER brilliant 3D football game 2 players. MUTANT WIPEOUT ariel shoot em up. INVADERS needs no discription.

BRD04 CHESS, superb chess game. DECODER, excellent master mind. SUPER SIMON, computer version of hand held game. DOMINOES, puzzle game. GOLF, card game. Also on this disk DRAGON MAZE, 2 game. SENSORI BACKGAMMON, BRIDGIT, ST ARTREK, BATTLESIPS.

ARC14 HOME, and L'ORB 2 super pinball games. GALTIC RANGER, unusual shoot em up. MONKIES & BALLONS, bounce the clown and burst the balloons. FIRESTORM, another good arcade game rescue the humans. LAZERBALL, super game and interesting version on the pinball theme. Also on this disk LOST TREASURE, WIDOW MAKER, SLALOM & BREAK OUT.

AST 01 PLANETARIUM, simply the best PD Astronomy program. SKYMAP another great Astronomy program plus ASTronomer.

BRD 01 MONOPOLY, LAZERCHES, O'HELLO, CHECKERS, WHEEL OF FORTUNE, and more a superb collection of BOARD GAMES.

DART 05 ANI ST Great animation package formerly sold at £80.00 now PD, VAN GOUGH Paint package with animated sprites. 4 LANDSCAPE Generators including GENASIS and a CAD Package.

MES 31 The ACCOMPANIST SEQUENCER From H.GOSH.

WPR 01 ST WRITER V4.2 and FIRSTWORD The 2 best word processors for the ST(E), plus a spell checker, print spooler and a selection of ready to use letters.

ODD 07 THE WORLD OF STARTREK Over 300K of text interviews and biographies from the original STARTREK and NEXT GENERATION plus loads of pictures from both series. A must for all TREKKIES!!!

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ART AND GAMES

BU 76 - Clunk - Puzzle clone (£2.95) BU 78 - Glacier - Klax clone (£2.95)
 BU 81 - Dead Or Alive - brilliant adventure game (£2.95) BU 83 - Cyberstorm - excellent Defender clone (£2.95)
 BU 84 - Hylelos - skill and strategy game (£2.95) BU 86 - Quattris - similar to Tetris / Slime Nemesis (£2.95)
 BU 89 - Horse Racing Simulation (£2.95) BU 90 - Match-It - Shanghai clone (£2.95)
 BU 91 - Flipped - very hard puzzle game (£2.95) COM 25 - Football Genius / Super League Soccer (£3.95)
 ART 35-37 - In Bed With Madonna 3 disks (£4.00) ART 51 - Crack Art - better than Neocromel (1 Meg)

ART 40-48 - These 9 disks contain pictures in Spectrum 512 Extended format (SPX). They are full colour and span several screens. The best quality pictures available on your ST! Buy all 9 disks for just £12!

GAME 6 - Scanner, Bridge-It, Darfs, Mister Rocky, Tunnel Vision, Air Warrior (flight simulator)
 GAME 13 - Wizards Tower, Tomb Of Death, Invasion (STAC Adventure)
 GAME 17 - Racem (brilliant shoot em up), Snatch & Crunch, 1st Serve Tennis, Video Poker, Labyrinth
 GAME 21 - Honor, Hero (Countlet clone), Sensori, Penke, Millipee, Wormwar, Jigsaw
 GAME 44 - Skippan (overhead car racing), Haunted House, Pop Music Challenge, Technmate Demo
 GAME 62 - House Of O's, Lottery, Maid, 1, Underground (Adventures) 'A'
 GAME 63 - Treasure Search, Corewars (a battle of the programmers) - THIS DISK NOT STE!

DEMONSTRATIONS

DFMO 3 - UIM Mega Demo
 DEMO 42 - Total Chaos Double Dooter Demo
 DEMO 51 - Hobby One Mega Demo
 DEMO 74 - Slaytonic Cull - STE Only
 DEMO 81+82 - Transbeauce 2 Demos (£3.00)
 DEMO 93 - Songs Of The Unexpected - STE Only

DEMO 16 - Things Not To Do (Very Funny!)
 DEMO 45 - Decode Demo (Some Bad Language)
 DFMO 69 - Electro Reset Demo (1 Meg)
 DEMO 78+79 - Punish Your Machine Demo (£3.00)
 DEMO 92 - Shamen Music Demo
 DEMO 95 - Corporation Mega Demo - STE Only

APPLICATIONS AND UTILITIES

BU51 7 - Sheet 2, Home Accounts, Dbase One, A
 UTIL 3 - Almanac, Teesaver, Biomorph, Plotter, A
 UTIL 10 - Printing Press v 3.0, File Tool, A
 UTIL 13 - German To English, Dbackup, DC Utils, A
 PRO 20 - Video Master - Superb video filter (£3.95)
 BUSI 1 - Invoice And Statement Generator, A, Nomenet (database) A, Sales Controller, H
 UTIL 15 - Tons of misc utils including copiers, formatters, virus killers, directory listers, diary etc. A
 LANG 13 - Tim Oert's Guide to Professional GEM in C, Tutorial, source code and utilities, A
 LANG 24 - C Adventure Toolkit v 2.0 - Very powerful language for creating large, complex text adventures.

BU51 3 - Fastbase - Incredibly powerful database, A
 UTIL 4 - Pools v 2.5, Norad, DC Utils and more, A
 UTIL 11 - Pagestream Font Editor, Fastload2 (Meg), A
 UTIL 14 - Full of printer drivers inc. Bubblejet, A
 PRO 23 - Video Master Fonts Disk (£3.95)

SOUND TRACKER MODULES

These disks contain brilliant quality tunes at great value for money. All disks come with the ESION tracker which is a complete module editor and player. There are versions for both the ST and the STE. Those disks

TRAC 6 - Tune One, Art of Noise, Charlmix, Deadlock, Deagnet, Rainbow, Popcorn, Wonder Chicken
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 TRAC 20 - Alton, Bluermon, Clutch, Disco, Endless, Megamix 88, Shortjazz, Symphaze, Song, Fish 4
 TRAC 49 - Berry, Close, Depress, Doc II, Fogles, Eg, Fernies, Fison, Going, Goodlife, H-dance, I-around, F
 TRAC 50 - Got-ya, Home, How-deep, Intuition, Jaw, Jumping, Killer, Link, Night, Ns-speed, Official, F
 TRAC 74 - Brian, Deadcap, Iamer, Tune, Masterv, Power, Rockpeba

As well as these disks listed we also stock hundreds of demos including the complete range of POV We also have over 100 disks of clipart and also cover disk magazines, wordprocessing and communications.

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DARK WARS

ST ADVENTURERS ● DISK NO: BU.71

● £2.95 ● LICENSEWARE

● MEMORY: 0.5 MB

IN BRIEF: The first Dark War culminated in the army of Swordsblade laying siege to Eaglesmount. The next morning the inhabitants of Eaglesmount awoke to find their enemy defeated. The story goes that they were attacked by Orcs from an unexplored land to the South. The elders of both towns join forces and offer a huge reward to anyone who can find out what is happening in the South. You start the game by creating your character using the editor provided. You can set the race, profession and attributes to your own preferences within certain limits.

Initially you embark as a lone adventurer but can request other adventurers to join you in your quest. As you progress through each level you will meet many a strange being, some of whom can be befriended, others are willing to trade, while some may join you and others will try to kill you! All actions are controlled by the mouse from an on screen menu and game positions can be saved for later recall.

ST REVIEW COMMENT: "Dark Wars is a must for all fans of the *Dungeon Master* genre and is guaranteed to give weeks if not months of enjoyment. It must rate as being the best *Dungeon Master* clone to date. ★★★★★



Dark Wars – the best *Dungeon Master* clone available.

DEATH OF A PRESIDENT

NEW AGE PDL ● DISK NO: EDUC13, 14 & 15 ● £4.00 FOR THE SET. ● SHAREWARE

● MEMORY: 0.5MB (COLOUR ONLY)

IN BRIEF: These three disks look at the assassination of John F Kennedy in Elm Street, Dallas on 22nd November 1963. The first disk is a database of digitised pictures connected with the assassination. The second is a collection of digitised sound samples from witnesses and Martin Luther King, although where he fits in is not very clear!

To class this as an ordinary graphic adventure is an insult to the author. You are taken back in time to 1963. The President has been declared dead at Dallas Memorial Hospital and you are an investigative journalist about to interview witnesses on Elm Street. You can listen to their conversations, ask them questions, investigate the scene of the crime for yourself and draw your own conclusions. The text within the program is drawn directly from the Warren Commission and subsequent investigations. Look at all the evidence and draw your own conclusions. History will never be the same again.

ST REVIEW COMMENT: "Can you forego the chance to investigate the murder of JFK?"

★★★★★



Death Of A President: history will never be the same again.

PD ZONE TOP TEN

1

THE BLAGG ● NEW AGE PDL ● DISK NO: BUDGAM 75 ● £2.95

This is a graphic adventure with digitised pictures. You are Detective Blunder, fresh out of training, and about to investigate a bank robbery. When you think you've solved the case, you use your evidence to go to court for the trial.

2

BLACKSCAR MOUNTAIN ● PUBLIC DOMINATOR ● DISK NO: B68 ● £2.95

An 87-location graphic adventure with well-drawn locations. Blackscar Mountain is infested by demons who will try to kill you at every opportunity. Your quest is to enter the mountain and destroy the crystal skull from which they derive their power.

3

HERO II ● FLOPPYSHOP ● DISK NO: GAM.177C ● £2.50

A one or two-player Gauntlet clone in which you work your way through countless rooms in the two level dungeon. You meet many monsters on your travels and must defeat these using a combination of magic and brute force. Can you succeed where others have failed?

4

DROID II & DROID III ● NEW AGE PDL ● DISK NO: GAME 77 ● £1.50

In Droid II you move around the playing area collecting, using and buying objects. Solve various puzzles, set off bombs, use ID cards and most importantly, stay alive! Droid III involves taking up employment with one of two rival firms. You must put up posters for your employer and remove those of the competition!

5

DARKNESS IS FOREVER ● PROPHECY PDL ● DISK NO: ADV006 ● £1.25 + 50P P&P

You begin this adventure in your bedroom. You have lost your memory and know neither who you are nor where you are! This is a text adventure with some mono graphics.

6

THE DOPPEL-GANGER COLLECTION ● THE ST CLUB ● DISK NO: GAM.125 ● £1.45 + 50P P&P

The Doppel-Ganger is a madcap fellow who lives in a wild and wonderful world of his own. This disk contains *Crowley's House*, *Prisoner Of The Dark Pearl* and *Doppyworld*, three of his earliest text adventures and is the prime example of well-written, zany adventuring on the ST.

7

DEATH CAMP ● PUBLIC DOMINATOR ● DISK NO: B29 ● £2.95

After several unsuccessful escape attempts from the infamous Changi POW camp, you are transferred to the Death Camp. You must escape or die! A highly graphic adventure with detailed descriptions of each location.

8

WIZARD'S TOWER ● COMPUTE 'IN STYLE' ● DISK NO: M308 ● £1.49

You are a novice Wizard and have come to Marek's tower, hoping to learn from him. He has not been seen for some time and his tower has been taken over by evil beings. You must enter the tower, overcome its inhabitants and retrieve Marek's spell book.

9

THE ELVEN CRYSTALS ● GOODMAN ENTERPRISES ● DISK NO: GD1220 & GD1221 ● £3.00 FOR SET.

The *Elven Crystals I* and *II* are loosely based on an RPG book by Oliver Johnson. Both adventures feature graphics throughout and appear at first to be impossible to complete. They feature numerous hidden screens with the first one containing a hidden adventure. There is a cheat mode in both games and the adventures can only be completed by finding the hidden screens.

10

NETHACK 3 ● L.A.P.D. ● DISK NO: G6 ● £1.50 + 50P P&P

A *Dungeons and Dragons* adventure ported across to the ST from Unix. Your quest is to search for the Amulet of Yendor. You will come across monsters, potions and various objects. Graphics are represented on screen by ASCII characters such as #, @, >, | etc; and monsters are represented by letters of the alphabet.

LEARNING A LANGUAGE

Fancy being a master of more than just one programming language? *ST Review* gets its lips around the top five language tutorials

FORTH TUTORIAL

ATARI ST REVIEW
BUDGET BUY

THE ST CLUB ● DISK NO: LAN.52 ● £1.45 + 50P
P&P ● PUBLIC DOMAIN ● MEMORY: 0.5MB

IN BRIEF: This is an 11-part programming course in the *Forth* language. Written by C Janssen, it starts off by introducing you to the language, taking you back to its introduction in the 1970s on an IBM-1130. It proceeds to explain the fundamental principles behind it and gets you to the stage of loading up and using your copy of *Forth* before the end of the first lesson. The course is based around the *Forth '83* standard so it should be of use for most of the available versions of *Forth*.

The entire course runs to over 300K and is held on disk as a series of *First Word* text files so you will require *First Word*, *First Word Plus* or a compatible WP program. It first appeared in the *ST News* disk magazine from Holland and the articles have now been collected together and placed on one disk. Numerous examples are given throughout the course, making it a must for the beginner to *Forth*.

ST REVIEW COMMENT: "Not only is this the most comprehensive *Forth* tutorial around, it's the only one available!"

★★★★★

CORONADO ENTERPRISES MODULA 2 TUTORIAL

FLOPPYSHOP ● DISK NO: LAN.86 ● £2.50 ● PUBLIC DOMAIN ● MEMORY 0.5MB

IN BRIEF: This is a support disk for *Modula 2* programmers. It contains programs and source code put together from a number of independent sources. Some material is specific to a Shareware *Modula 2* compiler by Ana Systems but most of it is neither machine nor compiler dependent.

PASCAL TUTORIAL DISK

RIVERDENE PDL ● DISK NO: LAN889 ● £2.50 ● SHAREWARE ● MEMORY 0.5MB

IN BRIEF: This disk gives an introduction to *Personal Pascal* and *Turbo Pascal*. The *Personal Pascal* material covers such things as overcoming limitations in disk file functions, making AES and VDI calls from *Pascal*, an introduction to BIOS, XBIOS and GEMDOS calls, character input and output and creating desk accessories.

The *Turbo Pascal* tutorial was written specifically for MS-DOS and CP/M, the source code of which requires very little in the way of modification to run under *Personal Pascal* on the ST. The readme file provides helpful hints on how to go about doing this. There are 10 lessons in all and each is accompanied by source code which is referred to in the lesson. They cover such topics as editing programs, program structure, declarations, integer expressions, conditional processing, repeat statements, case statements, for statements and while statements.

ST REVIEW COMMENT: "All the files on disk are in ASCII format so they can be viewed or printed out easily. The tutorials are in-depth and there are numerous *Pascal* source files for you to experiment with yourself. An invaluable aid to the *Personal Pascal* user."

★★★★★

STOS TUTORIAL



STOS Tutorial really comes into its own when used as a utility.

are listed over three screens and can be paged easily. A further 20 commands associated with *STOS Maestro* may be accessed on a separate screen. All instructions are contained within the program. Simply type in the command and you will be given both the syntax as well as a plain English description of what it does.

The program may be loaded and run from within *STOS Basic* or may be called up as a *STOS* accessory. It is most valuable when used as an accessory as you can consult its database of commands without losing the program you are currently developing.

ST REVIEW COMMENT: "This disk will not teach you how to program in *STOS Basic* but it will help you correct all those annoying syntax errors and find the command quickly and easily. An invaluable quick reference guide for *STOS* programmers."

★★★★★

The tutorial is in ASCII format and comprises of 16 chapters running to a total of 100 pages in length. Chapter 1 assumes that the user has no knowledge of programming, let alone *Modula 2* programming and is therefore ideally suited to the beginner. Those who are knowledgeable in programming but new to *Modula 2* should start at chapter 2.

ST REVIEW COMMENT: "The tutorial is well written and explains what is essentially a complex programming language in easy to understand terminology. Numerous source files referred to in the tutorial are also on disk. 100 pages of clear and concise text which should be sufficient to get you up and running with *Modula 2*."

★★★★★

CORONADO C TUTOR

GOODMAN ENTERPRISES ● DISK NO: GD444 ● £2.75 ● PUBLIC DOMAIN ● MEMORY 0.5MB

IN BRIEF: The *C* programming language is very popular, being seen as an intermediary between *Basic* and *Assembler*. The *Coronado Enterprises C Tutor* consists of 14 chapters and numerous source files. As *C* is not a language recommended for the beginner, the author assumes that you are already familiar with the basic concepts of programming. However, he does assume that you know nothing of *C* and begins with the basics of the language.

The tutorial consists of ASCII files and runs to 15 chapters and a total of 98 pages. It starts out by introducing you to Identifiers and progresses through Strings and Arrays to Program Control, File input/output and much more. Each one of the first 13 chapters has an accompanying source file to which it refers.

The *Coronado C Tutorial* assumes you are working on a PC or compatible but covers *C* programming in general and doesn't assume the use of a specific *C* compiler. For this reason, it applies equally well to *C* running on any machine. The only exception to this rule is chapter 14 which is MS-DOS specific.

ST REVIEW COMMENT: "Teaches you the fundamentals of *C* without being machine or compiler specific."

★★★★★

NEW



DIVISION ONE 92 REVISION ONE



NEW



DIVISION ONE 92 REV 1

"(The Midnight Oil) treat soccer in the sophisticated way Americans treat their national games." -The Guardian

THE GAME Everyone has their own ideas on what makes a soccer team "tick". Here is the opportunity to put into practice your own ideas. Operating from the English 1st division you must build a squad to challenge for the league title, the FA and League Cups and the 3 European trophies. And as players age, rebuild the team while holding off relegation.

SQUADS/TRANSFER MARKET In a 3 squad system (1st team squad, reserve squad and youth squad), use the continuous intake of youth players and training program to create a squad whose skills reflect your ideas. Supplement these skills with carefully selected transfer market acquisitions. As they age, veterans fade and youngsters develop, keep an eye on the changing skills of your team

SKILLS All players have a balance of 5 skills (no "skill levels") which you must develop by experimenting with your team. Even more important will be your judgement about the effect of the particular team balance or skill combination on the outcome of the match, and subsequently a season of football. Suitable training can develop/enhance skills.

WHAT IS DIFFERENT ABOUT THIS GAME?

Division One 92 transforms the soccer management game. You can concentrate on the football. Experiment with players, formations, team styles. Build your dream squad and check it out in accurately simulated league/cup football. Match results are from a unique soccer match. Every pass, tackle, shot etc. is determined by the players involved. Your choice of skills thus influences match results. Mental arithmetic has been dumped. Football knowledge is the name of the game.

MATCH/STATS Your judgement will be put to the test in this unique 4 minute match/stats simulation against accurately simulated opposition. This is the measure of your team and your most reliable source of information. There are displays of: match flow, two teams, player-with-the-ball, injuries, discipline, substitutions, in-match tactics, goal scorers, possession breakdown and performance assessment.

REVISION ONE

The best just got better! All updates that have been made to Division One 92 over the last six months. In addition the match screen has improved, opposition team info expanded, a European transfer market added and a few more minor changes. An edit program and a customisation program have also been added. The manual has been expanded and the packaging improved. **EDIT PROGRAM.** Edit the team and players that make up Division One. Produce your own Division One, or Scottish League, British League, European League, German/Spanish/French/Italian...etc...etc. Or even make up a league of all the best teams you've ever seen. **CUSTOMISATION PROGRAM** Customise the 45 man starting squad. Use your own favourite players, or your local side. How about as squad with Pele, Beckenbauer, Best, Cruyff, Maradona?

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Atari ST	<input type="checkbox"/>	<input type="checkbox"/>
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HEAD COACH V3

"When it comes to the 4th down Headcoach has it". "Headcoach", "TV Sports Football" head to head.

(Pop Comp.)

Headcoach V3 has been described as "the best game ever put onto a computer". It is the complete American Football game, a multi season epic with the very best strategic elements of the real thing. You will call the plays, devise the gameplans and develop the team.

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Players will age and teams will fade (a player will last about 6 seasons), but you will stay and rebuild

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FROM
ST Adventurers PDL, 32 Merrivale Road, Rising Brook, Stafford, Staffs, ST17 9EB

NAME

ADDRESS

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ST BUYER

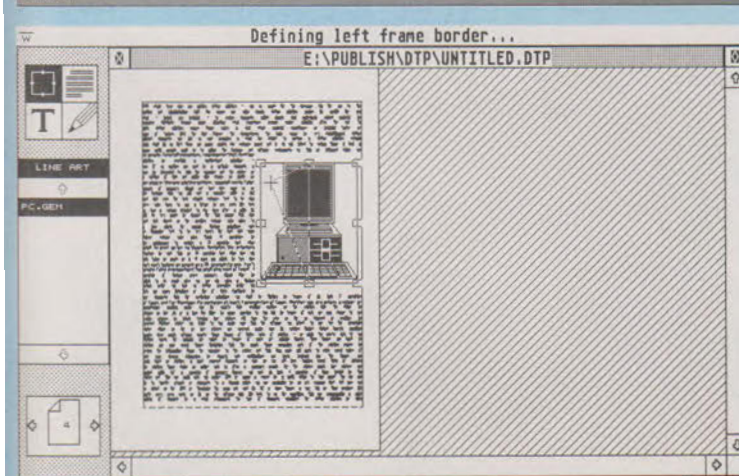
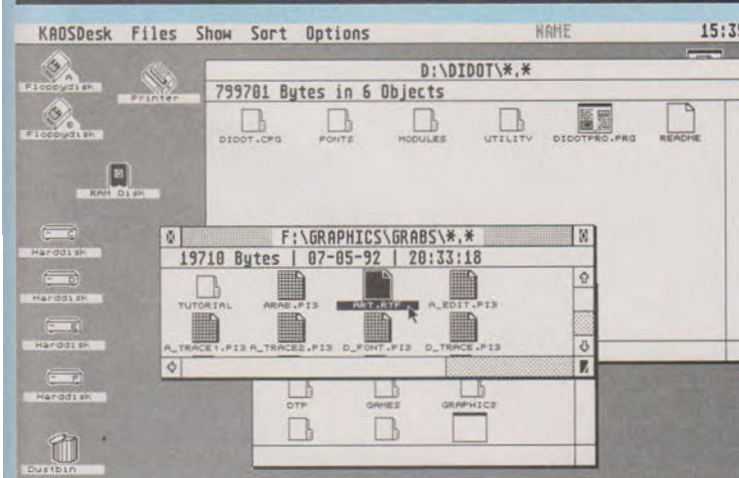
Welcome to the blistering blues, 32 packed pages choc-a-block with tests, tips and tutorials on all-manner of useful products for your ST.

