ISSUE 1 • JULY 1988 • £2.50

ST AMIGA FORMAT

16-BIT BEAUTIES!

Why the ST and Amiga are changing the face of computing

WIN A LASER PRINTER

Owt for nowt? Pick up a superb Epson GQ3500 in our competition.

Exclusive review of Firebird's infectious ST Zarch

VIRUS — A WORLD FIRST

- **MORE SCREEN COLOURS** — *Photon Paint and Spectrum 512 reviewed*
- **WORD PROCESSORS** — *Pick of the pack*
- **TRANSPUTERS** — *Atari and Commodore plans revealed*
- **MIDI MARVELS** — *How STs help out at a major recording studio*
- **NO SWEAT** — *Six pages of top tips for your machine*

ATARI ST

EXPLORE THES

OF T

OCE

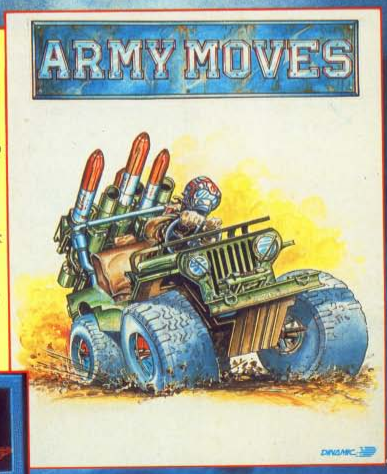
Your plane has ditched on a mountainous plateau somewhere in deepest Tibet. You and your companions are alive but recovery from the impact is short-lived – a large shape is moving towards you, as it gets closer you rub your eyes in disbelief; a Dinosaur! – where are you...and when? Now you learn to survive in a world untouched by modern life – a world frozen in time. Stunning graphics and startling action in this thrilling innovative game.

AND BEY

HIGHEST

YOU

You are one of the Elite – a handpicked, crack trooper in battle against a formidable enemy. You'll need all your skill to take advantage of every situation, stamina to keep on going where others would fail and courage to face the ceaseless bombardment by enemy troops, helicopters and artillery and if you survive Army Moves you'll have some great tales to tell!



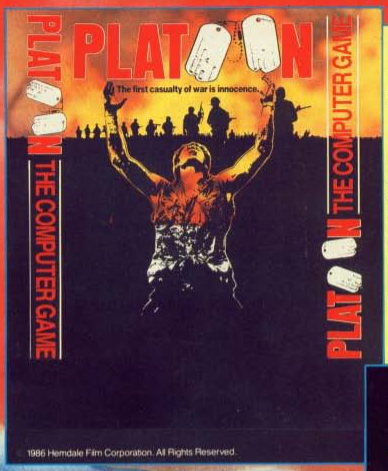
£19·95 EACH

Ocean Software Limited · 6 Central Street · Manchester · M2 5NS · Tele

ESE TREASURES

THE

ocean



The Award winning film by Oliver Stone has been stunningly transcribed to the software entertainment medium creating a Blockbuster Computer Game. Hailed as the "Best Film Tie-in to date" – the program has received brilliant reviews on all formats. Special boxed pack containing a FREE film poster, game picture and audio cassette of Smokey Robinson's classic song "Tracks of my Tears"

YOND THE
T HEIGHTS
J CAN

Eons have passed... yet despite apparent annihilation in the origina ARKANOID game; Dimension-controlling force "DOH" has come back to life, and occupying the huge space-craft ZARG, has entered our Universe. ARKANOID type space-fighter MIXTEC runs through long forgotten computer data until it finds the answer to this threat... "VAUS 2" is launched and speeds towards the threatening alien presence, before it can extract its revenge... "The Revenge of Doh"

the name of the game

S · Telephone: 061 832 6633 · Telex: 669977 OCEANS G · Fax: 061 834 0650

ST AMIGA FORMAT
ISSUE 1 ■ JULY 1988

PUBLISHED BY
FUTURE PUBLISHING LTD
4 QUEEN STREET
BATH
AVON BA1 1EJ
Phone: 0225 446034
Fax: 0225 446019

CO-EDITORS
Ben Taylor
Simon Williams

TECHNICAL EDITOR
Richard Monteiro

GAMES REVIEWS
Andy Storer

ART EDITOR
Gordon Druce

ADDITIONAL DESIGN
Dean Wilson
Trevor Gilham
Jane Toft
Angela Neal

ADVERTISING MANAGER
Nora Lawton
061-474 7333

GAMES ADVERTISING
Jon Beales
0225 446034

SUBSCRIPTIONS/MAIL ORDER
Future Publishing Ltd,
The Old Barn, Somerton
Somerset TA11 7PY
0458 74011

