

ATARI ST USER

The
top-selling
Atari ST
magazine

Volume 2
Number 12
February 1988
£1.50

MIDI MAZE

*Is THIS the ultimate
multi-player game?*

SOFTWARE

Indiana Jones, Star
Trek, Phoenix, 500cc
Grand Prix, Déja Vu,
Trivial Pursuit,
Academy, Blue War

LISTINGS

Extra function keys,
sliding block puzzle

REVIEWS

Fleet St. Publisher,
PaintPro, K-Word 2,
TextPro, Fortran

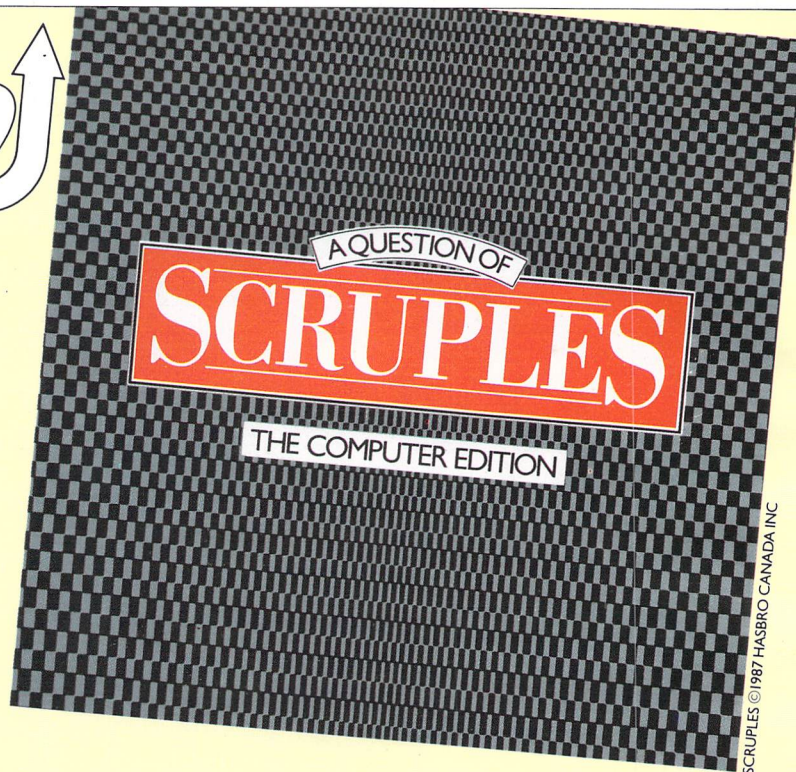
ADVENTURES

Nord and Bert tested,
plus hints and tips

FEATURES

Machine code for
beginners . . . DIY
user port software





Q Scruples: an inventive and original computer game, is in the shops today. Do you rush out and sell a personal possession so you can buy it before pay-day?

Q Scruples computer game is available on Spectrum 48/128, +2, +3, Commodore 64/128, Amstrad CPC 464, 6128 and Atari ST. The computer you own is not one of these. Do you replace it immediately with one that runs Scruples?

Q Scruples makes such an excellent Christmas present, you buy one for your computer-mad niece. After one play you are completely hooked - do you keep it?

Q You are due to keep an important appointment that may affect your future career. Your spouse loads up Scruples and you get involved in a game. Do you keep the appointment?

Q An attractive colleague at work is becoming very attentive and asks you to dinner. You find out that not only do they dislike Scruples but they hate computers too. Do you accept their invitation?

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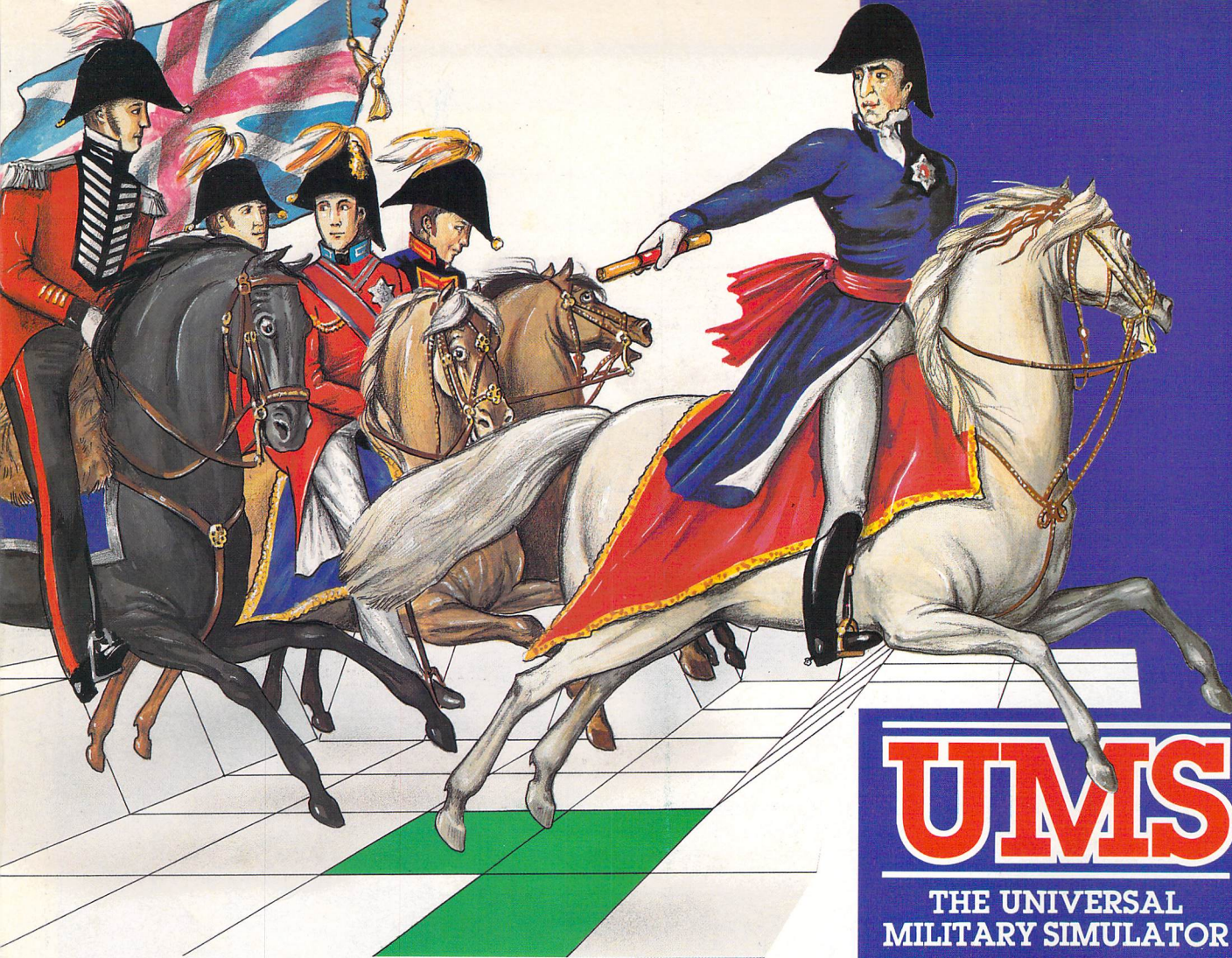
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Atari ST	-	disc £19.95

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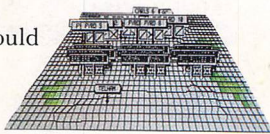




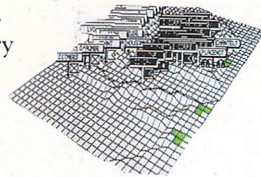
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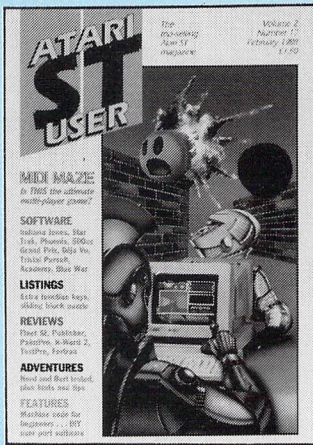
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Vol 2 No 12 February 1988

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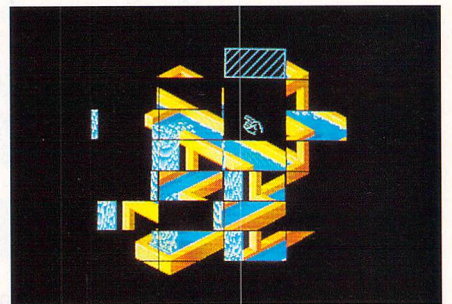
Mailbag

A selection of the brightest and liveliest letters from our mailbag.

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GAME

Sliding Tiles



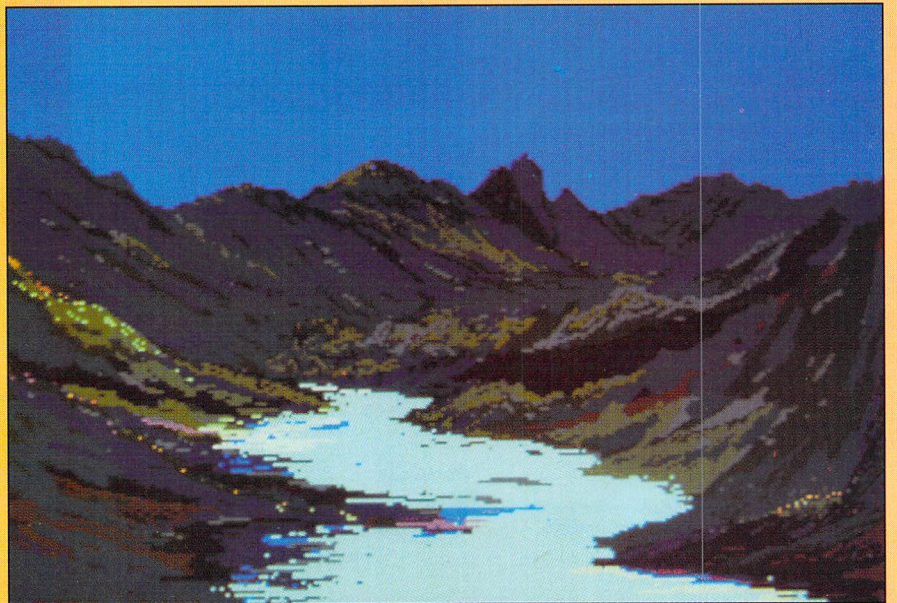
Use this program and your Degas or Neochrome pictures to create a mind-bending sliding block puzzle.

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Gallery goes Down Under this month as we feature impressive scenes from Australia created by micro artist Rita Plukss.

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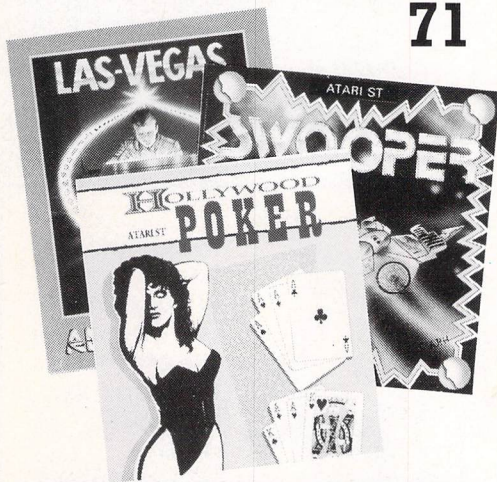
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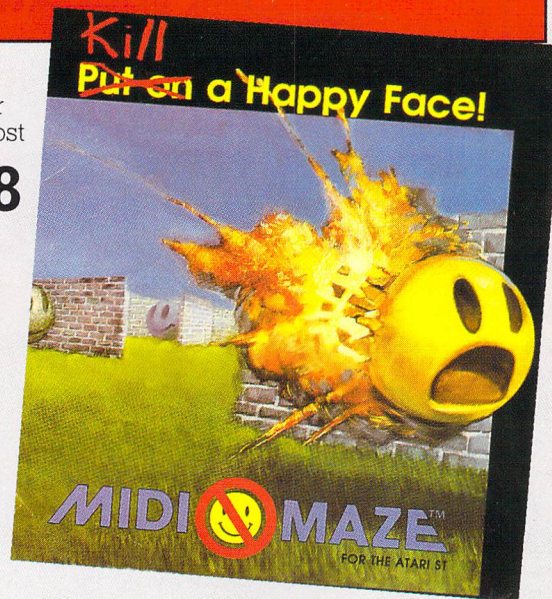
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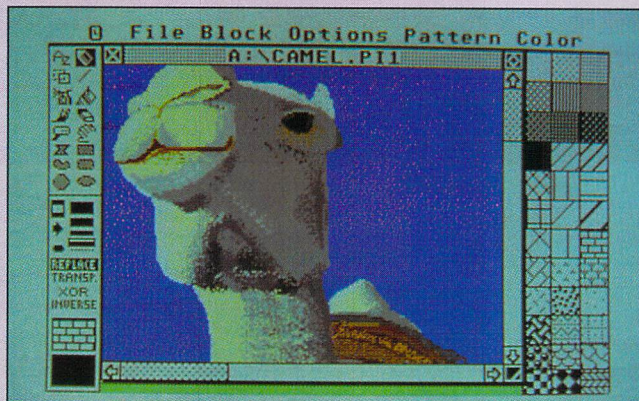


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Can Abacus PaintPro compete in a market that's already overflowing with quality graphic packages? Our art expert finds out. **68**

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Speed up your typing by storing commonly used words and even complete phrases using this handy machine code utility. **64**

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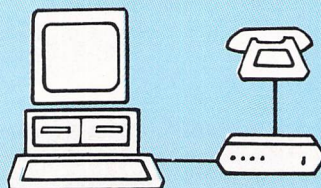
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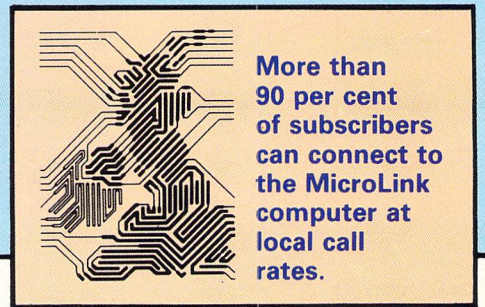
All you need – apart from your Atari ST – is a modem, which plugs into your telephone wall socket, plus suitable communications software.

We have provided a list of typical combinations (left), ranging from the very cheapest to ones which can automatically dial the MicroLink telephone number and connect you directly to the service – all you have to do is type in your personal security password.

Whichever equipment you use, you will be able to call MicroLink, open your mailbox, save to disc any messages waiting for you, and disconnect in as little as two minutes.

Typical comms packages*

A	<i>Haba: Miracle WS2000 V21, V23 modem + Kuma K-Comm software (£152.13 + VAT)</i>
B	<i>Aaronfay: Pace Linnet V21, V23 modem + ST Easitalk software (£201 + VAT)</i>
C	<i>Miracle: Miracle WS4000 V21, V23 modem + FaSTcomm software (£244.90 + VAT)</i>
D	<i>Silica Shop: Miracle WS4000 V21, Vs3 modem + PC Intercomm software (£299.95 + VAT)</i>
E	<i>Aaronfay: Trinitas Phasor V21, V22 modem + ST Datacomm II software (£413 + VAT)</i>



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ST2

SALES ARE SOARING

ATARI has chalked up record figures in the third quarter of its financial year. Sales reached \$80.4 million – up 34 per cent over the previous year's third quarter total of \$59.8 million.

Income was \$8.3 million compared with \$4.6 million, a rise of almost 80 per cent over last year. Sales for the first nine months stand at \$216 million, 30 per cent up on last year's \$165 million.

Income has risen 76 per cent from \$25.8 million to \$45.4 million.

Megabytes of memory for all ST

A BUDGET-priced hard disc drive compatible with all Atari STs has been announced by Silicon Systems. Prices start at £549 for the 20 Mb unit and £799 for the 40 Mb version.

All drives will be supplied with an in-built power supply and cables necessary to connect them to the computer.

Inside the case is an NEC manufactured hard disc unit featuring self-parking when the unit is switched off. This supplants the use of special software to park the head when the drive is not in use.

Silicon Systems managing director Tim Kay told *Atari ST User*: "The unit includes special hardware to allow booting from hard disc, without the necessity of special boot software on floppy to be mounted in drive A".

To cope with the massive storage available, the new drives can be partitioned into a maximum of twelve segments. To the user, these partitions will act just like ultra-fast floppy disc drives.

Just in case 40 Mb of storage is not enough, Silicon Systems (061-848 8959) expects to have a 300 Mb machine ready for production by March.

The firm has also announced a new range of floppy disc drives for the Atari ST range.

The most exciting addition is a 5.25in floppy disc said to be fully compatible with PC-Ditto. Priced £143, it will enable an ST running PC-Ditto to run a large majority of MSdos-compatible software supplied on 5.25in floppy disc format.

Previously, owners of PC-Ditto could only use software ported to a 3.5in disc for use on the IBM laptop.

Atari was star of top US show

ATARI was the undoubted star of the Comdex Show in America, capturing the Las Vegas limelight with its Abaq supermicro based on the Inmos transputer chip.

It was only a prototype, however. The finished product may not be seen in Britain until the end of '1988, with an interim glimpse of its development coming at Hanover in the spring.

The basic Abaq will have 4Mb of ram with another 1Mb for the display. The memory ram can be expanded into gigabytes, and the video ram expanded to 4Mb to handle parallel graphics processing.

It will allow up to four T800 transputers running at 10-12 million instructions per second to be connected for parallel processing.

Abaq's own operating system – Helios – is currently under development by Perihelion. Atari is also supporting the Idris version of Unix. Industry observers are guessing that the Abaq will go on sale

in America for between \$3-4,000.

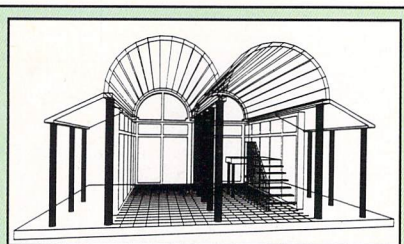
A PC emulator is said to be under development, though the transputer should itself be faster than an IBM PC AT.

Atari also used Comdex to announce changes in its PC range. Two existing 8088-based models have been designated PC1 and PC2, the latter having a built-in enhanced graphics adapter and costing under £500.

There is a new 80286-based IBM PC AT-compatible model called the PC4. It has a cpu running at a switchable 8 or 12MHz – ram-boosted to turbo speed beyond 16MHz.

The entry level PC4 will come with EGA graphics as standard, a video graphics adapter, serial and parallel ports, mouse and high-res monitor. First UK shipments of the PC4 are expected shortly.

Observers expect Atari's next move to be an 80386 machine with 16 or 20MHz processors for launch at Hanover and shipment to the UK in summer.



CAD system

A LOW-COST, Atari ST-based CAD building modelling system from Holland has been launched in the UK. Called Arkey, it can produce 2D plans, elevations and sections, and 3D perspectives and isometrics with hidden line removal.

A database of components with codes, descriptions and unit costs provides the building blocks to create models from which working and presentation drawings can be plotted on A3 to A0 plotters.

Arkey's bill of materials shows immediately the financial consequences of design decisions and links to a spreadsheet where further costing may be performed.

The Arkey workstation, comprising Atari 1040ST, mono monitor and interface with Gem and pull-down menus, costs £2,995 from Macfarlane Systems (01-948 6944).

TOS 'STILL CAUSING PROBLEMS'

DESPITE assurances from Atari regarding upward compatibility of the new ST operating system – Tos 1.09 – some software developers remain unconvinced.

Chris Robson, author of Tynesoft's Winter Olympiad 88 told *Atari ST User*: "I have had little difficulty with the new version of Tos – mainly because I have written my own routines and bypassed Tos completely.

"However I did discover the new Tos conforms to specification more tightly so you can't afford to make assumptions about anything".

Freelance programmer Derek Johnston said: "I've had no end of trouble with the new version of Tos. Initially nothing I'd written would work with the new chips, but things are gradually settling down.

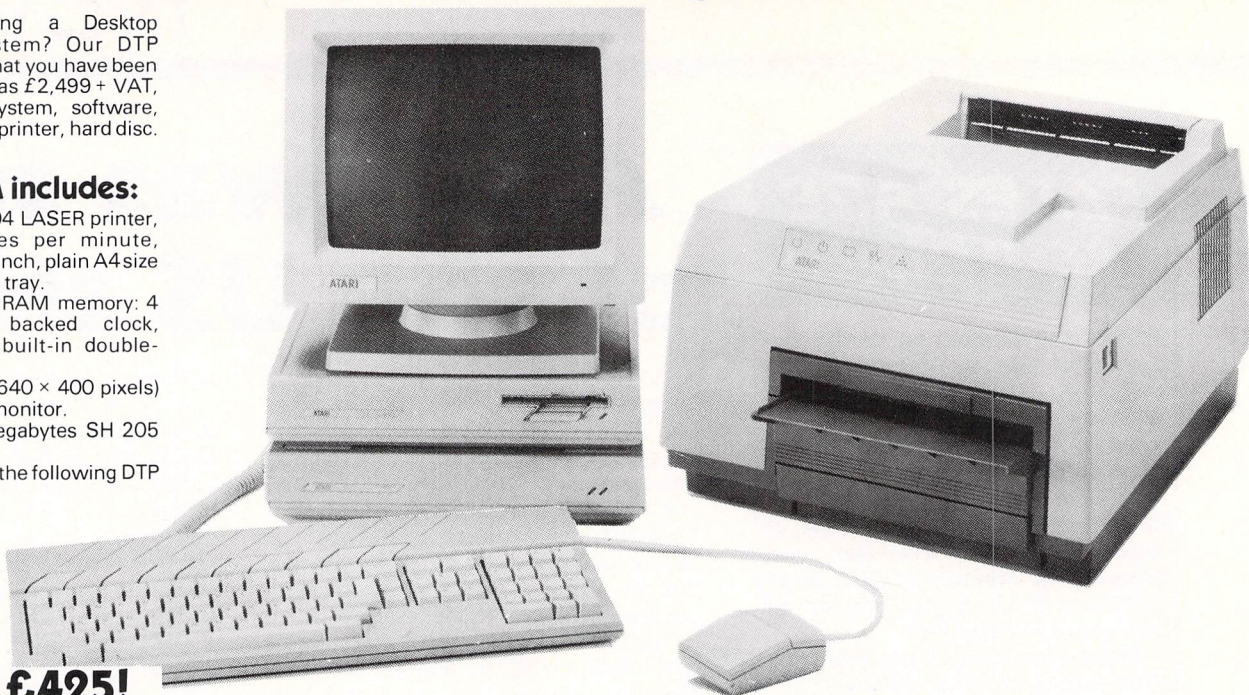
"One problem in particular surrounded reading the joystick ports. The new operating system seemed to produce unacceptable time overheads – in the end I had to use some routines borrowed from the original version of Tos".

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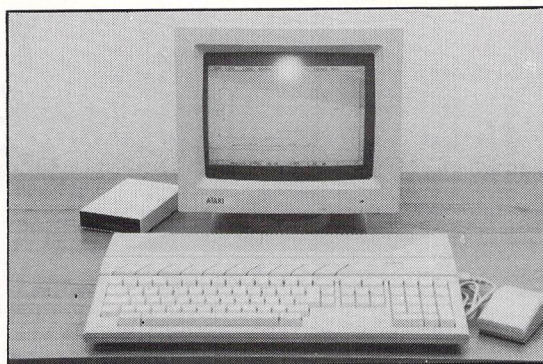
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Bargain upgrades

OWNERS of the small-memory 520ST series can now have their machines upgraded to the 1Mb memory specification of the 1040STF for less than the price Atari itself is charging.

The bargain conversions make it possible for suppliers to offer memory upgrades in kit form at prices starting from £50.

A fitting service is usually available for users not wishing to attempt the upgrade themselves, although this costs extra.

Many suppliers are now upgrading 520STFMs themselves and selling them at low cost. One, Evesham Micros (0386 41989) is selling the 1Mb 520STFM machines for £338 – a saving of nearly £200 on Atari's list price.

The upgraded machines lack the double-sided disc drive of the 1040STFs. As a result, many third-party suppliers are now offering double sided drives for less than £200, which still represents some saving.

Best seller

WHEN the final Christmas sales figures are in, they will almost certainly show the ST in number one spot at Dixons.

As the seasonal buying spree gathered momentum at the High Street chain, the ST was outselling all its rival computer hardware. In the case of the Spectrum Plus 2 and Plus 3 it was by a margin of five to one.

"The ST is going to prove our number one for Christmas – that's guaranteed", said Dixons computer buyer Ian Laurie. "We thought it would be due to our special software offer worth over £200, but that finished early December and the ST has continued to sell well at £299.95".

New compilers

PROSPERO Software, the first company to release a version of Fortran for the Atari ST, has released fully updated Gem versions of Fortran and Pascal.

Both new compilers are fully compatible with the relevant standards, but are greatly enhanced to cover more of the user's needs.

To help new users get to grips with this vastly improved software, Prospero (01-741 8531) has included three new manuals, two of which are devoted to the Aes and Vdi.

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234/82	Adjustable freestanding white worktop	11.50	10	115.00
				Total 3,513.00

ATARI QUILTS FAST

ATARI has announced that it is to pull out of FAST – the Federation Against Software Theft. An Atari spokesman said: "The reason for leaving is that we are mainly a hardware manufacturer.

"We feel it makes more sense for third party software houses to be involved with the group".

The Federation's enforcement officer, Bob Hay, said: "The announcement, and reason for leaving, have come as a complete surprise. I just cannot understand the company's decision.

"Atari is one of the leading makers of machines for entertainment software, yet is not supporting software publishers in their fight against piracy".

Enter Idris

IDRIS – the multi-tasking, multi-user operating system which adheres to IEEE's draft Posix standard for such machines – has arrived on the ST.

It was originally developed in 1979 for use on the Dec PDP-11, but has now been transferred to the ST by Computer Tools International of Seattle and released here by Real Time Systems (0624 26021).

Abaq forges ahead

DEVELOPMENT work on Atari's new Abaq transputer-based parallel processing workstation is progressing well, says an Atari spokesman and the search is on for suitable software developers to produce the necessary sophisticated programs.

With Abaq, advances in applications such as desktop publishing and CAD are expected to be phenomenal. Full page displays will move desktop publishing into higher levels of presentation than have ever before been possible.

Solid wire-frame modelling graphics capabilities combined with photographic

Lex for ST Mega models

THE Lex integrated word processing and database package and Lexet typesetting software from Ace Microsystems are the first packages to be ported on to Atari's Mega 2 and Mega 4 machines. Both packages run on Whitesmiths Idris, a Unix-like operating system with Posix compatibility.

"Attacking the lucrative business market is undoubtedly of major importance to our company", said Sig Hartman, executive vice president of Atari US. "With the introduction of our high performance multi-user systems it was crucial to find powerful software in order to offer a total business solution. In this respect Lex and Lexet are ideal".

Lex is a versatile word processor which includes full multi-lingual capabilities, including French, German, Italian, Portugese, Dutch and Arabic.

Other features include multiple columns for editing and display, an abbreviations facility for recall of frequently used text, and a 130,000 word dictionary to which technical terms and proper nouns can be added.

A major element of the program is the built-in multi-user database manager with indexed file structure. This supports 100,000 words and includes list processing and mailshot facilities.

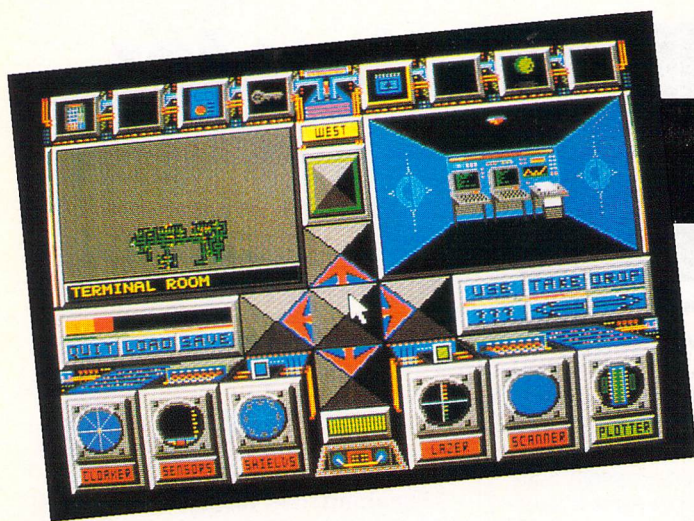
Ace Microsystems (01-847 4673) says Lexet is capable of producing consistently high standards of documentation driving a laser printer directly. Prices are from £500.

quality presentation will bring 3D CAD up to standards that could not be achieved on desktop computers.

The heart of the new machine is the transputer which allows processing speeds of 10 million instructions per second. By adding extra transputer chips Atari says that 100 mips will be possible.

Informed sources say that with a suitable interface the ST range of computers will be able to tap into Abaq's massive processing capabilities. Such a combination would provide a relatively low-cost system that would surpass anything currently available.

Games update



Slaygon

After Terrorpods – Obliterator

THE producer of *Terrorpods*, Liverpool software house Psygnosis has announced another two ST products for early 1988. First out will be *Obliterator* – similar in appearance to the company's earlier release *Barbarian* – based on an alien spaceship.

Head of Psygnosis, Jonathan Ellis told Atari ST User: "*Obliterator* features greatly enhanced gameplay, a three dimensional map twice the size of the one in *Barbarian* and chaining puzzles.

"We value feedback, and in response to requests we've included a save game facility".

The second game is so new it doesn't even have a name. All Psygnosis would say was: "It is fast, furious and features probably the fastest 3D scrolling landscape ever experienced on an ST".

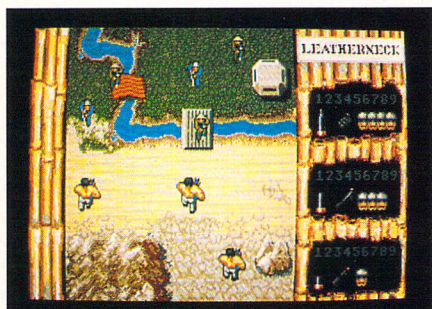
Like all previous releases from Psygnosis (051-207 0825) both products will include a presentation pack and full-colour poster.

Budget discs

BUILDING on the success of its budget range for 8 bit machines, Firebird Software has turned its attention to low-price disc-based games for the ST.

First titles in the £9.95 series to be launched are *Warhawk*, *Harvey Headbanger* and *I-Ball*.

A spokesman for Firebird (01-631 5168) said: "Assuming the success of these games we anticipate that further budget-priced titles will be made available for the ST".



Leatherneck

Action-packed

ST users get the chance to play football, fire machine guns, explore a planet, create music, and save the earth with the latest batch of releases from Microdeal.

Slaygon involves trying to destroy a laboratory which has produced a virus threatening to destroy all life.

In *Leatherneck* the object is to advance as far as possible through enemy territory while dodging machine-gun fire and explosions. Up to four players can take part.

From the battlefield to the football field with *International Soccer* in which bad weather and nightplay can ensure a really hard match.