This month we're giving you all the little extras that you need to get your ST working even that bit quicker with part two of our Powering Up Your ST series. This month, to complement the free desktop that we gave away on the front cover, we're looking at alternative desktops starting on page 119 with a comparative test of two of the best... Staying with the Power Up theme, there's also an in-depth look at the brand new Enhanced Operating System for your ST – a hardware system that is said to be blisteringly good – how good? Turn to page 116 and find out...

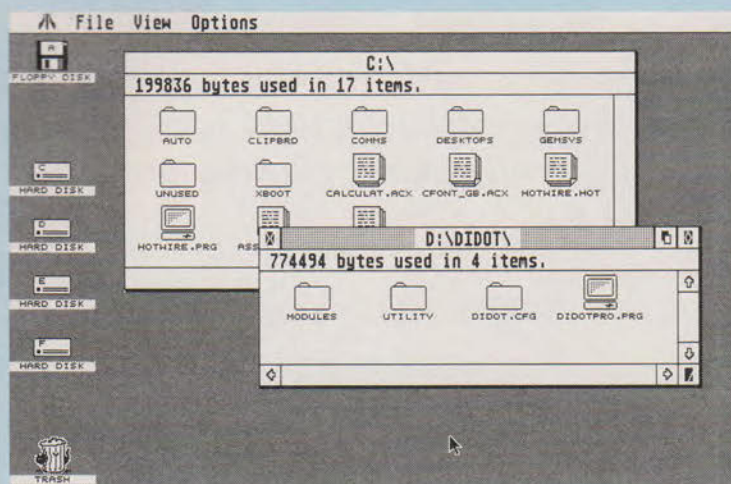
And brand new this month – it's the section for all ST musicians. MIDI Monthly begins on page 123 and gives you pages of hints, tips, help and product reviews. And each month, there'll be an in-depth look at solving common problems.

And we still haven't finished: there's the comms column, readers' letters, your technical questions answered in Ask the Experts, charts, a jargon-busting guide, and an invitation to write for us rounds up this month's ST Buyer.

Remember, you'll never feel down with our blues. . . .



SMOOTH OPE



The EOS desktop - note the new icons and trashcan, plus the new icon on the window bar.

Andrew Wright looks at EOS from System Solutions, the latest in a long line of operating system upgrades, and pits it against the best of the rest

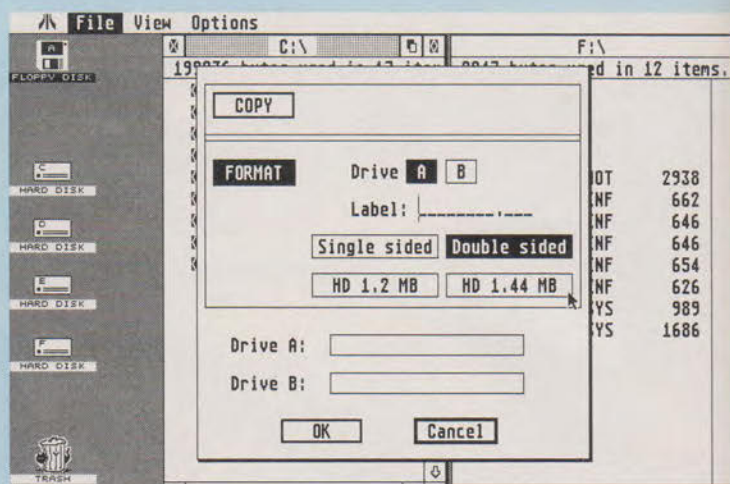
If you're looking for a **TOS** upgrade there are several options open to you these days, each of them offering different benefits. **TOS 1.2** owners, who have one of the slowest operating systems around, will benefit most from any upgrade but there are benefits for **TOS 1.4** owners too.

If you want a faster operating system which is still 100 per cent compatible with **TOS 1.4**, you would do well to look at System Solutions' new product, **EOS**.

EOS stands for **Enhanced Operating System**. It is a licensed modification of **TOS 1.4** which fixes all the known system bugs and offers much faster graphics, including screen redraws, and better hard disk handling. It also works very well with System Solutions' range of hardware accelerators such as the Turbo 20/25 25 MHz board which we will be looking at later in this series.

SAVING TIME

Compared to **TOS 1.4**, GEM dialogue boxes open 32 per cent faster while **TOS** string handling is up by 24 per cent. There are small but significant improvements in other areas, too. For example, when using **TOS 1.4**, closing one window when another remains open results in the remaining window being redrawn. **EOS** is far



High-density drive support in EOS.

more intelligent and allows the user to operate much quicker.

The table on page 118 demonstrates **EOS'** improved file copying and moving capabilities, which are claimed to be up to 40 per cent faster than **TOS 1.4**. Other improvements include **EOS'** ability to fastload programs and accessories, which makes booting much faster.

BETTER LOOKING

The desktop looks different, mainly due to the extra floppy disk icon and the improved hard drive icons. A new button appears in every GEM window bar, allowing that

window to be sent to the back. It even works within most GEM programs.

Other noticeable improvements are the reset-proof system clock, 13 Kilobytes more of free memory, the ability to resize windows to within a pixel and built-in support for high density 1.44 Megabyte drives.

CHOICES

There is the choice of pull-down menus (as on Macs) or drop-down menus (as on all STs) for those that prefer the option. Any file that is updated or written to is automatically "touched" - its date and time are reset to the current system time.

TIMING IT RIGHT

Time taken in seconds for various filing operations

	Show Info	Copy files	Delete files
TOS 1.2	14	145	12
TOS 1.4	4	43	9
TOS 2.06	4	43	10
EOS	3.5	41	8

Notes: **TOS 2.06** was not installed in ROM which may account for slight degradation in performance compared with **TOS 1.4**. Show Info relates to the time taken to produce a Show Info dialogue box on a highly fragmented hard drive partition. Copy files relates to 1.2 Mb of files being copied from one partition to another, adding up to around 2 Mb. Delete files is the same group being deleted.

Totally compatible with
TOS 1.4
No bug problems
Much faster and easier to
use
Improved dialogue boxes
More system memory

PROS AND CONS

Some minor
incompatibility with non-
standard software

RATOR

Hard drive booting is much easier with **EOS** - a separate utility lets you take advantage of its built-in, user-definable delay that allows you to switch on your hard drive and ST at the same time. The drive will get up to speed and after a short period the ST will boot as normal.

Dialogue boxes are much faster: there are more editing possibilities when entering text and there are also keyboard shortcuts to exit from them. For example, the Undo key is equivalent to "Cancel" and various combinations of

Shift and the cursor keys let you navigate around with ease.

One particular improvement with EOS is that the pre-selected filename in the file selector remains when you change the drive or directory. EOS is extremely compatible, working perfectly with virtually all the software you are likely to use.

The only problems we encountered were with Codehead's **Hotwire**, which checks the ROM version before installing and doesn't recognise **EOS**, and **EOS'** new

window bar icon in the word processor **Redacteur**, which sent the contents of the window winging its way to oblivion rather than sending it to the back.

It shouldn't be long before Codehead produces a patch for **Hotwire**, but **Redacteur** was originally designed to bypass much of the operating system anyway and so is unlikely to be changed.

The disk-based version will slow down your boot procedure, of course, but the benefits of a fast operating system far outweigh the inconvenience. The ROM-based version is more expensive but will speed you up considerably. If you really need to use **TOS 1.4**, you can opt for a hardware switch which returns you back to the old **TOS**. You probably won't want to, though - **EOS** is everything that **TOS 1.4** could and should have been.

"Everything TOS 1.4 could and should have been"

NAME: EOS
COMPANY: SYSTEM SOLUTIONS
CONTACT: 0753 832212

PRICE: £99.99
RELEASE DATE: OUT NOW
MIN MEMORY: N/A

EASE OF USE ★★★★★
DOCUMENTATION ★★★★★
EFFECTIVENESS ★★★★★
VALUE FOR MONEY ★★★★★

OVERALL **86%**

TOS - THE HEART OF YOUR MACHINE

TOS, the ST's operating system, has changed considerably since its first appearance in 1985

In the early days, **TOS** was loaded in from a floppy disk but later versions had **TOS** built into ROM, speeding up the machine considerably. **TOS 1.2** was the first widely used version of the operating system: unfortunately, it's very slow, particularly when used with hard disks, and full of annoying bugs and inconsistencies. For example, the default buttons in many dialogue boxes tend to cancel the operation which means that users can't simply hit the Return key when faced with the dialogue to install desktop icons.

Other deficiencies included the inability to rename folders, copy disks from the desktop and autoboot applications. Its main drawback, however, was its file handling.

TOS 1.4, often called the "Rainbow **TOS**" due to the animated logo under the Desk menu, showed much more promise and was definitely faster but it too had its problems. Scores of bugs have been discovered, some of

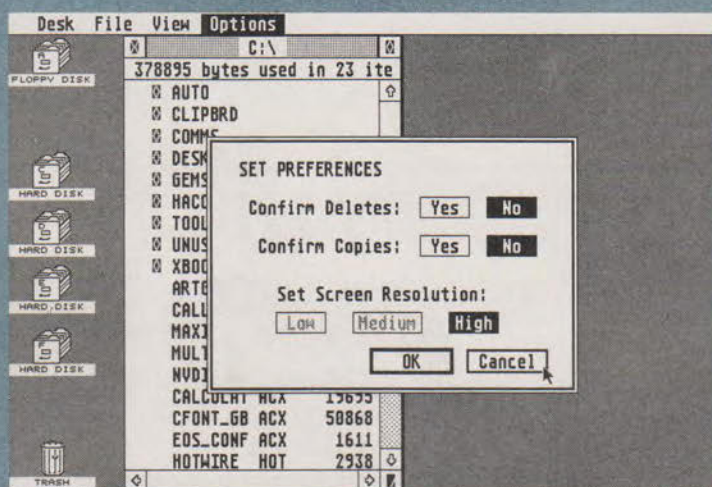
which are quite serious, so many users' AUTO folders contain several programs known as "patches" - they patch defective parts of the operating system and make it work as it should. **TOS14FIX.PRG** is a good example - it fixes a bug in the RTS/CTS flow control from the serial port which affects those with serial printers or high speed modems.

Although the STE's **TOS 1.6** is similar to **TOS 1.4**, it has a few enhancements which take advantage of the STE's hardware.

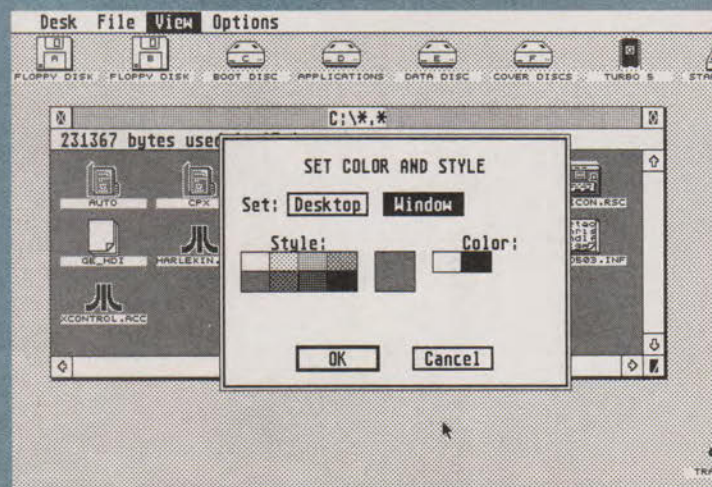
Unfortunately, the first versions introduced had an extremely confusing bug: STEs refused to boot up in anything other than low resolution, causing no end of problems for new users. The new version, **TOS 1.62**, works as it should.

The new Mega STEs have yet another version of **TOS** - the most impressive yet. This version, now **TOS 2.06**, is not yet available from Atari UK but it can be bought mail order from Holland, quite legally.

It offers a superb desktop similar to **NeoDesk** with support for applications on the desktop, unlimited different icons and different coloured window and desktop backgrounds. However, it appears to be no faster than **TOS 1.4** or **TOS 1.6**.



TOS 1.2 - hitting Return exits the dialogue box - whoever dreamed that one up!



It's not available in the UK, yet, except in Mega STEs but standard STE owners are already clamouring for it!

BUYERS GUIDE

How the big three desktops compare...

	TOS 1.2	TOS 1.4	EOS 1.4	TOS 2.06
Number of bugs:	Very high	High	None reported	Minor
Format disks from desktop:	Yes	Yes	Yes (HD included)	Yes
Copy disks from desktop:	No	Yes	Yes	Yes
Applications on desktop:	No	No	Yes, replacement desktop	Yes
Rename files:	Yes	Yes	Yes	Yes
Rename folders:	No	Yes	Yes	Yes
Auto boot applications:	Not directly	Yes	Yes	Yes
Keyboard shortcuts:	No	No	Yes	Yes
Number of windows:	4	4	4	7
	Simply dreadful. How did we ever put up with it?	The most widely used version. Good value, low cost upgrade.	Much improved in terms of speed and great with accelerators. The best option for those worried about software compatibility.	Nice for STE owners but the hardware modifications for STFM and Mega owners aren't easy. Several programs don't like this new version.

ST NEEDS HELP?

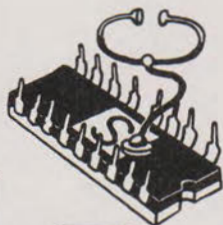
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SPU PICTURES FROM WITHIN STOS PROGRAMS

SPECCODE.PRG

SPECCODE is a machine code program which enables the users of the STOS games creator to show SPECTRUM (SPU) pictures from within the STOS environment. (512 colours for normal ST's and 4096 colours for STE's)

(SPECTRUM (SPU) uncompressed picture files are generated by such packages as SPECTRUM 512 (ANTIC PUBLISHING), ROMBO's VIDICHROME - ST digitizer etc.)

We will be happy to supply the program with examples on disk for the price of

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KAOSDESK

The search for the perfect desktop continues with a look at a new public domain arrival, KAOSDESK, featured on this month's coverdisk. But does it match up to NeoDesk?

A good desktop can make life a lot easier, and when a new public domain version comes along, it makes a pleasant change. **NeoDesk** has much in its favour, including keyboard shortcuts, the ability to use seven open windows and the wealth of information about files and hard disk partitions. It isn't perfect though, and even with a fast hard disk it takes a while to load and reload after exiting programs.



menus is much the same as GEM, which makes it easy to get going. It takes up much less memory than **NeoDesk**, loads more quickly and the GEM screen display functions are slightly quicker. Windows are redrawn much faster than under GEM although there is an annoying delay of two or three seconds whenever a new window is opened.

KAOSDESK was designed for monochrome monitors and hence there is no colour support as with **GEMINI** and **NeoDesk**. It functions just as well in medium resolution, however, although running in low resolution isn't recommended.

FEATURES

It offers so many useful features for the serious ST user that it is well worth investigating. For instance, there are several different drive icons, one for floppy drives, one for RAM disks and one for hard drives, as well as printer and dustbin icons. They can't be edited, but the file and program icons can. The icon editor lets you design your own around the basic GEM icon

template, but re-installing them in the desktop itself is a rather time-consuming business. Essentially, you have to edit a text file, adding the names of your programs under the appropriate icon heading.

Only four windows can be opened at once, which rather spoils it if you like having windows open on each hard drive partition simultaneously and you have more than four partitions.

On the other hand, **KAOSDESK** is very flexible, allowing one of three text sizes to be displayed in the windows as well as standard-sized icons. All the files in a directory can be selected with one mouse click or keystroke and the folders are animated - whenever selected, the folder icon appears to open up. Clicking on the bottom scroll bar of a window produces an instant report on free disk space in that directory, a very useful facility.

The various file parameters such as date, time and size can be displayed or hidden. If the date and time are hidden, files can be shown in two columns in a single window.

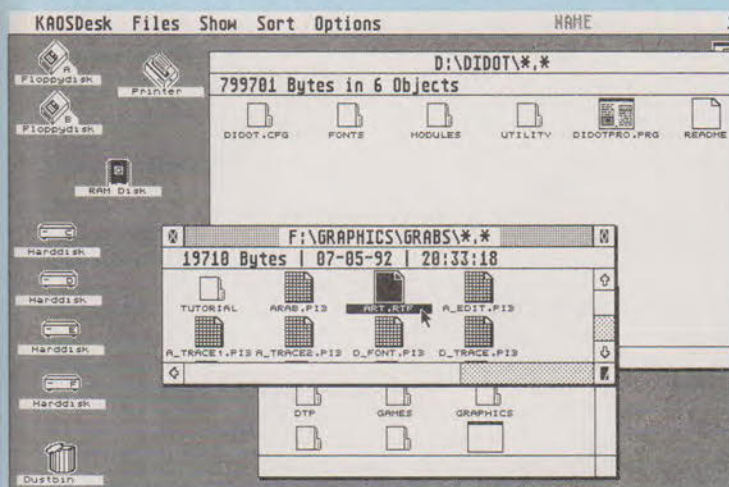
Double clicking on a document file opens it up for viewing without a dialogue. **Wordplus** format files are displayed correctly and all files can be scrolled a page at a time, backwards if necessary. If printing is required, the file can simply be dragged on to the desktop icon.

The desktop menu also lets you format disks with any number of tracks and sectors and copy existing disks with or without formatting the destination, a very useful feature if, for example, data on a non-standard ST disk is lost. Such data could be copied from a back-up disk with the non-standard format being retained.

The KAOS desktop - selecting a file's icon in a window displays information about that file on the window bar.

KAOSDESK

KAOSDESK is available through public domain program on a single-sided disk. Our copy came from Goodmans International on disk number GD1487 and consists of four programs, the memory-resident shell manager program which goes in the AUTO folder of your boot disk, the main **KAOSDESK** program and two utilities for creating and editing file and program icons. **KAOSDESK** is a complete desktop replacement which takes less liberties with the standard GEM desktop than **GEMINI** and **NeoDesk**. The structure of the drop-down



- Loads quickly
- Updates screen quickly
- File copying as fast as the GEM desktop
- Menus similar to those in GEM
- Good disk copying, flexible formatting, extra text sizes and customised icons

PROS AND CONS

- Fewer features than NeoDesk
- Poor documentation
- Only four open windows at once

"So many useful features for the serious ST user that it's worth investigating"

NAME: KAOSDESK
 COMPANY: GOODMAN'S INTERNATIONAL
 CONTACT: 0782 336222

PRICE: PUBLIC DOMAIN
 RELEASE DATE: OUT NOW
 MIN MEMORY: 0.5Mb

- EASE OF USE: ★★★★★
- DOCUMENTATION: ★★★☆☆
- EFFECTIVENESS: ★★★★★
- VALUE FOR MONEY: ★★★★★

OVERALL **70%**

NEODESK

NeoDesk is the standard against which all the other replacement desktops are judged. So how does KAOSDESK compare?

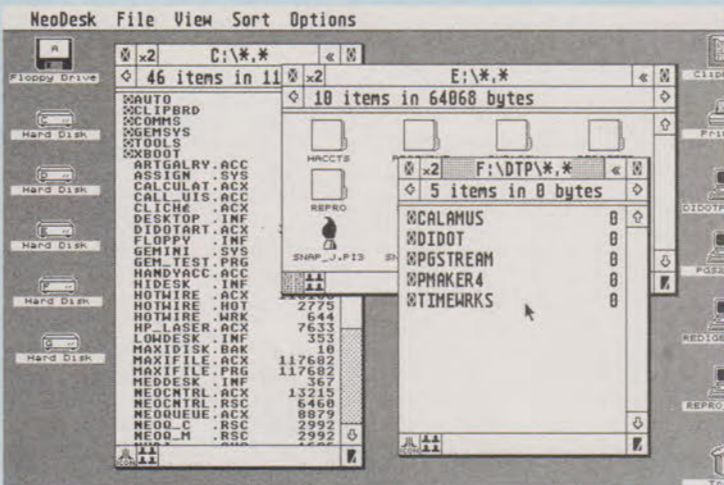
Many of **KAOSDESK**'s features have been incorporated in newer versions of the mega ST's operating system such as **TOS 2.06**.

It is far more comprehensive than **KAOSDESK** and offers a number of add-on features such as a command line interface, a recoverable trashcan and specially-tailored control panel and printer queue accessories. It is more easily customised than **KAOSDESK** and supports full colour icons. A printed manual is provided, of course, as opposed to a rather sparse text file with **KAOSDESK**.

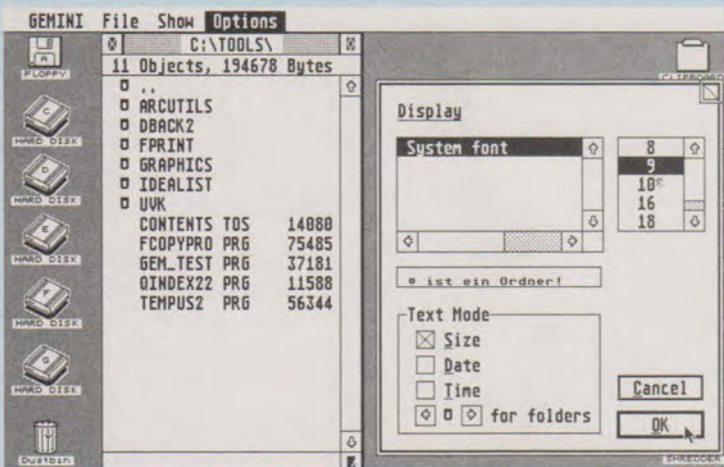
NeoDesk handles multiple file copying to and from floppy disks much better, although it is marginally slower in operation, especially when loading. **KAOSDESK** is certainly a faster, more compact replacement and as it costs nothing except the price of a disk, it will be just what many users are looking for.