PUBLISHER
Chris Anderson

PHOTOGRAPHY – Stuart Baynes Photography, Bath (0225 66343)
PRINTERS – Chase Web Offset, Plymouth
DISTRIBUTORS – SM Distribution, 16/18 Trinity Gardens, London SW9 8DX

© Future Publishing Ltd. 1988.
ST/Amiga Format is an independent publication and has no links whatsoever with Atari or Commodore.
We welcome unsolicited contributions from readers. Please enclose an SAE with material if you want it returned. Payment for accepted items is made 4 weeks after publication.
No part of this magazine may be reproduced in any form without permission.

ST AMIGA FORMAT

CONTENTS

NEWS 7
Hot gossip from both sides of the Atlantic with a Comdex report and news from Atari's dealer product show.

FUTURES 13
Transputers – are they all hot air? We've had a close look at what's really going on, and reveal the shape of tomorrow's computers.

LETTERS 32
How can you have readers' letters in issue 1? Okay, so we're telling porkies – but read it anyway.

GOLD DUST 44
Steve Gold plugs into the electronic grapevine. 68020, 68030, Unix, ST laptops, Amiga graphics upgrades... all the best news is leaked here first.

QUESTIONNAIRE 46
Yes, we want your personal details – inside leg measurements, favourite colours... Tell us all and we'll build a better magazine.

SPECIAL OFFERS 95
All the best ST and Amiga-ware at rock-bottom prices, and we're *giving* away over £15 of goodies with an irresistible subscription offer.

ESCAPE SEQUENCE 98
Scraping rock bottom at the rear end of the issue. A caustic cast around the month's worst stories. Also the first episode of our 16 bit cartoon strip.

GRAPHICS

PHOTON AND SPECTRUM 37
Reviews of two brand new graphics packages – Photon Paint for the Amiga and Spectrum 512 for the ST.

DISK EXTRA
Demos of Oids (ST) and Interceptor (Amiga) plus a host of invaluable utilities for mortals and boffins alike. Can all this really be in one magazine for only £2.50? (*Yes – Ed.*)
63

MUSIC

ANIMAL HOUSE 74
Chris Jenkins went along to the Animal House recording studio to see how professional rock stars use the ST's MIDI capabilities.

PRO-SOUND DESIGNER 78
A look at what promises to be the most exciting music package yet for the Amiga, courtesy of Eidersoft.

SPECIAL

WORD PROCESSORS 17
It's the single most important serious application for a computer. We check out the full range of WP packages, on both ST and Amiga.

COMPETITION 73
A £1,000+ Epson GQ3500 laser printer must be won in this brain-taxing competition, plus a consolation prize of a 24-pin LQ850

GAMES

SCREENPLAY 49

The complete low-down on the month's new releases. This month biggies are Interceptor, *the* Amiga flight sim, and Virus, the ST version of the Archie's famous Zarch.

THE INDISPENSABLES 61

So you think you've got the best games? Check your collection against our hall of fame.

GAMEBUSTERS 71

Inside info and cunning tricks to get you onto the high-scores tables of your favourite games.

NOT *ANOTHER* MAGAZINE!

What's that you say? You already buy a monthly magazine for your ST or Amiga, so why should you buy another? Well, there's no reason really. Not if you're happy reading formula-written reviews of tired old games; not if you're happy ploughing through pages of turgid techno-jargon; not if you're happy paying though the nose to get hold of useful software.

Still reading this? Good. You're the kind of reader we want. We on *ST Amiga Format* know that there are a plethora of magazines out there for ST and Amiga, so we've got to work hard to keep your interest. And we're going to. We've got a load of great features lined up for future issues, but the single thing we're most excited about is our cover disk. We've managed to find a way of bringing you great software each month at a price barely above that of the other magazines. When you think that a blank disk alone costs around £1.50, *ST Amiga Format* looks like unbeatable value.