One place where football isn't played is the planet *Tanglewood*. The object is to find priceless D crystals in this totally mouse-controlled graphic adventure. Priced £19.95 each.



Tanglewood

LATEST release from Martech (0323 768456) is a vast combat arcade adventure called *Catch 23*.

Its advanced 3D vector graphics enhance the action on a highly dangerous island whose defences have to be breached for the player to capture a deadly secret. Price £19.95.

★ ★ ★

TWO entertainment titles for the ST will be available on the new Magic Bytes label from Ariolasoft (01-785 4285). Scheduled first is *Paranoia*, where the player must try to escape from a world controlled by a computer.

This will be followed by *Vampire's Empire* – a 150-screen, monster-filled quest to destroy the terrible Count Dracula. Ariolasoft (01-785 4285) says both games should be ready for release this month, price to be announced later.

★ ★ ★

THREE more titles – two of them licensed from Taito – have been released for the ST by Firebird (01-631 5168).

Star Trek authors Graham Everett and Steve Cain have teamed up with Fred Grey to write *Black Lamp*, a game combining arcade action with epic adventuring on more than 100 levels.

Already a big hit in the arcades, *Flying Shark* is a fast and furious vertical scrolling shoot-'em-up on five levels.

Another successful Taito coin-op title, the 100-screen agility test *Bubble Bobble*, has been converted for the ST by Software Creations.

All three new games cost £19.95 each.

★ ★ ★

GAMES planned by Grand Slam – the new name for Argus Software – include a Peter Beardsley football game and one based on the England team.

Among other releases for 1988 will be new titles based on the *Flintstones* and *Grange Hill*, said a spokesman for Grand Slam (01-439 0666).

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ATARI ST Introduction to MIDI Programming
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Abacus Software

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

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

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

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

Introduction to MIDI Programming
Your ST's built-in Musical Instrument Digital Interface (MIDI) lets you control any MIDI-equipped digital synthesizer - and the results can be phenomenal! This book covers the fundamentals of MIDI operation on the ST - how a synthesizer is actually interfaced with the ST's MIDI ports. Includes C sourcecode listings for comprehensive MIDI editor, driver and animated player for any of the Casio GX series, etc. Written by the authors of XLENT Software's ST Music Box™ package.

AB 450 446 pages **£14.95**

AB 470 412 pages **£14.95**

AB 455 260 pages **£14.95**

AB 485 312 pages **£12.95**

AB 520 250 pages **£14.95**

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Abacus Software

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Enhance your programs with the PEEK and POKE examples in this book. Clearly explains a number of the most important POKES and their uses. At the same time, you'll get a good look at the architecture of the Atari ST. Topics include: the ST's configuration and interfaces, its "intelligent" keyboard; the mouse, pointer and stack, diskettes; TOS, GEM, interpreter/compiler, choice of programming languages, input and output; much more.

ST Machine Language
Learn 68000 machine and assembly language to make the fullest use of your ST. Takes a systematic approach in presenting number systems, logical operations and bit manipulation; use of registers, structure and details of the 68000 instruction set and the ST system routines; explains the functions of the editor, assembler, linker, etc. Contains many sample programs.

Graphics & Sound
An in-depth look at creating sophisticated graphics and surprising music and sounds on the ST. Detailed guide features step-by-step introduction to graphics in all resolutions: 2-D and 3-D function plotters, Moiré patterns, graphic memory, various resolutions, fractals, recursion, sound waveform generation, MIDI. Example programs written in C, LOGO, BASIC and Modula-2 ST. See and hear the audio-visual possibilities built into this remarkable computer.

ST Disk Drives: Inside and Out
The definitive guide to the ST disk drives, including the Atari ST Hard disk. This exhaustive volume not only covers files, file structures and data management, but details both the programming and technical aspects of the floppy drives, hard drive and RAM disk. Includes program listings for several full-length utilities and programming tools that allow you to further explore the capabilities of these drives. Available first quarter '87.

ST BASIC to C
Move up from BASIC to C - in a hurry! If you're already a BASIC programmer, you can learn the fundamentals of C language programming all that much faster, usually in less than one day. Parallel examples demonstrate the programming techniques and constructs in both languages. Topics include variables, pointers, arrays, data structures, more.

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The following disks are just a small selection of the hundreds available in The ST Club PD Library - for a FREE copy of the latest catalogue complete the tear off slip below.

GRAPHICS APPLICATIONS

GRA.04: MANDELBROT ADVENTURER - Comprehensive Mandelbrot fractal generator plus sample sets of fractal data and good documentation. COLOUR Monitor required.
GRA.10: FRAKTAL - excellent German fractal drawing programme - mono and colour versions; Line-A prog examples in C; Fractal Landscape prog and lots more demo's.
GRA.22: AIM V2.31 Image processing programme developed at The Delft University, Holland. Includes the facilities to read and write different image formats (Neo and Degas) and process colour images. Very highly featured package with elegant use of GEM. Disk includes demonstration Macros, their associated images and lots of documentation. (Double Sided Disk - needs 1meg of RAM and runs in both high and low resolution - this disk includes Mono demos - GRA.23: AIM program plus colour images and macros)

DRAWING APPLICATIONS

DRG.05: NEOCHROME Version 1.0 with Animation facility and NEOFUN; Colour only
DRG.06: Degas Utilities: 164 fill and brush patterns; Degasdisp - utility to display any Degas picture on any monitor (fast); Deggpicker - customized slide show utility. Plus Degas Printer drivers.
DRG.07: Masterpaint - superb drawing package with a host of features - works in both mono and colour. Also on this disk is Little Painter a drawing package with its own font editor.
DRG.08: The ARTIST - another good drawing package - works with mono monitors only.

COLOUR DEMONSTRATIONS

SSC.03: The classic Flying bird demonstration.
SSC.05: THE GLOBE - A truly excellent spinning Earth programme, needs Double Sided Disk Drive and 1 Meg of RAM
SSC.06: Shiny Bubbles. Excellent demonstration from Analog Computing. Four reflective bubbles dart around each other above a scrolling background.
SSC.14: The Planets - Slide show around the planets with pictures, facts and figures (Double sided disk).
GRA.15: The Juggler by Trivision - excellent ST implementation of the classic Amiga animation demo. Also ManyBoink - 16 bouncing balls.
GRA.20: Antic Cyberstudio Demo - fantastic animation sequence produced with Cyberstudio - the first short film for the ST? Needs 1meg RAM and D/S drive.

TINY FORMAT COLOUR SLIDE SHOWS: compressed using Tiny utility. Each disk includes the TINYVIEW picture displayer and TINYSTUFF for converting between TINY, DEGAS and NEOCHROME formats.

SSC.10: Cartoon and space theme pictures (28 picture files).
SSC.11: Maps, portraits, planes and cars (26 picture files).
SSC.12: Page3 - Nudes and pin-ups (17 picture files).
SSC.13: Page3 - Nudes and abstracts (16 picture files).
SSC.16: The Empire Strikes Back and Space Shuttle. Colour.

DIGITIZED MUSIC DEMOS - All need a double sided disk drive and 1 Meg RAM.

MUS.02: Fantastic sound demo of Mike Oldfields "Foreign Affair"
MUS.03: Digitized music of Jean Michael James 'classic' OXYGENE.
MUS.07: Money For Nothing - digitized music plus colour picture.
MUS.08: Secret Separation - very well sampled and replayed.

GAMES - Needing Colour Display

GAM.01: BACKGAMMON, MURDER - MYSTERY, MASTERMIND, MAZE-MAKER, MEGAROIDS, PARACHUTE - LANDER.
GAM.13: Azarian - Space strategy game; Spacewar and Firestorm - space arcade games.
GAM.19: PacMan, Trivia quiz, Yahtzee and Stoneage demo.

GAMES - Need Mono Monitor

GAM.10: Puzzle Puzzle - excellent jigsaw puzzle games. Mono.
GAM.14: Monochrome games: Solitaire with 3D graphics; MacPan - very good PACMAN game; plus GALAXY and SPRENGMEISTER strategy games. Documentation is in German - but this makes little difference to the playability of the games!
GAMES - Mono or Colour Monitor
GAM.21: EAMON - The adventure game writing system. Implemented in GFA basic - which will be required if you want to write your own games. Five ready to go games are included on this disk.
GAM.03: HACK! - The St version of PC HACK! a Dungeons and Dragons text adventure with graphic maps.
GAM.04: ADVENTURE WRITER: DIY Adventure game compiler + example games
GAM.11: LARN - Text adventure; plus Infocom Sampler.

UTILITIES

UTI.06: Metacomco programming examples in C and 68000 Assembler, plus some handy developers notes. Although the listings are specific to the Metacomco compilers it would be easy to amend and develop the code for other compilers. Executable programmes and source codes are included.
UTI.07: Floppy disk utilities: Formatters, Copiers and RAM disks.
UTI.08: HARD DISK UTILITIES - BACKUP utility; HARDAUTO - runs files in Drive C at boot-up; INSTALL - Allows boot up from hard disk; SBACKU - backup utility; VOLUME - Volume label Changer; STARTUP - powerful Batch Startup Programme; TURTLE28 - Back up utility.
UTI.09: PACKERS - file archive and compression utilities, includes: ARC, EZSQUZ, SQUEEZE, STPACK, STSQ, UUENCODE, and TAU a useful and straightforward text file archiver.

DESKTOP ACCESSORIES

DES.01: Calculators, BREAKOUT Arcade Game, CLOCK, GOBBLING CRABS!, DIRECTORY PRINTER, SAVE DESKTOP TO DEGAS FORMAT PICTURE FILE, MEMORY AND DISK SECTOR EDITOR, DESKTOP FONTS, RAMDISKS, ETC.
DES.02: DIRECTORY PRINTER - FREE RAM REPORTER - PUZZLES - RAMDISKS - CALCULATOR - SNAPSHOT (SCREEN ↔ DISK) WATCH - GAMES - MITES (NASTY!) - OTHELLO - TI59 (Very powerful calculator)

COMMUNICATIONS UTILITIES

COM.03: XMODEM (LATEST VERSION WITH HELP FACILITIES) - MODEM 7: MULTIPLE FILE TRANSFER UTILITY - STERM (COMMS PROG WITH C SOURCE CODE) 300/1200 BAUD) - VT100 EMULATOR.
COM.07: Kermit - two versions from Lancaster Universities Kermit distribution service. Old version is a fast. TTP application, latest version is nicely GEM'd
COM.08: UNITERM V1.7: VT52, VT100, VT102 and Tektronix 4010 emulation plus ASCII, X-Modem and Kermit file transfer protocols and much more in this very professional package from Simon Poole. Don't buy a commercial package until you've tried this one. Also on this disk are: TEKtoGEM Transformer programme, KEYEDIT programme (allows keyboard keys to be reassigned) and MOBZDIAL.ACC - Autodial address book.

WORD PROCESSORS AND TEXT PROCESSING APPLICATIONS

WPR.06: Micro EMACS; full screen editor for editing programme listings or for post-formatted word processing as with PROFF. On-line help facilities. Source codes in C included.
WPR.07: ConTEXT (V2.0) - Excellent GEM based programmers text editor, includes configure set and macro facilities. (Shareware), EDITOR - Little Golem Editor; FOGGER - gets Fog, Smog, and Flesch indexes and word and sentence counts on a text file; LESS - flexible text file display utility; SPELL and SPELLER - two spelling checkers, SPOOL - 32k print spooler.
WPR.12: MicroGnuEmacs (MG1b) - EMACS screen editor with ARC'd source code and 25k of tutorial. Runs in all screen modes.
FON.03: FONTEdit Version 3 - Font Editor and loaders for both RAM and downloaded (Juki 5510/ Epson) fonts. Includes over 30 fonts, font data disassembler and meta utility giving easy access to alternate character sets.
WPR.16 and WPR.17: Deluxe Fontmaster ST v2.0 - excellent multi font page layout package; graphics are limited to manipulation of frame patterns. Whilst this is no WYSIWYG package a fast print preview facility is included. Output to NEC, IBM and Epson compatible dot matrix printers is supported. Excellent package that could save you over £100! Many fonts included along with a font editor. Originally in German this program has been translated into English for The ST Club. Needs a mono monitor - available on one disk as WPD*11
WPR.18: STWRITER V1.75 - Enhanced and improved version with: Outdenting, Variable print styles in headers and footers, Elongated text in double column mode, and can now send output to laser printers.

LANGUAGES

LAN.01: 68000 ASSEMBLER, FORTH-83.
LAN.08: PUBLIC DOMAIN C COMPILER, RSI command line processor, Micro EMACS, simple spreadsheet, TINY BASIC, DISASSEMBLER plus MAKE utility to maintain update and regenerate groups of progs.
LAN.09: ToyProlog V3.0 - German implementation of ToyProlog.
LAN.13: Little Smalltalk - good implementation with copious documentation.
LAN14: ST ICON v6.0 - Nothing to do with Icons this language is a follow on from SNOBOL4.
XLS.01: XLISP: An experimental Object orientated language. 55K DOC file and TINY PROLOG Interpreter.

ST Club Newsletter back issues on disk
STN.01: October ('86), November, December, January ('87) and February
STN.02: April ('87), May, June and July.
STN.03: August, September, November and December.
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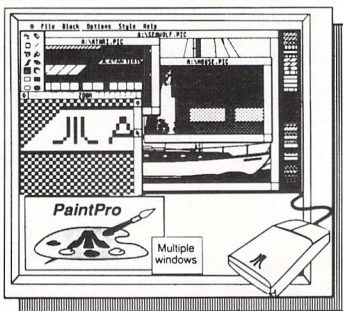


TextPro

"...TextPro is the best wordprocessor available for the ST." — Randy McSorley Pacus Report Dec '86

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

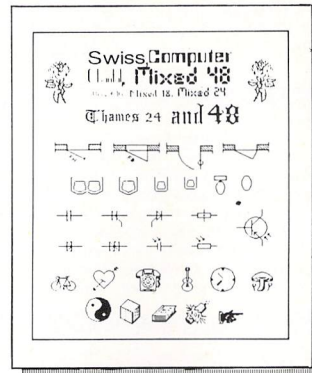
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A true GEM™ among ST graphic design/paint programs. ST PaintPro is very friendly and economical – but very powerful. PaintPro supports up to three active windows, and has a complete toolkit of functions: free-form sketching, lines, circles, ellipses,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

AB 620 **£49.95**



PaintPro Library # 1

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

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"The whole system is well designed and makes the rapid development of 68000 assembler programs very easy." — Jeff Lewis Dec. '86

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

AB 625 Now only **£49.95!**

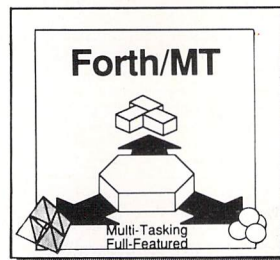


DataRetrieve (Formerly DataTrieve)

"DataRetrieve is the most versatile, and yet simple, Atari Journal Nov. '86 data base available for the Atari 520ST/1040ST on the market to date."

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

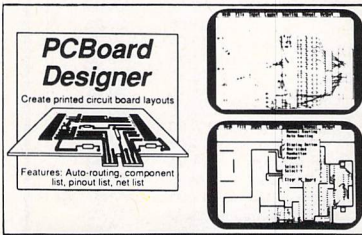
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Forth/MT

A powerful, multi-tasking Forth package designed exclusively for the ST. Forth is not only a programming language, but an operating environment – you can program, assemble and edit. Used for more than 15 years in industrial and scientific applications, Forth dramatically reduces program development time compared to assembly language or the high-level programming languages. Since Forth is so fast, compact, flexible and efficient, it is particularly well-suited to solving real-time problems. Our ST Forth/MT is a complete, 32-bit implementation based on the Forth-83 standard. Features include a full screen editor, monitor, and macro assembler. Forth/MT has over 750 words in the Kernel, with a 1500 + disk-accessible word library. Complete TOS commands, LINEA commands, floating point and complex arithmetic available. Utility descriptions are stored on disk – you can change them to suit your needs. Machine language sections added for high speed.

AB 495 **£49.95**



PCBoard Designer

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

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

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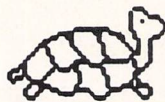
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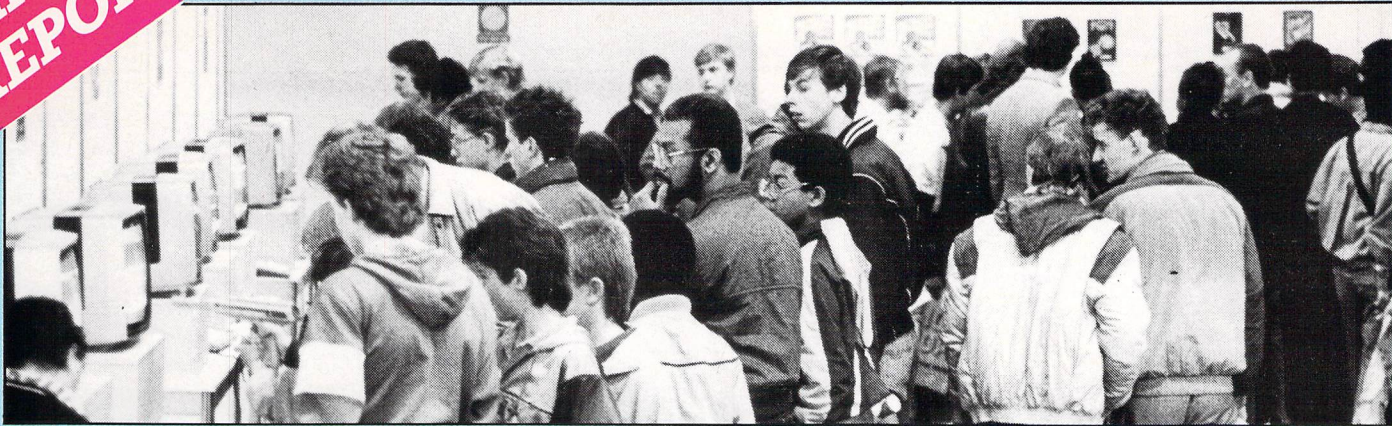
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Show was a real crowd-puller

ONCE again the faithful turned out in their thousands for the Atari Christmas Show held at London's Novotel.

And 55 per cent of all those who attended were Atari ST users, so pushing 8 bit owners into the back seat for the first time.

Mingling with the crowds at the show was Mike Cowley, Atari ST User's news editor. Here is what he found . . .

AN in-depth survey of visitors attending the show revealed it was a smash hit with the public. One hundred per cent indicated not only they felt their attendance had been well worthwhile, but also that they plan to be at the next in the series.

And the majority of these – some 62 per cent – have owned an Atari for less than a year.

The reason for the mass endorsement stemmed in the main from the vast number of special offers to be found, with a conservative estimate of total discounts available being placed in excess of £100,000.

Such was the competition between exhibitors at the show that some prices fell dramatically during the course of the event.

When the doors opened on Friday, boxes of 3in discs were selling for £14.95. By the end of the first day, this had been slashed to £3.50.

"The visitors have had a bonanza", observed one exhibitor. That's why more than 40 per cent of visitors questioned reported that bargains were the highlight of the show, while a further 29 per cent opted for new products as the main

attraction. Other major reasons given for describing the event as a success were the mix of exhibitors – from the giants like Silica Shop to the small innovative software houses, the range of products, the venue and overall presentation.

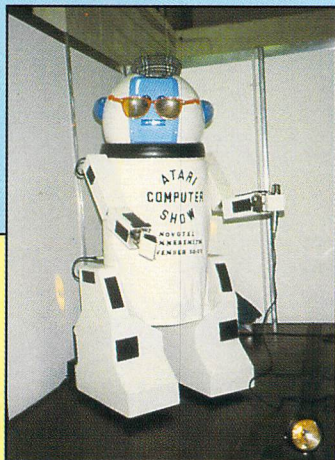
The survey also revealed the spending pattern of show visitors. Some 40 per cent

SPOTTED among the crowds at the show was at least one famous face. Russ Abbott, the television star, had dropped in on his way to the show in which he is currently starring in the West End. He said he wanted to buy an Atari for his son.

spent up to £25, 26 per cent up to £50, a further 12 per cent up to £100, with 22 per cent paying out more than £100.

"It seemed like everyone was bent on buying all their Christmas presents there", observed Christina Erskine, former editor of Popular Computing Weekly.

"And one thing that I haven't seen at any other event of this type was the number of people who were actually buying computers, not just software and peripherals".



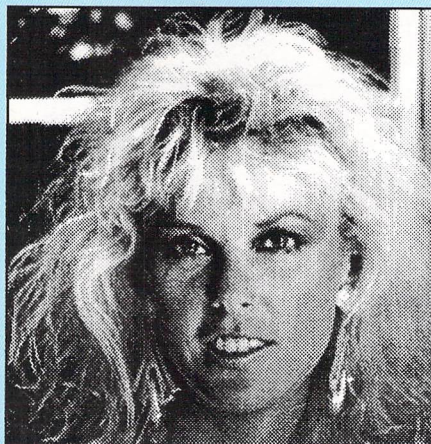
THE world's first computerised disc jockey took made its debut on the first day of the show.

Del Boy took his place behind the turntable to spin the latest chart topping hits, accompanied by a first class line in patter.

Such was the sophistication of the silicon deejay that he was able to "ad lib" with members of the audience and play their requests.

He also helped to entertain the crowds by calling on his database of 5,000 suitably corny jokes.

The mass media soon learned about the robot's presence. As a result, he ended up with a five minute spot on Capital radio talking about the show and even introduced Tony Blackburn on Radio London.



A digitised picture of a lovely blonde produced by the new Swiss device

NEW SWISS DIGITISER

SWITZERLAND provided the source for at least one new product for the ST which took its UK bow – and more are on their way.

The A-Magic Turbo Dizer, imported by Software Express, was welcomed as good value for money. At £129.95, the new digitiser functions in both black and white and colour.

Also in the pipeline from Switzerland is a revolutionary scanner, which – according to Mike Reynold-Jones, managing director of Software Express – will sell for under £1,000.



Pat Bitton of Mirrorsoft presents the desktop publishing award to Gordon Selvage, director of TVEI Great Yarmouth

Support DTP in schools, Atari urged

A CALL for Atari to provide help for schools in the area of desktop publishing has come from a senior educational adviser, Gordon Selvage, director of the Technical Vocational Education Institute of Great Yarmouth.

"If Atari want to make a real impact on the education scene, then this is one way they could do it", he told *ST User*.

Gordon Selvage had been invited to the show to receive an award from Mirrorsoft on behalf of six high schools in Great Yarmouth for their outstanding achievements - helped by TVEI - in desktop publishing.

"Mirrorsoft is a firm that has taken a lead in providing support for schools in this area", he added. "This award being only one example of what they are doing.

"Atari would be well advised to take a leaf out of Mirrorsoft's book and lend support to the schools if they want to establish a real presence".

Developments in desktop publishing were very much evident at the exhibition. Software Express had combined with Mirrorsoft to help launch the latter's colour printer driver for £14.95 on the former's stand.

Also to be found there was Mirrorsoft's new graphic design software, Art Director, and Film Director, the software used to produce the "blinking eye" in Atari's end-of-year television commercial.

Over on the Electric Distribution stand, the Timeworks Desktop Publisher was attracting considerable interest mainly due to its price tag of £99.

Yet another company taking a high profile in the dtp sector was Soft Logik with its Publishing Partner package.

"The arrival of the Atari laser printer has sparked off a boom all of its own as is very much in evidence at this show", observed one visiting journalist.

Mac emulator from Germany

A GERMAN package which claims to provide a Macintosh emulator for the ST which "really works" was featured on the Eidersoft stand.

Aladdin - according to the promotional blurb - would make even Apple look twice.

It comes in cartridge form, plugging into the rom cartridge port, with two sockets to take the original Apple Macroms.


HOT FROM COMDEX

ONLY 10 days after their world launch at Comdex in the United States, Michtron had a trio of packages on display in the UK for the first time. All three are educational titles priced at £14.95.

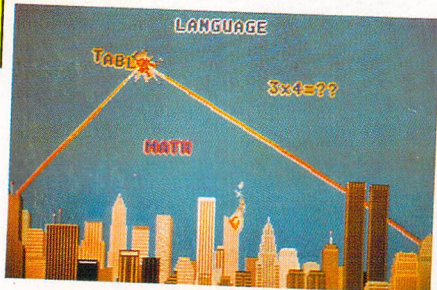
Invasion is designed to help improve basic typing, spelling and maths skills. The only way to defend is to continuously improve these skills. A special programming feature allows the content of the game to be changed or modified.

Students with a fear of Algebra will find the cure in the Algebra 1 series, claims Michtron. The six parter gives step by step guidance for both the beginner and the advanced pupil.

The final import is ABZOO, a program for three year olds and upwards. It has three levels to provide an understanding of the alphabet and combine it with "explorative instincts" using animal graphics.



Invasion



An Educational Program Designed to Teach Children 3 to 6 Reading and Typing

For the Atari ST

An Animated Learning Game

- Improve Typing Skills
- Memorize Vocabulary Words
- Solve Math Problems

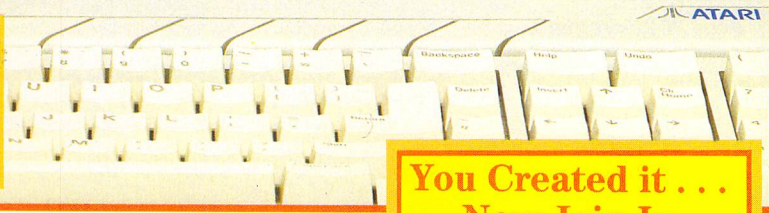
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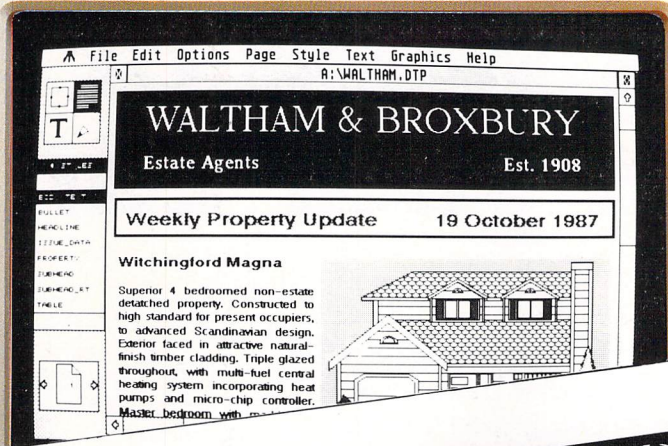
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THERE are probably more word processors and text editors available for the ST than any other class of software, games apart. So when it comes to picking the right one for you, the task isn't easy.

It is made all the more difficult by the excellent word processor 1st Word, provided free with all new STs. Is it worth paying for another? Clearly there must be good reasons for forking out hard earned cash – the facilities offered by the package must greatly exceed those of 1st Word.

This review outlines the features found in Kuma's K-Word 2 and Abacus' TextPro, two quite different word processors. K-Word 2 is similar in many ways to 1st Word, with which most people will be familiar, and I'll discuss this first.

Figure 1 shows the editing screen and document. As you can see, it is a wysiwyg word processor like 1st Word, so what you see on the screen is an almost exact copy of what you will get on paper when the file is printed out. The only things you can't see are the headers, footers, page numbers and so on that you may have defined. These are added at the printing stage.

This makes it very easy to layout the page exactly as you want it. You can see the position of titles, the style of text and so on and easily alter them to suit.

The window title shows the name of the file being edited and the page being worked on. Below this is a ruler marked in 10-character divisions and the left and right margins marked by an L and an R.

Down the right-hand side of the window is a margin showing the page number and the position of hard carriage returns. These mark the end of paragraphs.

The number of different text styles is limited to normal, bold, italic, underline

A word or two in your ear

Julia Battle compares two word processors, K-Word 2 and Textpro

and any combination like bold italic, underlined normal and so on. Unfortunately, there doesn't seem to be any way of adding extra styles, apart from altering the printer driver so bold prints as condensed.

One annoying problem with underlined text occurs on printing the file. The example shown below has a small left margin and some underlined text which wraps round to the next line. When this is printed out, the spaces in the margin are also underlined.

Changing the style of a chunk of text is particularly easy and is a big improvement over 1st Word. Pressing Control+B changes all the text to bold ahead of the cursor until the next hard return – usually at the end of paragraph. To change back to normal before the end of a paragraph you move the cursor to the appropriate point and press Control+B again. Similarly, Control+I changes to italics and Control+U is underline.

Moving around the text is straight-

forward. You can point with the mouse and click the button, or use the cursor keys. A combination of Shift, Control and cursor keys enables you to move a character, word, line or screen at a time.

Blocks of text are defined by moving to the start and Shift-clicking the mouse at the end. This can then be moved, copied, deleted, saved and so on.

The file menu has options to load and save Ascii files as well as the normal document files. When saving in Ascii form, all the control codes are stripped out, but the margins are retained. If an Ascii file is loaded it isn't possible to format it like normal text as all the spaces are treated as hard spaces.

An additional feature allows you to save in DIF format. This enables you to transfer data to and from Kuma's K-Spread spreadsheet program.

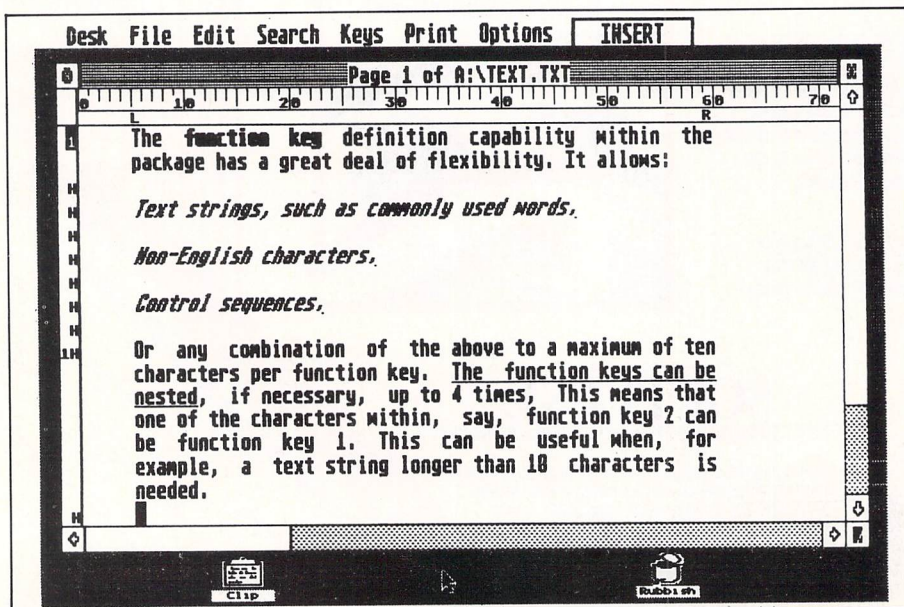
The printer driver generator supplied with K-Word 2 is one of the best I've seen. It is mostly mouse-driven and you simply select a feature such as bold from a menu by pointing at it and then entering the codes for your printer like ESC "G" 1. The menu contains many different styles, but these don't seem to be available from K-Word 2.