DREAM DE

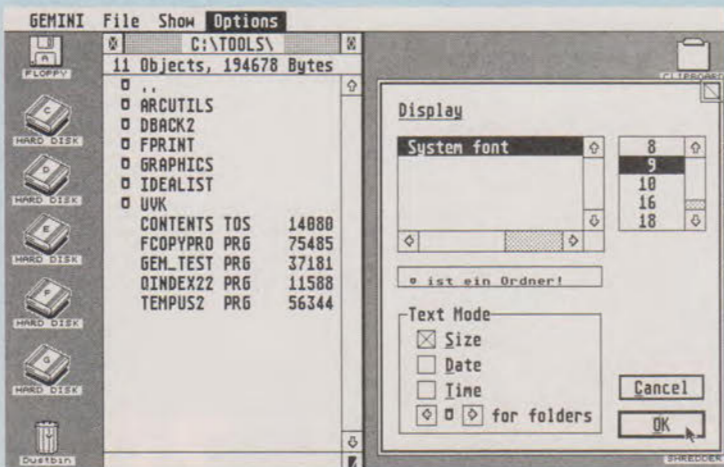
Maurice Collins continues our series on boosting productivity with a look at replacements for the ST's GEM desktop



Changing drive icons in KAOSDESK.



Editing icons in NeoDesk's built-in editor.



Changing GEMINI's window font - the dialogue boxes can be moved around the screen using the "handle" in the top right corner.

If you use an ST for anything more than playing games, you'll spend an awful lot of time with the GEM desktop. There can be little doubt that the ST's WIMP (windows, icons, menus and pointers) environment has proved remarkably successful in attracting new users, since the simplicity of file copying operations and methods of loading programs and accessories makes it a straightforward and easily understood system.

Unfortunately, it doesn't take long for even the rawest of ST recruits to start thinking, "If only I could select all the files in a window with one mouse click" or "Why can't I open more than four windows at once?" After a while, other weaknesses become apparent, especially as your disk collection grows or you add a hard drive. If you're working with your ST - writing or desktop publishing for example - it can start to slow you down considerably.

The good news is that if you've noticed some of these desktop omissions, you are certainly not the first. What's more, some of the people who spotted it earlier actually went out and did something about it! Now you can go out and buy a replacement desktop that will give you most of the features you've always wanted.

RUNNING AN ALTERNATIVE DESKTOP

The basic idea behind running alternative desktops is the same as with GEM. The computer boots normally, loading its desk accessories and AUTO folder programs. The replacement desktop can then be run by double clicking on the program icon or started automatically using the "Install Application" dialogue. In pre-TOS 1.4 machines, the desktop can only be started automatically by using secondary "patch" programs like STARTGEM.PRG. Automatic installation is the best method as you will then have the new desktop ready to go after booting up.

Of course, loading in a

replacement desktop takes time. Floppy drive users will find themselves waiting a while for the desktop to appear, whereas hard drive owners will hardly notice the difference.

When quitting from a program run from the replacement desktop, the desktop itself has to be reloaded again, making it a tedious business with floppies. With sufficient memory, most of the replacements can be run from a RAM disk, which speeds things up considerably.

All the alternative desktops use redesigned drive and file icons. This lets you distinguish various disk drives and files much more easily. **NeoDesk**, for example, has different icons for RAM disks, floppy drives and hard drives, as well as new icons for the clipboard, dustbin and printer. Dragging a file on to the printer icon starts printing it immediately and is the equivalent of double clicking on a text file and selecting "Print".

The clipboard is a very useful facility which acts as a temporary RAM disk. If, for example, you want to select half a dozen files from different disks and store them on another, the files can be dragged from their locations and placed in the clipboard. The new disk can then be formatted and the clipboard's contents copied across in a single pass. The **GEMINI** clipboard is semi-permanent - when you quit and reload, the clipboard's contents are still there. This is because it is disk-based while **NeoDesk**'s is RAM-based, another way in which **NeoDesk** suits floppy drive users better.

OTHER FEATURES

Other benefits of replacement desktops include the wider range of file and disk commands available from the desktop and better designed windows and dialogue boxes, allowing you to work faster.

NeoDesk is particularly good with floppy disk-based systems. File copying is much faster with single floppy disk



SKT TOPS

drives - instead of reading a single file, then writing it, then reading another, as the GEM desktop does, all the files are read into memory at once (RAM permitting) and then written in one go. None of the others use this method which is a great pity.

Hard drive owners benefit most from alternative desktops. The ability of all the replacements to drag file icons on to the desktop is perhaps the most powerful feature of all.

In this way, you can have icons representing your word processor, DTP package, art program and various other utilities. Double-clicking on any one of them launches the program without you having to navigate through partitions and folders. Floppy disk users can use the feature but you need to insert the right disk before double clicking.

Keyboard shortcuts are another feature missing from the GEM desktop. The mouse is very flexible, but serious users soon start to demand quicker methods of working. In all the replacement desktops, virtually every command has a keyboard equivalent. **NeoDesk** even lets you define

macros, series of commands that can be recorded and replayed at the touch of a button.

With this program you can also search for specific files using a pull-down menu command, which is particularly useful for hard drive owners.

GEMINI allows you to use keyboard shortcuts from dialogue boxes, too. Each button or option in the box has an underlined shortcut key, which means that the mouse can actually be discarded if necessary.

Another useful facility is the ability to select all files in a window. You can't do this from GEM - only those files that are visible can be selected for copying, moving or erasing. In both **NeoDesk** and **KAOSDESK** you can select all with a single command, an extremely useful feature when you have 20 or more files in a single directory.

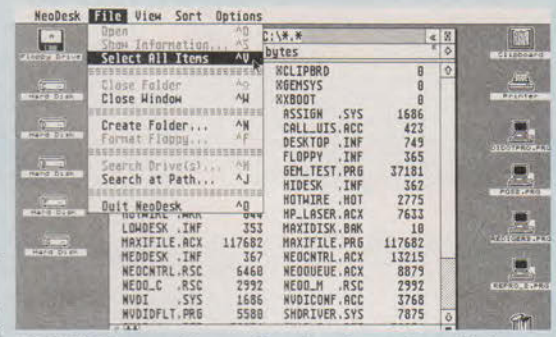
Most replacement desktops are also better equipped for formatting new disks and copying existing ones. All of them let you use non-standard formats to get more storage space on your disks and provide simple one step disk copying functions for dupli-

cating unprotected disks.

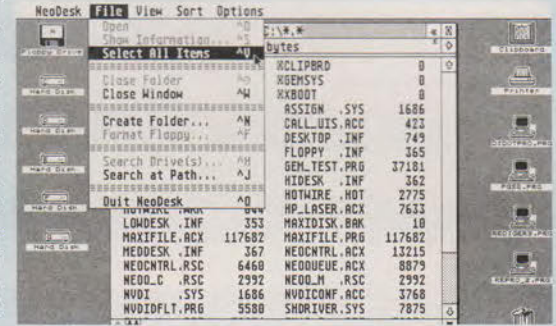
Overall, **NeoDesk** beats the competition hands down, both for its ease of use and the number of features that it contains. Having said that, though, **KAOSDESK** and **GEMINI** have their strengths too, and they're cheaper.

There is a working demo of **NeoDesk** available from South West Software Library as well as PD versions of the other two.

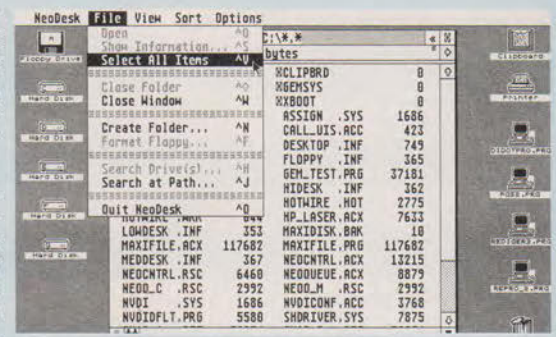
Of course, there's nothing to stop you getting hold of all four and trying them out for yourself!



GEMINI: note the application icons installed on the desktop itself.



NeoDesk's keyboard shortcuts and "Select All" command make it the best all-round desktop replacement.



NeoDesk lets you use different displays in each window - large and small text or icons.

FACILITIES

A range of superior functions are offered by replacement desktops

NeoDesk's dustbin can be made recoverable - any files dumped in it are stored temporarily in RAM until you launch a program or quit **NeoDesk**. This means that if you make a mistake, you can simply drag the file back again. **GEMINI** even has two dustbins, a standard "recoverable" dustbin and a shredder, for permanent file destruction. The dustbin even grows fat whenever a file is placed in it and the clipboard icon also fills up with text as a reminder.

Icons can be redesigned using the icon editors included with **KAOSDESK** and **NeoDesk**. There are also several disks full of **NeoDesk** icons in the public domain. **GEMINI** does not allow icon editing but it provides a wide range accessible from the desktop. Any file or icon can thus be changed instantly.

Another facility of the replacement desktops is the ability to change the fonts displayed in the windows. You can't replace the system font entirely, as you can with **Harlekin** or **NVDI**, for example, but you can use smaller text in windows so that more files can be viewed at one time. **GEMINI** is particularly flexible, with 12 different fonts ranging from tiny 8-point text to huge 18-point text. Monospaced GDOS fonts can also be added.

SMOOTH OPERATORS

How replacement desktops can make your life easier. . .

The ST has always had the capability to load in an image of the operating system from disk. The machine's entire operating system used to be loaded in this way. It was slow, but the system could be updated by changing just one disk. In fact, you can still load in newer operating systems - users with TOS 1.0 or TOS 1.2 can get TOS 1.4 on disk from some PD libraries (try South West Software Library quoting disk 1131) and try it out in full. You can also upgrade your machine permanently with replacement ROMs, adding new operating systems such as TOS 1.41, TOS 2.06 and EOS.

Replacement desktops are different. They are really just programs that are run in the usual way. Instead of presenting you with a blank page for word processing or graphics or a musical score for creating songs, they give you a completely different desktop. Gone are the old disk icons, trash can and boring drop-down menus. In come new icons and a range of facilities for keeping tabs on your files.

The ST's design allows these new desktops to operate from the computer's RAM (instead of ROM where the GEM desktop is stored) without any loss of speed. In fact, replacement desktops are noticeably faster in many ways.

BUYERS GUIDE

How the big three desktops compare...

Product	NeoDesk	KAOSDESK	Gemini
Price	£39.95	Shareware	Shareware
Supplier	Electric Distribution 0480 496666	Goodmans (Disk GD 1487)	
Machine required	Any 520 ST/STE	Any 520 ST/STE from TOS 1.0	1 Mb ST with TOS 1.2 or later
RAM used (basic)	220K	116K	370K
Screen resolutions	All	All	All
Open windows allowed	7	4	7
DESKTOP ICONS:			
Printer	Yes	Yes	No
Dustbin	Yes (can be made recoverable)	Yes	Yes, one recoverable
Clipboard	Yes	No	Yes
File icons on desktop	Yes, up to 32	Yes, up to 32	Yes
Screen fonts	Two (more with supplied utility)	Three	12 (more using GDOS)
Multiple columns in windows	Yes	No	Yes
Keyboard shortcuts	Yes	Yes	Yes
Edit icons	Yes (with editor supplied)	Yes (with editor supplied)	Yes (with editor supplied)
Disk copy	No	Yes	No
Extended disk format	Yes	Yes	Yes
Search for files	Yes	No	No
Macro commands	Yes	No	No
Select all items in window	Yes	Yes	No
Hide file details	Yes	Yes	No
Bulk file copying time	66/179 seconds	64/166 seconds	107/224 seconds
QUICK INDEX SPEED TESTS:			
TOS text	140	105	TOS text 105
TOS string	142	102	TOS scroll 102
TOS scroll	100	131	TOS string 131
GEM dialogue	96	132	GEM dialogues 132
	<p>Comment: As a full commercial product, NeoDesk is the most expensive. This brings with it hotline support from the GST Softline as well as bug fixes, enhancements and upgrades as they appear. It is by far the most comprehensive of the four with a rich array of useful features.</p>	<p>Comment: KAOSDESK is the newest of the four, only recently having been translated into English from the original German. File copying is particularly fast and screen redrawing and dialogue box opening is measurably faster than in NeoDesk.</p>	<p>Comment: GEMINI is the slowest at file copying, which won't endear it to some, but it offers many of NeoDesk's features at a fraction of the price. It also has fast screen updates and dialogue boxes. The registered version offers regular updates and added features for those who register.</p>

Notes:

RAM required – all but Gemini will work on a basic 520 ST/STE.
 RAM used – When using the desktop functions, the replacements take up a considerable amount of RAM (the basic figure). Once another program is run, however, most of the memory is freed except for a small part of the program which remains in memory to load the replacement desktop again after leaving the program. It is difficult to measure this element of each program but in most cases it is less than 50K.
 Clipboard – temporary storage area for files. Somewhat like a

RAM disk but it doesn't use up memory when not in use.
 Screen fonts – using a smaller screen font lets you see more files in a window which is particularly useful for hard drive owners. On the other hand, it can be difficult to read, hence this facility to change screen fonts from the desktop.
 Extended disk format – the GEM desktop formats disks with 80 tracks per side, each of 9 sectors. More can be stored on a disk using up to 82 or 83 tracks with 10 or even 11 sectors – a feature known as extended formatting.
 Hide file details – most users only want to see the name and

size of a file in a window. This facility lets you turn off the date and time display.
 Bulk file copying time – time taken to copy a selected group of files from one partition to another on the same hard disk. Figures are for TOS 1.2 and TOS 1.4 respectively. GEM desktop time for the same operation was 64/166 seconds.
 Quick Index speed tests – show the percentage improvement over the same machine running TOS 1.4 and the standard GEM desktop.

MIDI MONTHLY

Welcome to the first of our monthly MIDI sections run by our technical editor, Vic Lennard, who also happens to be the director of the United Kingdom MIDI Association. Each month we will devote part of this section to your questions; all you have to do is write to us at our normal address, marking the envelope "MIDI Monthly", and making sure that you give us full details of your equipment and problems.



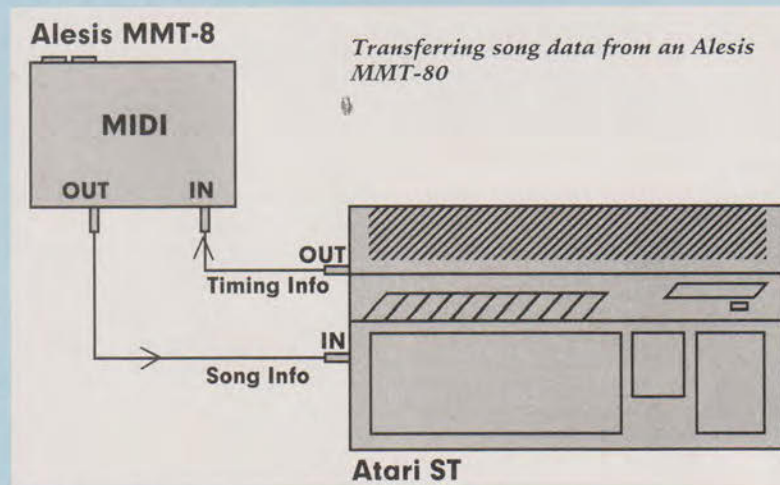
I have been using an Alesis MMT-8 for sequencing but am finding that it is losing its memory too frequently for comfort. All of my songs are saved to tape and so I can reload them, but this takes a long time and I often find that I have to reload a song two or three times before it is successful. I should add that I do a fair bit of live work which is why I have stayed with the MMT-8 for so long. Also, I have recently bought an Atari STE and have been given various sequencing programs for it. However, the ST doesn't have a tape interface and I can't figure out how I can transfer my songs to it. Can you help?

"The MMT-8 is an 8-track sequencer with pretty good facilities but, as you say, it doesn't have a disk drive and the tape interface is like most other tape

interfaces; unreliable at best.

The ST doesn't have a tape interface but it does have a pair of MIDI sockets labelled In and Out. The data from your MMT-8 can be transferred via these; it is still going to be time-consuming, but the chances are that you will be able to edit your song data far better on an ST sequencer than on the MMT-8. A visual editing screen on a monitor is worth its weight in gold and you will also be able to save your songs to ST disks which means that they will load in faster and more reliably. In the meantime, you can continue to take your MMT-8 out to gigs where an ST is liable to be damaged; the monitor often plays up when it is situated anywhere near the electrical fields created by lighting dimmers.

Follow the numbered steps below and you will then be able to transfer your data:



sequencer then records it.

8 After the song has finished, hit "Stop" on the ST sequencer and you should find that the entire song now resides on the track that you have recorded to. This will contain all of the song data on all MIDI channels; if there is an "unmix by MIDI channel" or equivalent function on the ST sequencer, then you can have each MIDI channel of data on a separate sequencer track. Save to disk and edit to your heart's content.

Chances are that you will need to re-quantise the song data, because transfer of this nature usually "pulls" the notes around a bit. If this is a problem, you can try the following:

a) Slow the sequencer down to around 60 beats per minute. The transfer will take longer, but the notes should be more accurate.

b) Transfer one track of the MMT-8 at a time. Reducing the volume of data being transferred helps to prevent timing problems.

This method of transfer can be used for any two sequencers - even two computers. The two MIDI cables (or "handshaking" arrangement) are necessary because one line sends timing information while the other sends the MIDI song information (see diagram). If you were to rely on the MMT-8 to send both types of data, the likelihood is that notes would be recorded less accurately on the ST sequencer."

● This month's question came from Andrew Wilson of Bolsover.

1 Load a song into the MMT-8 via tape, and then load up the ST sequencer.

2 Turn off the "soft-thru" on the ST sequencer. This is a function which transmits any MIDI data received at the MIDI In of the ST from the MIDI Out of the MMT-8. If this happens, the MMT-8 will be receiving its data back, leading to a MIDI "loop". This usually causes the MMT-8 to lock up, or crash which is very likely to erase or corrupt the data in its memory.

3 Connect the MIDI Out from the MMT-8 to the MIDI In of the ST, and the MIDI Out from the ST to the MIDI In of the MMT-8.

4 Set the ST sequencer to transmit MIDI Clock. If there are individual functions for the sending of MIDI Start, Stop, Continue and Song Position Pointer, select these as well. They can all be used to control the flow of data from one sequencer to another in this type

of situation.

5 Sync on the MMT-8 must be set to respond to MIDI (or External) Clock. This means that the MMT-8 will be under the timing control of the ST. Pressing "Play" on the ST sequencer will make the MMT-8 start from the beginning of its current song; pressing "Stop" will make the MMT-8 pause. The tempo of the ST sequencer will set the speed of data transfer between the two sequencers.

6 Set the tempo of the ST sequencer to around 90 beats per minute. This is reasonably slow and will help to make sure that your song data is kept as accurate as possible during transfer.

7 Set the ST sequencer to record; you'll probably find that it gives you a couple of bars of pre-record count-in. As soon as it reaches bar one, beat one, the MMT-8 should spring into life and start playing the song; the ST

MUSIC COMPOSITION

WHAT IS A MUSIC COMPOSITION PROGRAM?

Looking to compose music with your ST? Jon Bates checks out the latest software aimed at helping you to turn out incredible music



Here's the stereotype: the struggling composer eking out an existence, pouring out his innermost feelings on to parchment. Even rock musicians appear to draw their inspiration from mid-air. . .

Now for the reality: successful composers work hard to tight deadlines, and they work methodically. The basic idea, the "inspiration", is usually only 10 per cent of the composition: putting everything together and working on the sound and arrangement is equally important and actually takes up much more time. In many cases, this often repetitious work can be done by computer. The concept of the ST providing basic

ideas for the music itself is a new one. Although this sounds a bit like painting by numbers, nothing could be further from the truth.

The ST, with the correct software, can provide melodic ideas, backing patterns and chord progressions but has the advantage of still allowing you to make the vital decisions on how to mould and use what it throws at you. Many programs use music that you enter as a basis for generating new material - what you keep is up to you.

While there is no substitute for talent, compositional software is a tool. It presents you with ideas to pick and choose from. The adage of "rubbish in equals rubbish out" is particularly true here.

IMPROVISER

This neat little package, from Creative Sounds, has a very "live" feel to it

INSIDE INFO

The screen interface and field controls are extremely fast in operation and easy to use, although a warning box would have been useful for quitting the program - one inadvertent click on "Quit" and that priceless piece of music is lost for ever. You can store the settings of the screen controls, and the latest version (1.1) allows you to create and load specific melodic phrases for any mode or scale you wish to work

in. You can also set up customised rhythm patterns which will set Improviser working in your preferred style.

All generated music is stored automatically and can be saved as a MIDI File. On the down side, you'll need a MIDI sequencing program to be able to work with an improvisation. Bearing this in mind, it is surprising that the program, which is less than 100K in size, can't run as a desk accessory. While it will run with memory partitioning software such as C-Lab's "Softlink", this presumes that you are running an up-market sequencing program.

Improviser is a neat productivity package which analyses the bass, drums, harmony and melody in your song and then adds a fifth, improvised track. First of all the original song has to be recorded onto a sequencer, saved as a MIDI File and loaded into Improviser. You hear the improvisation while it is being generated and on-screen controls can be used to alter it as it is happening. Improviser does not generate notes by random; it makes a real attempt to produce innovative melodies.

The setting-up procedure is relatively painless; set up the MIDI channels to suit your synth, set the sounds from the MIDI menu and choose the drum notes. When you start Improviser, it starts by playing your original, MIDI-Filed song.

ON-SCREEN BUTTONS

The first button, marked Melody, switches from the original melody line to improvisation. You can return to the melody at any time by clicking on this button, but the improvisations will be based around variations of the main theme. The volume of the improvising instrument can be altered by

using the on-screen slider control; a similar control alters the playback speed.

Your first results may sound rather bland. If all of the notes in your improvisation have been the same length, alter them using the bottom-right screen area. Click on a note value and the improvised line changes accordingly. You can change the note values as often as you like and there are keyboard equivalents.