But Confucius, he say, "Life's a bit of give and take, matey." (That's a loose translation from the original Mandarin.) We want **you** to help us write *ST Amiga Format*. The first thing we want is letters – tell us what's right and wrong with *Format*; ask us technical questions; praise or damn products you've bought. TELL US!

We've also got a host of other things for you to write. We want software for our disk; we want devious tricks for squeezing extra lives out of games; we want technical tips on using the ST and the Amiga.

Now stop reading this editorial woffle. Get stuck into issue 1, and happy reading!

TECHNOPHILE

GETTING GOING 83

A guide to what tools and books you need to get started on the ST and Amiga.

SURVEY OF BASICS 86

There are so many dialects of BASIC out there for both machines, are you sure you've got the right one?

DESKTOP 90

Get lost, Amiga owners! Two pages of tips and technicalities exclusively for ST lovers.

WORKBENCH 93

Get lost, ST owners! Two pages of inside info to help you get the most from your Amiga.

ST OR AMIGA? 27

Aided by some glossy photos we survey the options available on both machines and remind you of the questions you should be asking. Now's your time to reach the right decision.

DTP

SUPERBASE 33

Precision Software's ultimate power user's database arrives in ST and Amiga form. Sit back and drool at its spec with our in-depth review.

DTP 80

Both the ST and the Amiga are out to conquer the world of Desktop Publishing. We're keeping a regular monthly eye on developments.

Flying high on Amiga & Atari ST

RETURN TO GENESIS
4224— The year of the mechanaut invasion . . . and the year of your task — to rescue earth's most brilliant scientific minds.

PANDORA
Beam aboard the generation ship Pandora at your peril — solving the intriguing puzzles will help you to decide just how evil it is.

BLACK LAMP
A ghastly and ghoulish adventure, seeking players with cunning and courage. Success gets you the princess, fail and you're dead.

THE SENTINEL
In a world where the only force is pure energy, stands the Sentinel. The battle against its watchful eye is compelling and totally addictive.

Play these great 'Firebird' games on Atari ST and Amiga
£19.95 *each*
Available by mail order by simply completing the coupon and sending to: Telecomsoft, Marketing Department, First Floor, 64-76 New Oxford Street, London WC1A 1PS.

Please send me the following:

Game Title	Format	Quantity	Total Price
Return to Genesis Atari ST/Amiga £19.95			
Pandora Atari ST/Amiga £19.95			
Black Lamp Atari ST/Amiga £19.95			
The Sentinel Atari ST/Amiga £19.95			
	Total £		

Please allow up to 28 days for delivery.

Prices include postage and packing to all UK addresses.

Name.....

Address.....

.....

.....

.....Post Code.....

I enclose a cheque/postal order for £..... made payable to British Telecom plc or please debit my

Access/Visa Card number.....

Expiry date.....

Signature.....

FIREBIRD

Firebird and Firebird Logo are trademarks of British Telecommunications PLC.

Telecomsoft, First Floor, 64-76 New Oxford St, London WC1A 1PS.

NEWS

Games prices to drop?

The iniquitous pricing of 16 bit games could be a thing of the past. At the moment, owners of 8-bit machines pay around £13 for a game, but ST and Amiga owners have to stump up twice that for some titles.

However, Prism Leisure's latest product schedule looks set to cut prices. They plan to release new ST and Amiga titles at £12.99 each.

Between July and November this year Prism will be putting out *Terraforce, Who Dares Wins II, Zed, Rocket Roger, Battlestations, Artificial Dreams, Arac, Trap* and *Pub Games* on both machines, and *Addictaball* on the Amiga.

Multiface for ST and Amiga

Romantic Robot, based in the backstreets of Cricklewood, are shortly to release an ST version of their successful hacking-cum-backup device, the Multiface.

Previously available for Amstrad CPCs, Multiface is a hardware add-on which can interupt the central processor at any time and let you inspect and alter memory. It can also copy most formats of disk, letting you take backups of favourite games.