Another bug spoils what is essentially a good program. The printer driver generator will create, load, save and edit .PRN files by default, yet K-Word 2 loads .CFG files. This means you have to create a .PRN driver file and use the desktop's Show info menu item to rename the extension to CFG before booting up K-Word 2.

If the driver isn't quite right you must rename it back to .PRN, edit it and rename it .CFG again. Why couldn't the driver generator name the driver .CFG in the first place? It would save a lot of fiddling around.

K-Word 2 comes with a spell check utility called K-Spell. This can't be used from within the word processor and must be run as a separate program. It will load a file and flag all errors in a number of different ways.

The mis-spelt words can be saved to a separate file, printed out or marked, say with an asterisk, in the original file. This last option is the most useful. It is then possible to go back into K-Word and use the search menu option to move to the flagged mis-spelt words and correct them.



K-Word 2's editing screen

ABACUS' TextPro takes a completely different approach to word processing. The main editing screen is shown here. It is not a wysiwyg display and it can be difficult picturing what the final output will look like on paper.

As you can see from the screen dump, there are several shaded blocks (coloured red in medium resolution) which enclose control codes defining how the text appears when printed out. The 1+ just before the introduction title at the start of the text turns on style one - bold. The 1- after the title switches bold off.

All the text styles - and there are quite a few, far more than for K-Word 2 - use similar control codes enclosed by shaded blocks. These are available from a pull-down menu. The same goes for text formatting commands such as indents and justification.

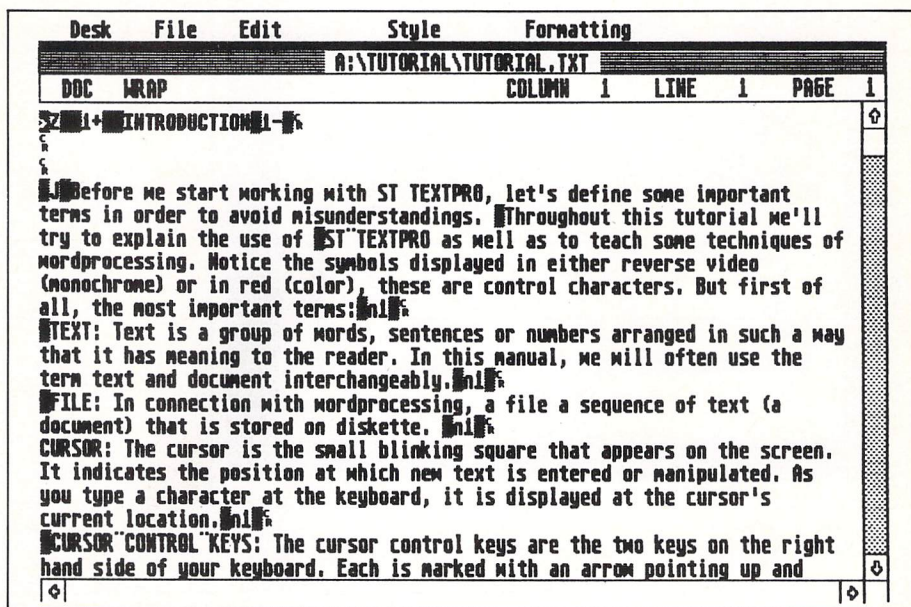
Spaces between words are ignored and it is possible to have text on-screen which looks completely haywire, yet produces a perfect printout. I found it quite natural to tab words with spaces, but unfortunately this simply doesn't work with TextPro as the spaces are ignored and you must indent the text by introducing a control code at the appropriate point.

All this means that what you see on the screen bears no resemblance at all to what the printer produces. When typing, you have to enter the codes and build up a mental picture of what the file will look like.

Fortunately, a preview mode is available which will print the text to the screen as it will appear on paper. However, it is time-consuming to keep switching to this to see what effect your control codes are having.

Headers, footers, page numbers, margins and so on can be entered into a dialog box obtained by selecting one of the pull-down menu options.

As well as normal document mode, TextPro will work in non-document mode



The TextPro editing screen

- in other words pure Ascii text is produced. In addition to this, there is also a C source code mode. This is the same as non-document mode in that it also uses pure Ascii files, but in addition also includes the extra feature of automatically indenting braces.

The function keys when pressed by themselves or in combination with either the Shift or Alternate keys, can be set up to produce predefined strings. The definitions can be saved to a file so you don't need to set them up every time you wish to use them.

The drive selector on the file menu is interesting as it also includes the RS232 port as an option as well as drives A and B. This enables you to pass files from micro to micro through the RS232.

TextPro will automatically hyphenate words at the end of lines if the hyphenate option is enabled. This can be disabled on selected words if too many appear in the document.

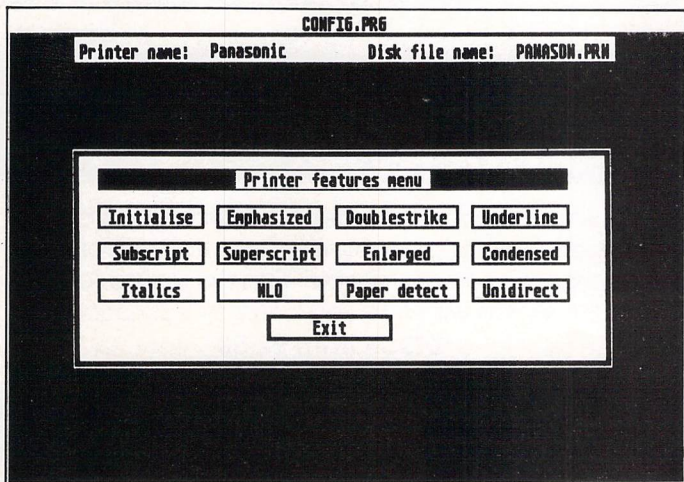
There are many additional features not normally found in a basic word processor such as 1st Word. For instance, the current date and time (from the ST's internal clock) can be included in the text - this is the time when the file is printed.

Control codes zero to nine can hold up to 512 bytes of data. This can be used to print your own customised letterhead for instance, by setting bit image mode on the printer and sending the raw data in the same manner as a screen dump.

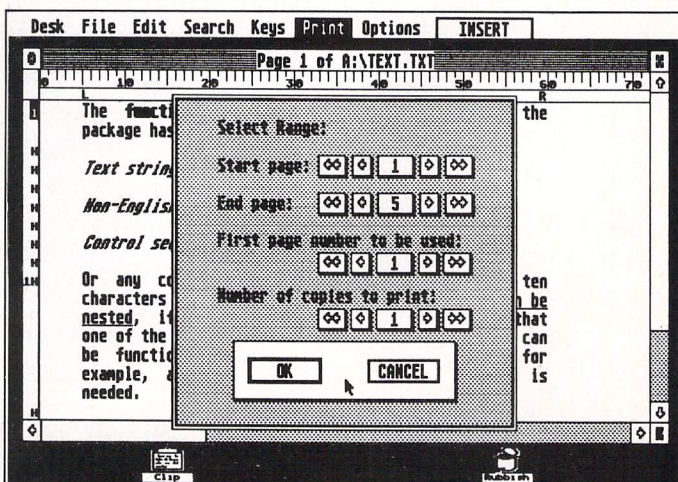
The character pitch can be set at 10, 12 or 15 characters per inch. The line spacing can be set in 1/72 inch increments - assuming of course, that your printer can handle this.

Two special features are available for creating indices and contents. An index marker will identify a word or group of words which are to appear in the index of a document and a contents marker pinpoints a line to appear in the contents.

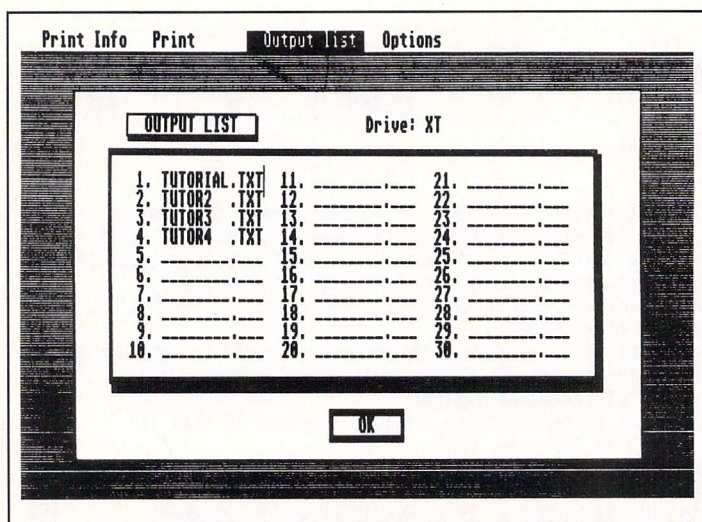
Although text can be printed from



K-Word 2's printer driver generator



K-Word 2's print menu



TextPro's output program

within TextPro, there is also a special output program with a whole host of extra features. An output list can be created carrying up to 30 items. These will be printed in order.

The text can be printed either horizontally as normal, or vertically. The vertical option is very slow as the printer is placed in bit image mode and the text is

output in much the same way as a screen dump.

Standard letters can be printed using the mail merge option. A mail merge file is loaded and data is taken from it and placed in the file being printed whenever a placeholder marker is found.

To sum up, K-Word 2 is very similar in operation to 1st Word. It does however,

offer a few extra features such as a spelling checker, but I'm not convinced that this is enough to justify the cost.

TextPro on the other hand, does provide many extra features and is far more powerful than either 1st Word or K-Word 2. And what is more, it is little more than half the price of K-Word 2.

It does have its faults though, the main one being the strange on-screen formatting – or should that be lack of formatting? It's a pity it doesn't have a wysiwyg display. It hasn't got a spelling checker either.

K-Word 2 is expensive and easy to use yet has few features, whereas TextPro is cheap, difficult to use, but has many features – so the choice is yours. □

Product: K-Word 2

Price: £59.95

Supplier: Kuma, 12 Horseshoe Park, Pangbourne, Berkshire RG8 7JW.

Tel: 07357 4335

Product: TextPro

Price: £39.95

Supplier: Precision Software, 6 Park Terrace, Worcester Park, Surrey KT4 7JZ.

Tel: 01-330 7166

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Slide into something more up to date

THE origins of the sliding block puzzle lie way back in the mists of time, although most people credit a Victorian, Sam Lloyd, with its creation.

Early versions were entirely hand crafted in wood and engraved with delicate patterns. More recent designs, often constructed from plastic, have 15 numbered tiles organised on 4 x 4 grid.

The idea was to rearrange the tiles so they ran in sequence from left to right and top to bottom. Tiles were moved by pushing them into a free space, and in this way they could be reorganised into many different patterns. Once the puzzle was solved, you could scramble it and start again.

The problem with all mechanical designs is that they're liable to jam, ending in a lot of frustration, and the eventual solution is always the same pattern or picture.

Rather like the Lone Ranger, the ST comes to the rescue once again – the program presented here, written in Fast Basic, is a full featured, tile puzzle

Marcus Adams brings an age-old tile puzzle on to your ST screen

extraordinaire. It can load a low resolution picture produced by either Degas Elite or Neochrome and even if you're not a great artist there are plenty of pictures in the public domain.

Entirely mouse-driven, it has nine levels of difficulty starting at a conventional puzzle, climbing steadily to a real brainbender. If you get really stuck, it'll

even display the solution for a short time on request.

Setting up and playing the game is simplicity itself, even though the solution often isn't. Before running the program for the first time set the workspace required on the Show Info option to 128k. This is necessary to allow the program to store two screens in memory.

When the program is run it will present a title screen. Click on the box to continue. You will then be asked to select the picture format to use, the default being uncompressed Degas.

Next a standard file selector appears showing only folders and filenames of pictures with either the .NEO or .PI1 extenders, depending on which format you have selected.

If a picture of non-standard format is selected the program will respond with an Alert and refuse to load it, although this should never happen. Similarly, if you click Ok without selecting a picture the program will let you know.

The picture will now load and you'll be asked if you wish to use it. Clicking on No returns the program to the file type selection screen. You may now select your play level from the three available. This option sets the size of the grid – from 4 x 4 to 10 x 10.

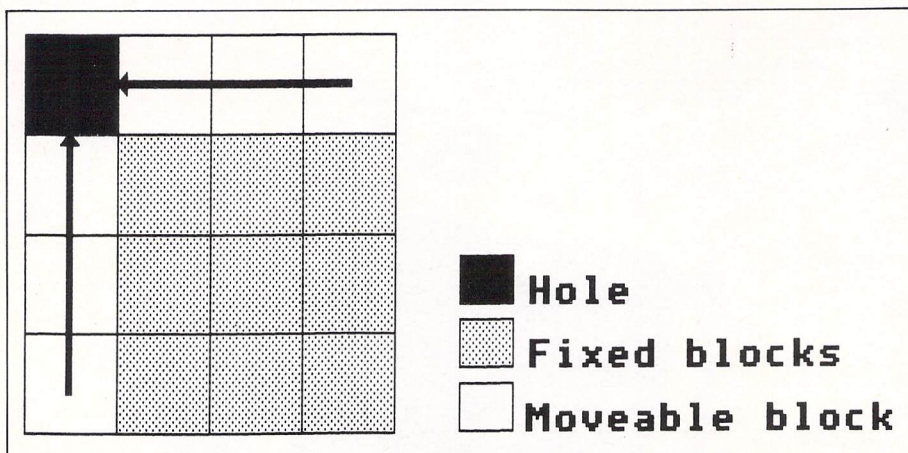
The grid will be drawn and you will be asked to select the amount by which the puzzle will be jumbled. This only takes a few seconds, and the game begins.

To push a block or blocks, position the mouse pointer to the start of the area and press the left mouse button. Figure 1 shows an example of the blocks you can move. The entire section will be shifted along one square. Note that the tiles must always have a free space to move into.

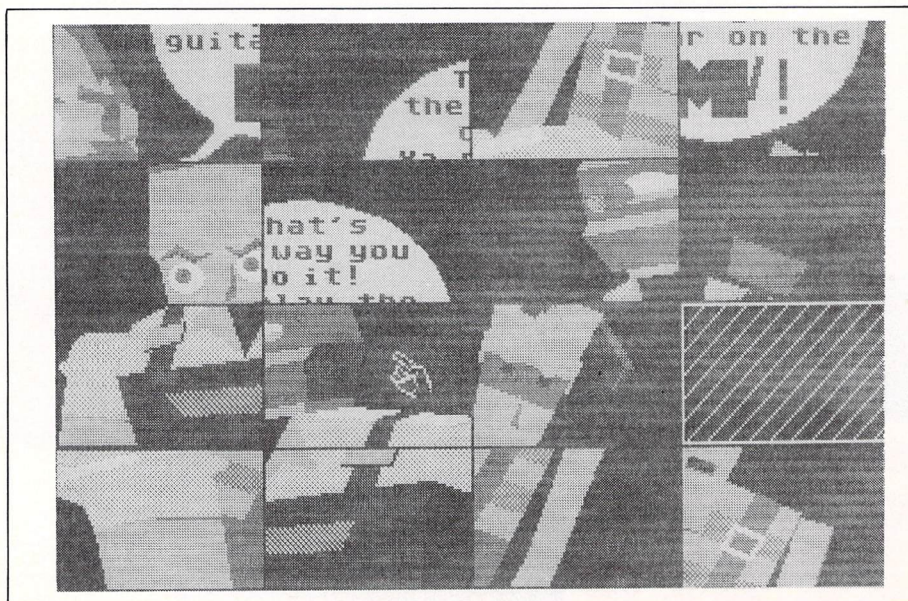
Pressing the Help key at any time will display the complete picture for a second or so. Pressing the Undo key will restore the puzzle to its original state.

Like all sliding block puzzles, it's very easy to get yourself into a mess. If this happens, pressing the right hand mouse button will produce an Alert box giving the option to quit or continue. Selecting Quit will produce another Alert asking if you would like to play again.

When entering the program don't type the line numbers and don't run it before saving it to disc. The routine makes extensive use of the GRAB command and this can crash the machine if you make a typing error when entering the listing.



The move options

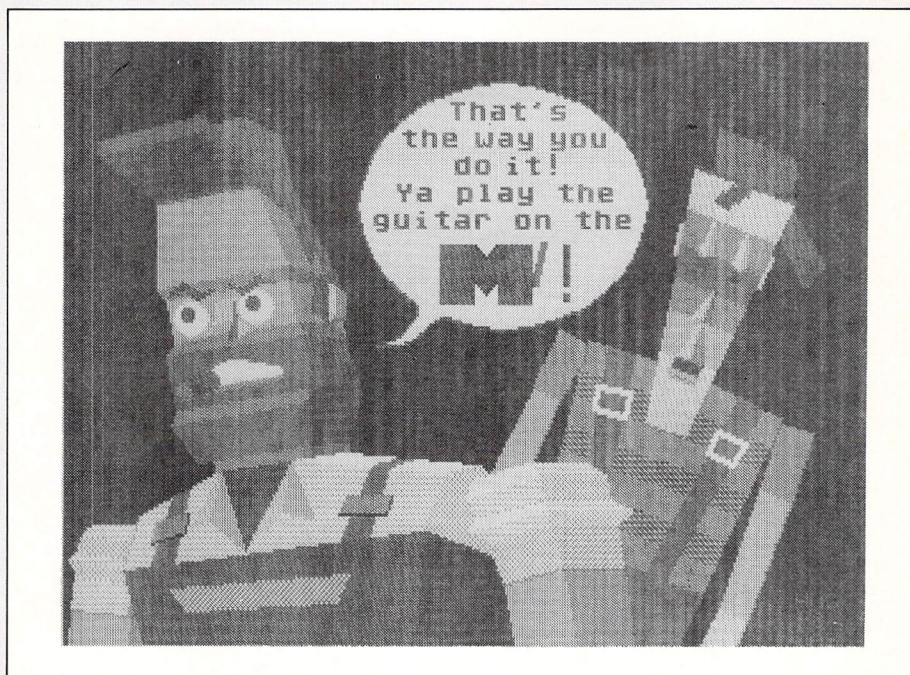


The game screen on the easy level


```

10 REM Sliding Tiles
20 REM By Marcus Adams
30 REM (c) Atari ST User
40 REM Fast Basic
50 REM Do not enter line numbers
60 REM Requires 128K workspace
70 PROCinit
80 HELP ON
90 ON HELP PROCHELP
100 REPEAT
110 quit:=0:moves=1
120 PROCselect
130 PROCchole
140 PROCdrawgrid
150 PROCmix_it_up
160 SETMOUSE 3,0
170 REPEAT
180 PROCprocess_mouse
190 UNTIL quit
200 finished=ALERT("[2][I |Another ga
me][Yes|No]",1)-1
210 TXTRECT 0,0,320,200
220 CLS
230 UNTIL finished
240 SETMOUSE 0,0
250 END
260
270 DEF PROCprocess_mouse
280 MOUSE X,Y,button,kys
290 X=INT(X/width)
300 Y=INT(Y/height)
310 IF INPSTAT(2) THEN IF INP(2)>>8=9
7 THEN PROCun_mix
320 IF (button AND 2) THEN quit=ALERT
("[3][I |About to quit!|Are you sure?][
Yes|No]",2)-2
330 DEF PROCcoveride_mouse
340 IF (button AND 1) AND (hole_x<<X
AND hole_y<<Y) OR (hole_x=X AND hole_y
=Y) THEN ELSE IF (button AND 1) THEN P
ROCsroll
350 ENDPROC
360
370 DEFPROCHELP
380 WAIT
390 PHYSBASE=screen
400 TIME=0
410 REPEAT
420 UNTIL TIME>200
430 WAIT
440 PHYSBASE=old_screen
450 HELP ON
460 ENDPROC
470
480 DEF PROCmix_it_up
490 scram=ALERT("[1][I |Select level
of scramble][Simple|Ho-hum|Arrrrh!]",0
)
500 FOR n=1 TO 10*scram*(level*5)
510 X=INT(RND(320-width)/width)
520 Y=INT(RND(200-height)/height)
530 PROCcoveride_mouse
540 NEXT
550 ENDPROC
560
570 DEF PROCun_mix
580 IF moves<max*2 THEN but=ALERT("[1
][I |Too much to|unscramble!][Sorry!]",
1)
590 but=ALERT("[1][I|WARNING!|About to
unscramble!][Go!|Oops]",2)
600 IF but=2 THEN ENDPROC
610 FOR n=moves TO 0 STEP-1
620 X=X(n):Y=Y(n)
630 PROCscroll
640 NEXT

```



The Help screen showing the unscrambled picture

```

650 moves=1:quit=1
660 ENDPROC
670
680 DEF PROCscroll
690 IF X<hole_x THEN XE%=(X-hole_x)*w
idth:YE%=height:XS%=hole_x*width:YS%=h
ole_y*height
700 IF X>hole_x THEN XE%=(X-hole_x)*w
idth:YE%=height:XS%=hole_x*width+width
:YS%=hole_y*height
710 IF Y<hole_y THEN YE%=(Y-hole_y)*h
eight:XE%=width:YS%=hole_y*height:XS%=
hole_x*width
720 IF Y>hole_y THEN YE%=(Y-hole_y)*h
eight:XE%=width:YS%=hole_y*height+heig
ht:XS%=hole_x*width
730 IF XE%<0 THEN XS%=XS%+XE%:XE%=ABS
(XE%)
740 IF YE%<0 THEN YS%=YS%+YE%:YE%=ABS
(YE%)
750 TXTRECT XS%+1,YS%+1,XE%-1,YE%-1
760 GRAB XS%+1,YS%+1,XE%-1,YE%-1
770 trx=X*width:try=Y*height
780 IF X<hole_x THEN PUT trx+width+1,
try+1,3
790 IF X>hole_x THEN PUT hole_x*width
+1,try+1,3
800 IF Y<hole_y THEN PUT trx+1,try+he
ight+1,3
810 IF Y>hole_y THEN PUT trx+1,hole_y
*height+1,3
820 IF moves<max THEN moves=moves+1
830 X(moves)=hole_x:Y(moves)=hole_y
840 hole_x=X:hole_y=Y
850 PROCchole
860 ENDPROC
870
880 DEF PROCchole
890 XS%=(hole_x*width)+2
900 YS%=(hole_y*height)+2
910 XE%=(XS%+width)-4
920 YE%=(YS%+height)-4
930 FILLSTYLE 1,0
940 RECT XS%-1,YS%-1,XE%+1,YE%+1
950 FILLSTYLE 3,1
960 RECT XS%,YS%,XE%,YE%
970 ENDPROC
980
990 DEF PROCdrawgrid
1000 GRAFRECT 0,0,320,200
1010 LINECOL 0
1020 FOR x=0 TO 320 STEP width
1030 IF x=320 THEN x=319
1040 LINE x,0 TO x,199
1050 NEXT
1060 FOR y=0 TO 200 STEP height
1070 IF y=200 THEN y=199
1080 LINE 0,y TO 319,y
1090 NEXT
1100 ENDPROC
1110
1120 DEF PROCselect
1130 REPEAT
1140 PROCload_pic
1150 but=ALERT("[2][I |Happy with this
picture?][Yes|No]",1)
1160 IF but=2 THEN CLS
1170 UNTIL but=1
1180 level=ALERT("[2][I |Set level of
difficulty][Easy|Medium|Hard]",1)
1190 width=width(level)
1200 height=hgt(level)
1210 hole_x=0:hole_y=0
1220 ENDPROC
1230
1240 DEF PROCselect_file
1250 PATH$="A:\"
1260 file$=PATH$+"*.*"+type$
1270 name$=""
1280 button=0
1290 FSELECT file$,name$,button
1300 IF button=0 OR name$="" THEN ENDP
ROC
1310 WHILE RIGHT$(file$,1)<>"\"

```



```

1320 file$=LEFT$(file$,LEN(file$)-1)
1330 WEND
1340 PATHS=file$
1350 CLS
1360 ENDPROC
1370
1380 DEF PROCHeading(m$)
1390 GRAFMODE 1
1400 GTXTSIZE 16
1410 GTXTCOL 16
1420 x=160-((LEN(m$)*8)/2)
1430 GTXT x,16,m$
1440 ENDPROC
1450
1460 DEF PROCload_pic
1470 REPEAT
1480 REPEAT
1490 PROCHeading("Select Picture")
1500 type=ALERT("[3][I ISelect picture
format][NEO|DEGAS]",2)
1510 IF type=1 THEN type$="NEO" ELSE t
ype$="PI1"
1520 PROCselect_file
1530 IF name$="" THEN CLS:but=ALERT("[
3][IYou must select a picture!][Sorry
!]",1)
1540 UNTIL name$<>""
1550 ok=TRUE
1560 X=OPENIN(name$)
1570 IF INSTR(name$,type$)=0 THEN CLS:
ok=(ALERT("[1][I INot a picture file!]
[Oops]",1)-1):END
1580 UNTIL ok
1590 HIDEMOUSE
1600 IF type=1 THEN PTR#X=6 ELSE PTR#X
=4
1610 FOR N=2 TO 31
1620 N?(colours+code)=BGET#X
1630 NEXT
1640 CALL code
1650 IF type=1 THEN PTR#X=128 ELSE PTR
#X=34
1660 GETBYTES#X,32000,PHYSBASE
1670 CLOSE#X
1680 CALL (transfer+code)
1690 SHOWMOUSE
1700 ENDPROC
1710
1720 DEF PROCinit
1730 GRAFRECT 0,0,320,400
1740 TXTRECT 0,0,320,400
1750 CLS
1760 IF SCREENMODE THEN but=ALERT("[3]
[ISliding Blocks uses 16!glorious Atar
i colours.Iswitch to low resolution][W
ow!]",1):END
1770 RESERVE screen,32512
1780 screen=(screen AND $FFFFFFE00)+256
1790 old_screen=PHYSBASE
1800 but=ALERT("[1][I Sliding Blocks! B
rought to you! by Marcus Adams!of Atar
i ST User][Thankyou]",1)
1810 PROCassemble
1820 max=5000
1830 DIM width(3),hgt(3),X(max),Y(max)
1840 width(1)=320/4:hgt(1)=200/4
1850 width(2)=320/6:hgt(2)=200/8
1860 width(3)=320/10:hgt(3)=200/10
1870 hole_x=0:hole_y=0:finished=0
1880 ENDPROC
1890
1900 DEF PROCassemble
1910 REM set palette. It's easier in m
/c!
1920 RESERVE code,200
1930 FOR pass=0 TO 2 STEP 2
1940 [
1950 OPT pass,"L-W+"
1960 ORG 0,code
1970 start
1980 PEA colours(PC)
1990 MOVE #6,-(SP)
2000 TRAP #14
2010 ADDQ.L #6,SP
2020 RTS
2030 transfer
2040 MOVE.L #PHYSBASE,A0
2050 MOVE.L #screen,A1
2060 MOVE #32000,D0
2070 loop
2080 MOVE.B (A0)+(A1)+
2090 DBRA D0,loop
2100 RTS
2110 colours
2120 DS.W 16,0
2130 ]
2140 NEXT
2150 ENDPROC

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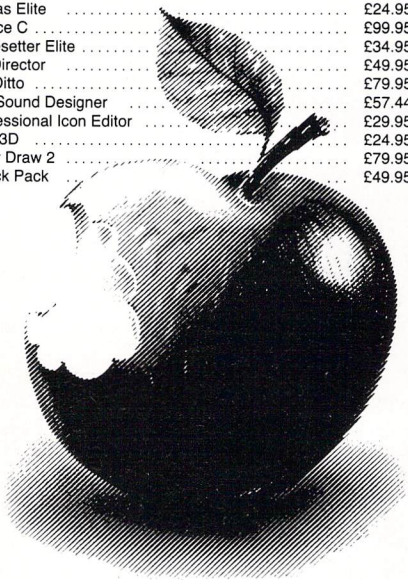
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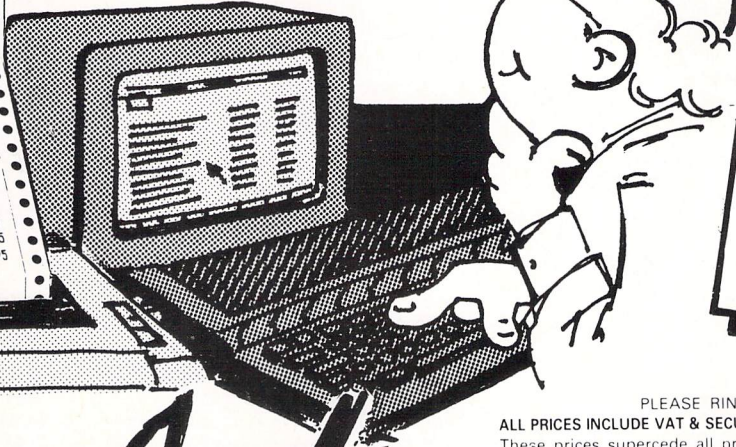


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THIS month I shall be continuing my examination of the techniques used to manipulate the ST's screen from within assembly language programs. I will also be showing how to overcome some of the problems raised by the differing screen formats of the ST's three graphics modes and write routines capable of running in any resolution.

In order to do this, it will be necessary to store a number of important parameters somewhere safe in memory. A typical instruction to achieve this would be in the form:

```
MOVE.W #180,scanline
```

But how do we set the label *scanline* to point to a variable rather than an instruction?

Well all 68000 assemblers provide you with a number of special commands known as pseudo-ops. Although the exact nature of these commands varies slightly from assembler to assembler, most packages broadly adhere to a set of standards produced by the 68000's manufacturer Motorola.

This set includes Define Storage (DS) which tells the assembler to allocate an explicit amount of memory for variable storage, and Define Constant (DC) which is used to load a particular value into a specific memory location when the program is compiled and run.

Both these commands can be utilised in conjunction with the extensions B, W and L to specify the size of the operation - byte, word and long. They are effectively equivalent to the Basic keywords DIM and DATA respectively. Here are some examples:

```
* Reserve 10 long words for variable
label1 DS.L 10

* Allocate 10 bytes of memory
label2 DS.B 10

* Store 10 in 3 consecutive locations
* $ means hex and % means binary
label3 DC.W 10,$A,%1010

* Store the string of characters in
* consecutive memory locations and
* end with a CHR$(0)
string DC.B "This is a string",0
```

The following routine uses the Gemdos function 9 to print a line of text on the screen:

```
* Put address of text on stack
MOVE.L #text,-(A7)

* Call Gemdos function 9
MOVE.W #$9,-(A7)
TRAP #1

* Tidy up stack
ADD.L #6,A7
RTS

* Store string in memory
text DC.B "This is a message",0
```

Suppose we want to copy one part of

How to cope with copying

In Part 7 of his machine code series Stephen Hill shows how to access the ST's screen memory

the screen starting at the coordinates x1,y1 to another at x2,y2. We would first need to convert these coordinates into their corresponding addresses in screen memory. The following equation will do this:

$$\text{position} = \text{INT}(x/16) * \text{bytes_per_group} + y * \text{scanlength} + \text{screen_address}$$

Before we can perform this calculation, we will have to work out the values of these quantities and place them into the appropriate variables. These will depend on the type of ST being used and the current graphics mode.

bytes-per-group - This corresponds to the number of bytes used by each set of 16 points. Table I lists this information for all three graphic modes.

scanlength - This is the number of bytes per line and is either 160 for low and medium resolutions, or 80 for high resolution.

screen-address - This can be found by calling the *findscr* routine developed last month.

We are now in a position to implement the initialisation subroutine shown in Program I.

I'll test this procedure with a small example to copy the top half of the ST's screen to the bottom half.