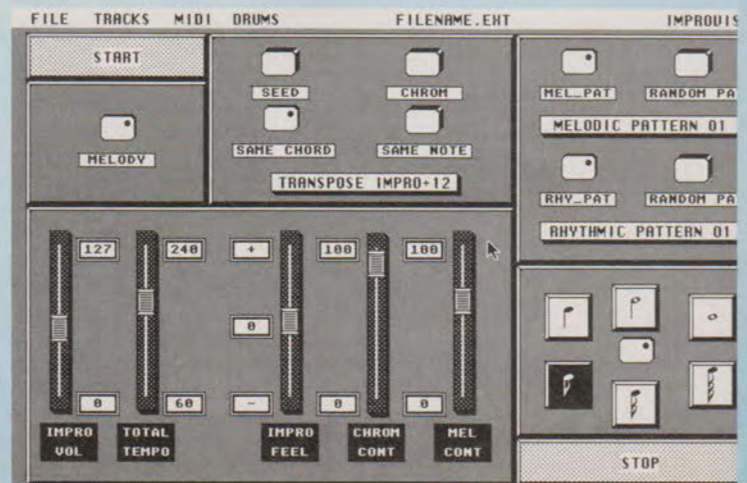
Rhythmic Pattern (accessed from the centre of the note values) provides a greater variety to the rhythm of the notes. There are 16 preset patterns but you can override these by clicking on the Random Pattern button which throws out notes in a less structured

way. This control has to be held down by the mouse button, which is probably a good thing; music sounding like a hyperactive under-five tap dancing on the keys of a piano is rarely useful.

A similar approach is taken with the melodic content of the improvisation. The slider controls introduce fragments of the melody, add "feel" to it (by moving the notes in front of or behind the main beat) and introduce notes outside of the current scale. This often leads to the improvisation sounding rather bizarre, but a quick occasional burst of these notes via the Chromatic button can add interest.

Other controls let you repeat the same note or create an

A single screen provides all of the controls necessary to let Improviser produce stunning music from the backing tracks you have created.



COMPOSITION MADE EASY

Makes a real attempt to make improvised music Works well in a variety of styles

PROS AND CONS

Needs a MIDI sequencing program to work properly

improvised line from any chosen harmony or chord within the piece.

FINAL COMMENT

Improviser tries to give the user the same tools and facilities that any improvising musician would use. The manual stresses that it isn't trying to do away with the performing musician, but rather to present possibilities on-screen. It can teach students to improvise without a technical mastery of their instrument. One great feature of this program is that it seems to work well with any style of music that you throw at it.

"An extremely innovative program that takes its inspiration from you!"

NAME: IMPROVISER V1.1

COMPANY: CREATIVE

SOUNDS

CONTACT: 0272 244395

PRICE: £99.95

RELEASE DATE: OUT NOW

MIN MEMORY: 0.5MB

EASE OF USE ☆☆☆☆☆

DOCUMENTATION ☆☆☆☆☆

EFFECTIVENESS ☆☆☆☆☆

VALUE FOR MONEY ☆☆☆☆☆

OVERALL **85%**

PRESTO

Presto is a sophisticated program developed in Switzerland which applies geometrical maths to music loaded into it.

Although not for the novice, it is clever in its operation and manipulation of music

Tunes are loaded via Presto's own format or MIDI File format and the program displays them in a graphic form in the centre of the main screen. It can work with all 16 MIDI channels simultaneously if you wish. Having defined a section of the piece that you want to alter, flip to the working pages. Here you have a wide variety of options by which you can alter and generally "bend" the original music. For example, you can redefine the key that a song is being played in along with the mode or scale you would like it reworked in.

FUNCTIONS

Having done that, you can use a diverse range of functions to alter either the defined block or whole piece. The fairly obvious ones, such as reversing

the order of notes and turning each interval upside down are only the beginning. You can display a section of a piece, define an area and then rotate this within the piece as a whole.

This may simply alter the pitch or, more interestingly, apply this data to the length or velocity of notes and then "fade" the alteration into the original piece.

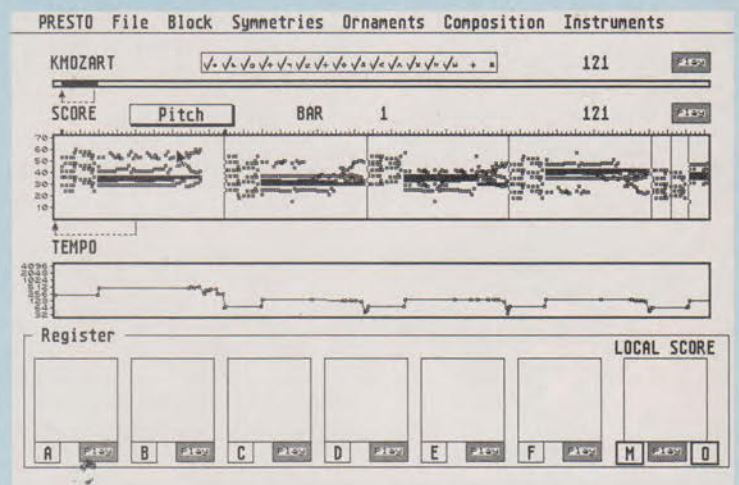
For each area of data defined above you can select several different types of display; if you want to see a graphic display of, say, just the velocities this is quite easy and areas can be selected. Various sections

created in this fashion can be stored and brought back onto the main screen in a series of small windows, called "local scores". These run along the bottom of the screen and can be cut, pasted or blended back into the main score wherever you like.

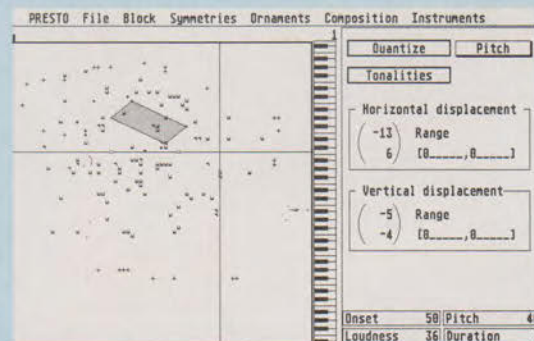
Underneath is the tempo map; points clicked on here determine how the tempo speeds up or slows down as the piece progresses. A double click magnifies this map for fine editing.

INTENDED USERS

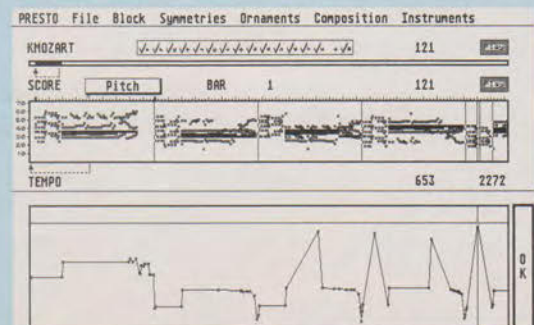
Presto produces some clever and interesting variations on



The main screen of Presto. The Mozart score is graphically displayed in the centre, while the tempo is changed in the box below.



Details of Presto's graphical note display. The shaded area is about to be turned through 180° to produce a slight variation.



The enlarged tempo map gives you accurate control over changes in speed.

An interesting tool for the experimental musician Produces a wide variety of results

PROS AND CONS

Its academic approach may dissuade some people

the music that it processes and is a highly advanced and academic program.

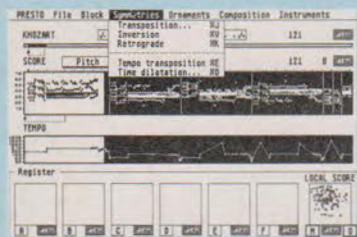
Its degree of sophistication is reflected in the price, and the program has so many features that it will inevitably take some time to fully understand them and to take proper advantage of them.

This is a program that is likely to be very popular in higher education establishments and the studio (either home or professional) that is committed to exploring the cutting edge of contemporary music composition.

Although distribution in the UK is currently "under negotiation", the draft of the English manual that was supplied with the review copy will have to be rewritten in colloquial English before it can be a serious proposition for most people.

A program with such a new concept requires very clear and precise documentation, which this one currently doesn't have.

The shaded areas are about to be altered by one of the menu options.



"A very detailed and smart program; results can be stunning, but this is reflected in the price"

NAME: PRESTO V1.4
COMPANY: PRESTO
CONTACT: 010 411 821 98 56

PRICE: £250
RELEASE DATE: OUT NOW
MIN MEMORY: 1 Mb

EASE OF USE ★★★★★
DOCUMENTATION ★★★★★
EFFECTIVENESS ★★★★★
VALUE FOR MONEY ★★★★★

OVERALL **78%**

DR. TIRICC

This clever and amusing program throws out ideas that you can toy with, dispose of or even work with. It can generate short drum patterns and random melodic phrases and any music generated can be played back through the ST monitor speaker or more accurately over MIDI

Dr. Tiricc can also generate lyrics. Input a few key words and short phrases and let the program assemble them, in an extremely random manner, into a lyric sheet. This is by no means a finished product, but it might just give you a new idea or direction.

The score display is very crude and hardly worth the effort of displaying it as there are no editing facilities. Since you can export both lyrics, in ASCII form, and music, in MIDI File, it is an amusing and possibly inspirational addition to a sequencing program.

Dr. Tiricc also speaks to you at every opportunity, saying the lyrics, engaging in friendly banter when asking for data to be input and generally trying to be amusing. There is a separate menu for "fun" which plays a few games - this is only amusing the first time round, though.

Generally, the program has enough features to produce inspirational bursts of music and is easy enough to be understood by even the most non-musical user. It is intended as a semi-serious and eccentric piece of software, but it does its best to bring a smile to your face to make up for the lack of sophistication.



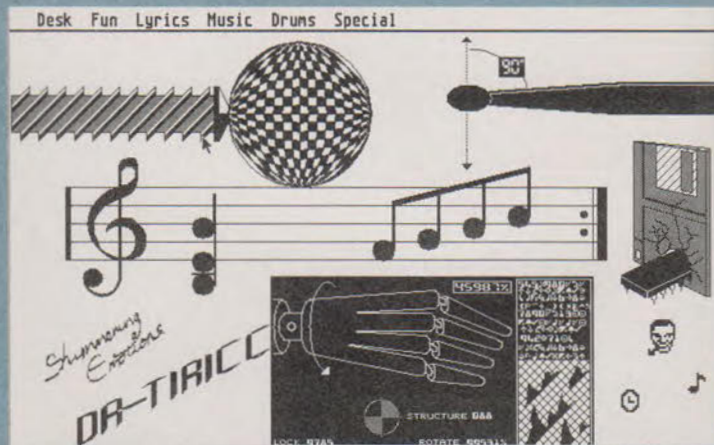
All this wonderful poetry was created by the bizarre Dr. Tiricc.

A drum pattern created by Dr. Tiricc and displayed on a grid pattern. It will play this pattern via the monitor or your MIDI drum kit.

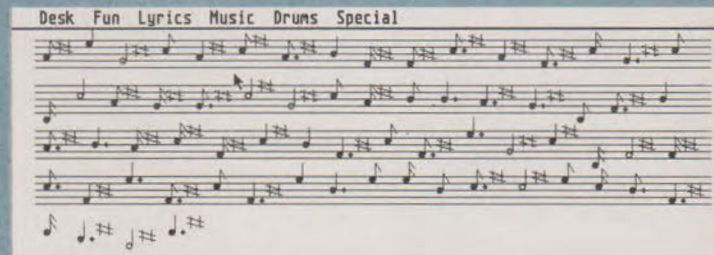
Its lighthearted approach may attract the novice

PROS AND CONS

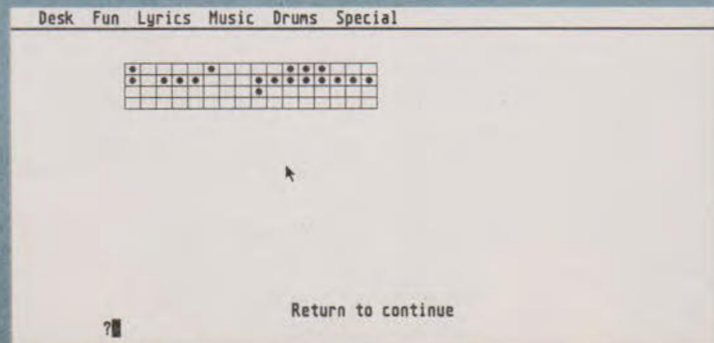
As you'd expect considering the price, it's a little rough around the edges



The mad main screen of the maniacal Dr. Tiricc.



Dr. Tiricc's note display is nothing to write home about, but this is the music it has created.



"An eccentric and amusing program, it will stimulate you into musical invention."

NAME: DR. TIRICC
COMPANY: INTRINSIC TECHNOLOGY
CONTACT: 081 761 0178

PRICE: £25
RELEASE DATE: OUT NOW
MIN MEMORY: 0.5 MB

EASE OF USE ★★★★★
DOCUMENTATION ★★★★★
EFFECTIVENESS ★★★★★
VALUE FOR MONEY ★★★★★

OVERALL **82%**

CREATING TRACKS BAND IN A BOX V5



Two programs that let you enter chord and rhythm patterns while the computer creates an accompaniment

ATARIST REVIEW
ESSENTIAL BUY

BAND IN A BOX V5

This well-established program is an excellent choice for beginners but has sufficient power to interest all levels of music lovers

The concept of **Band In A Box** is a simple one: chords are entered by name on-screen (the program can recognise over 120 chords) and up to two chords can be used per bar.

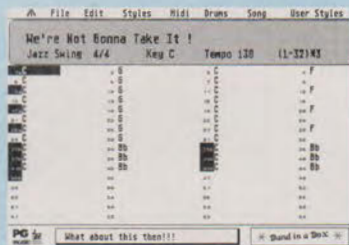
The sections for the intro, verse, chorus and outro each have to be marked so that **Band In A Box** can vary the accompanying patterns accordingly.

Once set up, the backing follows the structure of the song; drum fills and variations are then input where the song moves from section to section. Although there are now a wide variety of song styles that come with the program, additional style disks are available, each containing up to 100 styles, together with complete "Fakebook" song disks at £25 per disk.

MAIN FEATURES

Version 5 will create the drums, chord patterns and bass line and also add two counter-melody and accompaniment parts using up to a total of five MIDI channels. It supports General MIDI - new style disks automatically call up the correct sounds - and it has a handy sound patch remapper to enable you to quickly find the sounds you want on either your new or old synth.

Program changes which automatically change sounds can also be inserted at any point in a song as can alterations to volume. There's a



Chords are played from left to right, the shaded areas denoting sections within the piece and the title, speed and playing style being clearly marked above.



How to set up a drum kit. Each drum has its own note and these can be stored by Band In A Box.

built-in sequencer which lets you record melodies on top of the backing and so create a complete song. The sequencer has a degree of "feel" in its quantise functions which help to make the melody sound less stilted and more natural.

Users will become familiar with **Band In A Box** very quickly - not too much musical skill is required as all you have to do is copy the chords in the right order and select the style. This program is useful for creating backings for songs and is used by many people to create their own backing tapes; it's a lot quicker than programming all of the instruments separately and has the distinct advantage of allowing you to save the accompaniment which **Band In A Box** has generated to a MIDI File for further musical additions.

"A well-established piece of software which is easy to use and produces good results"

NAME: BAND IN A BOX
COMPANY: ZONE
CONTACT: 071 738 5444

PRICE: £69
RELEASE DATE: OUT NOW
MIN MEMORY: 0.5 Mb

EASE OF USE: ★★★★★
DOCUMENTATION: ★★★★★
EFFECTIVENESS: ★★★★★
VALUE FOR MONEY: ★★★★★

OVERALL: **92%**

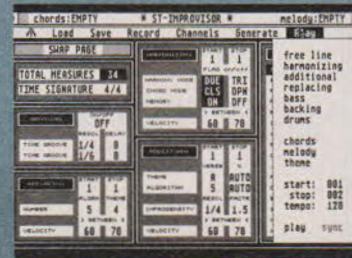
STIMPY

A sneak preview of a program that's similar to Feeling Partner

S *Timpy* can generate accompaniment patterns and variations, auto harmonies and counter melodies from the chords and playing style selected. One interesting feature is the program's ability to imitate guitar strumming.

As well as loading in patterns via MIDI File, you can input chord patterns on-screen. The variation functions use the same terminology as in **Feeling Partner** and in some ways the program is a cross between

that and **Band-in-a-Box**. **STimpy** will also run as a desk accessory which is useful for running alongside sequencing programs; even as an accessory it still has menus with options which can be edited. From the preview version, the program seems to have a lot of potential contained within a very simple and easy-to-use screen. The beginner should have no problems using it, whilst the professional user might find it a handy extra to generate additional harmony and counter-melody lines to existing compositions.



"Creates neat backings and auto accompaniments without difficulty"

NAME: STIMPY
COMPANY: AMG
CONTACT: 0730 88383

PRICE: £100 (expected)
RELEASE DATE: JULY 1992
MIN MEMORY: 1 Mb

EASE OF USE: ★★★★★
DOCUMENTATION: ★★★★★
EFFECTIVENESS: ★★★★★
VALUE FOR MONEY: ★★★★★

OVERALL: **80%**

CREATING MUSIC WITH FRACTALS

Fractal music programs let you put sound to graphics and compose tunes in a strange, new manner. . .



The complex theory behind fractal maths is as relevant to music as it is to the occurrence of earthquakes or the spread of diseases. The two current programs for the ST, **Fractal Music Composer** and **Fractal Music**, invite you to define loops and repetitions for musical sequences, vary the timing of the notes and alter the velocity and the pitch. Both programs can store the results in MIDI File format for further use in an ordinary sequencing package. They create music without the need for chords or melodies to be played or loaded into them.

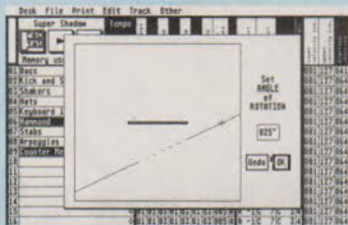
FRACTAL MUSIC
 £65 • DATA MUSIC LIMITED •
 081 445 3935

IN BRIEF: This is the slightly more mathematical of the two programs. It can work with up to 16 tracks of musical information simultaneously and any track can be subjected to a whole host of limitations. It has a unique way of reversing the notes on a track, and can take the data relevant to the pitches of the notes and apply it to either the note lengths or velocities, with some unexpected results.

ST REVIEW COMMENT:
 "With some unique features, this is a very comprehensive and mathematically appealing program."
 ★★☆☆

FRACTAL MUSIC COMPOSER
 £65 • FRACTAL MUSIC LTD •
 081 340 1871

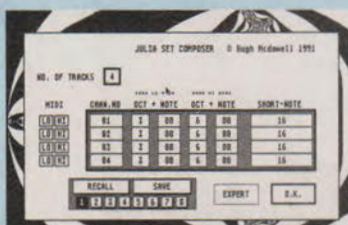
ATARI ST ESSENTIAL BUY **IN BRIEF:** Although you are still invited to choose the number of repetitions for each track, **Fractal Music Composer** works in a more musical way than **Fractal Music**. You can set the notes in terms of octaves, scales and chords, including the number of beats each chord is held for, although the program is limited to working with just four MIDI channels.



Graphically rotating the track data around can produce surprising results with Fractal Music

Its main charm is that it can "interpret" a fractal graphic and turn it into music; areas of the image can be selected and these generate the basic notes.

ST REVIEW COMMENT:
 "Although not as comprehensive a program as **Fractal Music**, this program probably produces more acceptable music and would appeal to trained musicians who like music to be defined in terms that they are familiar with. It's a great way to make complex maths very musical."
 ★★☆☆



The controls of Fractal Music Composer.

SOFTWARE WITH STYLE

Pre-programmed MIDI File patterns can make life far easier for the musician – and more and more examples are now appearing

Perhaps the most complete system at the moment is the **Hit Kit** from Gajits. Recently upgraded, it consists of sets of drum patterns, bass lines, arpeggio patterns and counter melodies arranged in groups. Everything is made easy – right from the moment that the style is decided. The drum patterns are loaded first, followed by the Phrase folder where there are seven styles of phrase, each of which are eight bars long. These are further sub-grouped into chords, drums, middle, backing, etc. As a starter package it's easy to use and the backings are well thought out. The drums are compatible with general MIDI, Yamaha and Roland drum kits, and you can configure your own drum kit as well. Whilst good value for money, the only disadvantage with **Hit Kit** is that it's designed to work with **Sequencer One** software and may be awkward to adapt for other packages.

HEAVENLY MUSIC
 Heavenly Music produces backing files to a very high standard – in fact they feel and sound as if they have been hand-crafted rather than mass-produced. The **Dr. Beat** series of drum patterns are set up for Roland kits, but also work well on general MIDI drum kits. Each disk is crammed full of drum pat-

terns, and most of the patterns are 70 or more bars long with styles including techno, afro, house and rock. **Beat 'N' Bass** combines drum patterns with bass lines and, once again, covers a wide variety of styles. The **RamJam** series provide backings in specific styles for you to jam along with.

UP-TO-DATE
 Hands On MIDI Software has a library of song files with in excess of 300 titles including most of the up-to-date chart hits, and it's the only company to have supplied Roland with commercial sequencer files. Each disk contains the following seven files: the song data in Steinberg Pro24 version 3 and MIDI File formats; drums on separate tracks for those who don't have General MIDI synths, along with an ASCII information file and two lyric files, one with bar numbers; finally, there's general information for the song, such as structure, key signature, tempo etc. The sequencing is excellent and comes highly recommended.

Finally, it's worth looking through the Newtronic catalogue. They market a variety of style disks which include funk, techno, South Indian, brass licks, guitar licks, standard jazz backings, rock drums, Latin drums and even Balkan grooves.

PRICES
Hit Kit: £29.95 from Gajits (061 236 2515)
Dr. Beat, Beat 'N' Bass, RamJam: £12 from Heavenly Music (0255 43421)
Hands On MIDI Software: £22.95 for 4 songs (0705 221162)
Newtronic: from £8.90 per disk (081 691 1087)

ST REVIEW'S AT-A-GLANCE GUIDE TO COMPOSITIONAL MUSIC SOFTWARE...

	PRICE	520	1040	runs as accessory	uses ST sound chip	chords input from ST keyboard	comes with backing styles	requires backing files	can arrange music	creates new music data	reads & saves in MIDI file	complies to general MIDI standard
Dr Tiricc	£25.00	✱			✱	✱		✱		✱	✱	
STimpy	£100.00	✱		✱	✱	✱			✱	✱	✱	
Improviser	£99.00	✱						✱		✱	✱	
Band in a Box	£69.00	✱				✱	✱		✱		✱	✱
Presto	£250.00		✱							✱	✱	
Feeling Partner	£175.00		✱			✱	✱		✱		✱	
Fractal Music	£65	✱				✱				✱	✱	
Fractal Music Composer	£129.00	✱				✱				✱	✱	
Dr Beat	£12.00	✱					✱				✱	✱
Ram Jam	£12.00	✱					✱				✱	✱
Hit Kit	£29.95	✱					✱				✱	
Hands On MIDI Software	£22.95	✱					✱				✱	✱
Newtronic	£8.90(1)	✱					✱				✱	

(1):Price for 4 songs on a disk

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PLEASE SPECIFY SOFTWARE USED

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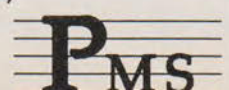
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GETTING STARTED WITH TIMEWORKS 2



PART TWO

Continuing his look at Timeworks 2, Terry Freedman takes us through the various ways of livening up a page and importing graphics

If you followed last month's tutorial, you should by now have produced a simple poster.