However, it's not a pirates' licence. Once you've copied a disk you need to have the Multiface unit plugged in to your ST to allow you to run the copy, so only the original owner can do it.

Price should be around £50 when it's released in September and Romantic intend to start on an Amiga version, but only once the ST model is up and running.

■ *Romantic Robot, 01-200 8870.*

Laptop ST looks definite

■ ***The Atari flat-screen LCD on display at this year's Hanover computer show. Could this be Stacy's screen?***

As Winston Churchill might have said, "Never in the field of human endeavour have so many rumours been owed to so few machines." Amidst the widespread 'announcements' of 68020 and 68030-based versions of ST and Amiga, it seems that a laptop version of the ST is being planned for Autumn/Christmas launch.

Bearing the in-house nickname "Stacy", the machine's specification is as yet still the subject of the usual optimistic rumours. What seems certain is that the bottom of the range model will essentially be a 520ST with a flat LCD screen and single floppy disk. It would be impractical to have a mouse on a portable computer, but in the past other manufacturers have got round this by using a trackball (you've seen them on arcade machines) or mini-joystick.

For the bigger models, an internal hard disk drive is thought to be an option. However, bearing in mind that a hard disk for an ST costs two or three times as much as for an IBM PC, and that laptop PCs with hard disks cost over £2,000, it isn't going to be a cheap option.

Stacy is being developed by Perihelion Hardware of Cambridge – the same company as has done the transputer-based Abaq. We rang them for news, but a they commented, "If Atari want to tell you anything that's up to them, but we certainly won't." Commendably secretive, but at least it seems to confirm they are doing it.

Price? Well, full-size 80 by 25 LCD screens alone cost a fair bit, so it's going to be expensive. It may go down particularly well with musicians who need portable MIDI capabilities.

Light years ahead

Elmtech Research are at the moment finalising developments on their ParSec graphics system, which sounds as though it could be astonishing both technically and pricewise.

ParSec is a custom built board designed to interface with STs and Amigas. It provides high-speed graphics processing with a retina-ripping range of 16 million colours. This is based around an unnamed 32-bit processor chip running at a staggering 40 MHz – that's five times the speed of an ST or Amiga.

The plans are to release three different versions of ParSec. The top of the range system is called *Pixel+*, and features a 1024x1024 pixel display with 16 million colours. The colour palette system allows you 256 different colours per line.

First off the block though will be a more basic system called *Colour+* at 1024x512 resolution, the 4096 colour palette allowing 16 different colours per line.

The third option will be called *Text+*, designed for serious business users wanting high quality displays for desktop publishing and the like. This will have a mono 1024x1024 display, with DTP and word processing software in ROM.

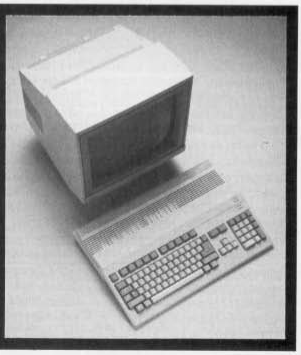
ParSec has its own processor and video memory, and a graphics programming language to drive it. Since the graphics output quality is above the display capabilities of the standard ST or Amiga monitors you will need a decent multisync monitor too. A Genlock will be available at around £149 for interfacing to video editing equipment.

And the price? Excluding VAT, Elmtech are aiming to bring out Colour+ at £499, and Pixel+ at £699. Text+ is as yet unpriced. Colour+ should go into production within a month, Pixel+ a little later.

The first versions of ParSec will work with any model of ST – interfacing through its cartridge port – with the Amiga and other versions to follow closely.

■ *Elmtech Research, 1 Victoria Arcade, Aldergate, Tamworth, Staffs B79 7DL (0827 59566)*

Amiga price cut



Despite the widespread complaints in the computer manufacturing industry about the price of RAMs, Commodore are expected to cut the price of the Amiga 500 to match the Atari 520ST.

The price to dealers of the A500 was officially reduced for the duration of the Commodore show, June 3rd-5th. Punters who made the trek to the Novotel in London could have walked away with a 500 for £399 or less – which isn't much consolation if you weren't there.