```
copy
JSR setgraf          Initialise
MOVE.L screen,A0    A0=screen top
MOVE.L A0,A1         A1=A0
ADD.L #16000,A1      A1=A1+16000
                     A1=mid screen
MOVE.W #3999,D0     4000 long words
                     =half a screen

loop
MOVE.L (A0)+,(A1)+  Copy each long
                     word in top to
DBRA D0,loop        bottom half
RTS
```

The subroutine *setgraf* stores the values of the scan length and screen address in the variables *scanlen* and *screen* respectively. It also stores a number in *size* ranging from one to three. Table I should make this a little clearer.

This enables us to multiply INT(x/16) by the *bytes-per-group* using an LSL instruction with the shift count in *size*. In many cases it would also be useful to know the relative position of our data from the start of its group of 16. This can be found by calculating the remainder from x/16. Our conversion routine will therefore look like the one that follows.

Note that *conv* expects D0 and D1 to contain the x and y coordinates of the point. It returns values for the bit offset in D0 and the screen address in D1. The contents of registers D6 and D7 are changed after a call to this procedure.

Armed with these routines we can start

```
setgraf
JSR getrez           D0=resolution
MOVE.W #3,D1         D1=3
SUB.W D0,D1          D1=3-mode
MOVE.W D1,size       size=D1
CMP.W #2,D0          IF mode<mono
BNE col              THEN GOTO col
MOVE.W #80,scanlen  scanlen=80

col
JSR findscr          Get screen addr
MOVE.L D0,screen     screen=D0
RTS

getrez
MOVE.W #4,-(A7)     MOVE.W #4,-(A7)
TRAP #14            TRAP #14
ADD.L #2,A7         ADD.L #2,A7
RTS                 RTS

scanlen DC.W 160
size    DS.W 1
screen  DS.L 1
```

Program I

Graphics Mode	Bytes per group	Contents of size
0 - Low	8=2 x 2 x 2	3
1 - Medium	4=2 x 2	2
2 - High	2	1

Table I: Bytes used per group of 16 pixels


```

conv
MOVE.L D0,D6    D6=x
AND.L #15,D0    D0=x MOD 16
LSR.W #4,D6     D6=INT(x/16)
MOVE.W size,D7  D7=size
LSL.W D7,D6     D6=INT(x/16)*2*size
MULU scanlen,D1 D1=y*scanlen
ADD.L #screen,D1 D1=y*scanlen+screen
ADD.L D6,D1     D1=INT(x/16)*2*size
                + y*scanlen
                + screen
MOVE.L D1,A0    A0=D1
RTS
    
```

to design our program to copy sections of the screen. There are two possible ways we could do this. The first of these makes no assumptions about the position of our rectangle on the screen. This is the approach used by ST's built in graphics functions.

Unfortunately, problems arise when you attempt to transfer objects whose points overlap several groups. Figure I illustrates this situation.

Suppose we want to transfer a line 16 units long from position S1 (0,0) to position D1 (9,3). As you can see, S1 is stored as one group, but D1 is split between two. This means we have to shift the entire contents of S1 nine places to the right, before we can move it into position, and in practice this is not at all easy.

If however, we wish to move S1 to position D2 (16,6), we can avoid this difficulty altogether and simply use an instruction like MOVE.L (A0)+,(A1)+. We will therefore, restrict ourselves to this second case for the time being and stipulate that the x coordinates of our source and destination rectangles should be exact multiples of 16.

The basic strategy we will be using will be to move each horizontal line of our rectangle in turn, from the source address to the destination address. It can be seen from Figure II that this method will require us to know both the length of this line in words and the offset in bytes from the end of one line, say point A, to the start of the next at point B. This equation will calculate the width of line:

$$\text{linewidth} = \text{INT}(\text{width}/16) * \text{size_of_group} \\ = \text{INT}(\text{width}/16) * 2 * \text{size}$$

Similarly, the number we will need to add to the end of our rectangle to get at the line below can be found from the following equation:

$$\text{offset} = \text{length_of_scanline} - \text{linewidth} \\ = \text{scanlen} - \text{linewidth}$$

To keep our routine as general as possible, we will also calculate the bit offset and place it in D0. (See top of next column.)

The action of *offset* is to take the width *W* in D0 and output the bit offset, the *linelength* and the horizontal offset in D0,D1, and D2 respectively.

We are now able to produce our final program to do the actual screen manipu-

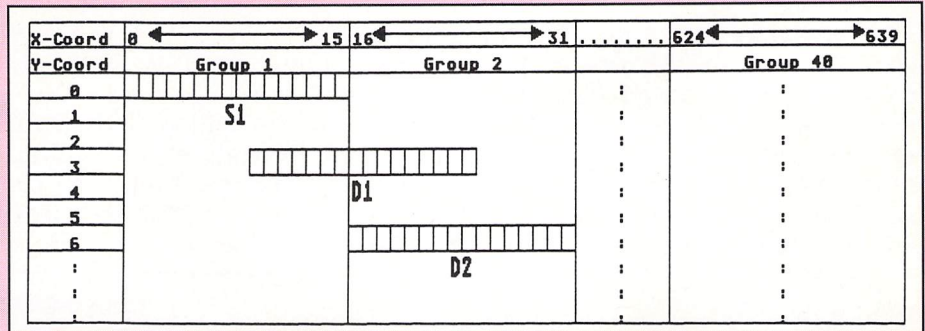


Figure I: Objects overlapping more than one group

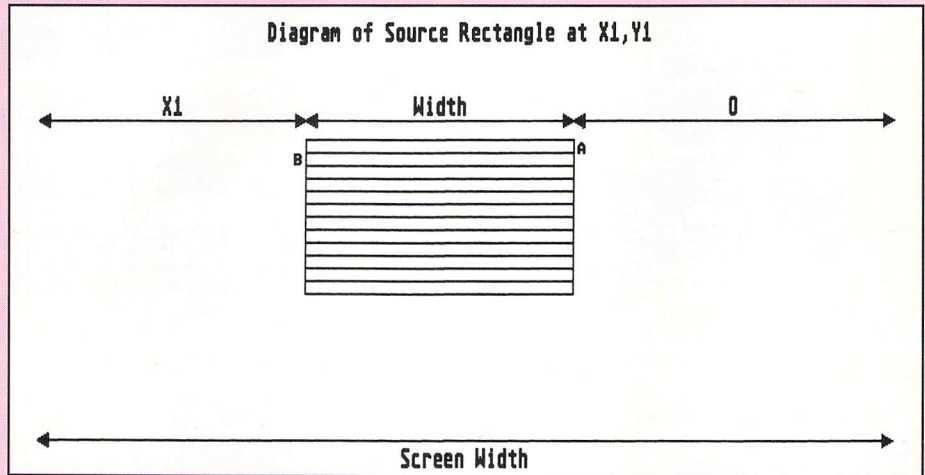


Figure II: Moving a horizontal rectangle

```

offset
MOVE.L D0,D1    D1=w (width)
AND.W #15,D0    D0=w MOD 16
MOVE.W size,D6  D6=size
LSR.W #4,D1     D1=INT(w/16)
LSL.W D6,D1     D1=INT(w/16)*2*size
MOVE.W scanlen,D2 D2=scanlen
SUB.W D1,D2     D2=scanlen
                -INT(w/16)*2*size
LSR.W #1,D1     convert byte count
                to word count
RTS             required
    
```

lation. Program II assumes the registers D0 to D6 to contain the values of x1,y1, x2,y2, w,h respectively. It requires the routines *setgraf*, *conv*, *offset*, *findscr*, and

getrez to be appended before assembly.

After computing the screen addresses of x1,y1 and x2,y2 and placing them in A1 and A0, *switch* then uses *offset* to calculate the width of the rectangle in D1 and the offset to the next line in D2.

D1 is then placed onto the stack and successively used by the loop at *xline* to transfer each line from the source to the destination. The offset in D1 can then be added to A1 and A2 to make them point to the next line and the whole procedure repeated D5 times, where D5 contains the height of the rectangle.

● Next month I will be expanding some of these routines to create a simple sprite generator.

```

init
JSR setgraf    Initialise
RTS
switch
JSR conv       Convert x1,y1 to
                start address
MOVE.L A0,A1   Save address in A1
MOVE.L D2,D0   x=x2
MOVE.L D3,D1   y=y2
JSR conv       Convert x2,y2 to
                dest start address
MOVE.L D4,D0   D0=w
JSR offset     Get offset and
                word count
SUB.W #1,D1    DBRA at xline
                loops D1+1 times
                SUB.W #1,D5    DBRA at yLINE
                loops D5+1 times
                MOVE.W D1,D6    Save word count
                yline
                MOVE.W D6,D1    D1=D6 (count)
                xline
                MOVE.W (A1)+,(A0)+ Move horizontal
                screen lines one
                by one
                DBRA D1,xLINE   until D1<0
                ADD.L D2,A0     A0=dest+offset
                ADD.L D2,A1     A1=offset+source
                DBRA D5,yline   Repeat for each
                line
                RTS
    
```

Program II



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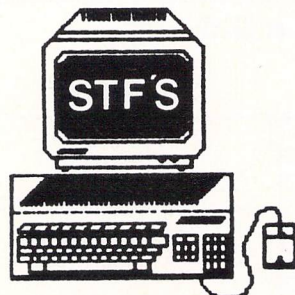
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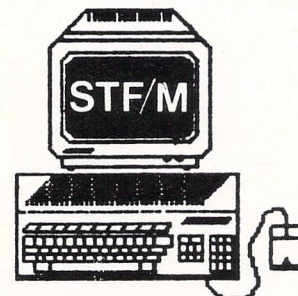
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Putting the port to work

IF you have followed the previous two articles in this DIY add-on series (which started in the December 1987 issue of *Atari ST User*), you will now have your user port project board plugged into your ST's printer port and your printer plugged into the extension printer socket on that board. We now come to the software which will enable you to use it.

To make proper use of the ST user port, a number of software control functions are required. These are in two groups: Input and output. Output is the simpler, so we will examine that in detail first. The functions required are:

- Switch control from the printer port to the user port.
- Output one or more bytes with or without handshaking.
- Switch control back to the printer port.

It is difficult to cover all the possible languages on the ST, so several different versions of each program are given. These should provide enough information for you to be able to convert the routines into whatever form you require.

In addition, I have provided a version in ST Basic which will create a program file directly on your disc. This will allow you to use these routines even if you don't have access to an assembler or one of the more powerful high-level languages.

Technical requirements

Switching control to the user port is done by setting bit seven of the sound chip's port A. The YM2149 sound chip has 16 internal registers selected by writing to address \$FF8800. The bottom four bits are used for the register select.

Recalling that port A is used for control functions and port B for the data byte, the following information about the sound chip is required: Ports A and B are registers 14 and 15 respectively.

Port B will be set for input if bit seven of register seven is low and for output if it is high. Bit five of port A is the Centronics strobe line (signal OUT on the user port), and bit seven is the printer/user port switch, (low printer, high user port).

The final bit of technical information to give full control of the user port is that the Centronics busy line, (signal IN on the user port), is bit zero on the I/O port of MFP 68901 Multi-Function Peripheral chip. This is mapped to address \$FFFA01, so reading bit zero of this address will give the input handshake status. In technical terms this all looks

In Part 3 of his DIY user port series Andrew Donald starts to develop the software needed

rather fearsome. At machine code level the functions required for control are available in operating system routines and are fairly easy to implement.

It is tempting, since the user port is just an alternative printer port, to switch on the user port and then do whatever is required to output to the printer in your particular language. This will work and may well suit a specific application which you require. For general use however, it is somewhat restricted.

You don't have direct control of the handshake lines, output without handshaking is not possible, and there is a timeout limitation if response is not made by the output device within a set period. All these conditions are fine for a printer, but somewhat restricting for general use. It is better to use the fundamental routines which give total control.

Program I shows the general routines required for operating the user port in assembly language. The routines are shown as a complete module for inclusion in your own programs. The first routine

STROFF will put the output strobe line OUT in a low state. The next routine *STRON* will make it high. Both of these work by turning on and off bit five of port A.

Routine *OPOFF*, turns off bit seven of port A. This will switch off the user port from its output mode and enable the extension printer port. *OPON* enables the user port for output by turning on bit seven of port A.

The next routine, *UPWR*, will latch the data on the user port output lines. The output byte is taken from lower half of the register D0. When using this routine it is important to keep in mind the actual operation of the add-on.

The latched data will only be available while the user port is selected as the output port. As soon as the port is switched back to printer output, the user port hardware will see what are effectively, open circuit lines. The result is that the hardware will read \$FF as the byte value.

The last routine *UPST*, returns the user port status (signal IN). This will be returned in D0, but notice the flags will not be set. If D0 is zero the IN line is high and a value of -1 will show it is low.

These then, are the fundamental routines required for the output control of the user port. For anyone working in assembly language, there is no problem. The routines may be incorporated directly.

They are written here in a rather

```

\ Routines for writing to User Port
\ by Andrew Donald

STROFF MOVE.W #$DF,-(SP)      \OUT strobe low
        BRA.S offg            \via XBIOS fn 29 (offgibit)
STRON  MOVE.W #$20,-(SP)      \OUT strobe high
        BRA.S ong            \via XBIOS fn 30 (ongibit)
OPOFF  MOVE.W #$7F,-(SP)      \User Port output off
offg   MOVE.W #29,-(SP)      \via XBIOS fn 29
        BRA.S xb4            \offgibit)
OPON   MOVE.W #$80,-(SP)      \User Port output on
ong    MOVE.W #30,-(SP)      \via XBIOS fn 30
xb4    TRAP #14               \offgibit)
        ADDQ.L #4,SP          \Adjust stack
        RTS                  \and return
UPWR   MOVE.W #$80+15,-(SP)    \Write Port B (reg 15)
wr     MOVE.W D0,-(SP)        \Data to write
        MOVE.W #28,-(SP)      \via fn 28 (giaccess)
        TRAP #14              \of XBIOS
        ADDQ.L #6,SP          \Adjust stack
        RTS                  \and return
UPST   MOVE.W #17,-(SP)       \PRT status via fn 17
        TRAP #1               \of GEMDOS
        ADDQ.L #2,SP          \Adjust stack
        RTS                  \Return status 0 hi/-1 low

```

Program I

compact form and this is to make them simple to incorporate into higher level languages. Unwinding the code would make these routines longer, but more comprehensible.

Let's now look at operating the user port from other languages. In C these routines may be called directly and Table I gives the equivalent commands.

Machine code	C
STROFF	offgibit(0xDF)
STRON	ongibit(0x20)
OPOFF	offgibit(0x7F)
OPON	ongibit(0x80)
UPWR	giaccess(data,0x8F)
UPST	gemdos(0x11) or Cprnos()

Table I: Operating the user port from C

Implementing the routines from Fast Basic is straightforward since this incorporates an assembler. The machine code may be entered and then called from Basic. The Fast Basic pseudo variable D0 may be used to pass the byte required to be output at the user port. Similarly any returned values after a call will be found in D0.

To make this code available to every ST user means it must be written in ST Basic, so let's now have a look at that. Program II gives an ST Basic listing which will poke the machine code routines into memory and make them available by calls from subsequent Basic commands.

To use these routines within your own Basic program, first include the lines up to 150. These will put the user port machine code routines into protected memory and then make them available

for general use. The routines differ slightly from those given in Program I, in that the ST Basic variable *data%* has been tied into the code to make parameter passing simple. The command, CALL OPON#, will switch on the user port for output and CALL OPOFF# will switch it off.

Similarly, CALL STRON# and CALL STROFF# will put the output strobe line OUT, high and low respectively. To output data bytes, the variable *data%*, is set to the required byte value and then the command CALL UPWR# will put it out to the user port.

If output is required only when the input strobe line is low then the command, CALL UPST#, will return the current status of that line in *data%*. Zero indicates IN is high and -1 that it is low.

Lines 170 onward of Program II are a small demonstration program. All the output lines are toggled high and low. These may be seen if a voltmeter is put from ground on to each of the output lines in turn while the program is running.

A direct application

By far the simplest way to use the user port in output mode is to use it as a second printer port. If this is the way you wish to utilise it then the three lines giving a 5v supply at the user port should be disconnected. This will make it identical to the ST's Centronics printer port and a printer may be freely used.

Don't connect a printer while the 5v supply is at the user port output. It is likely that the power supply will be shorted.

The software is simple. All that is required is the ability to switch the user port on and off. Once it is on, all the usual

printing commands will be output to the second printer.

Program III is an ST Basic program which will create a file on your disc called PORTSEL.PRG. Running this program will allow you to swap the printer output between the extension printer port and the user port. The currently active port is indicated by the bold default box.

If you are able to set the program up as a desktop accessory it could be accessed from within your word processor, allowing output to whichever printer you wish. Note that it may be necessary to reconfigure the printer with the install printer option. It depends on the difference in types between the first and second printers used.

If you want to use the add-on permanently as a second printer port it would be worth considering putting the switch port code directly into the Install Printer accessory, for automatic selection as the printer type is changed.

```

10 REM User Port machine code ouput
11 REM routines in ST Basic
12 REM By Andrew Donald
13 REM (c) Atari ST User
20 DATA 3F,3C,00,DF,60,0A,3F,3C,00,20,
60,0E,3F,3C,00,7F
30 DATA 3F,3C,00,1D,60,08,3F,3C,00,80,
3F,3C,00,1E,4E,4E
40 DATA 58,8F,4E,75,3F,3C,00,8F,3F,39,
00,00,00,00,3F,3C
50 DATA 00,1C,4E,4E,5C,8F,4E,75,3F,3C,
00,11,4E,41,54,8F
60 DATA 33,C0,00,00,00,00,4E,75,00,00,
00,00,00,00,00,00
70 '
80 clear: def seg=1: c$=space$(80): i#=va
rptr(c$)
90 STROFF#=#: STRON#=#+6: OPOFF#=#+12
100 OPON#=#+22: UPWR#=#+36: UPST#=#+5
6
110 s#=0: for j=# to i#+71: read a$: a%
=val("&h"+a$)
120 s#=#+a%: poke j#-1, a%: next: def seg
=0
130 if s#<>4280 then print "DATA ERROR"
: end
140 data%=0: j#=varptr(data%)
150 poke i#+42, j#: poke i#+66, j#
160 '
170 ' Test Program - Toggles all outpu
t lines
180 call OPON# ' User Port on for outp
ut
190 for i=0 to 10 ' Repeat 10 times
200 data%=&haa: call UPWR# ' Odd bits h
igh, even low
210 call STROFF# ' OUT strobe low
220 for j=0 to 3000: next ' delay
230 data%=&h55: call UPWR# ' Even bits
high, odd low
240 call STRON# ' OUT strobe high
250 for j=0 to 3000: next ' delay
260 next ' and again
270 call OPOFF# ' User Port output off
280 ' CALL UPST# returns IN line statu
s in data%
290 ' 0 busy, -1 ready
300 end
    
```

Program II

```

100 open "R", 1, "PORTSEL.PRG", 1: field#1,
1 as code$: s#=0
110 for i=1 to 288: read a$: a%=val("&h"
+a$): s#=#+a%
120 put$=chr$(a%): lset code$=put$: put
1, i: next
130 if s#<>18959 then print "DATA ERRO
R"
140 close 1: end
150 '
160 DATA 60,1A,00,00,00,FE,00,00,00,00
,00,00,00,00,00,00
170 DATA 00,00,00,00,00,00,00,00,00,00
,00,00,2A,4F,4F,FA
180 DATA 01,2C,48,7A,04,5E,48,7A,03,5A
,48,7A,02,56,48,7A
190 DATA 01,52,48,7A,01,1A,48,7A,06,4A
,48,7A,05,46,48,7A
200 DATA 03,42,48,7A,01,3E,48,7A,01,1C
,48,7A,01,02,2E,4D
210 DATA 61,12,42,67,4E,41,48,7A,00,C8
,22,1F,30,3C,00,C8
220 DATA 4E,42,4E,75,41,FA,01,0C,42,98
,42,98,42,98,42,90
230 DATA 41,FA,00,DC,20,FC,00,0A,00,00
,20,FC,00,01,00,00
240 DATA 42,50,61,D2,61,4A,3E,00,41,FA
,00,C4,20,FC,00,34
250 DATA 00,01,20,FC,00,01,00,01,42,50
,41,FA,00,E6,30,BC
260 DATA 00,01,08,07,00,07,67,04,30,BC
,00,02,41,FA,04,D4
270 DATA 43,FA,00,2E,20,89,61,9E,41,FA
,02,C9,08,87,00,07
280 DATA 08,10,00,01,67,04,08,C7,00,07
,3F,3C,00,8E,60,04
290 DATA 3F,3C,00,0E,3F,07,3F,3C,00,1C
,4E,4E,5C,8F,4E,75
300 DATA 5B,31,5D,5B,20,7C,20,53,45,4C
,45,43,54,20,50,52
310 DATA 49,4E,54,45,52,20,4F,55,54,50
,55,54,20,20,20,20
320 DATA 7C,20,5D,5B,20,50,72,69,6E,74
,65,72,20,7C,20,55
330 DATA 73,65,72,20,50,6F,72,74,20,5D
,00,00,00,00,00,26
    