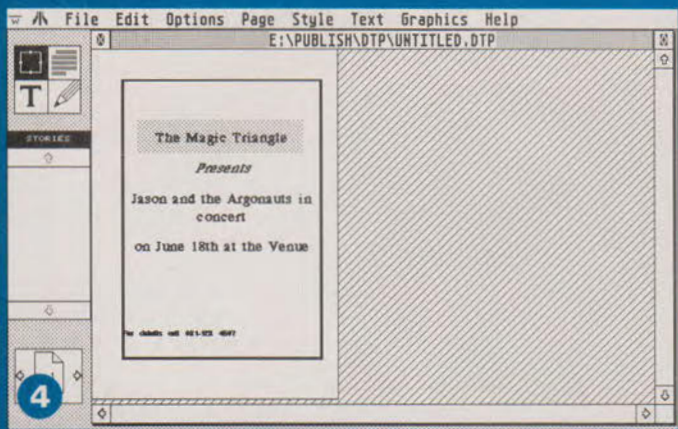
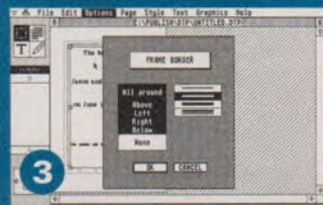
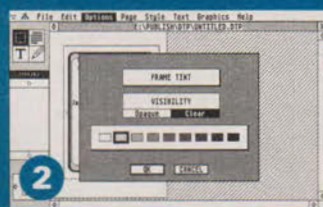
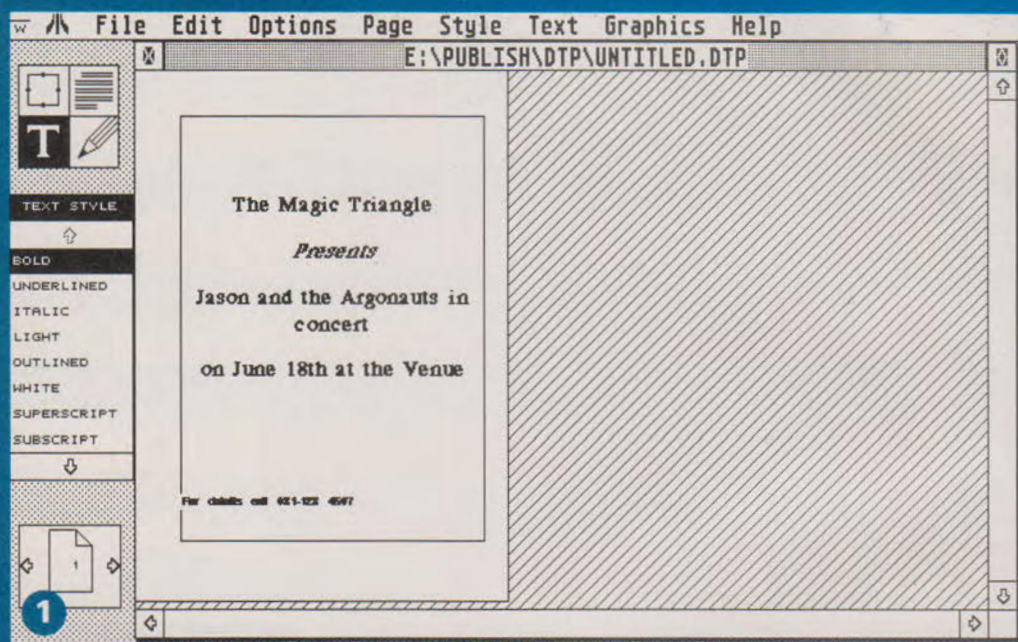
At the moment, you probably feel that your poster looks a bit Spartan, but there are a few things you can do in order to liven it up.

You could highlight some parts of the text, put a patterned border around it or create a shadow effect. When you've done that, you'll probably want to import some pictures. Our step-by-step guides below should be enough to get you started.

NEXT MONTH

We look at how to produce standardised documents such as invoices, and business and personal stationery.

HIGHLIGHTING TEXT



One of the most straightforward ways to give some instant life to your text is to highlight certain words or phrases. Here's how to go about it...

- 1 First, make sure that you have your original poster on the screen.
- 2 Next, draw a frame over the words "The Magic Triangle".

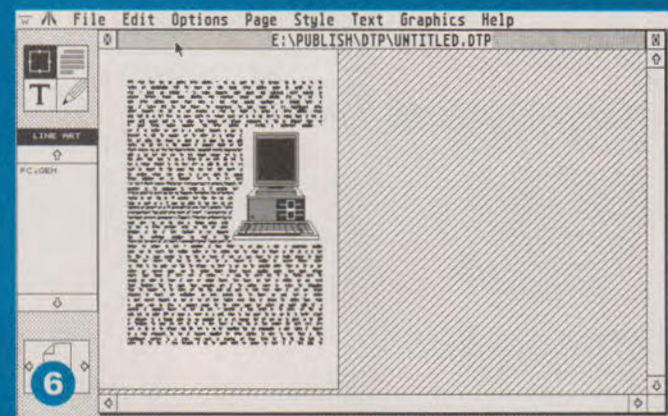
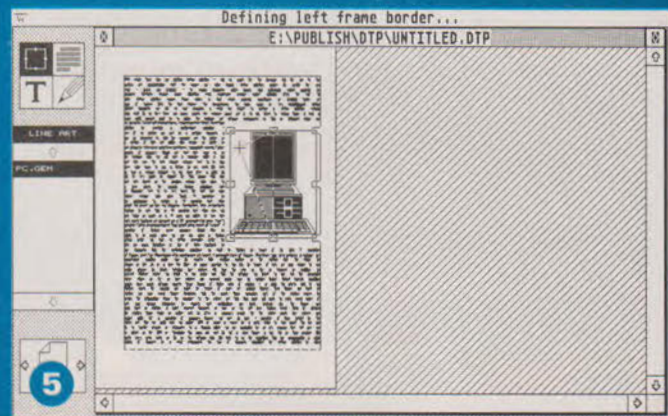
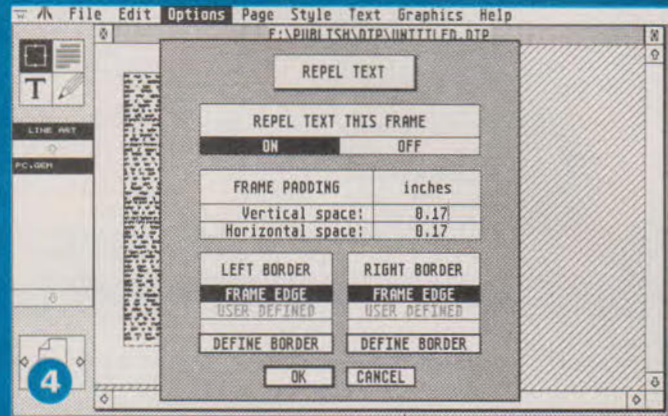
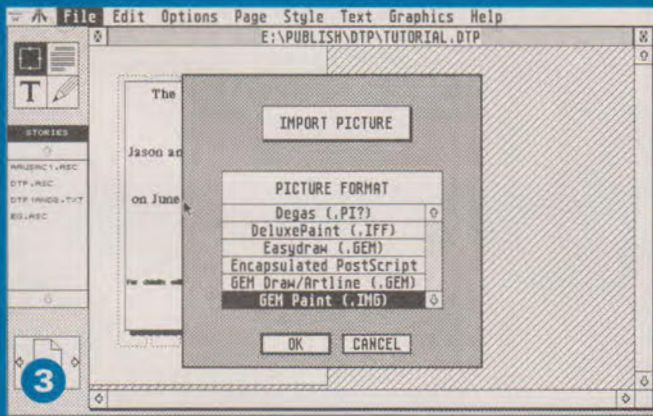
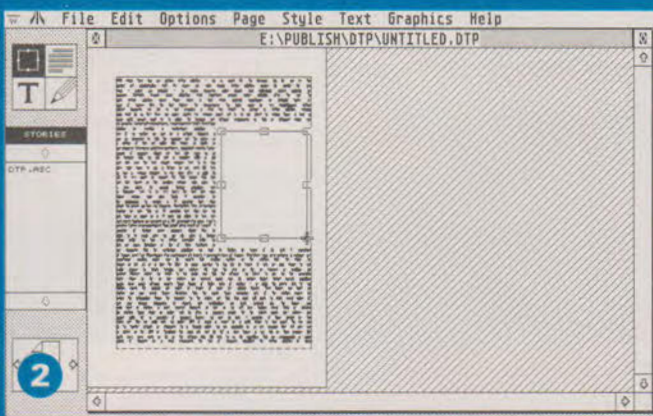
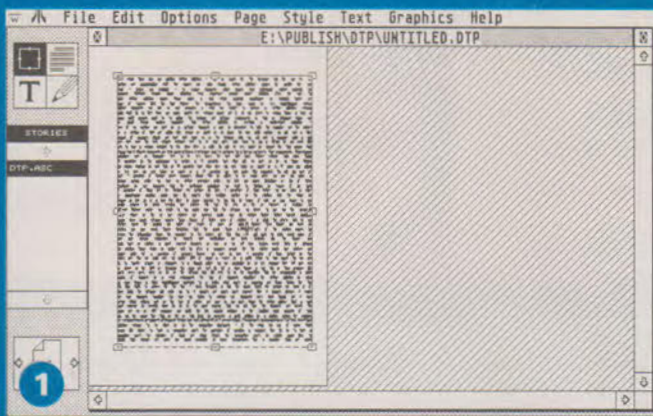
You'll notice that the words themselves are pushed out of the way, but don't worry about that for now. Call up the Frame Tint dialogue box by clicking on "Frame Tint" in the Options menu.

Change the settings from opaque to clear and from white to the light grey, and press Return. Next, select Repel Text from the

Options menu, click on "Off" and press Return.

- 3 Why not give the poster a border too? Just select Frame Border from the Options menu and choose the second thickest border and "All Around".
- 4 This is the result - notice how your poster is already beginning to stand out more.

GRAPHICS



One of the new features of Timeworks Publisher 2 is that you can now flow text around the graphic itself, not just the frame that it's in

1 Start a new document and draw a frame covering the whole page.

When you've done this, import some text into the document by choosing Import Text from the File menu.

Next, click on the frame to select it and the text will flow into it. (Alternatively, you could have imported the text into the frame straight away by selecting the frame beforehand).

2 The next stage is to draw a frame to hold a picture. Place it on one of the edges, since text can only flow around one side of the picture. The text that was there is pushed aside - instant text "Runaround".

3 Now, with the new frame still selected, click on Import Picture in the File menu, and you'll get this dialogue box.

For the moment, we're going to import some line art, so click on the (.GEM) option and then select PC.GEM.

4 Your next task is to flow the text around the left-hand side of the picture (in OUR example;

yours may be different). First, with the graphic frame still selected, you need to select Repel Text from the Options menu. Now click on "Define left border".

5 You'll notice that the frame border can be moved about and that the mouse pointer has turned into a cross, as shown here.

6 Now you need to trace around the shape of the graphic, clicking the left mouse button each time you need to change the direction of the line that you're using to "trace" around the graphic. When you've finished, double-

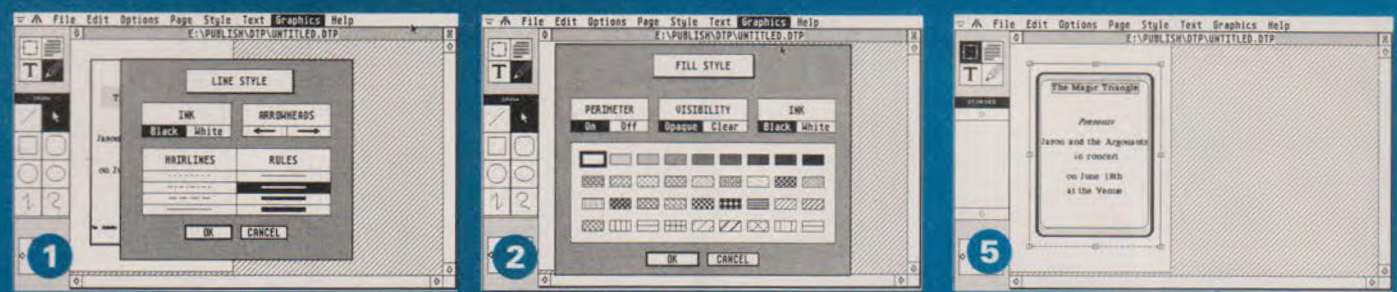
click inside the graphic frame and then, when the Repel dialogue box returns, press Return.

NOTE: Unfortunately, you can't use this simple method for bitmapped graphics, such as P13 and IMG files.

That's because an "undocumented feature" of the program is that the printer driver interprets a transparent graphics frame as a white one.

In other words, you end up with some of the text obliterated when you print out the document - which is not exactly the effect you want. There is a way to deal with bitmapped graphics, however - see our guide on page 132.

CREATING A PATTERNED BORDER



A patterned border may be just what you need to give your text that extra "lift"...

1 With your poster on the screen in front of you, go into the Graphics mode by clicking on the pencil in the tool box. Then click on the arrow so that you can set the attributes of the box you're going to draw. Now

select Line Style from the Graphics menu.

As you can see, there's a variety of options to choose from, but for now we'll just select the second thickest line and press Return.

2 Next, select Fill Style from the Graphics menu and select

Perimeter On, Visibility Opaque, Ink Black, and any pattern you like except white.

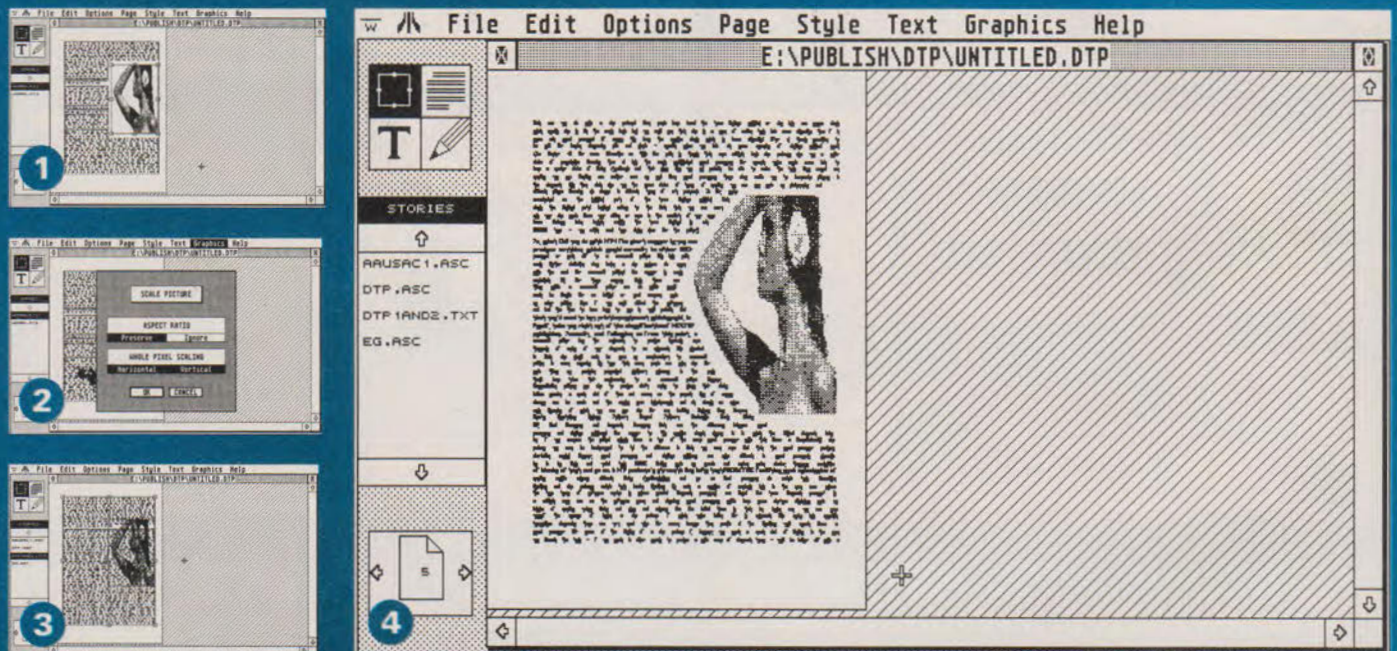
3 Now select one of the box icons and draw a frame in the usual manner.

4 Now draw another frame slightly inside this, with the same attributes, but give this

one a white fill pattern. You may find it easier to position the new frame if you turn off the Snap to Grid option in the Graphics menu - do this simply by clicking on it.

5 Finally, you need to click on the "T" in the toolbox, and the result should look something like this.

BITMAPMED GRAPHICS



The method of importing graphics described on page 131 won't work for bitmapped graphics. This is how you overcome the problem...

1 Import your picture in the same way that you did with ordinary graphics. In our example, a picture called WOMAN.P13 has been loaded in from the MEGAPAINTE II program.

2 You should make sure that the picture remains in the correct proportions by selecting

Scale Graphic from the Graphics menu.

Click on Preserve Aspect Ratio and Horizontal and Vertical Whole Pixel Scaling.

3 Deselect the graphics frame by clicking anywhere outside the page, then select the text frame instead. Bring it to the front by pressing Alternate 6, and then make it transparent via the Frame tint option in the Options menu.

4 Now click on Repel Text in

the Options menu, and select Define Right border - remember that you're working with the text frame this time, not the graphics one.

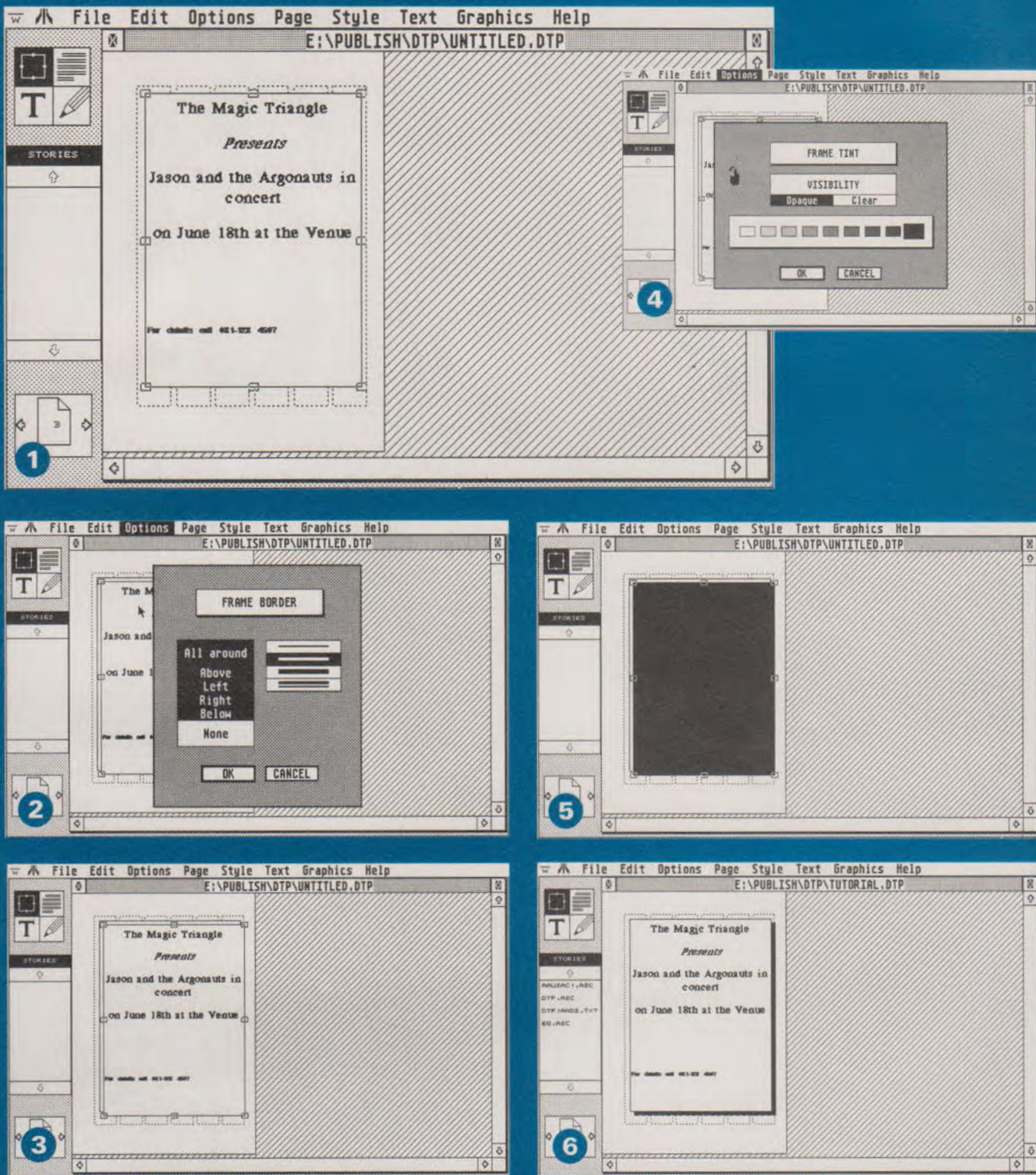
Now trace around the shape of the picture in exactly the same way as you did before, double-clicking inside the frame when you've finished.

You'll need to make sure that the top of the frame border which you define goes across to the right hand side of the page and then straight down to the picture.

5 This method is quite useful to know. If you recall, we said that you can't flow the text around both sides of the graphic. Actually, you can!