As we went to press it wasn't clear whether this price cut would be held. Commodore have scheduled a press conference for an announcement on the Amiga range "likely to shake the computer market to its very foundation". Allowing for toning down traditional PR hype, this could either have been a price cut across the Amiga range, or one of the other new Amiga products detailed by Steve Gold in his column this month – see page 44.

STs at the Café Royal

Atari held a trade and press show on May 26th as a platform for their UK second-half-of-1988 activities. The only new product there was an 80286 PC clone – yawn – but a few old favourite projects which have long been "a few months away" were on show and declared now to be only "a few weeks away".

CD ROM closer

Atari's CD ROM system seems set for a Summer release, after being announced last year. The CDAR504 CD ROM unit is a standard Compact Disc player with interface circuitry for the ST's DMA port (where a hard disk connects). You can put special CDs into it which can store up to 500 megabytes of information – encyclopaedias, bibles, dictionaries and all standard reference works. All you need is the software to use them.

You can't write your own files to the CD ROM – it isn't like a big hard disk – so punters would seem to be rather dependent on useful CDs being developed. At least you can use the player as an ordinary Hi-Fi CD as a last resort!

Atari are standing by their original price of £399 inclusive of VAT, and now estimate an August/September date for retail sales.

■ *Atari's CD ROM unit*

Abaqs on display

The Atari transputer-based workstation project, provisionally named Abaq and described in more detail later in this issue, had a public outing. Tim King and Jack Lang, developers of the software and hardware respectively, were showing off their babies with some stunning graphics demos.

50 Abaq machines have been issued to developers to ensure that there is adequate software at launch time. Atari's marketing supremo Les Player reckoned that any serious commercial shipping was "4 to 6 weeks away", with a target price of £3,000 to £4,000 for base systems.

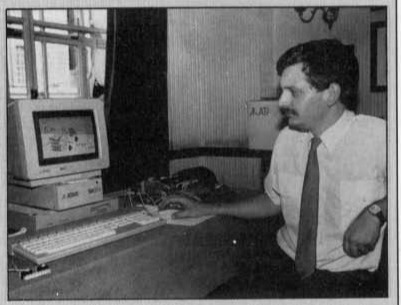
Personal robots

It's a rare thing to be able to combine being futuristic with being twee, but this company's name does it: Personal Robots Ltd. Old Ike Asimov would be proud.

Their contribution to the Atari day was a robotics starter kit for the ST, due for autumn release. This combines a simple drawing package, with which you sketch your industrial robot, and an interface to drive a Lego-built physical version. You can attach commands to screen items, so when you click on them the robot moves.

Richard Beer, their software development manager, reckoned that apart from rich toy novelty value it would be mainly of interest to the educational market, teaching the principles of feedback and robotics. Cost will be £75 or so, without the Lego.

■ *Personal Robots Ltd, 3 Reading Road, Henley-on-Thames, Oxon RG9 1AB (0491 578001)*



■ *Richard Beer plays with his robots*

Oscillating ST

If you're a closet soldering iron wielder, and you own an ST, then there's good news from Kuma.

K-Scope and *K-Spect* are two packages for the ST to allow it to work as an oscilloscope or spectrum analyser respectively, using the ST as the display. They're priced at £149.95 each, although because they use the same interface hardware the two can be bought as a pair at £239.90, VAT inclusive.

For the technically minded, the K-Scope has sensitivity from 3mV to 30V per division, DC or AC to 30kHz. As well as being displayed, the incoming signal can be saved on the ST for later regenration or inclusion as a graphic in documents. K-Spect can cope with inputs up to 35kHz, displaying them on linear or logarithmic axes.

■ *Kuma, 12 Horseshoe Park, Pangbourne, Berks RG8 7JW (07357 4335)*

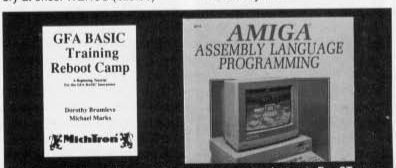
QUICKIES

Metacomco (0272 428781) have released version 2.0 of their *Amiga Pascal* compiler at £89.95 (£38.50 as an upgrade to v1.0 users). Among the new features are flexible length string handling and OTHERWISE clauses in CASE statements. Also announced is Metacomco's *ST LISP* system at £89.95.