```

Program III

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ATARI STAR USER GAME

Product: Midi-Maze

Price: £34.95

Supplier: Hybrid Arts, c/o Syndromic Music, 24-6 Avenue Mews, London N10 3NP.

Tel: 01-444 9126

US software house Hybrid Arts is known exclusively for music software, and UK distributor Syndromic Music isn't the first company you would think of as a source of games. So what's Midi-Maze all about?

Written by Xanth F/X, the team which brought you the famous Shiny Bubbles animated graphics demonstration, Midi-Maze is a clever variation on an old theme. Basically it's a maze/chase game, but the sophistication of the programming and a few unique features make it well worth a look.

There's a melodic theme to this game, as sixteen musical notes in the guise of smiley faces battle it out in a 3 dimensional maze. The main feature of the screen is a view of the maze, which, as you move your smiley face backwards, forwards, left and right with the joystick, scrolls very quickly and smoothly.

The play window only takes up about a quarter of the screen. It would have been nice to see a bigger area covered, but I suppose that would have slowed down the scrolling.

In the centre of the window is your sighting bead, which helps you to aim at the other happy faces. Yes, that's right –

Happiness quotient – how many hits your ego can take



Your view of the maze – with a Smiley about to wish you "Have a nice day"



Multiplayer mayhem

the aim of this game is to kill that smiley!

Sixteen smileys, each a different colour, inhabit the maze. The game can also run in high resolution monochrome, in which case each smiley has a different pattern.

The status window shows your own happiness quotient; each time you are shot, your smiley face becomes more glum. If you retreat and hide in a corner, your energy will restore itself slowly, but after three hits you grin your last, and your deflated ego is shifted to the pop chart of dead smileys.

Above the main display is the score

sheet, a music stave which keeps track of who zapped who. Make it to the top, and you're the toughest smiley of them all.

Before the game starts, you are shown a map display including the locations of all your opponents. During the game, you can access this by pressing the spacebar, but this time only your position is shown.

On the game set-up screen, each of your fifteen opponents can be set to a skill level; very dumb (they don't shoot back), plain dumb (faster moving and quicker on the trigger) and not so dumb (in fact almost unbeatable).

You can also define the speed at which you revive after being shot, and how quickly your weapon reloads. These settings can completely change the nature of the game, from a fast, furious zapper to a slower, strategic chase.

More importantly, you can also set any of the other smileys to human, and play against up to fifteen opponents in real time. This is the unique bit of Midi-Maze; using the Midi ports, normally reserved for musical functions, up to sixteen STs can be networked together just by plugging in their Midi leads.

Each player can be named and then controls a different smiley, seeing the maze from his own viewpoint, and trying to stalk and shoot down other players – as they are trying to do the same to him.

Even if you aren't enthralled by Midi-Maze as a one-player game, you should invest in it and take it along to your local computer club or ST user group. For sheer fun, fighting it out with a bunch of trigger-happy smileys takes some beating.

Since you can also define groups of

The score – first to the top wins

Pop Chart – your opponent's deflated egos



players, wearing the same colours and immune to their own team's shots, it's also possible to play Midi-Maze as a team game.

Because it's best suited to group play, Midi-Maze gets a decent value-for-money rating from me, despite its relatively high price. Lots of tactical tricks, such as the quick reverse, the 180 degree turn, the behind-the-wall ambush and the firing retreat add to the skill and enjoyment of Midi-Maze.

Another clever aspect is that using any word-processor which saves Ascii files, you can design your own mazes. There are several provided on the program disc, ranging from simple rectangles with a couple of dividing walls, to enormous complex mazes such as the aptly-named Big Weird, where you can get lost for minutes at a time and not see another smiley.

There's also a feature called Midi-Cam, by which a non-participating ST can display the entire maze map complete with the positions of the players, or the game



from any player's point of view, for the entertainment of on-lookers.

There's only one minor niggle with Midi Maze, and it's an odd one. For a game so closely connected with a musical theme, the sound effects are absolutely average; a boink when you hit a wall, a bloop when you fire and a plop when you hit your target. Of real music, there's not a note.

A strange omission, but it doesn't do much to detract from what must be one of the most original and enjoyable arcade games yet on the ST.

Chris Jenkins

Sound	4
Graphics.....	9
Playability.....	9
Value for money.....	7
Overall	7



Family fun

Program: Trivial Pursuit
Price: £19.95
Supplier: Domark, 204 Worple Road,
London SW20 8PN.
Tel: 01-947 5624

SHOULD there still be anyone out there who does not know Trivial Pursuit – basically, it is a general knowledge board game. It can be played by just one person, but is really a multi-player game.

The board is like a ship's wheel, with spokes emanating from a central hub. If you correctly answer your question when on one of the junctions, you get a wedge.

Each wedge is one of six colours, corresponding to the six junctions and categories of question (sport, literature and so on). Once you have all six, you must land on the central hub itself, and correctly answer a question to win.

The die simulator is replaced by an original dart-throwing routine! You throw your dart, and the segment of the board which your dart moves to shows the number of squares you can move (one to six).

All possible destinations flash, and once chosen, your question is asked. The compere of the show proceeds to walk off the board, and into a room, where he asks the question, using a speech bubble and some highly amusing sound effects imitating speech.

He will stomp his feet if you take more than a few seconds to move and scratch his brow if you take too long to answer a question. He also has an amusing and fairly large repertoire of one-liners.

You don't enter an answer, but merely press fire when you're ready, and tell the

computer whether or not you were right once it has printed the correct answer on screen.

The graphics are by no means the best I've seen. Occasionally you are shown into a different room – a private cinema – complete with a row of people's backs. The cinema screen is then used for the question.

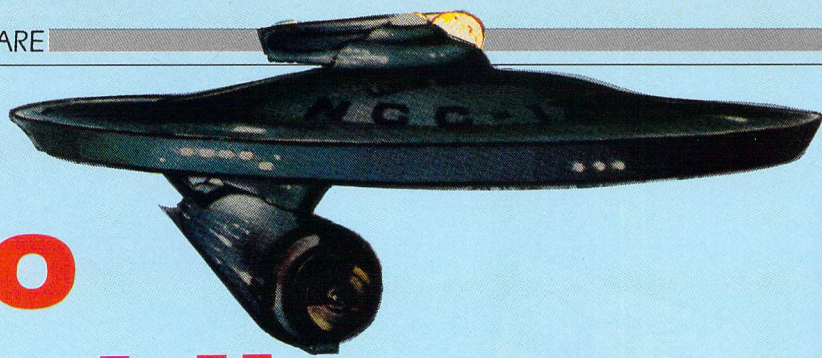
The board graphics are a faithful representation of the original with some witty additions, such as the compere. This version scores highly over its parent in other ways too. The original's questions consist purely of text. Here you have both pictures and musical extracts as questions. These add to the game no end, making it highly playable.

There are more than 3,000 questions, so they should keep you going for some time. However, repetitions begin to crop up after a few games – though you should be able to buy extra packs of questions. Most are reasonable and challenging without being impossible. Yet I was rather astonished to be expected to identify a deer by the shape of its dung.

This is a good game, and represents fair value. For the first time, I can really visualise more than one person huddled round a monitor and enjoying the experience more than the board game equivalent. What's more, it's educational – do you know what deer dung looks like?

David Lester

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



To boldly go...

Product: Star Trek – The Rebel Universe
Price: £19.95
Supplier: Firebird Software, 1st floor, 64-76
New Oxford Street, London WC1A 1PS.
Tel: 01-379 6755

SPACE, the final frontier ... This is the story of perhaps the most talked about, most pirated and longest awaited piece of software in the history of the ST. It was seen for the first time almost exactly one year ago, when Andre Willey reviewed it for the February 1987 issue of *Atari ST User*.

Since then it faced a doubtful future with the original software house – Beyond – being absorbed by Firebird. Release dates came and went, but now, at long last, Star Trek is with us. Supplied in a high quality package, typical of the producers, it comes on one disc with a verbose 42 page manual.

As the game boots, the voice of Captain Kirk utters those immortal words – "Space, the final frontier...". The inevitable split infinitive about going where no man has gone before, has disappeared. The title screen appears and so begins about 30 seconds of the most awful version of the Star Trek music ever to assault a human eardrum.

After this almost unbearable

able by clicking in one of seven windows around its perimeter.

This system is fast and very efficient, a credit to the designer, although it can take some getting used to in panic situations – most noticeable when you're trying to switch the red alert siren off.

The opening graphics are a real work of art and probably good enough to sell the game on their own. The main screen displays the bridge, with everyone at their stations. The seven outer segments show miniature portraits of the crew.

A nice idea is the way a character can be selected by either clicking on the portrait in either the main window or one of the outer segments.

Each individual has his or her own function as in the television series, with Kirk running the whole show, Uhura manning the communications and Spock looking generally intellectual.

So the voyage starts – the mission to defeat the Klingon conspiracy. The first order of duty is to select Sulu and summon the starglobe. This navigational aid is superb to look at (it really does look like a spinning globe) but it's a devil to use, even the instructions admit that.

The globe represents an area of space that's become known as the quarantine zone and is approximately 100 light years across. Within this area the Klingon con-

With a course selected it's on with the warp engines and off you go. Warp factor can vary from one to 10, but speeding gains a harsh warning from Scotty and eventually results in total destruction of the Enterprise. Spock comments: "I never will understand humans" with a sarcastic twitch of the right eyebrow. Nice touch.

When the Enterprise enters a solar system a separate map display can be called up to select and interrogate the records on each individual planet. This is a simple matter of clicking on the planet of your choice and selecting Spock.

The game employs no less than 21 different planetary types – some useful and some hazardous.

For instance: Repair Drone Dock, if the Enterprise orbits a planet of this type its engines, structure and weapon system will be repaired in part or full.

Catastrophe Pods: This is a strange form of vegetation capable of destroying the ship. They become attached to the hull as soon as it enters a solar system containing such a planet. In this case the ship has less than five weeks to find a planet with an orbital discontinuum in order to remove them.

Getting into orbit around a planet is a simple matter of selecting the one required, confirming the course and starting the impulse engines, assuming they're still working. When the orbital position is reached Sulu announces, "Now in standard orbit sir".

While the ship is in orbit around an M class (life-supporting) planet it is possible to beam down to the surface and recover some goodies that'll be useful on the journey.

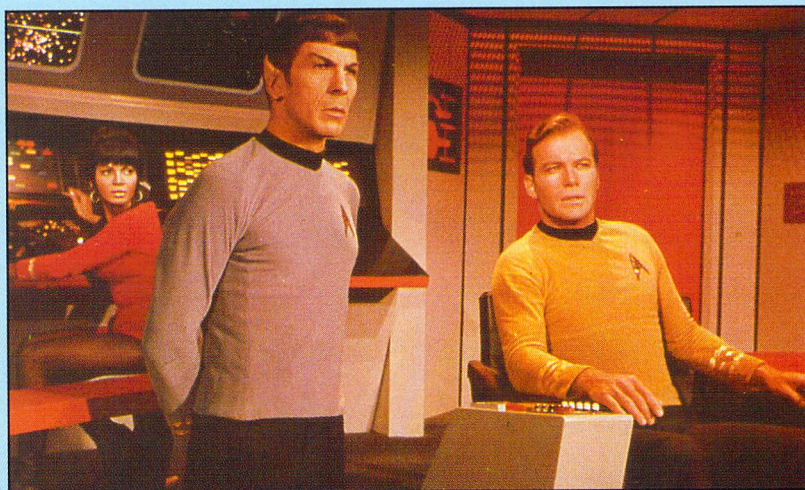
You can transport up to six of the seven crew members to the surface. Exploring a strange planet is invariably hazardous, and decisions must be made with the greatest of care.

The process can be made easier by asking the advice of a member of the landing party. Each crew member will provide a different response, depending on their equipment and knowledge. Surprisingly, even the oddest suggestions can often work in the trickiest situations.

Even so, the entire party can be hurt if an electrified door is not deactivated properly. Worse still, in some situations the wrong move could block forward progress completely, effectively ending the game at that point.

Objects are divided into three classes – strategic items, tactical items and miscellaneous. Strategic items are things like the peace bomb and the Klingon codes file, which will help to complete the mission. Tactical items like the hot shot, enhance your chances of actually finishing the game.

Finishing the game inevitably involves a lot of murder and mayhem and arcade



cacophony, the relative peace of the Enterprise's bridge brings welcome respite.

The display uses what is called the multivision game system. This means that while all of the action takes place in a central area – further options are avail-

spiracy is rife and even federation starcruisers must be regarded as hostile.

As each galaxy is selected, Spock can ask about its status and the likelihood of it containing hostile forces. Due to the Klingon conspiracy, this information should be taken with a pinch of salt.



fans will find themselves at home here. The fight sequences begin with an ear-splitting siren and Kirk's steady voice stating, "Battle stations. All decks to battle stations". If the enemy are outside scanner range he adds: "This is not a drill" for good measure.

The battle starts with a beautiful pictorial representation of enemy craft bent on making the Enterprise ancient history. There are three types of attacking craft: Romulan, Klingon and believe it or not Federation. Remember, this is the rebel

universe. No one can be considered friendly.

Checkov deals with the weapons. His display gives access to weapon selection, the aiming system and the targeting screen.

Combat takes place on a 3D screen with a circle to mark the area of high hit probability. A click on the fire button confirms the selection and locks on the target.

Battles are fought on a winner take all basis and since the game will probably

take several hours to complete there's going to be a lot of fighting.

So, with superb graphics, a full complement of digitised speech and a tie-in with perhaps the most popular television science fiction soap opera ever – how could you fault Star Trek?

In a word, playability. The game just isn't as playable as it might have been. When *Atari ST User* featured the game as it neared completion a year ago, it showed a lot of promise. Since then it has changed very little.

Many of the secondary screens for instance, appear to have been thrown together to aid the programmers while testing and then simply forgotten about. A similar criticism must be voiced about the graphics employed on planet surfaces which all seem very much of a muchness.

Nevertheless, Star Trek has got to rate as one of those games that belongs in every collection, even if it's just to prove how powerful the ST is.

Mark Smiddy

Sound	8
Graphics.....	9
Playability	7
Value for money.....	8
Overall	9

Dive, dive, dive!

BLUE WAR

Program: Blue War

Price: £19.95

Supplier: US Gold, Units 2/3, Holford Way, Holford, Birmingham, B6 7AX.

Tel: 021-356 3388

YOU start as a lowly ensign in charge of a submarine in the Pacific. Your task is to stalk the deep in search of enemy craft and sink 'em. The more you sink the faster you get promoted.

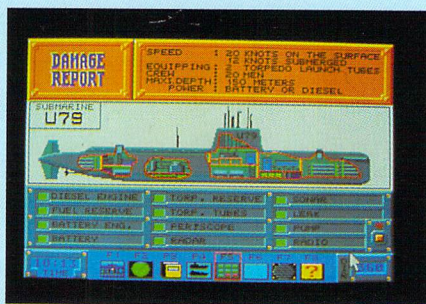
Seven rooms in the sub can be selected with the function keys or the mouse, although unfortunately all commands must be given from the keyboard. Room one is the control room and houses the periscope. Two holds the radar and sonar equipment.

The log room records the ships you sink and your current rank, while records shows you pictures of the ships you're likely to meet. The engine room informs you of damage to the ship. Room six stores the maps and seven holds the radio.

There are only a few controls to master – diesel and electric engines, speed, fire torpedo, turn port or starboard, dive, surface and start pumps. Control is very easy as long as you watch your depth and don't dive with the diesel engines' running. You'll do most of the navigating

from the map room which shows your position and other ships. You don't know what ships they are though, until you take a peek through the periscope.

If you get too close they'll fire at you before you get a chance to fire at them. If you submerge your speed slows and they may move out of range. You must be



careful not to sink your own supply ship otherwise you'll be demoted to apprentice seaman.

Action takes place in semi-real time and it can take a while to reach an attack position next to an enemy ship. A time advance function would have been nice. The ships seem to wander around aimlessly rather than following a patrol or convoy route and they have an annoying habit of changing course as you approach them. I made it as far as captain by

sinking two cruisers and five battleships – and then I sank my supply ship.

There are no pause, high score, save and load options or quit. When both your engines are out of action and you're lying dead in the water you've no option but to re-boot. At present the program won't work with the new operating system either, but US Gold is working on this.

The graphics are bold and clear, although some of the gauges and the mouse pointer flash continuously, which I found irritating.

These niggles apart I enjoyed Blue War, but I couldn't help but feel there should be a bit more to it. The nice thing is, however, it doesn't take a year and a day to master and you don't need a photographic memory to learn the controls.

If you want a submarine simulator that's easy to get to grips with it's certainly worth looking at.

Ian Waugh

Sound	4
Graphics.....	9
Playability	7
Value for money.....	7
Overall	7

Man with a mission

ACADEMY

Program: Academy
 Price: £19.95
 Supplier: CRL, 9 Kings Yard, Carpenter's
 Road, London E15 2HD
 Tel: 01-533 2918

TAU Ceti was a game based upon the heroic efforts of a lone skimmer pilot as he strove to free a planet from the clutches of its robotic masters. Academy takes over where Tau Ceti finished.

With an ever-increasing number of young skimmer pilots to choose from, Galcorp wants only the best for its elite corps. To this end they have built the Academy. Only after 20 successful missions will a student have earned the title of elite.

Once loaded, you are at liberty to explore numerous menus, all accessed using the mouse. The redefine keys option allows you to control the skimmer using the mouse, keyboard, or a joystick.

Only the first four missions are available to you on level one. The first is titled, "If it moves ...", and as its name suggests, involves terminating, with extreme prejudice, the robotic invaders of the planet Cauldron.

In Red Dawn you are called upon to destroy every robot factory in all quadrants of the planet Eventide. The main

fusion reactor on the planet Escot has suffered a major malfunction. You have 15 minutes in which to shut down the reactor – fail and you'll not live to regret it.

The fourth mission is set on the Ice World. Having survived the first three missions this should be a piece of cake – merely locate your base and return home. Unfortunately, due to an administrative foul up, the quadrant in which the base is situated has been mined.

Having decided upon a mission, it is



time to select a skimmer with which to perform the task. Three established skimmer designs are available and a picture of each can be called up on screen along with its specifications. Should none be to your liking you can always design your own.

The title screen and skimmer illustr-

ations are of a high standard, so it was with some excitement that I set out on my first mission. Being a Tau Ceti veteran I couldn't wait to see what miracles had been performed on the ST. Alas, I was disappointed, the graphics were simple low resolution shapes, and the use of sound was limited to a few beeps and buzzes.

The duration of a mission tends to be very variable – sometimes you will launch from the base and die at the hands of a squadron of kamikaze UFOs within 30 seconds. On other occasions you will ride the initial onslaught and then spend the next 10 minutes trying to find something to blast.

In order to progress to the next set of missions, you need to achieve an average success rating of 90 per cent or more on the first four. This is no mean feat.

Academy is a game with sufficient in-built flexibility to hold a player's attention for weeks. Unfortunately the pros are outweighed by the cons of graphics and sound.

Steve Brook

Sound	4
Graphics.....	6
Playability	7
Value for money.....	5
Overall	6

Easy rider

Program: Grand Prix 500cc
 Price: £19.99
 Supplier: Microids/Elite, Eastern Avenue,
 Lichfield, Staffordshire WS13 6RX.
 Tel: 0543 414188

AS motorcycle simulations go, this French one tries hard, but ultimately doesn't make the grade. It roars away on presentation, but poor sound and only fair graphics and animation put the brakes on its chances of success.

Using a vertical, split screen format, the game has you pitting your skills against the computer or another player. You may choose to race on any of 12 different circuits and can have a practice lap before the big race starts. Although the competition is strictly between the two participating riders, there are plenty of other bikes involved in the race.

The options allow you to play on any of three different skill levels, choose the left or right screen (the blue cycle is controlled in the left, red in the right) and plump for joystick or keyboard control.

At the top of the screen an overhead view of the track shows the current pos-

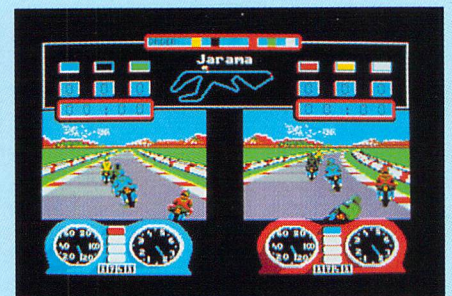
ition of the two principal contenders. Below this, the screen is divided into two vertical halves in which all the action takes place.

Dotted above and below the screens are various indicators including the order by colour of the leading riders, lap counter, rev counter, speedometer and gear indicator (there are four gears to change up through).

The view in the split screens is from above and behind your rider. The distant scenery is mainly mountains, sky and fields, while the grey track is double-edged with red and white striped markers.

Once the race begins the sound of engines fills the air and the bikes move off. The sound is a letdown – very crackly and unvarying. Animation and graphics are nothing to shout about – the bikes lean and move from side to side, but not terribly convincingly.

Response to the controls is good and the scrolling is quite fast, though not altogether smooth. If your bike crashes, it bursts into flames, but soon douses itself to permit you to continue, albeit with a precious loss of position and time.



On the plus side, there's a very good title screen and a demo mode gives you a long and leisurely look at what's in store. A track marshal is there at the start/finish line to wave you off, indicate the number of each lap and eventually to give you the checkered flag.

Grand Prix 500cc undoubtedly has its good points, and two-player racing games are always welcome. With better sound and movement this might well have been an outstanding one. As it is, unless you're desperate for a motorbike game, I'd try before you buy.

Bob Chappell

Sound	2
Graphics.....	5
Playability	7
Value for money.....	5
Overall	5

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Entertaining adventure

Program: *Deja Vu*

Price: £24.95

Supplier: Mirrorsoft, Athene House, 66-73
Shoe Lane, London EC4P 4AB.

Tel: 01-377 4837

WELL, kid, you're really in the soup this time. You've woken up in a shower stall with a head that feels like somebody's been using it for basketball practice. And if that ain't bad enough, there's a stiff down the hall.

Now the 6,000 dollar question is – did you ice the guy or have you been set up? What with the cops, the mob and who knows what else on your tail, what chance have you got? Even worse, you can't even remember who you are. Good luck when playing *Deja Vu*, pal.

In one sense, *Deja Vu* is about the last thing you'll experience when playing this unusual text and graphics adventure from Mindscape. I guarantee you'll not have seen one quite like it before on your ST. *Deja Vu* is heavily oriented around its graphics. The keyboard does not come into it – all the action is controlled by use of your mouse.

In fact only eight commands are needed to play the game and they are listed in a box at the top of the screen. They are open, close, examine, speak, operate, go, hit and consume. All you have to do is point the mouse at your desired choice.

Now purists might think that any graphic-based adventure with only eight verbs in its vocabulary was going to fall flat on its pretty face, and in most cases

ture, inventory and exits. At the beginning of any game, these occupy pre-set positions, but you can play around with them to suit yourself.

The text window holds all the program's responses, comments and descriptions – and pretty stylish they are, too. The picture window generally gives you a view of your current location and is a very important part of the game. Almost every item within a picture can be accessed by the usual point and click method.

You would be well advised to examine everything in a picture, even the most insignificant looking blob – who knows what it might turn out to be. A small "self" window even lets you examine or do things to your own body!

There are shortcuts. Double clicking

Double clicking on one of these squares gives the same result as above.

The inventory window is particularly interesting. To take an object, you simply move it out of the picture window and into your inventory window. Once it is there, you can examine the item and, in some cases, open it up further.

Pop up menus allow you to save and load game states, start a new game or quit, tidy up your inventory windows (handy if they're getting crowded) or, if you think they're looking too neat, mess them up.

Digitised spot sound effects (thump of fist, blast of gun and so on) are used to enhance the fun, though I could have done without the hackneyed snatch of the Death March whenever I got killed. I must also say that the loo in the ladies room sounded as if it was badly in need of a plumber – no wonder it leaked!

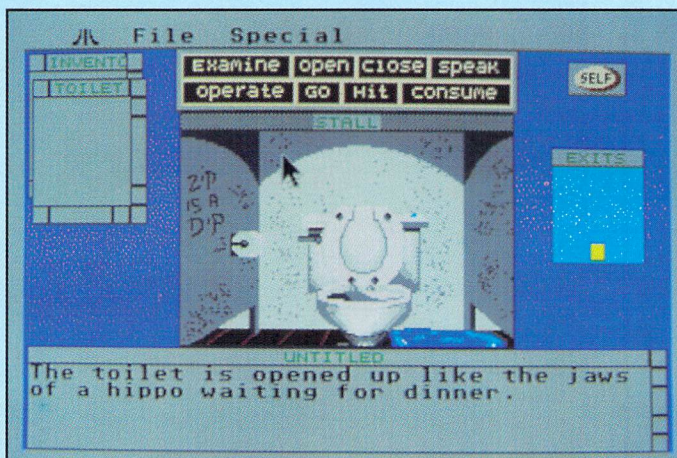
I praised the text earlier, so while I'm on the subject of lavatories, how about these snippets? Lifting the toilet lid resulted in "The toilet is opened up like the jaws of a hippo waiting for dinner" – and it looked like it, too.

Examining a toilet roll was met with "It's a full roll of toilet paper, the second full roll you've seen thus far. You wonder if the people that frequent this place ever use the stuff". Trying to take a toilet roll was even better – "Please don't try to remove the toilet paper; be more considerate of your fellow human beings".

Deja Vu is an originally presented, highly entertaining adventure. The prose is humorous and always relevant, the command analyser faultless, the atmosphere strong and the puzzles tricky. What more could an adventurer desire?

Brillig

Presentation	9
Atmosphere	9
Puzzlement	9
Value for money	8
Overall	9



they'd be dead right. But *Deja Vu*, despite the limited command set, actually works very well. It does so because of the clever way the display is structured.

Almost the whole screen is made up of windows which can be opened up, closed down, overlaid, expanded, contracted and generally shoved around. There are four main windows: Text, pic-

on an item is taken as meaning you wish to examine that object. If it happens to be a door or other type of exit, the action will instead be interpreted as OPEN. If the exit is already open, you will be taken through it to the next location.

An alternative way of moving is by use of the exits window. This shows the position of each exit as a small square.

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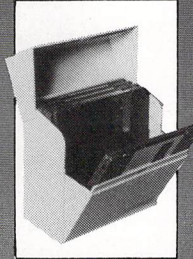
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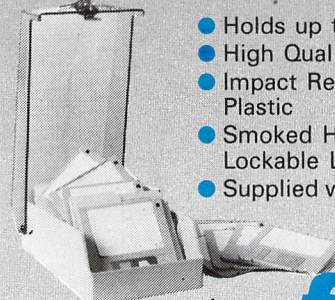
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3D flight of the Phoenix

Program: Phoenix

Price: £19.95

Supplier: Ere Informatique, Mitre House,
Abbey Road, Enfield, Middlesex EN1
2RQ.

Tel: 01-364 0123

PHOENIX is an interesting 3D space shoot-'em-up set in the distant future. The ever-increasing numbers of interstellar space craft have forced the government to consider re-opening some old space routes which fell into disuse many years ago.

A space route is constructed in the shape of a tiled, hexagonal tunnel. Those earmarked for re-opening have deteriorated greatly due to the weathering effects of deep space – this manifests itself in the form of a substantial number of missing tiles.

The Phoenix travels the route at a constant velocity, with you controlling the ship's movement left and right. If you are to stay on the route you must be able to look well ahead, while still concentrating on the position of the tiles immediately in front of you.

Many sections are only one tile wide, thus requiring perfectly timed side-steps

as the route changes direction. The single tile spiral appears to be one of the programmer's specialities. Initially daunting, it's a really flash manoeuvre to impress your friends with once you've mastered it.

Failure to complete a route returns you to the start of that particular section. One clever feature is the replay facility – pressing R at the start of a game activates the ship's in-flight video recorder.

Following each game you are treated to a replay of your last flight which allows



you to spot the point at which you forked left when you should have gone right.

Flying the space routes is not as simple as it seems as some tiles have undergone transformation to anti-matter and should be avoided. Green tiles cause temporary disruption of the ship's navigation system,

resulting in loss of control.

A scout ship has a limited fuel capacity, and you refuel by hitting the red tiles. Similarly you must avoid blue tiles, which drain the Phoenix's energy banks. An energy reading of zero results in the implosion of the ship and loss of a life.

One of the few remaining features of the old routes which still function are the laser stations. These must be shot at long range, wait till you can see the whites of their eyes and your hit will not register, by this time it's too late to change direction and you die.

It is always refreshing to play a game which requires the minimum of controls – left, right and fire are all you need. They may be operated using either the keyboard or a joystick connected to port one.

The graphics are simple, but give a tremendous sense of distance. Combine this with smooth, swift, animation and you have got a game which is sure to coax the best out of any would-be arcade ace.

Nev Astly

Sound	7
Graphics.....	8
Playability	9
Value for money.....	9
Overall	8

Action-packed hero

Program: Indiana Jones

Price: £19.99

Supplier: US Gold, Units 2/3, Holford Way,
Holford, Birmingham B6 7AX.

Tel: 021-356 3388

INDIANA Jones is a real stiff upper lip type of hero, a guy who takes on the might of the evil Thuggee cult with only a bullwhip for protection.

Based upon the motion picture blockbuster, Indiana Jones and the Temple of Doom, the plot runs like this: Mola Ram, high priest of the Thuggee death cult, has stolen the sacred Sankara stone from Mayapore village.

He has also enslaved the village children and is using them to dig for two other stones in the mines. Indy's task is to free the children and recover the three stones.

The title screen, which doubles as a high score table, consists of a superb full colour picture of Indiana Jones – this is accompanied by a very passable rendition of the film soundtrack.

Before starting the game you must select the level of difficulty at which you're going to play – this is done by walking Indy into one of three caves, these are labelled, easy, medium, and hard.

On the most difficult level you must contend with spikes which emerge from

the ground at regular intervals. These dangers are offset by the fact that you score double the points compared to the easy level.

The game is divided into three sections. The first involves freeing six captive children who are held behind locked doors in the mine. One crack of the bullwhip is sufficient to smash the lock.

A message line at the bottom of the screen provides up-to-date information regarding the number of children still trapped, plus hints on how to deal with baddies.

The mine has designated pathways –



stray from these and you'll fall to one of your five deaths. Paths are linked by ladders, or by beams on the ceiling. Both Indy and the Thuggee guards can use the ladders, but only Indy can swing from the beams using his whip – a very satisfying manoeuvre to execute successfully.

A good whipping will bring a Thuggee guard to his knees, further blows will send him tumbling from a ledge. Paths are often blocked by cobras – these are merely a nuisance and may be walked around or whipped.

Bats are much more dangerous – the



ultrasonic squeak which precedes their arrival should be taken as a signal to stop whatever you are doing and prepare to defend yourself. Accurate and well-timed blows are essential if you are to survive a bat attack.

Level two is based upon Indy's hair-raising ride through the mine in a rubble car – hazards include missing rails, jumps, more bats and a Thuggee giant.

If the gods are on your side you will eventually reach level three – the Temple of Doom. Retrieve the three stones and cross the decidedly dodgy rope bridge to complete the game.

This is a cracking arcade-adventure game, good sound and graphics, combined with lots of action, will ensure its success.

James Riddell

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

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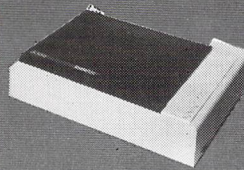
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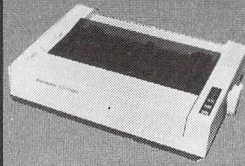
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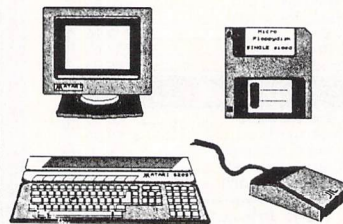
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Late night final is a cracker

THE most exciting review I've ever undertaken – that's how I left Fleet Street Publisher 1.0 in the May 1987 issue of *Atari ST User*.

Well, nine months later the long-expected updated version has finally seen the light of day. First here's a precis of Fleet Street's salient points.

Fleet Street Publisher (FSP) is a page make-up processor, which enables novice and professional alike to produce pages that have a visual impact by mixing text and graphics from a word processor and a drawing package.

With FSP you can enter the world of desk top publishing (DTP) and design, lay out, modify text and graphics through the simplicity of the Gem environment. All in one package and at a price you never thought possible.

Multi-column newsletters, documents, flyers, letterheads, menus, notices and posters are some of the many items that can be created with FSP.

The text handling features include six different types of fonts in a range of sizes from 4 point to 216 point on a 1040 ST (approximately 1.5 mm to 75 mm). Text can be typed in directly on to the page or merged from any Ascii file.

Hyphenation, justification, kerning (spacing between letters) and proportional spacing are all available. Search and replace, tabulation, word wrap and international characters as just some of the other features on hand.

Graphics handling is well covered,

Alan Goldsbro tries the upgraded version of Fleet Street Publisher and is very impressed

with more than 100 ready-to-use IMG pictures which can be moved, edited and scaled to suit your requirements. Your own pictures from Degas, NEO or IMG files can be imported on to pages. Boxes and rules can be positioned anywhere on the screen in a range of sizes and textures. Text can also be positioned on top of graphics.

All these features can be grouped to produce a page at a time which can go either to a dot matrix printer or to disc in a Gem IMG format.

To bring you up to date, there are a number of changes to FSP. Some are mainly cosmetic such as the dialog boxes, which instead of being displayed in landscape format are now in portrait style.

Another improvement to the dialog boxes is the ability to use the Return and Enter keys instead of having to overwork the mouse by permanently clicking on the OK button.

Text effects have changed, too. There's another new dialog box with text enhancements like slant, mirror, upside down and outline. The background and

ink tones now have eight levels of variation. Each tone is displayed as a percentage of black, from white, 0 per cent right the way through to black at 100 per cent.

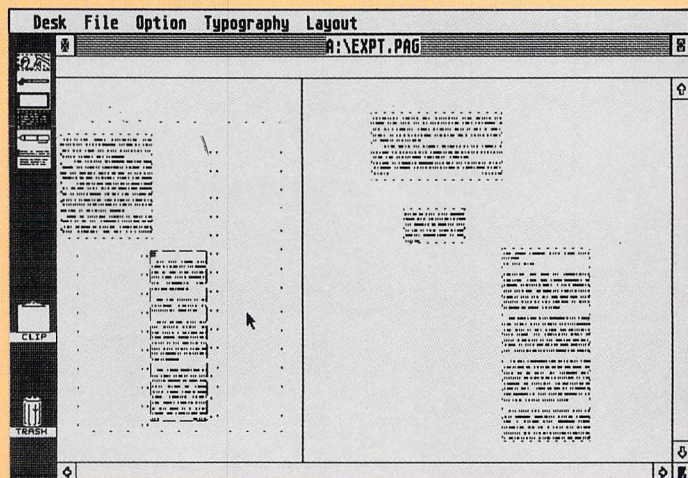
Because I tend to use a mono monitor, it's easy to forget that the original FSP had a colour resolution resource file. The new version has automatic sensors which which means that only one resource is needed which handles both colour and monochrome monitors.

Other changes include a better picture resolution dump and scaling procedure, Atari printer drivers for both dot matrix and laser printers, plus user-definable 9 and 24-pin drivers.

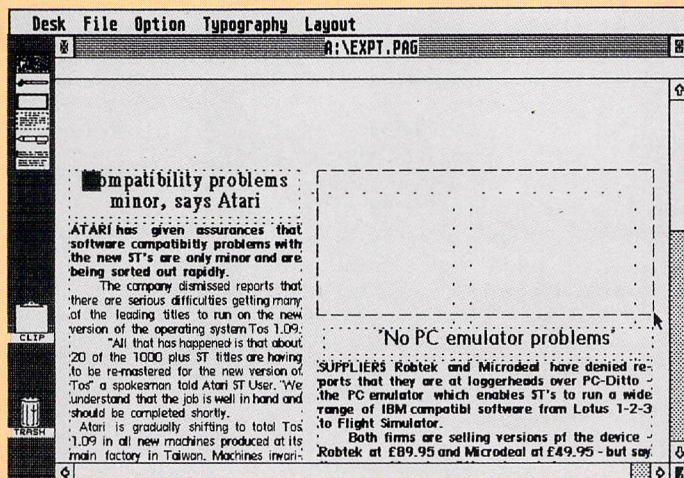
The layout and content of the manual has been improved and two extra appendices have been added, one for fonts and the other to help you customise FSP to your own style and preferences.

The new picture scaling and resolution impressed me. Originally if you scaled the picture, what happened was that pixels were either included or excluded depending upon whether you enlarged or reduced the picture. This method of scaling is still available, but now if you reduce the size of the picture, the same print quality is produced on output regardless of size.

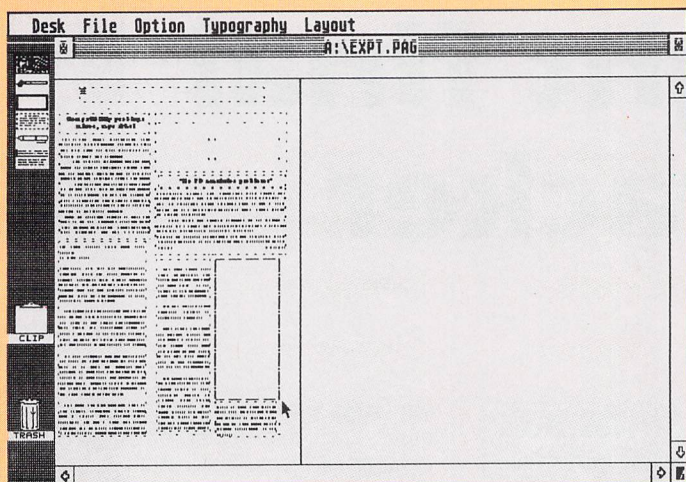
To bring this into perspective, select the picture resolution option and you are presented with four preset resolutions – 75 x 75 dots per inch (DPI), 150 x 150, 180 x 180 and 300 x 300 DPI. Working from the



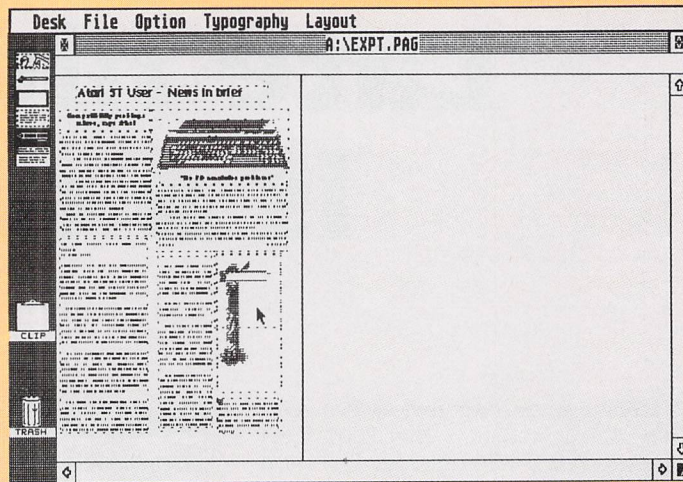
Step I: Experimenting with the layout



Step II: The headings have been added



Step III: Making some room for the pictures



Step IV: Adding pictures and checking the layout

dialog box, these settings can be changed but if you do decide to change them you need to keep to a square aspect ratio to avoid picture distortion.

Pictures which have had their resolution changed from 75 x 75 (standard IMG files) are generally displayed smaller in size than the original. I found that by using the picture resolution feature to reduce the size of my pictures, I improved the quality of printer output compared to using the recommended method of scaling.

Moving on to printing, the original FSP output to an Epson FX-80 or compatible printer is standard. The other options available were either sending it to an IMG file on disc or you could experiment with the printer control editor for other printers.

Now FSP 1.1 has a wide range of printer drivers available from 8/9 pinheads through 24-pin drivers to Atari or Postscript laser output. The IMG file and Gem devices are still included in this new version.

Eight different output modes are available at any one time, and if your printer is not listed there is an option (using the defaults program) to create your own printer driver.

Using my LX-80, I found the print quality greatly improved, although it took longer to print a page as the printhead now passes each line three times as opposed to double striking with version 1.0.

To get a landscape shaped print you have to select A4 width for your screen display before you start the page make up. However, if you have the luxury of a 132-column printer you can print your landscape page in its original perspective.

Another new feature in the printing section is the Clean and As Is selector. The former ensures your page will be printed at 100 per cent magnification without the column guides or block out-lines showing.

If for example, you wanted to get an overall view of a tabloid sheet, or perhaps

an enlargement of an area, you can select the As Is feature. This will print the page at the current level of magnification showing all the column guides as displayed on the screen.

Stopping a printout on FSP 1.0 was rather extreme - you had to turn off the printer and wait for up to a minute to get a time out message and eventually get back to the program. You'll be pleased to know this has now been brought up to date.

To stop the printout you can still use the same method, but the time-out dialog box only takes a few seconds to respond. Another way is to use the Escape key, but this will not stop the printer until the print buffer is empty.

Probably one of the major additions to FSP is the inclusion of the Set Defaults program. The manual makes it quite clear that the program was originally designed for in-house development and consequently will be of greater value to programmers than inexperienced users.

Set Defaults is an option which runs separately from FSP (like the picture conversion program) and enables you to customise elements of FSP to your own requirements.

Looking very briefly at this, you can

install new screen and printer fonts, create, modify and install output drivers. You can also change default filenames and directories, optimise fonts, create or modify width tables, change the default copy/move function and key status, alter the font memory cach and change the default text and page layout option.

As you can see, there's a bit more to this upgrade than the usual correcting of bugs (these have also been cured). FSP 1.1 has taken its time in appearing, but I feel it's well worth it.

The upgrade will only cost registered users £20 and is worth every penny. For another £20 you can obtain either the driver for the Atari laser or the Postscript laser printers.

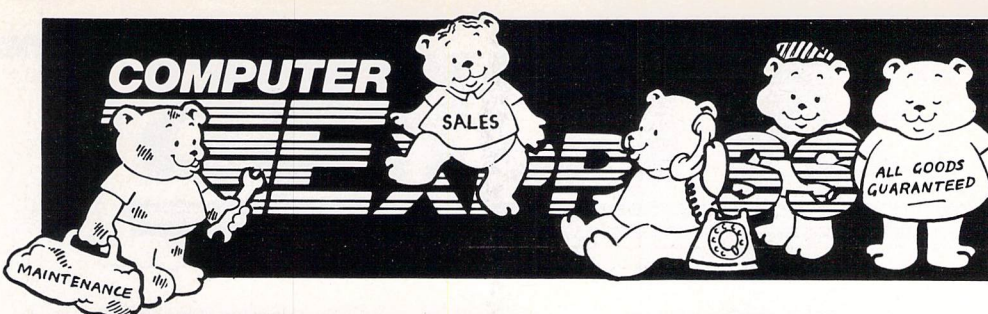
Fleet Street Publisher has deservedly had many an accolade, this new version will I'm sure place FSP in the number one position in desk top publishing. With this kind of quality I'm already looking forward to version 1.2.

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ADVENTURES

Brillig lends a helping hand to fantasy fans

I TRUST that you've not broken all your New Year resolutions yet. One c' mine was to try and keep up with all the mail that keeps arriving, but I fear the task is a formidable one.

What with the lead time needed for writing this column and the fact that there simply isn't enough room each month to cover all the letters, it means some of you may have to wait a bit before you see your own missive mentioned.

So let's make a start. My request for help with the problem of opening the opaque case in Guild of Thieves met with a massive response. What a clever and obliging lot you are!

Although the solution was published in a previous issue, what has since become clear is that there are two pointers to the answer in the adventure itself.

First, if you have the horseshoe from the stable, you merely need to rub it

(it's a lucky horseshoe) whereupon a fairy will pop up and help you roll a five for each of the dice.

Second, the yellow, blue, green, red and white rooms are arranged in the pattern of the five-spot on a dice. Obvious when you know, but then that's nearly always the case when you're playing adventures.

My thanks for the above information and for other help with Guild of Thieves goes to Barnabas Townshend of Iver, Ian Homer of Guildford, Vic Reeves of Skegness, Suzanne Reynolds of Edmonton, David Smith in Moffat, A.K. Walraven from Ballasalla in the Isle of Man, R. Marshall of Congleton, Paul Stapley from Whitby, Dennis Prior of LudLow, Peter Bowers in

Hornchurch, and David Gordon from London (and yes, David, I would like to see your maps for The Pawn and Guild of Thieves). Well done, chaps and chapesses.

Stuart Cochran has found one bug and one undocumented feature in Guild. The bug is that the command GO TO THE TEMPLE always results in an irrelevant message that refers to an item. For example, at the junction chamber, typing GO TO TEMPLE is met with "I haven't the faintest idea where to start looking for the office door".

The undocumented feature is that the command SCROLL XYZ (where X,Y and Z are the RGB values of the respective colours) turns the scroll

Doddles and nervous breakdowns

HINTS AND TIPS

ZORK III

Can't open the Great Door?

Wait for the earthquake when a cleft will appear in the rock through which you can pass.

STATIONFALL

Large drill bit a problem?

Forget it. What you need is the all-purpose timer.

Hands too big for the dispensing machine?

Lure the ostrich to the dispensing machine with the ostrich nip, put the coin in the slot, type 6, then put

the ostrich nip in the hole.

GUILD OF THIEVES

The 15 treasures needed to open the bank are: Diamond ring, ruby, platinum chalice, platinum brooch, statuette, ivory rhino, gem (from wax), china pot, oil painting, fossil, mineral chips, sheet music, designer dress, plectrum, and incense burner.

KNIGHT ORC

Need a long rope to cross the viaduct?

Here's what you need to tie together and where to find them: Belt (hermit), cord (chest), hair (Rapunzel), halyard (flagpole), hawser

(well), lasso (hunter), washing line (Royal Oak), noose (gibbet), reins (Green Knight) and tether (goat).

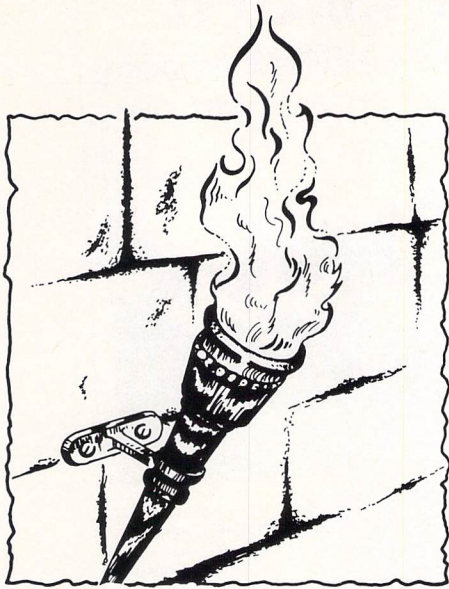
KING'S QUEST III

The wizard's book:

If you want to read the sorcery in the wizard's book, just open up your manual and have yourself a look. There you'll find the spells you need, and instructions that are with it. (Unless of course, you haven't one, are your discs illicit?)

In the tavern:

With your magical tasks complete, to the tavern take retreat. There you'll find some shifty louts, pay them, they're your ticket out.



titles to the desired colour. For example, **SCROLL 777** turns them white. **SCROLL NORMAL** returns the titles to the default value.

In his letter, Stuart also raves about Infocom's *Wishbringer*. "Although it's a little easy, it's got it all – suspense, drama, humour – and described in rich detail and interfaced through a wonderful parser". I couldn't agree more, Stuart, so all you out there who haven't tried it, go get it now.

Staying with *Guild of Thieves*, many readers would like a full list of the treasures needed to make the bank open its doors (you have to store all the treasures in one of the night safes – keep your eye on the sign outside the

bank).

It seems that a lot of you are lacking just one treasure and I wager an orc's toenail to a dragon's flea that it's the one that I also overlooked – the incense burner near the statue. See this month's tips for the complete rundown.

Help has also been received for *Space Quest*, *Bureaucracy*, *Leather Goddesses*, *Knight Orc* and *Kings Quest III*. Honourable mentions then to David Eaton of Birmingham, Barnabas Townshend, R. Marshall, someone who has signed himself as Stoik the soul man, and Maria Hamzisawas from Greece.

Maria doesn't know what the instructions in *KQ3* are talking about when they refer to initialising a disc for saving the game at some point. Well, Maria, all that simply means is you must have a freshly-formatted disc ready when you call up the save option from the menu. You need to format a spare disc from the desktop before loading *KQ3*, as you can't do it once the game is under way.

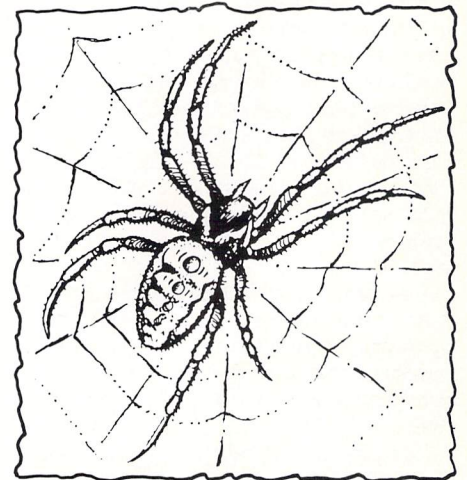
Special commendations to Allen and Mark Errington of Durham for their splendid map, to Jason Murphy for his comprehensive walk-through of *The Pawn* and to Alexa who has recently moved from California to London for a few months in order to study. Alexa supplied tips on *KQ3* and *Space Quest* in verse. Two of them are given in all their poetic glory. Not surprisingly,

almost all the readers who write in with tips also want help with some of their own problems. For these and many other enquirers, a goodly dose of assistance can be found in this month's Hints and Tips.

It is interesting to see just how varied your problems are.

Some readers are stuck in places through which others have sailed while they themselves have barely paused in solving bafflers that have had many stuck for weeks.

It only goes to show that Lord Dimwit Flathead's reputed saying still holds sway – one adventurer's dodder is another adventurer's nervous breakdown.



LEATHER GODDESSES OF PHOBOS

Caged with a gorilla?

Before you're strapped down by the mad scientist, hurl the chocolate into the cage. When inside the cage, eat the chocolate and you'll become tough enough to pull the bars apart.

Can't enter the orphanage?

Place the baby in the basket and put the basket on the stoop. Then hide and wait for the baby to be taken into the orphanage.

Coded message puzzling you?

Replace each letter by its third previous one in the alphabet, for example, E by B and B by Y. Then read the message backwards.

BUREAUCRACY

Stuck in the plane with the llama stew?

Sit in seat 3C and wait for the food. When it arrives, go to seat 8D and press the light button there. Now return to seat 3C.

Computer password in the HQ complex a mystery?

Identify yourself as Random-Q-Hacker. The password is Rainbow-Turtle.

BALLYHOO

Detective not co-operating?

Wait until you find him drunk. Pour water over him then ask him for the note.

THE LURKING HORROR

Monster keeps flying off with the hand?

Throw the stone at the monster inside the dome then escape to the skyscraper roof and throw the stone again.

Urchin concealing something about his person?

Show him the revitalised hand.

Can't get past the glass wall?

Forget it, it's impassable.

Want to destroy the brick wall?

Stop the lift on a higher floor then lever open the doors on a lower level. Use the rod to keep the doors open. You should soon find something to help with the wall.

Eight of the best

Program: Nord and Bert Couldn't Make Head or Tail of It.

Price: £29.99

Supplier: Infocom/Activision, 23 Pond Street, Hampstead, London NW3 2PN.

Tel: 01-431 1101

CURIOUS title and even curiousest game. Although Nord and Bert is from Infocom, you could hardly call it an adventure. Infocom quite rightly describes it as "interactive short stories" as opposed to the usual "interactive fiction".

The game is pure text right enough, but instead of one complete adventure, what we have here is eight vignettes. The link between them is that the stories are all set in the strange town of Punster and each tale centres around a particular usage of the English language.

Your task is to unravel each tale and get the town of Punster back to some semblance of normality. With one exception, you can play the stories in any order, the exception being the one called Meet The Mayor. You will only be allowed to play this when you have completed all the others. The program tests your knowledge of the other stories before it will let you into this final tale.

One unusual feature of this game is that it has built in hints. Typing HINT brings up a list of topics for that tale and by moving a pointer to the desired topic, you can gain access to one or more hints on that subject.

Typing HINTS OFF at the beginning of the game helps avoid temptation since the program will not then allow you to access the hints for the rest of that session.

Each tale is really nothing more than a connected series of puzzles, all solved by a particular use of English. Points are scored for each solution - the number of points possible varies from tale to tale and ranges from 7 to 31.

Now to the tales themselves. In Shopping Bizarre, you first find yourself in a dessert aisle (note the spelling). Your way is blocked by a broad-shouldered, dark brown, adult moose chewing brown cud.

Type in the word MOUSSE and "There's a sudden belching poof of smoke and the odour of burnt chocolate". What you now see before you is a chocolate mousse and you have scored one point.

Eleswhere in the same tale, you'll come across such sights as a large block of stationary (be careful, that's the way it's deliberately spelt in Nord and Bert) and a bear clause in the stationary section. Nearby is a man in a dark tuxedo taking huge bites out of packets of cereals. Strange is the right word for this game.

In Buy The Farm, you'll wander around a barn, barnyard, road, stable, loft, field

and market trying to come to grips with the many puzzles there. For instance, a tired old dog sits in the road. You'll need to get him to liven up a bit - well, you know what they say about teaching ancient canines, don't you! Cliches are the key to all the problems in this little number.

Play Jacks sets you down in a one-room house confronted by a really mystifying contraption. This thing is sort of square, sort of longish, with a fluffy ball at one end. Its surface is made of thick cloth and it has a movable strip of metal. A hand crank, a water faucet and an electrical switch are on different sides. Completing the ensemble is a pair of sleeves.

What is it? Easy - a jack of all traits. Think of all the words beginning with JAC that you can and you'll be on your way to solving Play Jacks.

Eat Your Words finds you in the Teapot Cafe where the waitress is doing her level best to look busy. This vignette revolves around plays on words connected with food.

My favourite is Act The Part. This tale places you as one of the stars of a fifties sitcom. It's full of such dreadfully corny stuff like knock, knock jokes, pratfalls and inane practical jokes (such as using a hot water bottle as a whoopee cushion to produce a loud raspberry or Bronx Cheer as the Americans have it). There's even a studio audience who giggle in anticipation and go into hysterics at each development.

Shake A Tower is all about spoonerisms. You know, the sort of transposition of letters made famous by the good Dr Spooner - "You have tasted a worm's work", "Leave on the town drain", and "We will now sing Kinkering Kongs".

Manor of Speaking is a guest house whose attic is below the first floor and whose rooms are possessed by the warped personalities of former occu-

pants. One of the rooms is called The Doldrums, a massive, still-aired chamber whose centre is a vast wasteland blending into a grassy plain that spills over a chasm.

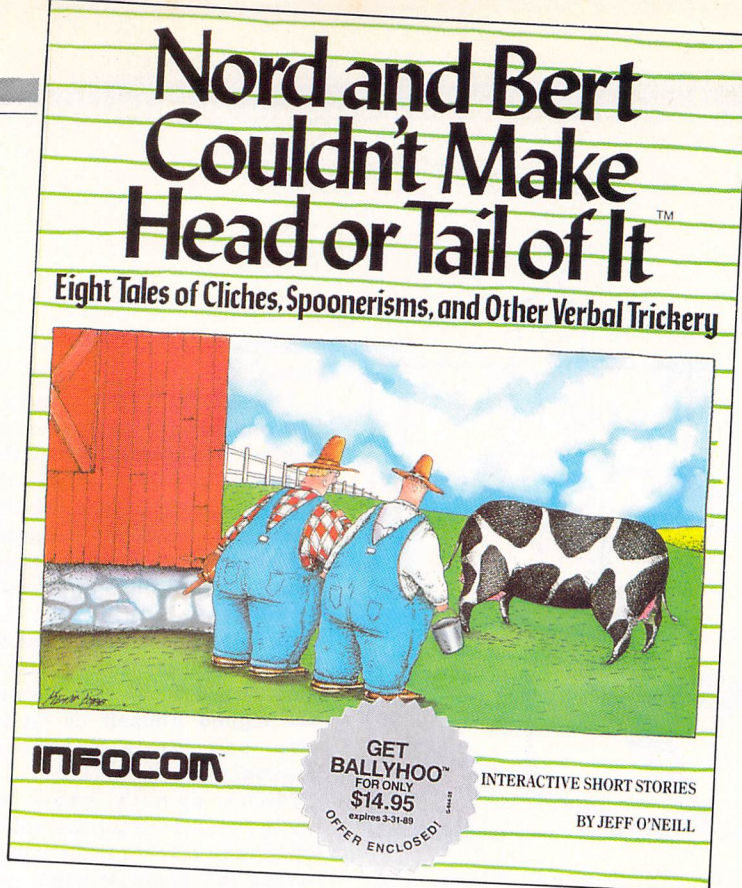
Above the cliff hangs a shapeless cloud through which a line of sheep are jumping in slow motion. Repeat a word or command in this room and the chasm yawns. As you can see, not much is happening in the Doldrums but you can always count sheep or watch the grass growing.

Nord and Bert comes with a book of delightful and original Kevin Pope colour cartoons which illustrate the various types of wordplay used in the stories. Jeff O'Neill, author of Ballyhoo, wrote the game.

Nord and Bert is a unique game and Infocom are to be congratulated for taking this innovative step. The game offers intelligent stimulation and the beauty of it is that each tale can be completed in one sitting, making it ideal for an evening's play with family or friends.

Many adventurers will enjoy Nord and Bert for the puzzles even though the game lacks the atmosphere and escapism normally craved by such players. In addition, because of its zaniness, originality, mental stimulation and built in optional assistance, Nord and Bert should appeal to a wider audience than that catered for by Infocom's usual games.

I liked it, but not as much as I liked the same author's Ballyhoo, a more traditional style of adventure.



Brillig

Presentation	8
Atmosphere	6
Puzzlement	8
Value for money	7
Overall	8



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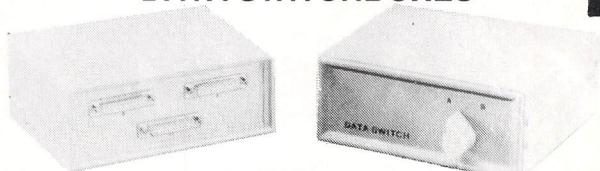
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FORTRAN was first developed more than 30 years ago by IBM as a painless way for scientists and engineers to harness the power of the computer to enable them to perform large sets of numerical calculations.

This FORMula TRANslator was arguably the first ever high-level programming environment of its kind, and yet after all this time, Fortran still remains a popular choice for this type of problem. Now Prospero have brought this faithful old workhorse well and truly into the eighties with a new Gem-based implementation of their Fortran 77 compiler for the Atari ST.

The package comes on two single sided discs in a container about the size of a small shoe box. Most of this space is taken up by the documentation which includes two thick manuals detailing the workings of the AES and VDI from the Fortran programmer's point of view.

At the heart of this system lies the workbench, which supports a Gem-based programming environment similar to Metacomco's Menu+. Unlike Menu+ however, workbench also incorporates a powerful text editor in addition to its many other features.

This editor is capable of editing up to four files simultaneously and presents you with a comprehensive set of facilities, which can either be accessed using the mouse or directly from the keyboard.

As if that wasn't enough, you can also assign a string of up to 32 characters to any one of the ST's 10 function keys. These strings can include embedded versions of most of the commands and can be saved in a special configuration

An irresistible offer . . .

Stephen Hill enthuses over an up-to-date version of that old language, Fortran

file along with many of the other workbench settings. They can then be loaded at the start of a session.

The workbench takes most of the tedium out of the development process and makes it incredibly simple to compile and link your Fortran programs. Any Tos or Gem program can be executed directly from this environment without having to leave the workbench. You can also call up a powerful debugging utility called Probe straight from one of the menus.

In action, the Fortran compiler uses separate overlays for each of the two passes it requires to convert your source program into machine code. Both of the overlays have to be loaded separately from disc before they can be used, and in practice this can be rather slow. You can however, speed this process up con-

siderably by placing the overlays in a small ram disc if you have sufficient memory.

There's also a feature to allow you to quickly check the syntax of a program without actually generating any code. This can be very useful during the early stages of program development, since it is much faster.

The documentation recommends at least 720k of disc space to hold all the necessary system files and allow plenty of room for your programs. However, I encountered little difficulty in using this package on a standard 520ST, as these files can easily be spread over two discs if required.

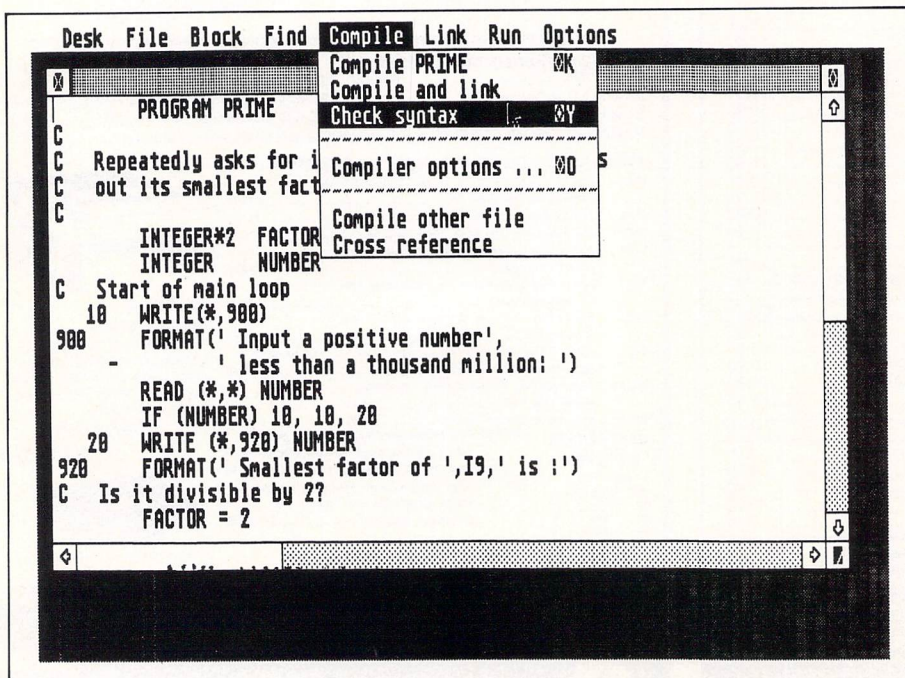
Support for Gem is excellent, with the existing AES routines being expanded to provide extra facilities for menu creation and dialog management. For small programs or simple menus, these would be very useful, but for larger and more flexible routines some sort of resource construction set is essential.

Unfortunately, Prospero has neglected to incorporate any such faculty into this package. In my opinion this is a serious oversight.

The compiler includes many options to allow you to write programs which can be readily ported over to any other computer with access to Fortran 77.

Also, since a practically identical version of this package already exists for the Amstrad PC and other PC compatibles, it would be very easy to produce programs on an ST capable of running on these machines.

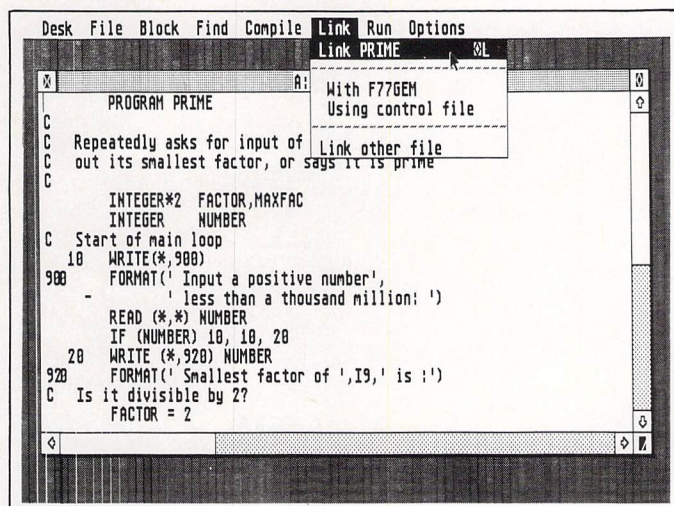
The linker Prolink supports the common GST format and should be suitable for use with most assembler pack-



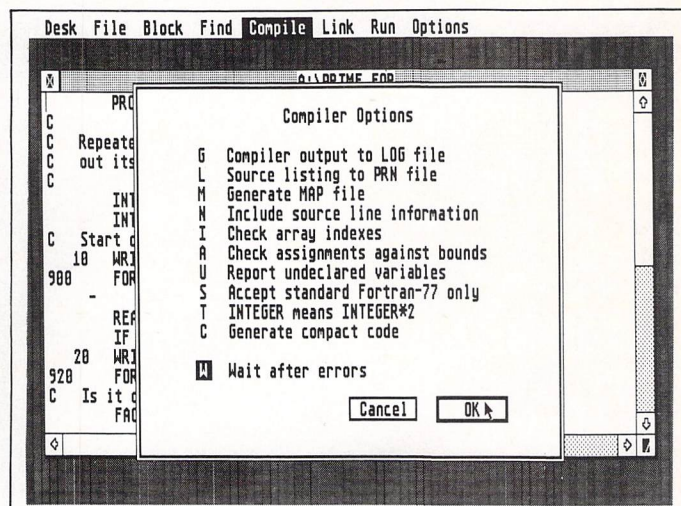
Checking the syntax of a program

Benchmark	
1	0.0075 secs
2	0.0088 secs
3	0.123 secs
4	0.113 secs
5	0.136 secs
6	0.175 secs
7	0.204 secs
8	3.800 secs

Figure 1: Benchmark results for Prospero's Fortran 77



Linking a program



Compiling a program

ages employing this system, although Prospero can only specifically recommend GST's.

As you might expect, Prospero has made it as simple as possible for you to combine routines written using its Pascal compiler with Fortran programs, and the documentation includes extensive information of this topic.

I found Prolink very easy to use indeed, with all the messy and complicated details of linker operation hidden from general view. At the same time, Prolink provides the more experienced user with total control of all its many options.

I was particularly pleased to see the inclusion of a separate library creation utility, which enables you to store sets of commonly used procedures in compiled form. Any of these routines can then be linked automatically into your program, if and when they are required. This is a feature that will prove very useful to many potential users.

The most crucial part of the process of program development is the testing and debugging phase. Traditionally this has been a pain in the neck for anyone using a compiled language like Fortran, but several manufacturers are now including comprehensive debugging aids as standard.

Prospero's system is called Probe and requires about 100k to run. For all but the largest programs it can be accessed from within workbench. If memory is tight you can also run it straight from the desktop.

Probe uses special information placed in the program along with an optional source listing on the disc, to provide you with everything you need to debug even the most convoluted of Fortran programs.

To use it, you first set a couple of compiler options from the menu and then compile and link your program. You can now select the Debug option from the menu to load both Probe and your pro-

gram automatically.

Probe supports a wide variety of instructions including single stepping and a powerful form of trace facility. This enables you to specify a set of conditions to be tested after each Fortran line.

Valid conditions range from the number of a line to be reached to an arithmetic expression to be satisfied. When it is met, either the source line of the program is output to the screen (Watch), or control is returned to Probe (Break).

My favourite command of all was Profile, which generated a count of how many times a line had been executed during the program. This count was then printed alongside the appropriate line in any listing.

'An incredibly useful utility'

One of the most common flaws in programs like Probe is that they usually require you to memorise long lists of complicated commands. Probe neatly avoids this pitfall itself by providing a clever online help facility. This is stored in the file PROBE.HLP which can be readily omitted if necessary.

In order to allow graphical programs to be effectively debugged, Probe also gives you the option of using a separate screen for all program output. Personally speaking, the more I played around with this system, the more I liked it. An incredibly useful utility.

Prospero's documentation can best be described as exhaustive, with one large Fortran manual and separate volumes detailing the operation of the VDI and the AES. The Fortran manual covers the operation of the package as a whole and includes a complete description of the language syntax. Also there is plenty of

useful information to enable you to tailor the package to your own needs.

The Gem documentation is undoubtedly the best of its kind I've ever seen, with detailed information on every topic under the sun. The writing style is a refreshing contrast to the majority of general purpose books on the subject, and is both easy to read and comprehensive.

Numerous examples are included in both books and there is also a useful set of programs on the disc. My only complaint lies in some of the nomenclature used. The manuals repeatedly refer to Gem in terms of versions 1.1 and 2.0 and omit any significant mention of the ST at all.

Since the ST currently uses a rather underpowered version 1 of Gem with a number of unimplemented commands, this may well lead to considerable confusion for anyone relying totally on this documentation.

I do understand that these books were written for people using this package on the PC as well as for the ST, but it would have been nice to have had a little more attention paid to the special needs of the ST user.

There's no question in my mind that this is a superb package which will more than satisfy existing Fortran users, and at the same time prove a perfect and fairly painless introduction to newcomers.

Prospero are offering an upgrade at a concessionary price for all existing users of their Fortran 77 compiler. The sheer power of the new user interface, alongside the comprehensive Gem documentation, may well make this offer irresistible for many people.

Product: Fortran for Gem
Price: £129.95
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Tel: 01-741 8531

THIS month's Gallery comes once again from the talented impressionist, Rita Plukss from Victoria, Australia.

As with all of Rita's work, these pictures are beautiful creations of pure painted art rather than computer-generated imagery. All have been created using Degas and are accompanied by Rita's own comments.

If you have a work of art you'd like exhibited on the world-wide stage, send it to Gallery. Remember, all submissions must be your own work, you must own the copyright to it and you must give us your permission to publish it.

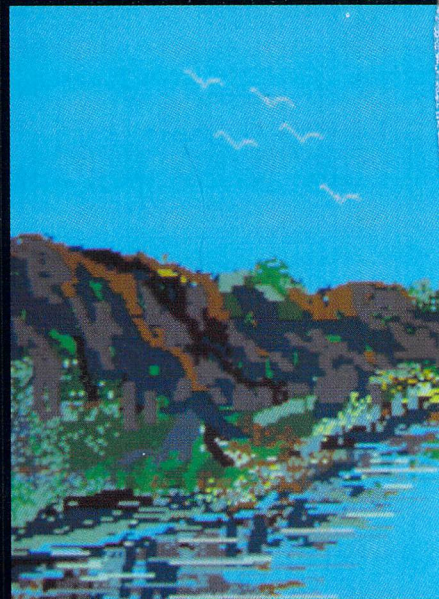


Primitive: Bordering on the abstract, the dissolvment of the object gives a haunting impression to this screen.

GALLERY

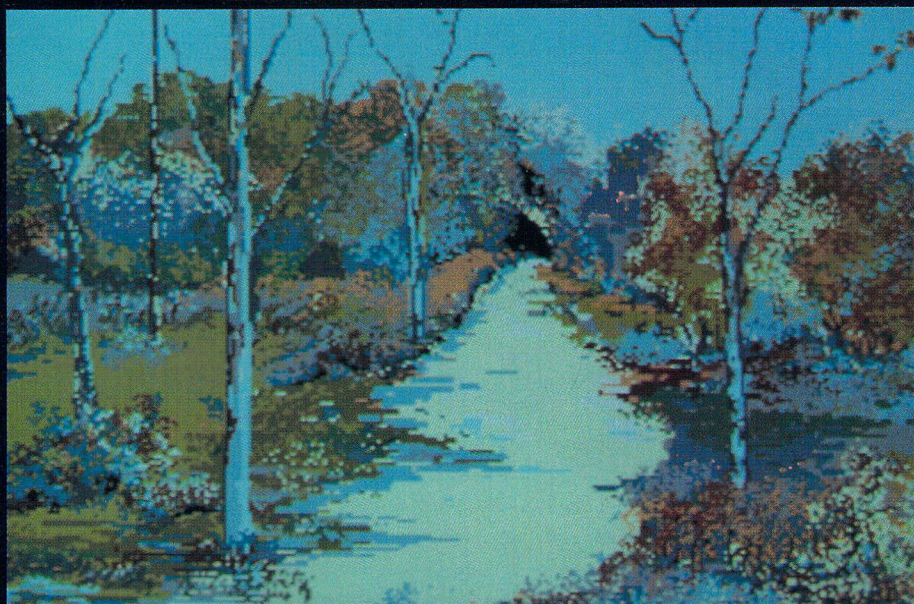


Gorge: To achieve this effect I had to treat the whole picture very simplistically, otherwise it would have been lost in detail.



Outback: Following the rain in the Australian outback, waterholes fill, and small flowers and green growth appear.

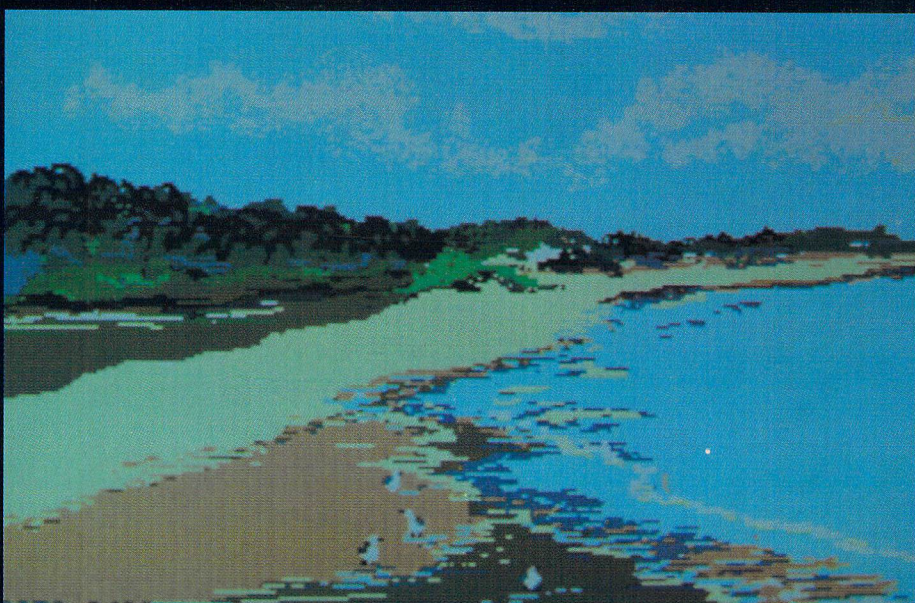
Autumn: An early landscape depicting the warm colour of autumn. Although the predominant colours are warm, the coolness is set by the subtle use of ice blue in the path and on the tree trunks.



Wildflowers: The wild use of colour is balanced by the mid and backgrounds.

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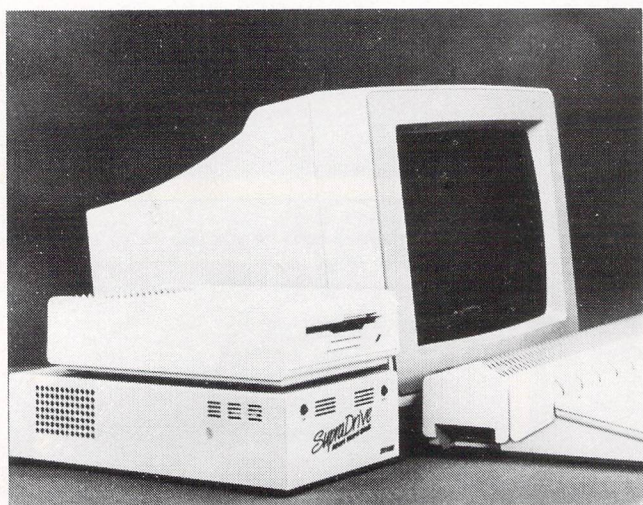


Seaside: An early seascape using the watercolour technique. Interest is added to the picture by the inclusion of seagulls.

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Multi-lingual printing

THIS month we'll construct the third test document to ensure your printer is behaving itself.

This file can save a lot of trial and error when you start altering the spacing between the lines and the width of the characters themselves. It's also handy for judging the placement of text on a page – even if you never get beyond using ordinary pica with single line spacing.

The final test document will be used to test layout, so open a new file called LAYOUT.DOC. Set the page layout as follows: Page length greater than 90 and everything else to zero. Lines per page will equal the page length.

Next type a horizontal and a vertical ruler – the illustration below shows this operation part way through completion. You'll probably find judicious use of the numeric keypad saves time here.

Save the file and set the left margin to zero before printing it. It doesn't matter where you line up the paper vertically, as long as you're consistent. I prefer to line up continuous paper so the perforations are exactly under the top of the print head and single sheets at the level that the auto sheet load takes them to.

If you're using continuous paper, the horizontal ruler should have printed on the very top line and the vertical ruler should have printed on the extreme left hand edge. If not, adjust the position of the paper in the printer and try again.

You now have a handy device for testing the layout of a printed page. You can see where to set the left and right margins, how long the headers and footers should be, and how many lines you can fit on the page.

If you print it out on very thin paper you'll be able to hold it against a printed page to copy the layout. Next month when you start printing text spaced at one and a half lines with 17 characters to the inch you'll be glad to have it.

Now it's time to sort out which characters you are going to need to print. First off, let's take a look at the character table provided on 1st Word's desktop: These are all the characters you can display on the screen under normal circumstances.

You need to start thinking about which characters you may need to appear in your text. For example, apart from the obvious ones such as the digits, the English alphabet and punctuation, you may need the half and quarter fractions. Or a particular case may even call for characters from the French and German alphabets.

Now consult the character set in your

In part 3 of his helpful printer driver series Charles Queckett describes how to print foreign characters

printer manual. Unless you have an Atari printer, the two sets of characters are unlikely to correspond. If you don't have a list of the characters for your printer, see if there is a self-test that will print them out for you. However, the following few lines of ST Basic provide a more useful alternative:

```
10 LPRINT "DECIMAL","HEXADECIMAL","PRIN
TER","ATARI"
20 FOR C%=33 TO 255
30 LPRINT C%,HEX$(C%),CHR$(C%)
40 NEXT C%
```

Before you run the program, configure the printer's DIP switches so it prints either line and block graphics or accented characters.

The program starts printing from decimal 33 so as not to print control codes such as backspaces and form feeds. You could copy the Atari character set into the last column for completeness if necessary.

Some printers can be configured to

produce either Epson or IBM graphics. With these, try the same program in both configurations. You will notice more graphics and accented characters are generally available in the IBM configuration.

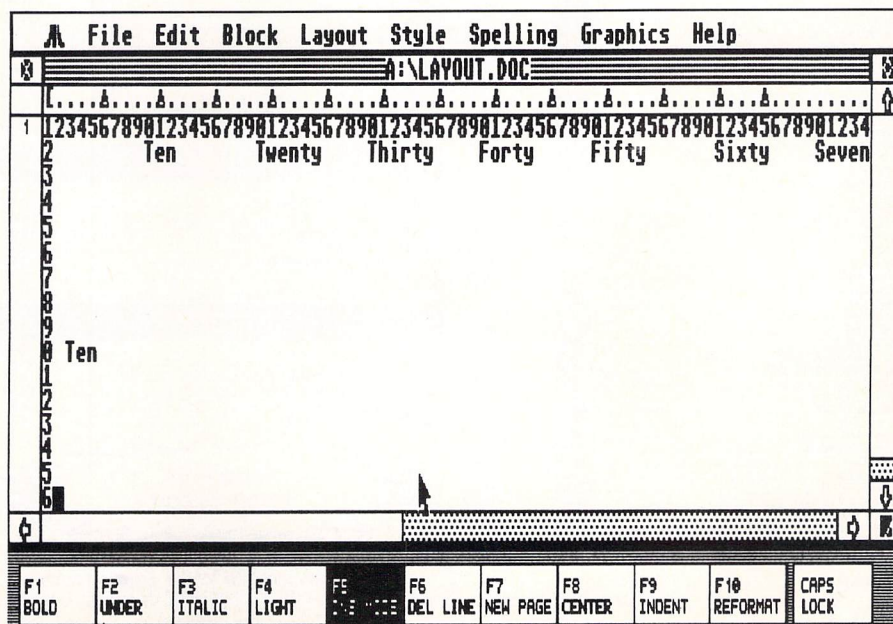
If your printer can be set up as both Epson and IBM and you want to print characters above Ascii 127 it is very easy to configure your printer with the DIP switches as an IBM.

A large number of the accented characters will now print directly just as they appear on the screen. The drawback is – at least on the Citizen 120D – that they will only print in draft quality.

In fact the effect is not particularly noticeable on a page of NLQ print. However, the situation may be improved in the following way: Turn to the printout of the HEX file you altered last month and look at the section headed Translation Table. Now enter the following command sequence in the HEX file against the character in question: Doublestrike on, the Ascii value of the character, doublestrike off.

The disadvantage now is that most software expects to see an Epson (rather than IBM) compatible printer, which means you'll have to remember to alter the printer's DIP switches each time. On balance, it's probably better to leave the printer configured as an Epson compatible.

This provides three choices for



accented characters. Either you can continue to use the IBM extended character set, construct the character from two in the Epson set, or print it from one of the foreign character sets in the Epson configuration if it is available. To do the first you need to enter the command to switch configurations.

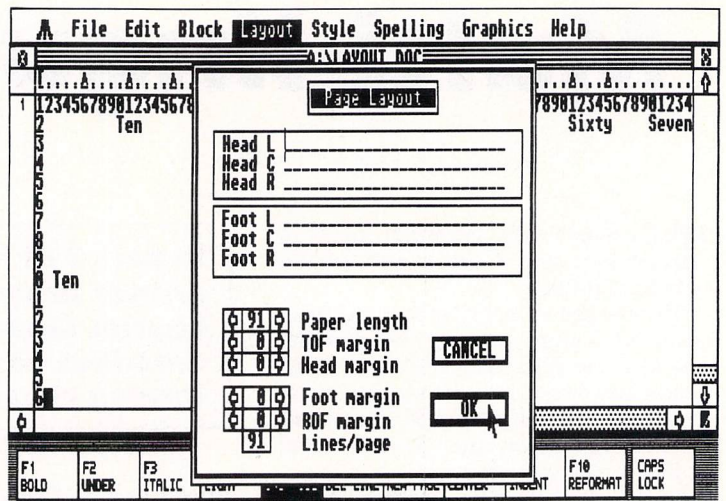
For example, to print an e with an acute accent, you need to enter one of the following sequences against the character value in the translation table:

- Switch to IBM mode h1B,h7E,h35,h01. Output the Ascii value of an e (h65). Switch back to Epson mode.
- Print an e (h65). Output the backspace code (h8). Output the Ascii value of a tick (h27) used here as an acute accent.
- Switch to French character set using h1B,h52,h01. Output the Ascii value of a left curly bracket, which has now been redefined to h7B. Switch back to the English character set using h1B,h52,h03.

In all cases, remember to leave out the h symbol. This has been included to indicate hexadecimal values.

In practice you may need a combination of all three techniques. For instance, if you want to print an i with two dots on top you'll find that it is not provided for in the alternative French character set. You

Setting the page layout



could print an i, backspace and print the two dots from the French character set, but this is not totally satisfactory since you end up with three dots. Hence the preferred method might be to swap configurations to IBM.

If you're using the supplied examples, constructing characters from more than one character by backspacing, knowing what you know now, you can probably improve on it considerably. This is not a

totally exotic field since there are many common symbols which are difficult or impossible on a typewriter, but which you'll now be able to produce after a little thought.

- By next month you'll have all the characters which you require and can start using the unwanted ones to produce effects such as bold, elite, expanded and even vertically enlarged headings.



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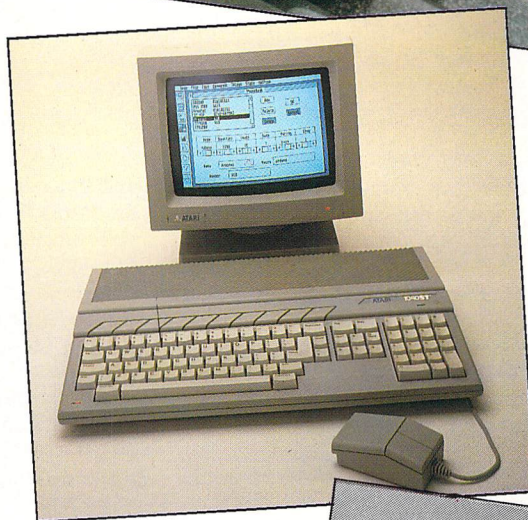
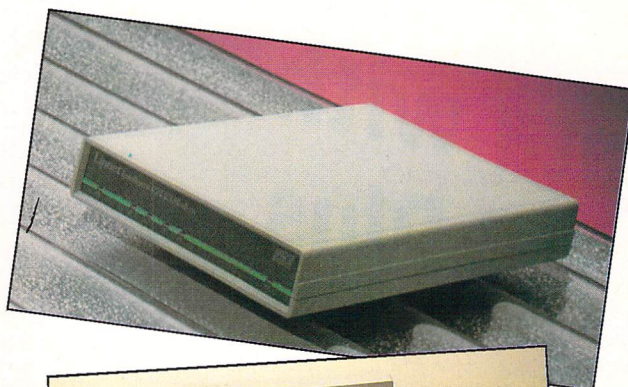
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Alternative keys

**Alan Fothergill
presents a utility
to expand your
keyboard functions**

THIS program, when placed in the AUTO folder of your disc, will load in a file called ALTNATE.DEF at boot up. This file contains a list of strings to output when Alternate along with a letter key is pressed.

This is a very useful utility which will work with any application that requires keyboard input. With a word processor for instance, an Alternate plus key sequence could be defined to produce your name and address at the top of the page.

Any commonly used word or phrase can be programmed into a key and strings can be defined for the 26 alphabetic keys, which should be enough for most people.

The file ALTNATE.DEF must be in the

root directory of the boot disc and consists of 26 lines, each one terminated by a carriage return. The first line corresponds to Alternate+A, the second to Alternate+B and so on. For instance, the first few lines of the file could be:

```
ADD
BNE
CMP
DBRA
EORI
F
G
H
I
```

and this could be used when entering an assembly listing. Pressing Alternate+A will produce ADD, Alternate+B would give BNE, Alternate+C is CMP and so on.

Note that the program uses a carriage return (Ascii 13) as the end of string marker, so don't place a return in the middle as it will result in the remainder of the string being assigned to the next key.

If you want the string to contain a carriage return character, use tilde (~) instead. For instance if you wanted your

Alternate+A key to display:

```
ST User
is wonderful
```

the first line in ALTNATE.DEF would be:

```
ST User~is wonderful~
```

Any text editor or word processor can be used to edit ALTNATE.DEF. If control codes are needed, then use Micro-Emacs quote mode, or click on the required character codes from the table on the Desktop in 1st Word.

The listing can be entered and compiled with HiSoft Devpac and most other assemblers.

All input and output performed by programs is carried out through the Basic Input Output System (BIOS). This provides a standard way of accessing the disc drive, keyboard, printer, screen, RS232 and so on.

The routines are accessed by placing the parameters for the routine, along with the function number onto the stack, and executing the 68000 TRAP #13 instruction. This causes the processor to

```
*****
*      Alternate Key Definer      *
*      By Alan Fothergill        *
*      (c) Atari ST User        *
*****

start:
    movea.l 4(a7),a5
    movea.l 24(a5),a0

    suba.l a5,a0

    movea.l #stack,a7
    move.l a0,-(a7)
    move.l a5,-(a7)
    clr.w -(a7)
    move #$4A,-(a7)
    trap #1
    adda.l #12,a7

    move.l #startms,-(a7)
    move.w #$09,-(a7)
    trap #1
    addq.l #6,a7

    jsr readstrings

    move.l #-1,d0
    move.l d0,-(a7)
    move.l d0,-(a7)
    move.l d0,-(a7)
    move.w #16,-(a7)
    trap #14
    add.l #14,a7

    movea.l d0,a0
    move.l (a0),keytbl
    move.l #readvec,-(a7)

    move.w #38,-(a7)
    trap #14
    addq.l #6,a7

    move.l #putvec,-(a7)
    move.w #38,-(a7)
    trap #14
    addq.l #6,a7

    clr.w -(a7)
    move.l #finish,d0
    sub.l #start,d0
    add.l #$100,d0
    move.l d0,-(a7)
    move.w #$31,-(a7)
    trap #1
startms: dc.b "Alternate key definer"
         dc.b $0d,$0a
         dc.b "By Alan Fothergill"
         dc.b $0d,$0a
         dc.b "(c) Atari ST User"
         dc.b $0d,$0a
         dc.b "Loading A:\ALTNATE.DEF"
         dc.b $0d,$0a,$00,$00

wedge:  move.w (a7)+,d0
         move.l (a7)+,a1
         move.l a7,a0
         btst #$d,d0
         bne aa
         move.l USP,a0

aa:     move.w (a0),d1
         move.w 2(a0),d2
         move.l a1,-(a7)
         move.w d0,-(a7)
         cmp.w #2,d2
         bne contbios
         cmp.w #2,d1

         beq doconin
         cmp.w #1,d1
         bne contbios
         tst.w sending
         beq contbios
         move.l $ffffff,d0
         rte

doconin: tst.w sending
         beq realconin
         move.w sending,d1
         addq.w #1,sending
         move.l altnate,a0
         move.b -1(a0,d1),d0
         tst.b 0(a0,d1)
         bne ab
         clr.w sending
         ext.d0
         ext.l d0
         rte

ab:

realconin:
         move.w #2,-(a7)
         move.w #2,-(a7)
         move.l #retfrombios,-(a7)
         move SR,-(a7)
         move.l cont,a0
         jmp (a0)

retfrombios:
         addq.l #4,a7
         tst.w d0
         bne ac
         move.l d0,d1
         swap d1
         move.l keytbl,a0
         ext.l d1
         add.l d1,a0
         move.b (a0),d1
```


enter supervisor mode and jump to the memory location pointed to by address 180 (the TRAP #13 vector). This code will then check the function number and carry out the appropriate action.

In this utility, we are primarily concerned with the *bconstat* (function 1) and the *bconin* (function 2) calls. These are general low level I/O routines which work with any device.

The first function checks the input status of the device - is a character waiting or not? The second function causes the character to be input.

The number of the device being referenced is stored as a parameter on the stack. To reference the keyboard, two is put onto the stack.

The program works by intercepting the TRAP #13 vector. This means the contents of address 180 are saved and a pointer to our routine is put into address 180.

Our code can then carry out its own actions, or jump to the original contents of 180 which will carry on as if nothing happened.

In other words, when a TRAP #13 instruction is executed, our code is entered (at *wedge*).

This checks to see if the function number is relevant to it. If it is, then its own processing is carried out, otherwise the original TRAP #13 handler is

executed. The *wedge* code checks the second parameter on the stack.

If this value is not two (that is, not the keyboard), then the function call is of no interest to us, and the original TRAP #13 vector is called via the routine *contbios*.

When we have trapped the call that is requesting input from the keyboard the *doconin* routine is entered. The variable *sending* is tested to see if we are already sending an Alternate string. If it is non-zero, we are in the middle of sending a string and the next character is picked up and returned in the low byte of the register D0.

If we aren't in the middle of a string the original TRAP #13 handler is called. The returned key code in the register D0 is checked to see if it is an Alternate key (the low word is zero). If it is not, the value of D0 is simply returned to the caller, as it is an ordinary key press.

If it is an Alternate key, the corresponding address of the string for the key is found and placed into the variable *alternate*. The variable *sending* is set to one to indicate that we are in the middle of a string.

The only action to be taken if the function on the stack is *bconstat* is to check *sending*. If it is non-zero, then -1 (\$FFFFFFF) is put into register D0 to indicate that characters are still available

to be sent. If *sending* is non-zero, the original TRAP #13 handler is called.

The routine labelled *start* is the first bit of code entered when the program is run. This performs the standard startup code for a Gemdos application. It allocates space for itself, sets up a stack and returns any unused memory to the system using the Gemdos \$4A *mshrink* opcode.

After *readstrings*, the value in address 180 (the TRAP #13 vector) is stored in *cont* and the address of *wedge* is stored in address 180.

Note that as address 180 is a protected memory location, these operations have to be performed in supervisor mode, using the extended Bios *supexec* function.

On exit the program uses the Gemdos exit and stay resident command, which leaves the program in memory. Usually, on exit, a program's allocated memory is returned to the system.

A startup message is printed on the screen using the Gemdos *cconws* and the routine *readstrings* is called to read the *ALTNATE.DEF* file from the disc.

The file is read into the buffer *messages*. This is allocated 26*60 bytes (an average of 60 characters per string).

Once loaded, it is reformatted with the routine *repmessg*. Carriage return codes are replaced by null characters and tilde characters by carriage returns. □

```

ext d1
sub.w #'a',d1
bmi ac
cmp #26,d1
bge ac
jsr findaddr
move.w #1,sending
bra doconin
ac:
rte

contbios:
move.l cont,a0
jmp (a0)

findaddr:
move.l #message,a0
ad:
tst.w d1
beq ag
ae:
tst.b (a0)+
bne ae
subq.w #1,d1
af:
tst.b (a0)+
beq af
subq #1,a0
bra ad
ag:
move.l a0,altnate
rts

readstrings:
move.l #message,a0
move.w #26*60,d0
ah:
clr.b (a0)+
subq.w #1,d0
bne ah

clr.w -(a7)
move.l #filename,-(a7)
move.w #$3d,-(a7)
trap #1

add.l #8,a7
move.w d0,handle
bmi abort

move.l #message,-(a7)
move.l #26*60,-(a7)
move.w d0,-(a7)
move.w #$3f,-(a7)
trap #1
add.l #12,a7

move.w handle,-(a7)
move.w #$3e,-(a7)
trap #1
add.l #4,a7

ai:
jsr repmessg
rts

abort:
move.l #abortms,-(a7)
move.w #$09,-(a7)
trap #1
addq.l #6,a7

clr.w -(a7)
trap #1

abortms: dc.b "Could not load A:\ALTN"
dc.b "ATE.DEF. Aborting...."
dc.b $0d,$0a,$00

filename:
dc.b "A:\ALTNATE.DEF"
dc.b 0

handle: ds.w 1

repmessg:
move.w #26*60,d0

move.l #message,a0
am:
tst.b (a0)
bne aj
move.l a0,d1
btst #0,d1
beq aj
aj:
move.b #'A',(a0)
cmp.b #$0d,(a0)
bne ak
clr.b (a0)+
clr.b (a0)
subq.w #1,d0
ak:
cmp.b #'~',(a0)
bne al
move.b #$0d,(a0)
al:
addq.l #1,a0
subq.w #1,d0
bpl am
rts

readvec: move.l 180,d0
move.l d0,cont
rts

putvec: move.l #wedge,180
rts

cont: dc.l 0
altnate: ds.l 1
sending: dc.w 0
keytbl: dc.l 0
message: ds.b 26*60
ds.l 20
stack: ds.l 10