The trick is to have the text in two columns instead of one, place the picture across both of them, and then define the right border of the left column and the left border of the right column. It's not as confusing in practice as it sounds! There's an excellent example of this supplied with the package itself: it's called "Flier 1".

CREATING A SHADOWED BOX



Another way of giving your poster some depth is to put it inside a shadowed box. Be warned, however, that at one stage during this process you will find that your text completely disappears...

1 The first thing you need to do is to make sure that your original poster is on the screen and then reduce the size of the frame

to make room for the shadow.

2 Now, with the frame highlighted, give it a border by selecting **Frame Border** from the **Options** menu; select the thinnest border and "All Around".

3 Copy this frame by pressing **Alternate C**, and then immediately paste it by pressing **Alternate V**. The copy will be on

top of and slightly to the side of the original.

The copied frame, not the original, will now be the one that is selected.

4 Now call up the **Frame Tint** dialogue box from the **Options** menu, make the frame **Black** and **Opaque**, and press **Return**.

5 You will find that the original

frame has now been completely covered up by the new black one!

6 With the black frame still selected, you now need to press **Alternate 7**. This "sends the frame to the back", thus bringing your poster to the foreground again.

Mail order companies can provide a cheap and convenient way to buy goods. Punter Power ombudswoman, Christine Barton looks at the pros and cons of long-distance shopping

BUYING BY POST

Many special interest magazines contain a large number of advertisements for mail order companies that offer goods at reduced prices. This is particularly true of computer magazines, as each computer owning reader has a peripheral hungry machine that needs software and hardware. This is why there is a plethora of mail order companies who supply a whole host of products at prices often much cheaper than you can find in the shops.

Once you've read favourable reviews you are, of course, eager to buy. Ordering the product through the post seems the ideal option. You don't have to go out and look for it in your local shops – and, particularly if you live in a remote rural area, it saves you the trouble of a long trek in to the nearest town.

That's all well and good if everything goes according to plan, but what happens when things go wrong – if you don't receive your order or the goods are damaged? Just what can you do about it?

YOUR RIGHTS

Under the Sale Of Goods Act you have certain rights in law whenever you buy something. The goods must be of merchantable quality, as described and fit for the purpose intended.

So if your joystick arrives damaged, or a disk doesn't work, you're entitled to your money back. If the description in an advert is misleading you should report it to your Trading Standards Department.

A disadvantage of buying by post and paying in advance for the goods is that you have entered into a legally binding contract. The supplier has offered you the goods at a certain price and you have accepted by sending the cheque. If

you decide you don't like the product when it arrives it is usually too late to change your mind, unless the company states that you can have the goods on approval. So it is wise to find out as much as you can about the product first. Read the reviews, and if you know someone who has it, try it out. Make sure it is what you want before you part with your money.

MONEY MATTERS

There are steps that you should always take when buying by post which will help if things go wrong. Check that the magazine or catalogue that you are ordering from is up-to-date and that you are covered by a protection scheme. If you have to send money with the order, don't send cash. Use a cheque or postal order and keep a record using the counterfoil.

If you're ordering a large, expensive item, send the cheque by recorded delivery. Don't forget to include your name and address and keep a copy of the advert and the name and address of the company.

ALTERNATIVES

Credit Card hotlines provide a convenient alternative way of paying. Using a credit card gives you added protection if you are spending over £100, so if you are buying a computer or printer by post it makes sense to use this method of payment.

Occasionally, goods will be out of stock or a release date will be changed. The retailer should notify you of any problems.

If you don't hear from them it is usual to allow 28 days for delivery, and an advertisement will often state this. After that time it would be reasonable to ask for your money back. Sometimes goods are lost in the post and in that case you

would have to claim off the Post Office. If you have to return goods for any reason ask for a certificate of mailing – it doesn't cost any extra.

SAFEGUARDS

Unfortunately, during the present difficult economic climate, many businesses are going into liquidation. So where possible, find out what you can about the company you're ordering from. Have your friends bought from them recently? Are they still advertising in the latest issue of your magazine? You could ring the firm and ask to pay cash on delivery. If a company does go bust before supplying you with your purchase, then there is probably little chance of recovering your money, unless you have paid by credit card.

The credit card company has equal liability with the supplier, if the goods are for over £100. So if the goods are faulty or simply don't arrive you can claim against the card company as well as, or instead of, the trader. Bear in mind, though that you will not be able to receive refunds from both. If the company goes into liquidation you can get your money back from the credit card company. You should also remember that these benefits do not apply to debit cards such as Switch or Connect.

If you have a complaint or a problem about the product or the service you have received, you should write to the supplier, giving all the relevant details. Should you have no success then consult the Office of Fair Trading, Citizens Advice Bureau or Trading Standards Department.

You can also complain to the Mail Order Protection Scheme or Advertising Standards Authority. You should make sure that you take some action: don't just sit there and hope that your goods will eventually turn up.

Buying by post does enter you into a commitment before you receive your purchase, but there are several things you can do to ensure that you get maximum satisfaction

- Make sure that the source of the advertisement – magazine or catalogue – is up-to-date. With a tough business environment at the moment, companies can go out of business quite quickly.
- If you are asked for money in advance, send a cheque or postal order, not cash.
- Keep a copy of the advert and the company's details.
- Take care when ordering from companies using a P.O. Box number. If the magazine carrying the advert doesn't have an address for them then you won't be able to trace them if anything goes wrong.
- If you have a credit card, use it to order. It will give you extra protection, especially on more expensive items.

USEFUL CONTACTS

Head Office numbers – phone for your local office.
Office of Fair Trading:
071 242 2858
Trading Standards
071 260 1225
Citizens' Advice Bureau
071 236 1156



A WORLDWIDE NETWORK OF COMMS

A networked bulletin board can put you in touch with other ST users throughout the UK and even other parts of the world, as Colin Bruce finds out. . .

Most of the bulletin boards around the UK are connected to other boards via modem during the early hours of each day. These networks can prove a great source of help and advice: for example, a user on one BBS might ask advice regarding computer hardware or a game. Other users, on different boards in that network can read the message, and reply if they can help. The three most widely-used networks are FidoNet, TurboNet and NeST. The latter two are ST-based.

FidoNet is the biggest worldwide BBS network. It caters heavily for the PC, although most boards have some facility for the ST. There are roughly 40 bulletin boards in Britain which are members of either NeST or TurboNet, so when it comes to comms, ST users are much better represented than their Amiga counterparts. Both the Atari-based networks are connected with hundreds of other boards all over the world.

PASSING IT ON

NeST, FidoNet and TurboNet boards offer various advantages to their users. Among other things, you will have

access to the latest programs months before they appear in PD library catalogues. They are circulated through file echoes, where a file sent to one BBS will be passed round to others. For example, there are now two different ZX Spectrum emulators, which will take a while to filter through to the masses, but can be found on most networked boards. There are plenty of new utilities being released through the file echoes, straight from the programmer's compiler.

Messages are an essential part of any network, and the two main ST networks are no exception. A wide range of topics are available, from the serious message areas, such as desktop publishing, to more general areas, such as adventure games and a buy and sell area. There are far too many messages to read while online, so an offline mail reader is an essential tool for any modem user. This allows you to read messages, without running up a huge bill. You can reply or enter messages in your selected message areas, and send your messages the next time you log onto the bulletin board.

MULTI-PLAYER GAMES

One aspect of ST comms that has become a craze is the online game, *Space Empire Elite*. Hundreds of networked ST boards have been running the game for years. The PC finally managed to get a "loose" clone of the game, called *Dragon Warz*, but it doesn't have the same atmosphere as the ST original. Once you have the hang of the game, it only takes about three minutes to play.

You and your fellow players plot together to gain planets and points and wipe out your opposing galaxies. At the same time, you must fight The Satharian Empire, a computer controlled player. Your war machinery consists of fighters, troops, and heavy cruisers, spiced up with the likes of terrorists and spies. One of the more interesting features are Death Stars. Players group together, choose a target BBS and pay a large amount of credits towards a Death Star. Once it is fully funded, construction begins, it takes a week to complete, and then it will arrive at your target, causing havoc, until your enemies can destroy it - which isn't easy.

If you want to play *Space Empire Elite*, these hints might

make it easier:

- The more ore planets you have, the more credits you'll have to do damage with.

- Fighters are more worthwhile than troops, as troops are expensive to maintain.

- An individual strike on an enemy user yields 20 per cent of their planets if successful, group strikes only yield 10 per cent if they succeed.

SPEEDING UP

A computer isn't a serious tool until you have a modem, and the faster it is, the better. Although a 2400 bps modem is adequate for messages, it's not suitable for sending or receiving large files.

MODEM SPEEDS

Our chart shows you how long different modem speeds take to transfer 1 Mb files

SPEED	TIME
14400 bps (v32 bis or HST)	10 mins
9600 bps (v32)	15 mins
2400 bps (v22bis)	1 hr
1200 bps (v22 or v23)	2 hrs

N.B. The above figures assume that the data being transferred is compressed.

Luckily, prices are falling rapidly, so a 9600 bps or faster modem is now within most people's price range, and most BBSs support high speeds. You can buy high-quality Supra v32 (9600) Faxmodems for £220 including VAT, and Supra v32 bis (14400) Faxmodems for £270. Features include FAX, MNP and v42 bis error correction and compression. Contact Computer Exchange on 0482 26581 for more information.

RECOMMENDED BOARDS

All the following boards have networking facilities, so everything you leave on them will also appear on all the other boards in this list

NUMBER	NAME	LOCATION	SYSOP	MAX SPEED
0236 747393	Dregal BBS	Aldrie	Mark Anderson	9600 (HST/V32/V42/V42B)
0252 341751	Super Shot	Aldershot	Graham Lawrence	2400
061 928 8801	2001	Altrincham	Chris Gottlieb	9600 (HST)
0494 728094	Storehouse Bits	Amersham, Bucks	Iain Phillips	2400
0296 398166	The Gourmet	Aylesbury, Bucks	David Barnes	9600 (HST/V32/V42/V42B)

NUMBER	NAME	LOCATION	SYSOP	MAX SPEED
0296 770454	Roy's Realm	Aylesbury, Bucks	Roger Hutchings	9600 (HST)
0324 840868	The SMC Opus	Banknock	Rashad Aslam	9600 (HST)
0282 817379	Random Access	Barnoldswick	Keith Whiteley	9600 (HST)
041 880 7845	Scottish Opus	Barrhead	Donald Whannell	9600 (HST)
0256 768331	BAS Opus	Basingstoke	GRAHAM Butler	9600 (V32/V42/V42B)
0424 83654	Shareware Librar	Battle	Vince Apps	9600 (HST)
0232 768163	Yukon Hol	Belfast	Mark Kerr	9600 (HST/V32/V32B/V42/V42B)
0482 870919	Fido At Odyssey	Beverley	James Willmott	2400
021 430 3764	The Magic Castle	Birmingham	Mick Coleman	2400
021 441 1801	Barney's Rubble	Birmingham	Jon Morby	2400
021 552 9839	The Cult	Birmingham	Jason Reeves	2400
021 788 1751	Faint Breeze	Birmingham	Norman Molineux	2400
0253 57941	Blackpool opus	Blackpool	Ian Ingleby	2400
0258 455117	Blandford BBS	Blandford	Bob Weeks	2400
0204 596245	Time Tunnel	Bolton	Dave Roocroft	9600 (HST/ V32)
0202 5327801	The Co-Ops	Bournemouth	John Mileham	2400
0274 481363	Strange Daze	Bradford	John Poltorak	9600 (HST)
0274 547006	Magnum BBS	Bradford	Keyop Troy	2400
0273 571457	Cslbb	Brighton	Mark Eaton	2400
0273 600996	On the Beach	Brighton	Marc Bowden	9600 (HST)
0272 572322	Noah's BBS	Bristol	Bob Voisey	2400
081 678 6087	Rock Of Gibraltar	Brixton	Paul Bonifacio	9600 (HST/V32/V42/V42B)
0444 870559	Accent	Burgess Hill	Nigel Hewitt	2400
0282 23960	The Saturn BB	Burnley, Lancs	Thom White	2400
0249 817704	The Pheonix	Calne	Ade Truelove	9600 (HST)
0222 66907	Public House BB	Cardiff	Stephen Ogbourne	9600 (HST)
0228 26478	Scorpions Nest	Carlisle	Bill Searle	9600 (HST)
091 388 3078	Jackies Place	Chester Le Street	Jackie Sturees	9600 (HST)
0246 236510	Antadia	Chesterfield	Phil Clifford	2400
0342 717800	Airtel Remote	E. Sussex	Adrian Pop	9600 (HST/V32/V42)
0536 400195	Corby Town BBS	Corby	Felix Harrigan	9600 (HST/V32)
0892 667091	PDSL	Crowborough	Neil Blaber	9600 (HST/V32)
08656 5190	DTP User	Croydon	Steve Dick	9600 (HST/V32)
0846 693067	Quasser	Dromore	Dave Bryne	9600
0 711047	Trinity College	Dublin	David Doyle	9600 (HST)
021 717 0455	Apricot Tech Sup	Edgbaston	John Krzesinski	9600 (HST)
021 717 0454	Apricot Tech Sup	Edgbaston	John Krzesinski	9600 (HST/V32/V42)
021 717 0453	Apricot Tech Sup	Edgbaston	John Krzesinski	9600
0392 412370	The Lost Arc	Exeter	Helen Rogers	2400
0392 45 384	Night Hawk	Fareham	Robert Leach	2400
0367 242674	Trinity 2	Faringdon	Andrew Bessant	2400
0795 530961	Chancellors Den	Faversham, Kent	Denis Benett	9600 (HST/V32/V32B/V42/V42B)
0795 538357	Dataserve Sys BBS	Faversham, Kent	Graham Jenkins	2400
0795 538359	Chancellors Den	Faversham, Kent	Denis Benett	9600 (HST/V32)
0202 873911	The Abbey	Ferndown	Chris Durham	9600 (HST/V32/V32b/V42/V42B)
0252 626233	BOOB BB	Fleet, Hampshire	Jeremy Browne	9600 (HST/V32)
0452 330238	Atlantis1	Gloucester	Alan Walker	9600
0452 330244	Atlantis2	Gloucester	Alan Walker	9600 (HST)
0274 851027	More Sum Wine	Gomersal	Nigel Beaumont	9600 (V32)
0343 830315	Moray BBS	Gordonstoun	Mark Parlour	2400
0323 844455	Excalibur's Edge	Hailsham	Mike Atkinson	2400
0422 381154	Style QBBS	Halifax	John Carolin	9600 (V32)
0706 832437	P & P Distribution	Haslingdon	Stephen Mitchener	2400
0273 846504	Diamond Opus	Hassocks	Paul Hughes	9600 (HDST)
0424 433816	North Of Archemez	Hastings	Steve Anderson	2400
0424 853361	Piston Popper's UK	Hastings	Peter Burnett	9600 (HST/V32/V42/V42B)
0707 263695	Torture Chamber	Hatfield	Steven Gee	2400
0865 64958	DDLG ACE Centre	Headington	David Colven	2400
0434 606639	Log On In Tynedale	Hexham	John Rawson	9600 (HST)
0434 608324	The Dog House	Hexham	Ian Dodd	9600 (HST/V32)
0628 810889	Mirror Info. Ex.	High Wycombe	Lee Evans	2400
0484 653234	Summer Wine	Huddersfield	Chris Townsend	9600 (HST)
0480 406261	Byte Brothers	Huntingdon	Ritchie Dakin	2400
0473 232540	MiracomTechSup	Ipswich	Paul Garrett	9600 (HST/V32/V42)
0536 414151	The Pegesus Connection	Kettering	Gary Marden	2400
0536 725180	Publisher's Paradise	Kettering	John Wilson	9600 (HST)
0553 761290	West Norfolk (10pm-7am)	Kings Lynn	Chris O'Shea	2400
0482 805225	Forum 88	Kingston	Frederick Brown	2400
0524 752245	The End Zone	Lancaster	Adam Purnell	9600 (HST/V32)
0732 845338	Pacific Lightning	Larksfield, Kent	Colin Spice	9600 (HST/V42/V42B)
051 236 3105	Ps&Qs Tel	Liverpool	Alan Smith	2400
051 270 1635	Kelsha BBS	Liverpool	Ken Dalton	2400
051 428 8924	Liverpool Int. Mailbox	Liverpool	Peter Tootill	9600 (V32)
051 734 5817	Graykarn Tech Support	Liverpool	Bill Phillip	9600 (V32)
051 931 4271	Grin!	Liverpool	Ben Goodwin	9600 (V32/V42/V42B)
0924 411109	The Wine Rack	Liverseage	Ron Brookes	9600 (HST/V32)
071 409 7597	Conner BBS	London	Eddie Seymour	9600 (HST/V32)
071 537 9854	The Docklands Project	London	John Clift	2400
071 580 1690	Polynet SNC	London	Eileen McCabe	9600 (HST)
071 608 1899	GnFido	London	Mike Jenson	9600 (V32)
071 824 8863	Wino's Bar Line 1	London	Andrew Brown	9600
071 730 5145	Wino's Bar line 2	London	Andrew Brown	2400
071 962 1238	The Hoovers Retreat	London	Frank Toohey	2400

NUMBER	NAME	LOCATION	SYSOP	MAX SPEED
071 976 6807	Nite Life	London	Neil Jelley	2400
081 207 2989	Dark Crystal	London	Phil Day	9600 (HST)
081 395 8372	The Domain BBS	London	David Boardman	9600 (HST)
081 566 5393	Paradigmus Maximus	London	John Taylor	9600 (HST)
081 748 0974	London Guest House BBS	London	Richard Pike	2400
081 905 5176	Poptel	London	Josh Greifer	9600 (V42B)
081 984 1522	the Stateside Link BBS	London	Brian Willis	9600 (V32/V42)
0502 518274	Disabled Data Link BBS	Lowestoft	Cliff Jones	2400
0829 782676	The Power House	Malpas	Edward Hobson	9600 (HST/V42/V42B)
0204 364319	Post Box	Manchester	Graham Stephens	9600 (V32)
061 434 9907	D.I.E.	Manchester	Si Thornton	9600 (HST/V32)
061 707 20-08	Dead On Arrival	Manchester	Christopher Seeley	2400
061 748 3855	The Sphinx	Manchester	Lorna Price	2400
061 792 0260	Aspects	Manchester	Dave Gorski	2400
061 832 1961	The Co-Op Manchester	Manchester	Frank Dent	2400
0858 466594	Aureal	Mkt. Harborough	Eddy Ralphson	9600 (HST/V42)
0642 232142	Middlesborough Social Ser.	Middlesborough	Tom Lamb	2400
0895 272021	Software Madness BBS	Middlesex	Gary Weston	2400
0594 544865	Scottish Wildcat	Montrose	James O'Hara	9600 (HST)
0509 620442	Pagemaker User	Mountsorrel	Gill Foster	9600 (HST)
0282 698380	Look Northwest	Nelson, Lancs	Neil Metcalfe	2400
0635 248622	Terminator BBS	Newbury	Neil Boffin	9600 (V32)
063571324	Eddies BBs	Newbury	Eddie Seymour	2400
0953 851351	Track 83 Atari St	Norwich	Les Partner	9600 (HST)
0602 476175	Nottingham University	Nottingham	Ian Sherman	2400
061 627 0630	Oldham Access Centre	Oldham	Wayne Winterbottom	2400
0689 827085	Fox's Den BBS	Orpington	Barry Freeman	2400
0865 53999	Daily Information	Oxford	Simon Barber	9600 (V32/V42/V42B)
0865796430	RM Support BBS	Oxford	David Taylor	2400
0865 882872	M-G-M	Oxford	Nik Garfield-Middleton	9600 (HST)
091 518 1058	The Castle Eden BBS	Peterlee	Andrew Lackenby	9600 (HST)
0202 600305	Fourth Dimension	Poole	Wayne Weedon	2400
0705 754851	The Co-Op Board	Portsea	Geoff Wade	2400
0705 871434	Community Centre	Portsmouth	George Cordner	1200
0745 855959	Coastline BBS	Prestatyn	John Timmis	9600 (HST)
0772 828975	Grizzly The Third	Preston	Colin Adams	9600 (HST)
0296 668148	Komputer Knowledge1	Prince's Risborough	Andrew Eaves	9600 (HST/V32)
0296 668141	Komputer Knowledge2	Prince's Risborough	Andrew Eaves	2400
0737 766027	Infotel	Redhill	Bob Garbutt	2400
081 7830207	Oldfield House School	Richmond	Mike Burleigh	2400
0706 358331	The Gas Lamp	Rochdale	Ian Strachan	9600 (HST/V32)
0632 683696	Tequila Sunrise	Rochester	Paul Boakes	9600 (HST/V32)
0634 831389	The Hotel BBS	Rochester	Kit Watson	9600 (HST/V32/V32B/V42/V42B)
0722 414605	TABS Opus	Salisbury	Jon Stephenson	9600 (HST/V32)
0742 729621	Disu PC	Sheffield	Phil Green	2400
0795 425341	Sittingbourne Co-Op	Sittingbourne	Phillip Clements	2400
0753 513435	R U Connected BBS	Slough	Chris Norris	2400
021 705 2906	Acadmic's	Solihull	John Kelly	9600 (HST)
08892 516304	Demo Factory	Southborough	Ian Mugridge	9600 (HST/V32)
0702 78330	Adullams Cave	Southend On Sea	Tim Coles	9600 (HST/V32)
0259 69803	Telefantasy	Stirling	Gutherie Wernham	9600
061 429 9803	Stun NeST Central	Stockport	Daron Brewwood	9600 (HST/V32/V42/V42B)
061 442 6758	Seven Seas Maximus	Stockport	Vince Flecker	2400
0642 360301	Tees For Two	Stockton On Tees	Gordon Smith	2400
0384 441929	Crystal Junction	Stourbridge	Bert Ilsley	9600 (HST)
091 549 2249	Log On The Water	Sunderland	Alan Myres	2400
021 323 2617	The Red Dwarf	Sutton Coldfield	Steve Pitt	2400
081 643 1015	Number 42	Sutton, Surrey	Dave Arkley	2400
0793 430029	State Of Shock	Swindon	Phillip Timm	2400
0793 480287	Spark!	Swindon	Steve Bernhardt	9600 (HST/V32)
0793 724195	Boar's Nest	Swindon	Terry McBride	9600 (HST/V32)
0952 641724	Silver Link	Telford	Phil Gadsby	9600 (HST/V32/V42/V42B)
0666 504597	The Alchemist	Tetbury	Bob Henson	9600 (HST)
081 312 2123	3 Below Forum	Thamesmead	Dave Powell	9600 (HST/V32/V42/V42B)
0734 320812	Golly!	Twyford, Berks	Terry Robertson	9600 (HST/V32/V42/V42B)
091 228 0427	The Olive Grove	Tyneside	Peter Scargill	9600 (HST)
091 261 5228	The Publishing Shop	Tyneside	Roger Booth	2400
0634 200707	Fuzzy Logic	Walderslade, Kent	Phil Piddell	9600 (HST)
051 638 0639	Bob's Baud	Wallasey	Bob Fraser	2400
0932 231347	Valhalla	Walton On Thames	Ivar Peterson	2400
0926 403904	The Music Studio	Warwick	Paul Urmston	9600 (HST/V32/V42/V42B)
0705 264180	Paragon Support	Waterlooville	Andy Smith	9600 (HST/V32)
081 428 9476	Catweazle BBS	Watford	Trevor Riley	9600 (HST/V32)
0749 670030	World Of Cryton	Wells	Hugo Fiennes	9600 (HST/V32/V42/V42B)
0732 870941	Chatterbox BBS	West Malling, Kent	Mick Spice	9600 (HST/V42/V42B)
0206 385358	The Sages Cave	West Mersea, Essex	Peter Jezard	2400
0501 44262	Chilba City	Whitburn	David McIntosh	9600 (HST)
0980 863031	The Manor QBBS	Wintersow	Peter Jowett	2400
0734 891355	PMI Data Plastics	Wokingham	John Shepherd	2400
0793 849044	My Little Phoney	Wooton Bassett	Steven Green	9600 (HST)
0905 613968	The Smallest BBS	Worcester	Jim Richardson	2400 (V42B)
0904 679758	York's Best Price	York	Simon Williams	2400

PD DEALER DIRECTORY

Whether it's shareware, public domain or licenceware, utilities or games, our list of dealers will point you in the right direction

16/32 PDL,
35 Northcote Road,
Strood, Kent, ME2 2DH

Advantage,
56 Bath Road, Cheltenham,
Gloucestershire, GL53 7HJ

Alpha Computing,
32 Meadow Drive, Halifax,
West Yorkshire, HX3 5JZ

Arrow PD,
6 Kents Orchard,
Perry Street, South Chard,
Somerset, TA20 2QB

Atari User Group Scotland,
9/3 North Hillhousefield,
Edinburgh, EH6 4HU.