Arnor (0733 239011) now has an office management system. *Protext Office* (£34.95) and *Protext Filer* (£24.95) are invoicing and data management systems respectively that integrate with their Protext WP.

Marauder, the popular Amiga disk copying utility, seems to be in trouble. Rumour is that Commodore U.S. felt it encouraged piracy and, bowing to industry pressure, have forced Discovery Inc to cease production. Snap it up while you can.

HiSoft (0525 718181) have been busy with their ST. New out is *Devpac ST 2* (£59.95) which boasts a totally integrated edit-assemble-debug cycle. They are also distributing Manx's *Aztec C* (£129, or £179 for the developer's kit). *Twist* (£39.95) is a switcher to allow the ST to run several programs in memory at once. *WERCS* (£29.95) stands for WIMP Environment Resource Construction Set, and allows programmers to automatically generate the assembler, C, BASIC, Pascal, Fortran or Modula-2 headers needed to set up any GEM window system.



Two new books of interest to programmers are just out. For ST owners, Michtron's "GFA BASIC Training Reboot Camp" takes you from novice to expert in Glentop's popular programming system. Contact distributors Microdeal at PO Box 68, St. Austell, Cornwall PL25 4YB (0726 68020).

On the Amiga, Jake Commander's "Amiga Assembly Language Programming" seems a good combination of 68000 assembler tutorial and Amiga-specific internals. Contact the publishers John Wiley on Freephone 3488.

Top Quality 2nd Drives for the Amiga and Atari ST at low, low prices

Evesham Micros

- ✔ Offers full compatibility with all Atari ST models, Amiga 500 and Amiga 1000
- ✔ Top quality Citizen drive mechanism
- ✔ One megabyte unformatted capacity
- ✔ Very quiet
- ✔ Slimline design
- ✔ Throughport (Amiga)
- ✔ Colour matched to computer
- ✔ Long cable for location either side of computer
- ✔ External plug in PSU (Atari ST)
- ✔ Full 12 months guarantee

Don't forget - all prices shown include VAT and delivery

~~£114.95 RRP~~

Our Price only....

£99.95

includes VAT and delivery (State model when ordering)

DISECTOR ST

POWERFUL Disk Utilities for all Atari ST models

Now with PARAMETER BACKUP options!

☆ ***SOFTWARE BACKUP***
Now shipping latest version 2 - includes parameter options - handles many extra programs. Allows better usage of your disk space! Utilises all available drives and memory.

☆ ***ORGANISER ACCESSORY***
Extremely useful desktop-based accessory, providing essential disk management commands including FORMAT, RENAME, DELETE etc.

☆ ***EXTRA FORMAT***
to maximise usable space on your disks - provides over *15%* additional user storage space per disk!

☆ ***RAMDISK*** and ***SET DATE/TIME*** accessories.

☆ ***UNDELETE***
to recover accidentally lost files.

☆ ***DISK ANALYSIS***

☆ ***DIRECTORY PRINTOUT***

☆ ***plus*** DISK SPEED CHECK, UNFORMAT and more!

Only £24.95

Existing users can upgrade to the latest version - enclose £2.00 handling charge

ATARI 520STFM SUMMER PACK!

Includes STFM with 1MEG drive, 22 games (retail value £413.94) & joystick.

Only £369.00

520 STFM, standard model	£269.00
1040 STF	£429.00
1040 STF with mono monitor	£549.00
Mega ST2 with mono monitor	£899.00
Mega ST4 with mono monitor	£1195.00
Atari SLM804 laser printer, great value at	£1199.00
Atari SM124/5 mono monitor	£134.00
Atari SC1224 colour monitor	£349.00
Atari SH205 hard disk, new style	£539.00
Atari DTP system 1 - includes Mega ST2, Mono Monitor, SLM804 laser printer, Fleet Street Publisher & 90 day on site maintenance	£2499.00
Atari DTP system 2 - as above, but with Mega ST4 & includes 20mb Hard Disk Drive	£2999.00
Phillips CM8833 colour monitor c/w ST lead	£279.00
Phillips CM8852 as above, higher resolution	£299.00

(Extra £10.00 discount on Phillips monitors if bought with an ST)

All ST prices include: mouse etc. PLUS 5 disks of s ware including wordpro, utilities, graphics, game and demos. We can quote you for any combination of hardware.