finish: END

```


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ABACUS bills PaintPro as a full feature painting program for the ST. With an ever-increasing choice of paint packages becoming available, I was very interested in seeing what it had to offer.

I ran it on the latest version of the 520 STF M – as you may know, Atari has recently installed a new operating system on the ST which takes up slightly more memory than previously.

Despite prior warning from Atari, some software houses have been slow to adapt, and quite a few software packages, which may have required this extra memory, will not run. However, this has not affected PaintPro, and it ran faultlessly.

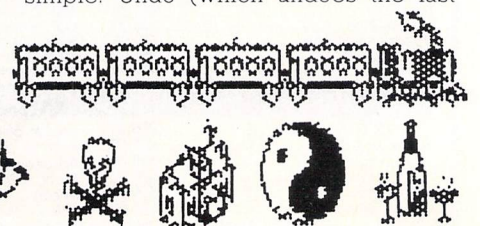
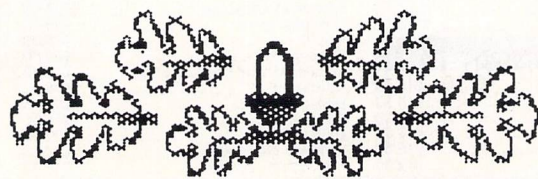
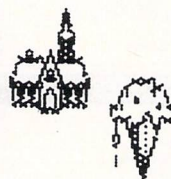
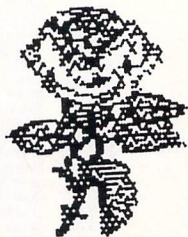
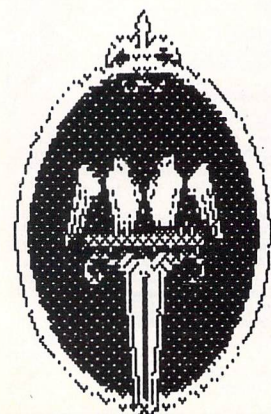
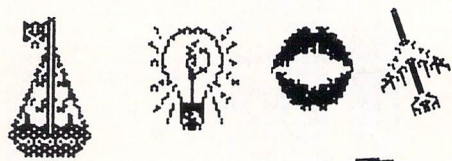
One of the first major advantages I noticed about PaintPro was that it is able to run in all three screen resolutions. In this respect it has a distinct advantage over many, though not all, of its competitors which limit the user to either low resolution colour or high resolution mono.

Operation in both mono and colour modes is virtually the same. I'll describe the colour set-up and you can assume that mono operations are similar unless I say otherwise.

Palette colours must be selected using the desktop control panel from within the program. They can therefore, be any from the choice of 512 possible on the ST, 16 being available in low resolution, four in medium and just black and white in high res.

For colour work I tried PaintPro on a television and found all the operating symbols and icons were recognisable and clear enough. There were no serious drawbacks and the software was perfectly useable. Definition on a mono monitor was pin-sharp, as expected.

Once booted up you are asked to open a window for your new picture or recall a



Splash it on all over ...

Neils Reynolds casts an expert eye over Abacus' art package and can recommend it

previously saved one. Abacus has one sample illustration already on disc called CAMEL which, while perhaps not showing PaintPro at its best, does give you a ready made image to experiment with.

Having opened the illustration window, the screen has four main elements. The largest area is the drawing space where you will work. A narrow column to the left shows the Toolkit list, a similar column to the right shows available fill patterns and lastly, the upper screen area lists a number of pull down menu options.

If you are working in colour you must first load the control panel accessory with PaintPro. This is because you are only able to alter the colour palette through the control panel, although no mention is made of this in the manual.

This can prove to be a bit of a nuisance. Most of PaintPro's competitors offer instant colour cycling and/or replacement.

The files option controls load, save, abandon, delete and print functions. PaintPro recognises files formatted under Doodle, Degas, Neochrome and Logo. A variety of printer drivers are recognised, and if your particular printer is not on the list you are able to add your own driver. Colour printers can also be supported, and help on installing drivers is given in the instruction booklet.

Next on the menu is Blocks. Having defined an area within your illustration as

a block, it can be copied, cut, pasted, reset in negative (both colour and mono), mirrored horizontally or vertically and rotated – the last option being limited to steps of 90 degrees.

Unfortunately, blocks may only be defined by rectangles or squares – no complex or irregular shapes can be manipulated.

This means that, for instance, if you wanted to repeat part of an illustration, say a figure's head and shoulders, you would have to take in part of the background too. The background would then over-draw any image it was placed over, creating a lot of extra retouching work.

The Options heading allows you to design the style of line with which you want to draw. This is done using an enlarged image of the line that may be edited pixel by pixel. The designed line can also be selected automatically to border the geometric shape functions.

Choices of spray size and brush type are also given here. There is a choice of 24 brush types and you can design your own brush pattern using the pattern editor. The spray is also able to spray down your own designed patterns, but I would have liked a greater choice of sizes than the three on offer.

From this menu you can also define the file format, set screen size, alter screen and mouse grids and set the typestyle. The screen grid is set to increments of 16 pixels.

This means that if, say, a series of rectangles is drawn with the grid on, they will be positioned to the nearest grid line, making for quick and accurate alignment. This has obvious advantages when perfect regularity is necessary, for example when aligning windows in an architectural drawing.

The mouse raster can also be set. This is the step-length by which the mouse moves across the screen. It will normally move a single pixel at a time, but there will be occasions when a larger step is desirable, again making alignment of lines, shapes and text accurate and simple. Undo (which undoes the last

action) and Clear Screen are also accessible via the Options menu.

A feature I particularly liked was the Patterns option. There are 36 pre-defined patterns displayed down the right hand edge of the screen. They can be used by the Fill function and by brush and spray can.

You can also edit the patterns in order to design and save your own, both in mono and colour. A simple enlarged window (similar to Zoom) is opened on the pattern and as you edit it you can see how it will look in another window to the left, where it is shown repeated actual size.

Two more drop down menus are available, one exclusive to colour and one to mono. In colour the palette is displayed and in mono there is a series of short Help pages for most of the functions.

On the left of the drawing area is the Toolkit display. It comprises a self explanatory set of icons selected by clicking the mouse with the pointer over the required symbol.

The choices are text, pen, area select, straight line draw, spray, area fill, brush, erase, zoom, block manipulation, six geometric shape functions, line-types and width selector, four drawing modes, and a display showing current colour and fill pattern.

Text can be set in 12 sizes from 8 to 72 point, depending on the font installed. Additional Gdos fonts can be installed from PaintPro Library, but more of that in a moment.

Type can be standard, light, bold, outlined, italicised, underlined or a combination of any of the above. It can also be made to read in four directions.

PaintPro Library is available from Precision Software at a shade under £30 and is a selection of fonts and clip-art library. There are five fonts on disc, again sized between 8 and 72pt. They are Swiss (a modern sans-serif), Chantel (a tall and elegant sans serif), Computer (bold and blocky), Thames (decorative olde English) and Mixed (including script, LCD and serif faces).

Two other discs in the library package include Degas-compatible graphic symbols, one in high resolution, the other in medium. The symbols include an extensive range of electronic components, architectural symbols, graphic devices and icons and a range of ornamental borders, frames and pictures.

Pencil draws a line defined by Line Type and Line Width icons. Lines can end in a choice of square, rounded or arrowed ends. Straight lines can be auto-

matically drawn using the Line icon. It will connect two points marked by clicking the left hand mouse button.

Select Area defines the block area of illustration, which can then be manipulated by the block functions, as described earlier.

Zoom opens a small window and individual pixels plotted in any of the colours in the palette. You can instantly see the effect on your original in the main illustration screen, as the zoom window is not allowed to obliterate the selected zoom area.

Geometric figures – circles, ellipses, rectangles and irregular polygons – can be instantly drawn by selecting the required icon and sizing with the mouse. Squares and rectangles can be drawn with either square or rounded corners. Each can be drawn empty or with a fill pattern selected from the pattern list. In either case the shape can be outlined in any line weight or colour.

'... an easy-to-use and pretty comprehensive package.'

Drawing Modes affect the way the drawn image appears on the screen and how it reacts with what is already there. Replace simply replaces whatever you draw over with the new line, pattern or shape. Transparent and Inverse too are self explanatory.

Using the XOR mode means that in order to display a line or point, the paper and ink colour must be different to each other (XOR means eXclusive OR). The effect of this is that if you completely cover an illustration with an exact copy of itself both will disappear. If overlaying textures the effect in mono can be very interesting.

All the facilities of PaintPro have been tied together in an easy-to-use and pretty comprehensive package, although I would have liked to have seen options for irregular block defining, masking, designing brush styles and sprays and easier colour exchange.

The manual is just not detailed or

explanative enough and assumes some considerable knowledge on the part of the user. It is illustrated, well laid out and indexed, but for all that is short on detailed explanation and tutorials.

Those familiar with this kind of art program will doubtless consider the booklet acceptable, but I don't think beginners will find it goes far enough.

A short tutorial would, I am sure, be welcomed. Fortunately PaintPro is not difficult to use and a couple of hours practice and experimentation should be sufficient.

I can recommend PaintPro as a good all round art package, but you may well want additional features offered by some of the other systems around. Art Director, Degas Elite, Cyber Paint and Advanced OCP Art Studio are just some of the competition PaintPro is up against.

Some may have exclusive features not offered by PaintPro, but may well lose out in other departments. One may give you extra features, but is unable to handle work in monochrome, while another offers more facilities and includes hi-res, but then costs around £30 more.

This is becoming an increasingly popular area in the software market and more and more publishers are catering for it with an increasing range of products. It is probably true that you get what you pay for in this world – and that old adage would seem to be especially true in this particular area of computer software.

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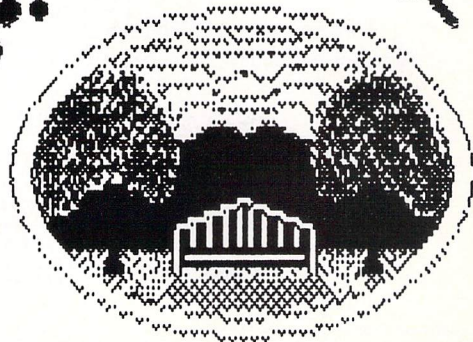
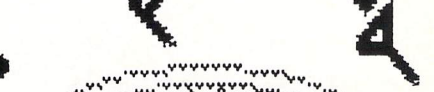
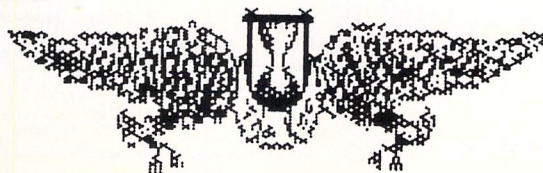
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Quick peeks . . .

Julia Battle casts a fleeting eye over some of the latest ST games software

Las Vegas – Anco Software

If you can't afford to go to Las Vegas, why not let Las Vegas come into your own home?

This is the concept behind Anco's latest software. Now you can spend the evening playing the slot machines and card tables without losing your shirt.

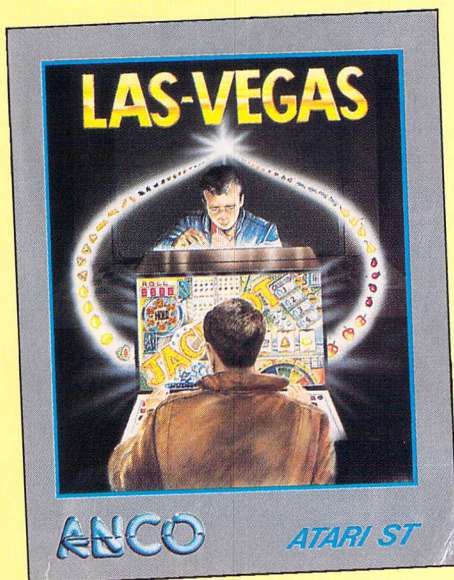
You start on the slot machines, trying to build up your cash. If you succeed you move on to the card tables.

First comes Higher or Lower – the popular card game seen on TV hosted by ever-popular Bruce (Nice to see you, to see you nice) Forsyth.

If your luck continues and you make even more cash you move on to the blackjack table, and this is where you can earn a real bundle – or lose the lot if you're like me!

This program is written in Fast Basic and it shows. There's nothing wrong with Fast Basic, it's a perfectly good version of the language.

However, it's simply not good enough for games and I think they should be written in pure machine code for speedy and smooth animation. This the game lacks at times.



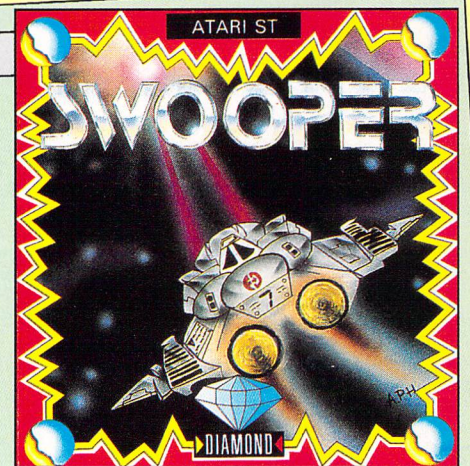
Swooper – Diamond

THIS is a game with an identity crisis – the screen proudly displays the name Xtron although the disc box insert says it is Swooper. No matter, it is actually that old favourite Galaxians, once very popular in the arcades.

It is a fairly good implementation of the game and features good graphics and digitised sound effects. I don't know how many screens there are – I lost count after blasting my way through eight or nine.

The aliens swirl round the screen in a multitude of different patterns, finally taking up residence at the top. They then swoop down, spitting bullets and laser bolts as they come.

This would be a nice budget blast from the past if it were not for the fact that it only runs on a 1040ST with colour monitor



and double-sided drive. This cuts out all 520STFM owners – probably the most numerous ST users of all.

Airball Construction kit – Microdeal

WAY back in August last year, we reviewed Microdeal's Airball – a superb 3D arcade adventure game based in an old castle. Although the gameplay is fairly straightforward, the sound and graphics are among the best you'll see on the ST. Music plays constantly and the 3D view of each room is superb.

Now Microdeal has released an Airball Construction Kit which enables you to design your own screens. The original ones are on the disc along with the editor:

You can either start from scratch and design your own rooms or edit the ones provided.

The rooms are built up from blocks and can be up to eight long and eight wide. Objects can be added and pads placed on the floor. When finished, the whole lot can be saved to disc and then played, providing you have the original game.

The editor is quite difficult to use and can only be recommended for the more experienced – novices may find it tough.

Hollywood Poker – Diamond Games

HERE'S a game for all male chauvinist Atari ST User readers – strip poker! The game features four glamorous lovelies – including Miss Germany – just waiting to peel off on your monitor screen.

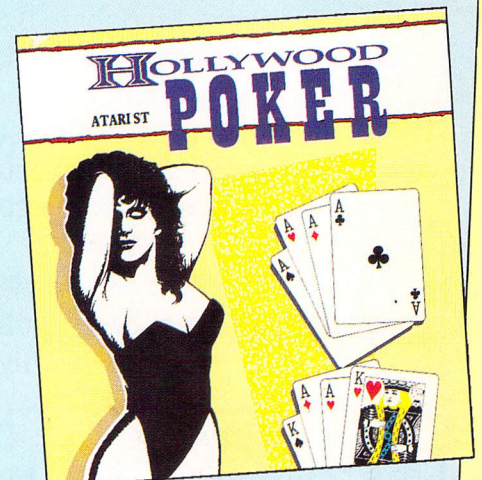
While the tastefully digitised pictures might stimulate the imaginations of the male population, the opponents will bore the pants off all but the weakest poker player. Within half an hour I had the first three ladies wearing nothing but Chanel No.5. They really are awful players.

The screen is split into two sections. At the top is a digitised picture of the current player and at the bottom are your cards. There's an annoying bug in colour – some text is misplaced and overlays the cards.

You each start off with £100 and £5 is deducted for each game. After receiving your cards you may bet, raise, stay or call the computer player.

You may change any or all your cards just once. If you win you take the pot. If

the computer player loses all her money, she'll remove an item of clothing for a loan of £100. You have won when she has nothing left to trade.



Super Conductor

Presenting *SuperConductor*, the professional 16 Track MIDI sequencing package that no musician should be without. Loaded with powerful features, *SuperConductor* can quantize (auto correct), filter, transpose, edit, and mix music played through a synthesizer. Comprehensive editing gives musicians precise control over their performances, including the alteration of controllers such as volume pedal, pitch bend, and modulation settings.

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The powerful song edit menu display allows musicians to visualize the structure of their music, and see how various blocks will be combined during a performance. This Block Structuring places *SuperConductor* a generation beyond the outmoded Punch In/ Punch Out tape style editing featured on many existing MIDI sequencers.

SuperConductor is ideal for performers allowing them to hold up to ten different songs in memory at once, and quickly change from song to song to play and edit.

Each song buffer has its own individualized settings for its tempo and song structure information. Blocks may be copied from one song buffer to another at will.

The *SuperConductor* main menu displays the names of the ten songs currently held in memory and gives access to the System Exclusive data transfer mode. This versatile feature allows MIDI synthesizer voices and data to be transferred and saved on disk. The simplified data storage method allows the System Exclusive data to be edited using a word processor.

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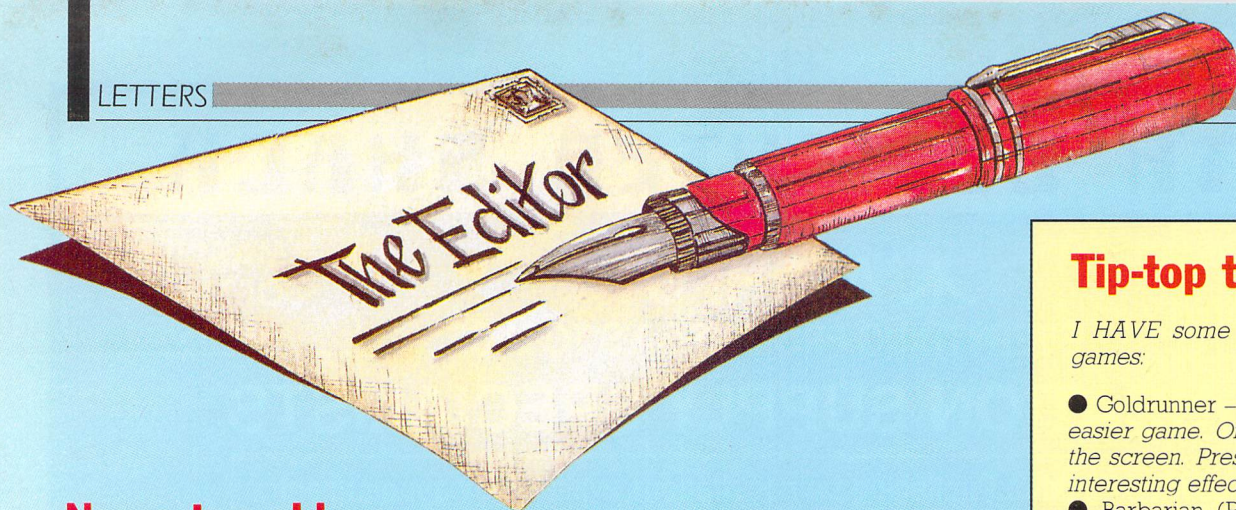
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Never too old

IN April last year this year at the ripe old age of 62 I became involved with computers and last month splashed out on an Atari 520ST. Since then I have started to take Atari ST User and must say I find it excellent value for money.

One feature that particularly pleases me is that most of the articles seem to be written in a style which gives someone like myself a chance of learning painlessly.

My machine was supplied with a quick reference guide to ST Basic for the advanced programmer. It is dated 1987 and gives the impression that it refers to the new version of ST Basic.

After browsing through some of the listings in your magazine I have discovered many commands which do not appear in my version of Basic. Can you shed some light on this? – D.K. Powell, Tupsley, Hereford.

● The original version of ST Basic was literally riddled with bugs, as anyone who's ever tried to program with it will be quick to point out. The new version although greatly improved, is only just starting to appear.

Since the introduction of the ST, at least four new Basics have appeared. Perhaps the most popular is Computer Concepts Fast Basic, closely followed by GFA Basic and HiSoft's Compiled Basic and their new Power Basic. We try to include listings in all of these non-Atari Basics on a regular basis.

Printing problems

EARLIER this year I bought an Epson LX-86 printer. After about three months moderate use the print quality deteriorated so much the NLQ print looks like draft and the draft print is all but unreadable.

I am not sure whether this is a faulty print head and if so, whether a replacement is required. Since there is no service centre in Nigeria, would it be possible for me to send the unit to Epson in the UK? I have written to the company, but have received no reply as yet. – Dr S. Inyang, O.L.A. Hospital, Nigeria.

● We've always found Epson printers to be extremely rugged and reliable. The problem you've described seems most likely to be a faulty ribbon. This can be caused by the ribbon snagging on single sheets of paper as they're fed through the machine.

If replacing this has no effect then your

best option is to contact the original supplier to see if he can help. Replacing the head on this printer is a relatively simple job and shouldn't take more than half an hour of an engineer's time.

Attention bulletin board

I am the chairman of the North East ST User Group and I would like to bring to your notice that we can be contacted via our bulletin board. The telephone number is: 0642 588989 (24 hours) and the protocol – 300 baud, 8 bit no parity. I will be only too glad to help any callers we get. – P. Sianchuk, NESTUG, Middlesbrough, Cleveland.

Digging for machine code

WHEN I read that the programming feature Diamond Digger in September's Atari ST User was written in Fast Basic and used sprites, scrolling and maps I shouted for joy.

Flicking through the pages I found the article and then – my mouth hit the floor when I discovered that all but the unimportant bits were written with Fast Basic's assembler.

That really was a rotten trick. I want to learn about sprites and scrolling in Fast Basic and the only real way to learn is by example. The machine code in Diamond Digger was completely beyond me, so I'm still no wiser.

I realise in Basic, the sprites would flicker, the scrolling would be jerky and the game play slow, but this is not the point – you said the game was a Basic program.

Also your article on machine code was sadly lacking in proper examples. This is a fault spanning many books on the subject too. It seems people who can write in assembly language just can't write decent tutorials on the subject.

Please Atari ST User, let's have more examples in both Basic and assembly language – we're not all experts. Apart from that niggle your magazine is excellent. – Nicholas Bailey, Sweetloves Lane, Bolton.

● Diamond Digger was written as an arcade game and not as a teaching aid. As you appreciate, if the game had been written in pure Fast Basic it would not

Tip-top tips



I HAVE some tips for some Atari ST games:

- Goldrunner – Press F4 and you get an easier game. Only three aliens come on the screen. Press F10 and you get some interesting effects.
- Barbarian (Psygnosis) – If you don't want Hegor to die just keep pressing Pick Up when you are fighting. Eventually you can't die.
- Barbarian (Palace) – From man four upwards use roll, head-but and leg chop. From man 9-10 use the stomach chop. With Drax, duck, jump, then roll twice and he dies.
- Defender of the Crown – When you pick your character, choose the one

have been at all playable. Complex sprites on the ST require machine code – there just isn't an alternative. A compromise is available in GFA Basic, which has its own sprite drivers, although they are a little limited.

The subject of assembly language programming is popular, but unfortunately we can only devote a limited amount of space to examples. However the ones included are always pertinent to the subject under discussion.

Before you even attempt to program with an assembler, you should have a clear knowledge of programming in Basic or another high-level language. This experience is absolutely necessary to understand how programs and algorithms are constructed.

Digging for bugs

COULD you please tell me if there is an error in the listing of Diamond Digger in the November 1987 issue of Atari ST User as my computer refuses to accept lines 1760 to 1780? – Wayne Bunn, Anderly, London.

● Unfortunately the listing is incorrect – a space was omitted from lines 1760, 1770 and 1780 due to an oversight on our part. The correct lines are:

```
1760 xpos DC.L 0
1770 ypos DC.L 0
1780 map DC.L 0
```

Memory configuration

I have just bought an Atari 520STFM together with a book on ST internals and assembly language.

My machine is supposed to have 1 Mb of ram, but I have yet to satisfy myself that the extra 512k actually exists.

Neither of my books gives an indication of where the extra ram is stored. When I enter the FRE(0) command in ST Basic

nearest the southern region. Raid the light brown area at the bottom of the screen then retreat. Repeat this three or four times then raid the castle again and stand and fight.

By this time there should only be about 10 enemy men left so taking the loot should be easy. Now buy 50 to 60 knights and twice as many soldiers and you should be able to take over England with ease. Who stole the crown? Nottingham's hero!

● **Airball** – The book is in the candle room, the beans are in the space-age room and the pumpkin is in the grass and trees area.

Beware, there is more than one pumpkin and some kill. The dragon is across the room full of air pumps. – **Stuart Fennell, Chelmsley Wood, Birmingham.**

the figure returned is a miserly 180k.

When I peek location &HFF8001 the value I get is 4. According to my book on internals this means I have 512k + 128k of additional ram.

Could you please tell me if there is a simple way of determining how much ram my machine has. – **G. Leighton, Sale, Cheshire.**

● When you start up your ST the BIOS initialises an area of ram known as the system variables table. The start address of this is at 400 hex.

At address 424 hex is a number which determines the memory configuration of your system. The following ST Basic program will return a result of 4 for 512k or 5 for 1024k:

```
10 DEF SEG=&H400
20 byte%=&H24
30 a%=peek(byte%)
40 PRINT a%
```

If you're still not happy after running that program you could change it to:

```
10 REM point to top of usable ram
20 REM in a 1 Meg system
30 DEF SEG=&HF0000
40 REM set the offset to 0
50 byte%=0
60 REM poke a value into top of ram
70 POKE byte%,29
80 REM see if it's still there
90 a%=peek(byte%)
100 REM print the result
110 PRINT a%
```

The value in line 70 can be any number between 0 and 255. If the printed result is the same as the one you poked in then you would appear to have the extra 512k of ram.

Desktop trauma

I HAVE just sold my trusty old 800XL to upgrade to a 520STFM, but I have a small problem.

I have been told the Gem desktop

takes two minutes to boot up from rom. If this is true, is it possible to save the desktop to disc to use as a boot disc on future occasions? – **Nicholas Iribar, Raynes Park, London.**

● The early STs loaded Tos from disc at switch-on, and this did take quite some time to load. More recently, Tos has been supplied on rom fitted to the machine.

When the newer STs are turned on the Gem desktop is loaded either by a slow or fast boot. The former happens when the drive is empty and does take a short while to complete. When a freshly formatted disc is placed in the drive at power on the desktop appears in a few seconds.

Special Gem programs called accessories are also loaded at this time if present on the disc. The language disc, for instance, comes with a V52 emulator, a control panel, an RS232 setup and an option to install various types of printer driver.

The number of accessories present on the disc will also affect how long the Desktop takes to appear.

Floppy dropout

I HAVE a 520STFM which has served me very well. Recently though, I've been having trouble with disc dropouts (random read errors). This can happen on main programs and even on the less used files. I don't suspect the discs since I only use good, branded types.

Do I need to clean the drive heads? If so, can you recommend a good head cleaner – or is the problem more serious? – **L. Feder, Telford, Shropshire.**

● Without seeing your machine, it's very difficult for us to make an accurate diagnosis. However, in our experience we could not recommend head cleaners, as such devices often cause more problems than they solve. If the drive continues to cause problems you should return the computer to an Atari service department.

Head alignment testing

RECENTLY I managed to drop my one megabyte Cumana disc drive. For the most part it still seems to be in good working order, but I believe I may have misaligned the read write heads slightly. Can you advise me of any software which can help me confirm and rectify this problem?

Could you also tell me if the Amstrad DMP2000 printer can handle graphics? Thanks for a very professional and informative magazine, well worth the money. – **Dave Lewis, Redcar, Cleveland.**

● There are a few disc drive testers in the public domain. However, as with all free software, their accuracy can never be proven.

The simplest way to test head align-

ment is to format a double sided disc in the suspect drive and examine it with a utility like Computer Concepts Disc Doctor. All sectors should be readable.

Now attempt to examine a disc formatted on a different drive. The Basic disc is a good one to use. If the head alignment is incorrect Disc Doctor will not be able to read all of the tracks.

If you don't have any utility software you could try copying the Basic disc in the suspect drive to a blank disc in the good drive. If any errors occur they will be flagged by Gem. If all goes well the drive is performing correctly.

The Amstrad DMP2000 printer is Epson-compatible and therefore will be able to produce graphics using the correct driver.

Manual labour

I RECENTLY bought an Atari 520STFM and quickly discovered while it is an excellent machine it has one major failing – its documentation.

Quite frankly, it astounds me after Atari has produced such an excellent piece of hardware it fails to produce a comprehensive set of manuals.

Although I have been involved with computers for many years professionally, I am finding the ST very difficult to master – most success to date has been achieved by trial and error.

The supplied Basic is dreadful too. Why can't Atari swallow pride and supply the machine with Fast Basic?

I hope Atari remedies this situation as soon as possible – it is frustrating to own a Rolls Royce without a steering wheel. – **P.Tiernan, Slough, Berks.**

● When it comes to documentation Atari is neither the only nor the worst culprit – several others spring to mind. Micro manufacturers have never been noted for the excellence of their manuals.

Such service is invariably left to third parties and there are numerous books on every aspect of programming the ST from Basics right down to the nitty gritty of machine language. A typical selection was reviewed in the November 1987 issue of *Atari ST User*.

We cover a variety of subjects to suit all levels from beginners' Basic to Basic machine code.

WE welcome letters from readers – about your experiences using the Atari ST, about tips you would like to pass on to other users... and about what you would like to see in future issues.

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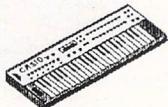
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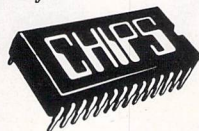
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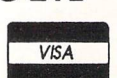
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April issue: Reviews – the 1987 Hanover Fair, adventuring with The Leather Goddesses of Phobos and Spiderman, the Epson LX86 printer, CAD 3D, Clock Card, The Alternative. Programming – Gem part I, pull down character set, printer driver design.

May issue: Reviews – games, adventures, ST Video controller, Supra hard disc, EZ-Calc, Fleet Street Publisher, 1st Word Plus, Modula 2. Programming – Election plotter, 3D Oxo, Mandelbrot Set, Gem part II, accessing joysticks. Features – using Midi, profiles on Dave Lebling and David Hardy.

June issue: Reviews – Zoomtracks II, Personal Money Manager, Aegis Animator, GFA and LDW Basics, EZ Track, Super Conductor, adventures, Programming – Automaton, Othello, resource constructor, recursions. Features – Book-keeping, Gallery.

July issue: Reviews – Devpac, Cambridge Lisp, adventures, Digi Drum, ST Replay, Pro Sound Designer, Superbase Personal, Trimbace, Super Directory, Saved, Programming – Computing in action – check your tax bill, Golf, write your own databases part I. Features – ST Trak-ball, Gallery, Data Protection Act.

August issue: Reviews – CAD 3D-2, Lattice C upgrade, Animatic, ST Doctor, games, books. Programming – 3D graphics (free 3D glasses), Gem, 68000 assembly language,

wireframe graphics, sound. Features – comms, Gallery, Adventures.

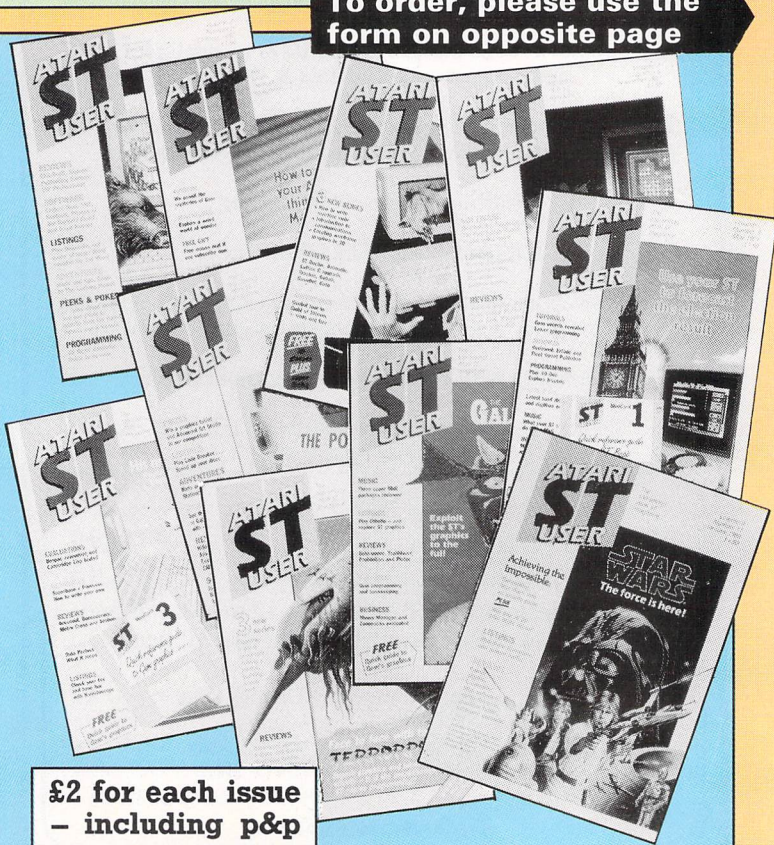
September issue: Reviews: Art Studio, Easy-Draw, Assempro, CAD 3D-2, K-Max transputer, HiSoft Basic, Barbarian, Hardball and Hades Nebula. Listings: Improve disc access timings, create 3D wireframe graphics, play Code Breaker.

October issue: Listings: Play Molecule, create a flight simulator, add a word counter desk accessory, keep track of your investments on the stock market. Reviews: Signum, Publishing Partner, GFA Draft, STuff, VIP, Road Runner, TNT, Eagles Nest.

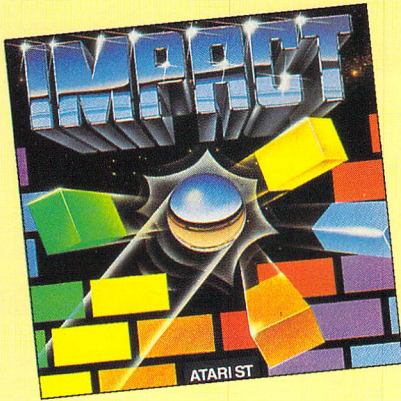
November issue: Reviews: Knight Orc, Deathstrike, Sidewalk, Tai-Pan, public domain comms, MicroShuffer and Mirage. Create GFA Basic menus. Listings: DIY comms program, memory editor plus Diamond Mine – a multi-screen arcade game.

December issue: Reviews: Forth, sound samplers, four-headed printer, Pascal, Terrorpods, Addictaball, Impact and much more. Listings: Knight on the Tiles and multi-formatter. Construct your own printer driver, choosing a word processor.

January issue 1988: Reviews: Midi Maze, Star Trek, Indiana Jones, Nord and Bert, K-Word 2, TextPro, TuneUp, Fortan, Paint-Pro. Listings: Alternative function key definer, Sliding block puzzle. Features: Atan St User show report, Gallery, adventures with Brillig.



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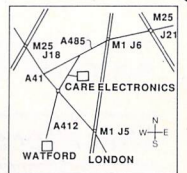
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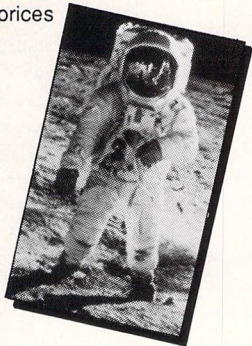
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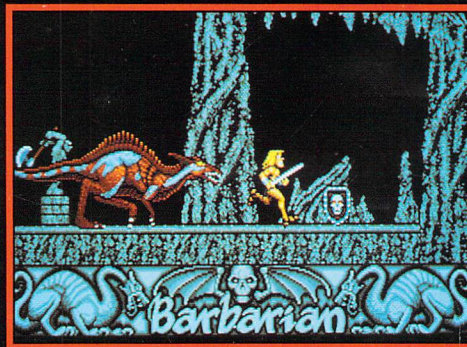
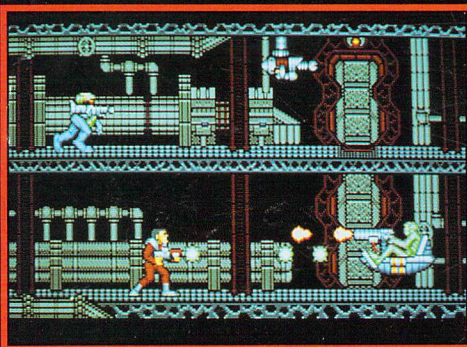
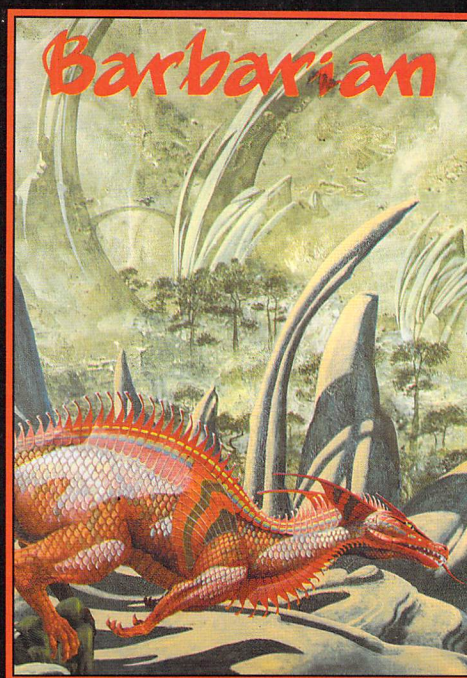
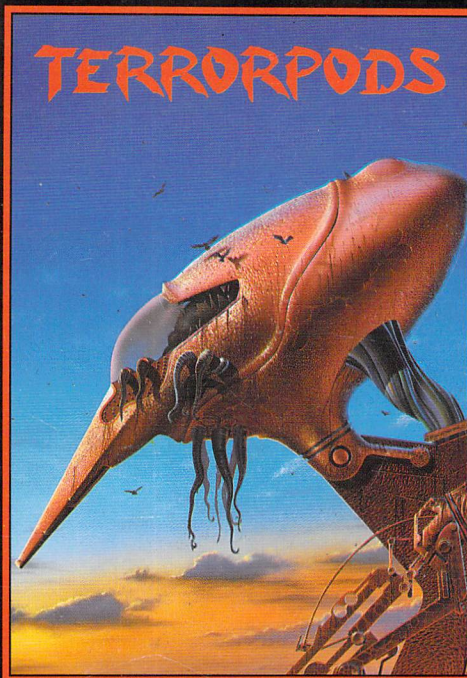
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