Awesomedemos,
3 Mason Road, Seaford,
East Sussex, BN25 3EE

B-Soft,
2 Oliver Drive, Calcot,
Reading, Berks, RG3 5XN

Byteback,
6 Mumby Close, Newark,
Notts, NG24 1JE

Caledonia PDL,
250 Oldtown Road, Hilton,
Inverness, IV2 4PT

Compute 'In Style',
64 Castle Hill Road, Hindley,
Wigan, Lancs, WN2 4BJ

Computer Connections,
Ashlaw House,
Euximoor Drove,
Christchurch, Wisbech,
Cambs, PE14 9LS

Crown Software International,
38 Warrington Avenue,
Slough, Berks, SL1 3BQ

Drake PD,
12c How Street,
The Barbican, Plymouth,
Devon, PL4 0DA

D W Stables,
Unit 1,
Johnson's Shopping Centre,
29-31 Bond Street, Blackpool,
FY4 1BQ

Elmsoft,
PO Box 17, Loughton,
Essex, IG10 2EE

EM PDL
54 Watnall Road, Hucknell,
Nottingham, NG15 7LE

EVPD,
15 Cleeve Road,
Gotherington,
Cheltenham, Gloucestershire,
GL52 4EW.

Freaks PDL,
29 Leap Valley Crescent,
Downend, Bristol,
BS16 6TQ

Floppyshop,
PO Box 273,
Aberdeen, AB9 8SJ

Gemini Shareware,
10 Warwick Avenue,
Slough, Berks, SL2 1DX

Goodmans PDL,
16 Conrad Close,
Meir Hay Estate, Longton,
Stoke On Trent,
Staffs, ST3 1SW

Imageart,
19 Brenda Road,
Tooting Bec,
London, SW17 7DD

L.A.P.D.,
80 Lee Lane, Langley,
Heanor, Derbyshire,
DE7 7HN

Merton PD,
10 Grasmere Avenue,
Merton Park,
London, SW19 3DX

Metropolis PD,
38 Howick Park Drive,
Penwortham,
Preston, PR1 0LU

Micro Choice,
30 Townhead,
Kirkintilloch, G66 1NL

Mr Disk Shareware,
72 Glencoe Road,
Sheffield, S2 2SR

MT Software,
Greensward House,
The Broadway,
Totland,
Isle of Wight, PO39 0BX

Nightshift PD,
50 Averill Road,
Highfields,
Stafford, Staffs, ST17 9XX

New Age PDL,
30 Anderson Estate,
Lower Road, Hockley,
Essex, SS5 5NG

Office Choice,
Suite 14, Avon House,
Town Centre,
Cumbernauld, G67 1EJ.

Page 6 Publishing,
PO Box 54,
Stafford, ST16 1DR.

Paradise Computers,
11 Winfield Avenue,
Patcham, Brighton,
East Sussex, BN1 8QH

PD Essentials,
22 Fern Avenue, Mitcham,
Surrey, CR4 1LS

PD ST,
95 Elton Road, Sandbach,
Cheshire, CW11 9NF

Premier Mail Order,
8 Buckwins Square,
Burnt Mills, Basildon,
Essex, SS13 1BJ

Prophecy PD,
390 Coulsdon Road,
Old Coulsdon,
Surrey, CR5 1EF

Public Domain & Shareware,
Supply Company,
5 Walnut Close,
Barkingside, IG6 1HE

Public Dominator PD Atari,
PO Box 801,
Bishops Stortford,
Herts, CM23 3TZ

Public Sector PDL,
50 Ripon Road, Stevenage,
Herts, SG1 4NA

Riverdene PDL,
30a School Road,
Tilehurst,
Reading, Berks, RG3 5AN

Senlac,
14 Oaklea Close,
Old Roar Road,
St Leonards On Sea,
East Sussex, TN37 7HB

Seven Disk,
Digswell Water Lodge,
Digswell Lane,
Welwyn Garden City,
Herts, AL7 1SN

Solent Software,
53 Rufus Gardens, Totton,
Herts, SO4 3TA

Softville,
Unit 5, Stratfield Park,
Elettra Avenue, Waterlooville,
Hants, PO7 7XN

South West Software Library,
PO Box 562, Wimbourne,
Dorset, BH21 2YD

Solent Software,
53 Rufus Gardens, Totton,
Herts, SO4 3TA

ST Club,
2 Broadway,
Nottingham, NG1 1PS

ST Adventure PDL,
32 Merrivale Road,
Rising Brook,
Stafford, Staffs, ST17 9EB

State 808 PDL,
3a Old Lanark Road,
Carlisle, ML8 4HW

STing Public Domain,
23 Manar Grove, Westvale,
Kirkby, Liverpool, L32 0UZ

The Circular PD Library,
14 Morrison Drive,
Lennoxton,
Glasgow, G65 7BA

The Source PD,
7 Shearwater Lane, Norton,
Stockton On Tees,
Cleveland, TS20 1SH

Trust PD,
18 The Park, Southowram,
Halifax, HX3 9QY

Warpzone PDL,
53 Ropewalk, River Street,
St Judes, Bristol, BS2 9EG

Wizard PD,
178 Waverley Road, Reading,
Berks, RG3 2PZ

ASK THE EXPERTS

VIC LENNARD Music, MIDI and sound recording.

Our very own technical editor can actually handle most enquiries that you have but as President of the UK MIDI Association, there's no-one more tuned into the ST music scene than him. A wiz with a mixing desk too, he can help with all your musical enquiries from playing music to recording.

ANDREW WRIGHT Non-programming and all your more general problems.

Erstwhile Technical Editor of Atari ST User, Andrew was an obvious choice for our panel of experts. One of the best known all-round technical experts in the ST World (eh?) he can answer all the quirkiest questions that you have.

JOHN MALLINSON Word Processors, DTP and Printers

If reincarnation is true, then John will no doubt return to this earth in the guise of a laser printer. If you have any problems with your Word Processing, DTP or printing, be it dot matrix, bubblejet, or better, then John will be the answer to your problem.

GARTH SUMPTER Games and consumer watchdog...

Yes our very own editor will be looking at your consumer problems. Want to know where to get that game or program? Garth will know or can find out. As the consumer watchdog, he can also tell you where to get the product that you want or what to do if you're not satisfied once you've got it.

TONY DILLON STOS /Graphics

The writer of the STOS tutorial, Tony has already imparted some little gems of information but is still on call to answer all your STOS programming questions and graphics questions.

Problems getting hold of something? Can't get a program or a peripheral to work? Worry no more - our panel of experts are ready and waiting to get their teeth into your most difficult problems.

DITTO DITTO

On page 160 of the May issue of your magazine under the information "Oldies But Goodies", you refer to the program **PC Ditto**. I am having difficulty in obtaining the program and wonder if you could please let me have an address where this can be acquired.

Mr. T Gray, Newhall, Derbyshire

PC Ditto is an oldie, yet it still sells as many people use it to experiment with emulating PCs on their ST. Power Computing can supply you with a copy of PC Ditto for the princely sum of £29 inclusive of VAT and delivery. You can contact them on 0234 843388.

KEYBOARDS AND MONITORS

Are you aware of any MIDI keyboard tutors for the STE, similar to the EMR Microstudio for the Acorn Archimedes?

Also, in order to use a Microvitec CUB monitor with the STE I need to make up a DIM-13 pin adapter cable.

Can you confirm the instructions given in the letters page of Issue 1? The Acorn manual for the BBC B gives the following information for the RGB socket:
Pin 1: Red
Pin 2: Green
Pin 3: Blue
Pin 4: Sync
Pin 5: 0 v.
Pin 6: +5 v

G Bates, Belper, Derbyshire

*The closest program to a keyboard tutor on the ST is C-Lab's Aura, an ear-training system which lets you work in one of three ways; by clicking with the mouse on-screen, clicking notes on the on-screen keyboard or playing notes on an attached MIDI keyboard. The program features various exercises which fall into four categories.
Intervals sets you practices to*

help you define the pitch range between notes, while Chords asks you to enter chord names by their notes. Scales accesses a large built-in library and Melody lets you set-up the scale and number of notes and respond via the mouse or an external MIDI keyboard.

Aura also provides you with Rhythm training, where you are required to duplicate what you hear, and Chord Recognition which uses Aura's library of jazz, classical and pop chords to display a chord type and inversion. The price is £115 and details can be obtained from Sound Technology on 0462 480000.

Regarding your monitor, the answer given to a similar question in Issue 1 was correct, but that particular one referred to a television.

The CUB monitor is slightly different. You need to wire up the connections as follows:

CUB pins	ST pins	Function
1	7	Red
2	6	Green
3	10	Blue
4	9, 12	Sync
5	13	Earth (0v)
6	none	+5v (ignore)

Pins 9 and 12 need to be connected to two resistors, the values of which will lie between 470 ohms and 1000 ohms. The junction of these will then be connected to pin 4 on the CUB. If you have the incorrect value, the screen will be unstable - try various values until the display settles down.

PC EMULATION

I am considering buying AT-Speed but have a few questions:

- 1) When AT-Speed is installed, can the ST still be used without any problems, or is there anything to watch out for?
- 2) I use an ordinary 14-inch colour TV. Is this suitable for PC programs which need a VGA monitor?
If not, what monitor would I need to buy?

3) I use **Turbo Pascal** on the PC; will this work on AT-Speed?

1) AT-Speed can work in one of two ways on the ST; either as a program in its own right - in which case you double-click on the AT-Speed program icon which then asks for a DOS disk (or finds DOS on hard drive if one is in use) - or as a Desk Accessory.

The problem with the latter is that it waits for an application to boot and then tries to establish itself. Unfortunately, most ST programs "steal" all available memory which prevents the AT-Speed Desk Accessory from working. Once AT-Speed is working you can quit by pressing Alternate-Control-Insert. If it was running as a program, the ST will automatically reset itself.

If, however, it was running as a Desk Accessory, the change over is immediate which is rather nice.

2) On the monitor front, there are various screen resolutions and colour combinations to choose from. Most DOS applications will run under CGA, the Colour Graphics Adapter which is the lowest resolution available and is equivalent to a TV or medium resolution ST monitor.

Any other monitor types, such as EGA, VGA, Super VGA etc, require a high resolution monitor such as the Atari SM124/125/144 or a multi-sync monitor.

However, the latter is a waste as all emulations beyond CGA are handled in mono so an expensive, colour multi-sync monitor will not be any advantage to you.

Make sure that you select the correct screen mode. The standard high resolution ST monitor has 640 x 400 pixels while a VGA screen has 640 x 480. Consequently, if you use the latter screen mode, you will have to continuously scroll the screen to see all information.

The mode that you should look for is called Olivetti, or AT&T in the USA.

PRINTER'S WORKSHOP

Questions concerning printers are common, but the obscure nature of some of the problems can lead to some head scratching



BEEB INCOMPATIBILITY

OK, so I'm doing this letter on my trusty old Beeb, but only because all the other WPs I try to use for the Atari STFM are so damn complicated. In the words of the TV ad, I want to get up and go, which is what I can do with Wordwise Plus installed in hardware.

I would dearly like to use all the facilities available in First Word Plus, ST Writer or Write On, all of which I have, not to mention Harlekin 1, Fastbase and the CAD programs recently issued free with other mags, and have used. But first of all I have to load, then I have to flick stupid DIP switches on my Panasonic KXP1180 and then after all that, it takes an excessive amount of time to obtain a proper print out. Am I doing anything wrong? Is there some code or something which will disable the LF, or must I constantly flip switches?

I have limited space available, and with having installed an upgrade and a double sided drive in the basic machine, plus a second double-sided drive externally, I wish I could dispense with the side loading job and have both drives presented to the front. Can it be done?

R Moyes, Gislingham Eye, Suffolk

Your printer has to be set up differently depending on whether you are using it with a BBC or an ST - that's what the DIP switches are for. You don't say whether the problem is with a line feed too many or too few, but either way it is

Switch 3 which needs to be looked at. This is the "Auto Line Feed" switch; if it is on, both a carriage return and line feed are executed on hitting <return>; if it is off, simply a carriage return occurs.

Chances are that you can send the relevant printer command from the BBC B and leave the DIP switch in the same position all of the time.

As for the user-friendliness of Wordwise Plus on the BBC B, you are not the first who has said this. I know of a major publishing house who still use this program on a Beeb for editing purposes. However, some of the word processors on the ST are worth a look at as they allow you to incorporate graphics and to layout the page in the manner that you want in a way that you can clearly see. First Word, which is Public Domain, is well worth a look at as a taster. After that, First Word Plus is in a very similar vein but a little more powerful. If all you want is a non-WYSIWYG (What You See Is What You Get) word processor without any bells and whistles, then stick with your trusty Beeb.

It is possible to situate the internal drive in a separate hardware box and simply extend the cables from the inside of the ST. There are two cables; a 34-pin data cable and a 4-pin power cable. Both of these will have to be extended, but you need to take care. All ST ports use RF (Radio Frequency) chokes to prevent general spurious RF radiation. This would possibly affect printers, FM radios and the like. The answer is to use shielded cable and to encase the disk drive in an earthed, metal case.

PRINTER PORT AND THE LASERJET

I have a Hewlett Packard Laserjet III printer which works fine with my PC but corrupts printouts when connected to the parallel port of my ST. I also have an OKI390 printer and have had several dot matrix printers in the past, all of which have worked perfectly. The problem appears to be the levels arriving at the laser printer;

they seem to drop below tolerance once the ST starts to warm up.

Trevor Charles, Reading, Berkshire

To produce a computer with the power of the ST at the price, corners had to be cut. Instead of using a dedicated chip for the parallel output port, the YM2149 sound chip was given an extra job to do. Unfortunately, this leaves the parallel port rather under-powered and not really up to the Centronics Spec. Perhaps when the ST was designed, the intention was for it to be able to drive dot matrix printers; this problem is unlikely to show itself unless using a printer which requires a fast data transfer rate, such as an inkjet or laser printer. Even worse, some Atari ST's will run any printer and some won't, due to the tolerances within the components.

The parallel port at the printer end has termination resistors. If the value of these is less than 2 Kohm an excessive drive current is required from the YM2149 chip, which it cannot provide. The symptoms tend to be a loss of characters when printing out text, or it may be that printing an ASCII file causes no problems, but a page of heavy graphics from a desktop publishing package will cause the chip to lock up and remain so for a period of time.

There are a few possible ways around the problem. The first step should be to try as short a connection cable as possible. The original Centronics spec states that the interface is good for two metres - the longer the cable, the higher the capacitance and the drive current needed. Another possibility is to extend the strobe time which controls the speed of data transmission. There may be a DIP switch in the printer or you may be able to change it within the computer software.

If neither of these work, you could make minor modifications to the termination resistors in the printer. Changing the values to 10 Kohms on the eight data lines and strobe line and then inserting a 150 ohm resistor between the strobe line and signal ground will probably do the trick. It will also invalidate your warranty unless

you can convince the manufacturer that he should do it for you.

There is an alternative which involves amplifying the signal from the ST. An octal line driver chip, like the 74LS244, has eight signal amplifiers built into a 20-pin chip. One of these with a couple of capacitors and a pair of connectors built onto a circuit board should solve the problem. You may need two chips if the strobe signal also needs boosting. Power depends on whether one pin of the Centronics port on the printer has 5 volts on it. If so, you could power the chips from this. Otherwise, an external 9 volt PSU will do.

Don't want the hassle? Contact Paul Rossiter on 0602 631631 for his Printer Booster which will cost you £25 all in. This powers from the printer which means no extra cost for an external power supply unit.

PRINTER DRIVERS

I have a Centronics GLP dot matrix printer used with a BBC Model B. This is "nearly" EPSON compatible which needs a *FX 6, 0 command to allow the printer to linefeed properly. Is there an equivalent command for the STE?

Programs on the ST requiring a printer invariably have a printer driver which is a small interfacing program between the ST and the printer. The purpose of this is to translate the various printing commands which are transmitted from the ST into a format that the printer can understand.

There are certain printers which are used as a standard; "Epson-compatible" usually means that the printer follows the same set of commands as the Epson FX (9-pin) or Epson LQ (24-pin) printers. If a slight variant is required, this usually means a change to one or more of the translation commands in the printer driver. Without knowing what software you are using, it's difficult to tell you exactly what changes will have to be made, but it looks like you will have to experiment with the printer initialisation command which is responsible for the basic setting up of the printer.

3) Finally, Turbo Pascal should work, but no absolute assurance can be given. Perhaps an Atari ST Review reader who uses such a combination could drop us a line with some more advice.

ON THE UPGRADE PATH

I have been planning to upgrade my Atari 520 STFM and your offer in Issue 1 has spurred me into action.

On opening my computer, I found that the MMU chip is about a quarter of the size of the one in your photo. Can you help?

Andrew Ray, Redruth, Cornwall

The MMU chip you have is a 101601 which is rectangular in shape. This means that you will not be able to use a solderless upgrade option as this requires the use of a small board which is pressed down over the contacts of the MMU chip. In fact, various of the upgrades on offer from companies will not work with your MMU chip at all.

The upgrade from our offer will work, but to install it to your machine involves soldering two contacts to pins of the MMU chip which is awkward at best.

However, a fitting service can be provided by Atari Workshop who can be contacted on 071 708 5755.

SURPLUS OF SIMMS

I have a 520 STE upgraded to 1 Meg and would like to further upgrade to 2 Meg. My machine already has 4 x 250K SIMM boards; if I buy a 2 Meg upgrade, will it consist of 4x500K boards, or 2x1Meg boards? After I fit the upgrade, what can I do with the 4 SIMMs I already have? If I get the 2x1Meg boards, can I fit two of the 250K SIMMs and have 2.5 Meg of memory?

Linda Naysmith, West Lothian, Scotland

The memory unit of the STE has four available slots which take Single In-line Memory Modules, or SIMMs for short. Only the 250K or 1Meg boards can be used with the ST; the 500K ones are of no use. Consequently, to update to 2 Meg will require a 2x1Meg configuration, with the 2 SIMMs positioned in the first and third slots looking at the board from the rear.

As for the 250K SIMMs, you'll need to find two people who wish to upgrade a 520 STE to 1 Meg and who each require two of your SIMMs!

NEW MIDI SYSTEM



I would like your expertise on a few ideas that are confusing me at present regarding MIDI keyboards.

I am about to purchase a MIDI set-up, but I am not sure which way to go. I have been told by a leading music shop specialising in MIDI keyboards that if I was to purchase, say, a Yamaha PSR keyboard then when I come to adding on modules I would slowly make the voices of my Yamaha redundant, ending up with a keyboard full of sound chips that I'll never use. However, the plus is that I can still use the keyboard as a free standing instrument - is this true?

Also, if I was to purchase a Yamaha, as opposed to a mother keyboard, I have noticed that the MIDI connections are MIDI IN/MIDI OUT. There is no MIDI THRU on these instruments. How do I go about this when I want to connect up a module?

R. Albrighton, Moss Pit, Staffs

There are two types of keyboard that you can get; those with and those without internal sounds. The next two considerations are the number of sounds and the polyphony, which is the maximum number of notes which can be played simultaneously. This latter figure has increased dramatically over the past few years. eight or 16 notes used to be the norm but it is now not unreasonable to expect a sound module to play 24 or even 32 notes.

Why have more than 10 notes when you only have 10 fingers? Because today's sound modules are mainly what is called "multi-timbral" in that they can play different sounds at the same time; drums, piano, strings, brass and so on. These different sounds are on different MIDI channels and so can be played back from a sequencer, where individual parts have been recorded. This may be an area that you wish to get into.

A further problem is that if a keyboard has sounds and you want to work with a sequencer, you need to divorce the keyboard from the internal sound module. If you can't do this, you end up playing the same sound from the keyboard that is currently being played by the sequencer, thus leading to confusion. This separation of sound is called Local Mode Off.