PRINTERS

All prices include VAT, delivery and cable

star

We use and recommend Star printers since they do offer an unbeatable combination of features, print quality, reliability and value. Make the sensible decision - get it right with a Star printer at our special, all in, prices.

Star LC10 replaces the NL-10, features 4 NLQ fonts, paper parking, front panel operation, PLUS 2 extra ribbons free of charge!	£199.00
Star LC10 7-colour version of above printer, inc.2 extra black ribbons	£234.00
Star NB24-10 high 24pin quality, inc.2 extra ribbons free of charge	£469.00
Star NX-15 budget wide carriage printer	£319.00
Star NB24-15 wide carriage version of NB24-10	£599.00
NEC P2200 budget 24pin, great value 168/56cps	£319.00
Amstrad DMP3160/3250DI good value 10"	£189.00
Amstrad LQ3500 24pin at low price	£329.00
Amstrad DMP4000 fast wide carriage	£329.00
Panasonic KXP1081 reliable budget 10" printer	£179.00
Panasonic KXP1082 faster version, inc.IBM proprinter emulation	£219.00
Panasonic KXP3131 daisywheel	£299.00

Low cost cut sheet feeders for above printers available - please phone for details

3.5" disks

10...£11.95 in plastic case £13.95

25...£27.95 in 40 cap case £34.95

Fully guaranteed double sided media

How to order from Evesham Micros

VISA

Phone us with your ACCESS or VISA card details on : ☎ 0386-765500

All prices include VAT and delivery. Next day delivery £5.00 extra.

Send cheque, Postal Order or ACCESS/VISA card details

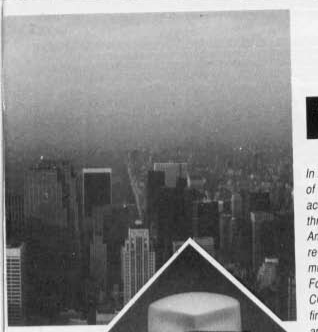
Govt., educ. & PLC orders welcome
Same day despatch whenever possible
All goods subject to availability, E.&O.E.
Open to callers 6 days, 9.30-5.30

Evesham Micros Ltd
63 BRIDGE STREET
EVESHAM
WORCS WR11 4SF
✆ 0386-765500
fax 0386-765354
telex 333294

Also at: 1762 Pershore Rd., Cotteridge, Birmingham B30 3BH Tel: 021 458 4564

Format in the U.S.A.

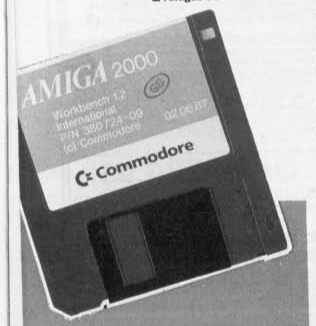
In the UK, whatever the technical merits of the two machines it is generally accepted that the ST has sold about three times as many units as the Amiga. However, in the States the reverse holds, and the Amiga is very much the dominant party. ST Amiga Format crossed the globe to visit the COMDEX computer show in Atlanta find out what's due here in the Summer and Autumn this year.



■ *X-Specs 3D*

■ *Deluxe Video 1.2*

■ *AmigaDOS 1.3 due*



■ *Flicker Fixer board*

Head monitor

In the past, the Amiga colour monitor has attracted criticism on two counts; firstly, it can't display the Amiga's high resolution interlace mode screen without flickering terribly, so robbing Amiga owners of their machine's most powerful asset. Secondly, for business users the lack of a high-definition mono screen has always been a problem.

Commodore themselves have now rectified this with the official announcement of a long-persistence phosphor colour monitor, the 2080, and also the 2024 high resolution monitor. The 2024 is a strange beast, and it isn't quite clear how it fits onto an Amiga. It will be a 1008 by 800 pixel screen with 2 bitplanes, so it isn't really mono.