Older models in the Yamaha PSR range were only eight note polyphonic but supported Local Mode Off. Most of the newer

models do not support Local Mode Off, but the PSR-300 may fit the bill as it is 28-note polyphonic and supports Local Off when working in multi-timbral mode. It also has a five-octave, full-size keyboard which makes it eminently playable.

Now the bad news. The PSR-300 responds on all 16 MIDI channels all of the time which means that if you add another sound module, you cannot turn off some of the sounds on the PSR-300 and replace them with others. If you feel that 28 notes and 100 different sounds satisfies your needs in the medium to long term, then the PSR-300 can be recommended.

Another alternative is the Roland D5 which has a polyphony of between eight and 16 notes and 256 sounds on-board. It includes a full-size, five-octave keyboard and while it is no longer manufactured, you should be able to pick one up for around £300 from a Mart-style paper or music magazine. Alternatively, you could look at picking up a cheap, secondhand five octave keyboard from Casio or Technics, ignore the on-board sounds and buy a sound module. Items to look out for include Roland's MT-32, CM32P and CM32L which you should be able to get for between £150 and £250.

As for the MIDI Thru port, this is a precise replica of the information received at the MIDI In, but you can't achieve this by using a "split lead" in the way that you might do this with an audio lead.

A MIDI Thru socket is not mandatory on a MIDI product, but all is not lost; various companies manufacture MIDI Thru boxes which take a single MIDI In and duplicate it to a number of MIDI Thrus.

The MIDI Out from the ST is connected to the MIDI In of the

Thru box, and the MIDI Thrus from here then connect to the MIDI Ins of the various sound modules in a "star" arrangement.

Philip Rees make a model called "V3" (1 MIDI In, 3 MIDI Thrus) which retails for £14.95 and can be bought from most good music shops. If you have any problems, call Philip Rees on 0608-811215.

AUTO FOLDER ORDER

I have four programs in my Auto folder and have been told that the order in which they are loaded is important. Unfortunately, I don't appear to be able to get this right. Surely the programs load alphabetically in the same way as desk accessories?

Jim Calvin, Edinburgh

Auto folder programs are those which load into the ST's memory when the ST boots up. GDOS, the printer and fonts handler, is one such program and all Auto programs remain resident in memory until you reboot your ST.

While desk accessories are loaded in alphabetical order, the same is not true of Auto folder programs. These load up in the order that they are placed in the folder - first in, first load. To have any control over this, you'll need to remove all programs and replace them in the order that you want them to load.

There is a public domain program called Autosort which makes life much easier by allowing you to put Auto folder programs in a numbered list. This is available from the ST Club as disk number DMG27 for £1.45.

The ST Club can be contacted on 0602 410241.

If you have a question or problem with your ST or any of the hardware or software that you are using with it, then write it down and mail it off to our team of experts right now. We will answer all your questions eventually but our level of mail at the moment is huge, so please bear with us if we don't answer your question immediately.

Send your letter to Ask the Experts, ST Review, 30-32 Farringdon Lane, London EC1R 3AU.

To help make things easier for use, please remember to mark on the outside of your envelope the nature of your enquiry.

LETTERS

Got a point of view that needs airing? Want to get something off your chest? If so, then why not share your thoughts with the most committed and authoritative bodies in the world of ST – our readers. We want to hear what you have to say so drop us a line now and give us your Points of View...

CLEAN

Congratulations on your new ST magazine. It's nice to see not all publishers are concentrating on the Amiga. I must admit to being in the fortunate position of owning both an ST and an Amiga, but at the risk of being punched on the nose the next time I meet up with my Amiga-owning friends, I have to say in many ways the ST is better. Basically, although the Amiga sometimes has better games (although often the reverse can be true) when it comes to putting the machine to serious use, it's none too brilliant. My Amiga, which is a Plus model (with ROM switcher so I can use older software) often crashes. Workbench is hopeless, not even able to format a disk without disk swapping or having to load the format program first from one disk then change disks to format the other. The Amiga is practically unusable seriously without a second disk drive. Even the revised Workbench 2.0 isn't a patch on GEM on my STE. Considering the better quality construction on the ST, faster disk drive and internal features like PSU and modulator instead of being external like the Amiga. However, a slightly faster processor, more available memory, PC file compatibility and a more dependable operating system go a long way towards making the STE a far superior machine when all the Amiga has in its defence is marginally better

sound and a higher number of on-screen colours.

I wish Atari luck with their new Falcon model, but if it's launched above £500 or even £400, how can it be an Amiga beater and why would anyone release software for it? The STE has hardly any dedicated software even though it's a mass market computer available new for about £250. If the Falcon was released at £400, it might sway people away from the Amiga, but you could get a RISC Acorn A3000 for £600, which has a much faster processor, 256 fully animated on-screen colours and an 8-channel stereo sound, plus software support.

Currently I am unemployed so I wondered if I could participate in any user contact projects you might have planned. I guarantee full input in such a project and speedy replies.

Lastly, I would just like to thank a few companies I have dealt with in the past who I have found to give good service: Datel Electronics, Seven Disk, UK Home Computers, Evesham Micros, Dowling, HCS and Ocean.

Martin Wilson, Grass Royal, Somerset

Well Martin, first of all I'm surprised that you actually have to outline just some of the reasons why the ST is superior to the Amiga games machine although as someone who owns both machines, you really are in the definitive position to know. As

to the Falcon, well we've all seen Commodore's A600 which is retailing at £399, and next the Falcon it's just a very poor games machine. I've seen the capabilities of the machine and it can even give consoles a run for their money. Add to this the fact that, like the ST, you're also getting a real computer with computing power, then for less than £600 it represents fantastic value for money. It's not easy to take my word for it, but once you get to see the machine, you'll believe a computer can really fly...

PUNTER POWER

Your new magazine has come somewhat as a surprise to an unsuspecting public. I really must congratulate you on the presentation and publication of the magazine and commend you on such a variety of articles, and the way you write your reviews. ST Review is exactly what I've been waiting for.

I was happy to see from the cover that you had two disks on offer. This is very good for the first-time buyer, and the content of the disks was quite good, and some of the utilities are very useful to newcomers to the ST.

I would like to see the publication of ST Review continue in its good taste and nature, and please don't alter your style of reviewing as it is very thorough and, in my opinion, it is also very accurate.

All the well-deserved praise aside, I really want to get down to the nitty gritty. Recent rumours suggest that Atari are going to be releasing their own STE-only games. I think that this is about time, and I hope that we will see a distinct difference in speed, graphics and sound on the new games.

The STE has, as everybody knows, been out for quite some time now, but I really don't understand why nearly all software houses are abandoning the opportunity to buy the STE rights, where in my

opinion they will make a profit from people wanting to buy the first STE only game. I think that Atari are clever people by producing the first STE-only game entertainment software.

Although Atari are the first people to produce such games, I have found two games which use the STE's enhanced hardware, and they are both from the same software house, in fact one is actually a sequel to the other. The software house is Thalion, and the two games are *Wings of Death* and *Wings of Death 2*. Everybody I know who has played these games all agree that these are the best shoot em ups of all time on the ST.

I hope that your next issue of ST Review contains more information about beginners' programming in 68000, STOS, GFA and any other languages, as MIDI had an excellent coverage in the first issue.

Nathan Pocock, High Wycombe, Bucks

There is a lack of STE-only games on the ST and this comes down to many things, but the Atari rumours deserve substantiating, and so we spoke to Bob Katz, the software Development Manager at Atari Corp. UK and he said that the rumours were true and gave ST Review the background to why it was happening:

"Atari originally consisted of two divisions; the coin-op side, and the home computer division, this was in the days when Atari Inc. was owned by Warner Communications. In July 1984 Warner Communications sold off the computer division to Jack Tramiel and subsequently sold off the coin-op division to a third party. The coin-op division are now called Atari Games whilst the computer division is called Atari Corp. There is a long-standing agreement with Atari Games that Atari Corp gets first bite at all of the coin-ops - and at no time has this been a better deal than now with the release of the Steel Talons arcade machine because

there will be an STE version of this coin-op, concentrating on utilising the STE's hardware scrolling, enhanced colour palette, PCM (i.e. sampled, stereo sound) and the blitter chip.

POCKET GAMES

While agreeing with many of your choices in the All Time Top 50 ST Games in issue 1, I cannot disagree more with your comment on *Magic Pockets* in the review of *Gods*.

I am an experienced games player and own a ZX81, BBC Microcomputer, and an Amstrad CPC6128 as well as my ST, and I have played literally hundreds of games in the last 10 years.

Magic Pockets is far removed from being "dismal". It is a breath of fresh air in platform games, compared to some of the trash churned out by other software houses. The graphics and sprites are superb and the gameplay is complex and compulsive, with plenty of nice little touches like TV sets, secret rooms, bubblegum machines and plants to be watered. It also has great

music, brilliant scrolling, intelligent nasties and gradeable power-ups.

All in all *Magic Pockets* is a great game to play, and anyone who can find such a game "dismal" is in serious need of a frontal lobotomy.

Graham Nimmo, Cupar, Fife

I have to admit that whilst I don't find the game abysmal, I certainly wouldn't want to spend my own money on it. Having said that, it's always nice to see that you can't please all of the people all of the time and when it comes to reviewing games there's always a certain chance that someone won't see it the same way that you do. This is fine and merely underlines a belief in personal freedom and choice.

GAMES NIGHTMARE

I am hoping you will publish this letter as a protest from myself on behalf of all game-players who have wasted time and money on faulty software.

When *Knightmare* was first released, I purchased, in all, four copies from different

retailers in the (vain) hope of locating a copy that would work. After trying out the fourth copy in as many days, I rang Mindscape and was told that there were no problems or bugs in the software and it must be my machine at fault. I returned the software to the dealer for a refund.

Recently, I purchased *Legend* - guess what? After two copies, I got hold of a friend's computer and tried loading up *Legend*. No problems at all and straight into the game. A phone call to Mindscape - no problems with the game as far as they are concerned. Back went the software for a refund. During the second phone call, I inquired about the "grate" bug in *Knightmare*: "Oh yes, we fixed that ages ago!"

So, armed with my £30.99 refund, I go and purchase a copy of *Knightmare*, take it home and it promptly crashes at the same point as it did all those months ago.

Let me make two points:

1) My machine is an Atari 520 STFM, the machine I tested *Legend* on is a 520 STE. It

worked on the STE but not on the 520 STFM. When the STE first arrived on the scene, there were doubts about software compatibility. It would appear that this situation is slowly turning full circle. If it runs on an STE, don't bank on your STFM being able to cope.

2) If Mindscape are aware of the bug in *Knightmare*, which, according to Mindscape, occurs on all half-Meg machines (STFM, STE and Amiga), and which apparently has been fixed, then why is the product on the shelves of most software shops today, in its "bugged" state? The label on the box clearly states that it is for the ST, and supports STE with a 512K minimum RAM required. This is all a bit rum, to put it kindly.

Hopefully by printing this letter, you can prevent other 520 STFM owners having problems with this software and maybe encourage Mindscape to be more fair with their customers.

I.M. Kerr, Newcastle-Upon-Tyne

Sounds like you've got a grievance. At the time of going to press, the spokesperson for Mindscape was out of the country. A full explanation will be printed next month.

MEMORY KICKING

One of the reasons for upgrading my STFM to 1Mb was for the extensive use of my DTP (*Timeworks*).

Another reason was to hear the extra sound effects on the expanded version of *Kick Off 2*, but to my amazement, only the Amiga version has the extra effects. I feel I've been cheated, so I wrote to Anco and asked why.

I only hope that when *Kick Off 3* is released, the ST (1Mb) owners can fulfil the extra quality available, especially when ST owners go to all the trouble of fitting the new memory.

John Darleston, Alvaston, Derby

*John enclosed a reply which he received from Anco. Whilst this correspondence was terribly polite, it didn't really explain why they didn't use the extra memory in that particular way. It would seem that the only way you're going to get anywhere with *Kick Off 3* is if all of you enthusiasts out there take the time out to write to Anco independently. If you all ask for improvements, then how can Anco refuse?*

A CRITIC'S CRITIQUE

Having just read through the first issue of ST Review, I just had to write to you with my views on this latest release for ST users.

The first thing I would like to point out is about your article on the subject of upgrading. I have recently upgraded my own 520 STFM and fell into the trap by not finding out until the ST was all stripped down that the video shifter chip was not fitted in a socket. There was not enough information regarding this problem in your article, other than to say that it should be handled by a technician and I would like to stress that it becomes a much harder job to do yourself if no socket is fitted. I know for a fact that there are at least three different styles of motherboard ranging through TOS versions 1.0, 1.2 and 1.4. I had a considerable amount of trouble desoldering the video chip so that I could fit the socket which would then enable me to carry on with the upgrade.

Secondly this new publication is in my opinion well overpriced at £3.95 considering that 53 pages, yes 53 full pages plus are advertisements which must bring in some amount of revenue to you, on top of this we punters are insulted with two disks full of what I consider to be rubbish. Come on guys, the ST is crying out for a good, reasonably priced magazine. Cut out the disks and the glossy pages, give us more paper pages and halve the price of the magazine and maybe I will take out a subscription and many may follow my lead.

Otherwise I see yet another ST magazine biting the dust in a year or less.

Tom Nicholson, Motherwell

Okay, to address the subject of the memory upgrade. There is a minority of machines that

have surface mounted chips requiring desoldering and an extra piece in order to upgrade the memory. You say that you did the upgrade yourself and from your tone it sounds as though you had a hard time. It's a pity that you didn't tell us the name of the upgrade that you used because the STFM upgrade that we are using is arguably the best made and the easiest to fit and has a technical backup phone-line and customer service that is second to none. Anyone who finds that their machine has soldered in video shifter chips (and you have to be particularly unlucky), can just send off to the address in the manual for the extra parts needed which will be dispatched free of charge.

As to the magazine being overpriced at £3.95 well that's just plain rubbish. We're priced at the same level as our competitors and we believe that we give far better value. You say that 53 pages of the magazine were advertisements - well so what? There were 212 pages of magazine in total so only 25% of the magazine was advertisements. This is rather favourable when you look at the competition and find that In the same month, ST Format had 32% of ads and ST Action had 27% (and at the same time ST Review has the biggest market share of advertisements of ANY ST Mag, so we actually give you more pages of editorial than any other glossy ST magazine). As to punters being insulted, I've found very little evidence of that, and I base that on the real evidence that you seem to have mislaid on the way.

P.S. If you don't think ST Review will make it past 12 issues, why not put your money where your mouth is? Tell you what, if we make it to issue 12, please be so kind to donate £50 to the Royal National Lifeboat Appeal and send me an official receipt and I'll print it. If the magazine doesn't make it, I'll donate the same amount and send you the receipt. I wonder if we'll see your receipt in issue 12, Tom?

CHARTS

From our reviews and product tests you know what's hot and what's not – but you might want to know what people are buying. Just consult our charts below

ST WORD PROCESSORS

1 Calamus	Hi Soft
2 First Word	Electronic Distribution
3 Pro Text 5.5	Arnor
4 K Word 2	Kuma
5 Word Processing	Atari

FULL-PRICE GAMES

PACKAGE SUPPLIER

1 Epic	Ocean	£29.99
2 Grand Prix	Microprose	£24.99
3 Robocop 3	Ocean	£25.99
4 Powermonger Data D	Electronic Arts	£19.49
5 Harlequin	Gremlin	£25.99
6 Parasol Stars	Ocean	£25.99
7 Pacific Islandsa	Empire	£29.99
8 Leander	Psygnosis	£16.99
9 Knights of the Sky	Microprose	£44.99
10 Jimmy White Snooker	Virgin	£29.99
11 Elvira	Accolade	£25.99
12 Col Renegade	Bitmap Brothers	£24.99
13 Another World	US Gold	£25.99
14 Vengeance of Excaliber	Virgin	£30.99
15 Populous	Electronic Arts	£25.99
16 Legend	Mindscape	£30.99
17 Special Forces	Microprose	£34.99
18 Populous 2 (1 meg)	Electronic Arts	£25.99
19 Steel Empire	Millenium	£29.99
20 Shadowlands	Domark	£19.49

BUDGET CHART

PACKAGE SUPPLIER

1 Shadow Warriors	Hit Squad	£7.99
2 Dragons of Flame	Kixx	£7.99
3 Turrican	Kixx	£7.99
4 Lotus	GBH	£8.99
5 Chuck Yeager 2	Star Performer	£7.99
6 Escape Robot Mon's	Hit Squad	£7.99
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IN PLAIN ENGLISH

Here's an A to Z of the most common terms used on the ST ...

ASSEMBLY LANGUAGE

Programming language in which Machine Code commands are named according to their purpose. Assembly language must be translated into Machine Code by an assembler before it can be executed by a processor.

BASIC

Acronym for Beginners' All-purpose Symbolic Instruction Code - a computer language which uses a small vocabulary of English words. This has to be interpreted or compiled before being run.

BENCHMARK

A set of standard tests given to different computers to compare their performance. They can either be a series of mathematical operations or based on performing real applications.

BUFFER

Temporary storage area for data which cannot be immediately processed. It can be used to control the way data is transferred between devices operating at different speeds. They are particularly useful on printers as bigger buffers release your ST back to you faster.

CACHE

Part of memory used to temporarily store information which is frequently required by the program in use. This results in faster operation when data has to be frequently read from floppy or hard disk.

DESK ACCESSORY

Program which is loaded into the ST's operating system on power-up and which can be accessed practically all of the time. It must appropriate its own memory area when it loads up as most ST programs "steal" all available memory on loading.

DOWNLOAD

Receiving information from another computer, for example, via a Bulletin Board. Sending information is usually referred to as "Uploading".

FORMAT

Disks are subdivided into tracks and sectors which are numbered during the formatting procedure. The standard ST format is 80 tracks with nine sectors per track.

GEM

Graphics Environment Manager. Programmed into the ST's operating system, GEM is a user-friendly

way of working with on-screen Windows, Icons, a Mouse and a Pointer, or cursor, often referred to with the acronym WIMP.

HARD DISK

Capable of storing more data than a floppy disk and retrieving it more quickly. With a capacity from 10 Megabytes upwards, a hard disk connects to the ST via its Direct Memory Address, or DMA, port.

MACHINE CODE

Programming language which can be directly understood by a computer, making operations faster than with other languages.

MICROPROCESSOR

The heart of all data processing in a computer. Where the ST is concerned, this is a Motorola 68000 chip with a clock speed of eight Megahertz.

MODEM

Abbreviation of MOdulator DEModulator, a modem converts the digital signals of a computer into analogue signals which can be transferred down a telephone line, and vice versa.

PARALLEL INTERFACE

On the ST this is the printer port, commonly known as the Centronics port. Parallel transmission of data is where each of the eight bits of a byte are transmitted at the same time.

RAM

Acronym for Random Access Memory. Information is stored here so that it can be examined and altered by a user. There are two types; static, which retains its information when a computer is turned off, and dynamic, which needs to be refreshed every few milliseconds.

SCSI

Acronym for Small Computer System Interface. This type of interface usually connects a computer to a hard drive but the ST uses its DMA port. Most hard drives have are "SCSI embedded" which means that they need a SCSI to DMA converter board to work with the ST.

SERIAL INTERFACE

The ST has two of these; the RS-232 modem port at the rear and the MIDI ports to the left hand side. Serial transmission is where the eight bits contained in each byte are transmitted one after the other.

OPINION

Wherever there is news, wherever there is controversy, there will always be opinions. And this is the place to air them. One point of view against another. Then we can let the readers decide. If you have an opinion contrary to someone else's, then drop us a line....



Garth Sumpter has been playing games on the ST for over five years. As the erstwhile editor of SU magazine for Spectrum he has seen that market reduced from its former magnificence to today's poor levels.

DON'T JUDGE A BOOK...

Should the Atari be constantly judged as a game machine?

I've had an ST for some time now and realise that there is definitely less games software around than there used to be. Many people are looking at the ST market now and wondering if there is any future for a machine with declining games software sales. I actually believe that there is a rosier future for the ST than most people can imagine, and an especially rosier feature than the Amiga games machine. But it's really a matter of how you view the market, and allowing yourself to look at the wider picture - and not looking, like some, to constant comparisons with the Amiga.

KNOW YOUR ENEMY

The constant comparing of the Atari against the Amiga has been detrimental to the ST. Sure, the Atari is undoubtedly the best machine of the two because of its sheer computing power and ability to be used as a REAL computer. Unfortunately, in terms of games, it can't really better the Amiga purely on that level, especially as the full benefit of having the STE has never really been addressed by any games manufacturer. The fact that the Amiga is better at playing games merely underlines the fact that it's geared better towards that end. But it is almost exclusively this fact that has software houses writing games for the Amiga and not for the ST.

What most games software houses fail to appreciate is that they have never written games that truly take full advantage of the STEs capabilities and although there are over 100,000 STEs out there, the software houses fail miserably to address that market. It's a shame really as it's a market that spends more per head on their machine than any other home computer - and that includes (specifically), the Amiga.



Simon Jeffrey, spokesperson for EA has been in the games business for longer than he cares to say. He also prides himself on making the right decisions when it comes to computer games...

THE WAY IT IS

There have been many rumours about Electronic Arts having pulled out of the ST market. Well here's Simon Jeffrey from EA to set the record straight

Dear ST Review,

To address your question, it's just a matter of pragmatism.

Electronic Arts have seen the ST market rapidly erode away at a time when there has been growth in the Amiga market, strong growth in the IBM market and explosive growth in the console market and there is nothing to indicate that this picture will alter in the long term.

We are now in a position where an Amiga version will sell six to seven times more units in Europe than the ST conversion. Added to this, the ST has almost no market anywhere else in the world outside Europe which pushes this balance even more in the Amiga's favour.

Unfortunately, it is now a better use of programming resources to start a new project than to spend the time performing the ST conversion. If one wishes to re-use 68000 code, the Mega Drive is a much more attractive proposition than the Atari ST.

Having said this, Electronic Arts are still currently working on ST projects that we intend to finish, and they're all grade one titles that we've already invested heavily in, including **Castles**, **Risky Woods** and the **Populous II Challenge** Disk. We are also still distributing products for Millenium and some of their ST releases are not scheduled for quite some time yet. In fact, some of them may not see the light of day until after the Falcon. And then who knows what will be happening with the market if the Falcon is as good as everyone seems to think it is?

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Screen shots from Coin-Op version.



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