AmigaDOS 1.3

Most exciting news for Amiga owners is the impending launch of a new version of AmigaDOS, 1.3.

With a new 'fast file' filing system Commodore reckon they have speeded up disk access by a factor of five or more – but only for hard disk users. The improvements won't apply to floppy disk drives until AmigaDOS 1.4 hits the streets.

On the printing front, more and better-written printer drivers claim to speed up graphics printing up to four times. Owners of Epson LQ printers and HP DeskJets are catered for. Interestingly, Commodore seem to be gearing up for a desktop publishing assault, as the new Workbench disk contains versions of Times, Helvetica and Courier fonts designed by Adobe, the leading typeface company. Adobe fonts have been instrumental in the success of the Apple Macintosh as a DTP system.

For number-crunching fans out there, there will be improvements on the speed of the mathematical libraries, and the Amiga will be able to detect and use the 68881 maths co-processor if it is fitted.

For non-hackers who eschew the CLI and only run programs from the WIMP Workbench interface, there is still good news. The contents of the RAM disk will be preserved during a soft reset (eg. a Control-Amiga-Amiga keypress). There is a screen snapshot utility for saving your display to a graphics file at any time. Finally, for program developers there is a utility to create icons and link them to CLI programs.

CLI users at last get the benefit of a command line history – the ability to edit the last command line you typed if you made a mistake.

The upgrade comes in three parts – Workbench disk, Extras disk and Kickstart ROM chips. Most users only need the disks, but a couple of changes need to be made in the ROMs if, for instance, you want to auto-boot off a hard disk.

And as to availability, Commodore reckon it should be out by the end of the summer, and are looking to set a low price. "We regard it as a service to our users, so we aren't looking to make a killing out of it – just cover our costs," said US marketing man Paul Higginbottom. He reckoned $15 might be reasonable for the disk version.

■ *Commodore UK, The Switchback, Gardner Rd., Maidenhead, Berks SL6 7XA (0628 770088)*

3-D Amiga

Remember those 3-D shocker films at the local Odeon? They could soon be on your Amiga screen with *X-Specs 3D* from Haitex.

X-Specs is a headset through which you view your screen. It consists of liquid crystal panels capable of switching from opaque to transparent exceptionally fast. On a UK TV, the screen in fact displays two interlaced images at 25 frames a second each. The first image is all the even-numbered lines on the screen, the second all the odd-numbered lines. 25 frames a second is sufficiently fast that the human eye normally merges the two into one continuous picture.

X-Specs exploits this: the LCD headset blocks out, say, the even frames from your left eye and the odd frames from your right eye. This means your brain is fooled into thinking it is getting true stereoscopic signals, and with suitable pictures you see in 3-D.

Haitex are selling X-Specs in the States at $124.95. No UK deal has been announced yet.

■ *Haitex are at 208 Carollton Park, Suite 1207, Carrollton, Texas 75006, USA*

Flicker-free screens

Commodore's long-persistence phosphor monitor is one solution to the problem of the Amiga's high resolution graphics flicker, but not the best one. Long-persistence phosphors tend to blur the image.

MicroWay have developed the 'Flicker-Fixer' to to the job cleanly. Flicker-Fixer is a plug-in board for the Amiga which effectively sets up a fast video memory and sends the display frames to the monitor at a higher rate, eliminating flicker.

Results we saw at COMDEX were very impressive, but it's not really a home user's solution: Flicker-Fixer costs £396.75 inc VAT in the UK, and you need a MultiSync monitor too (£500+) to display the faster rate frames.

■ *MicroWay Europe, 32 High Street, Kingston-on-Thames, Surrey KT1 1HL (01-541 5466)*

Animated excitement

The Amiga is pretty good at producing colourful still pictures, but who wants stills? Two new animation packages are now out to change your screen forever. Microillusions' contribution is Photon Video; its rival from Electronic Arts is Deluxe Video. We hope to have a detailed comparison of the two next month.

Animation packages as a whole are advancing steadily in sophistication, but what make these two different is that they can also process a digitised soundtrack and synchronize it with the visual display. You can then send the results to a home video recorder. It should be a piece of cake to cobble together your own home Max Headroom show.

Photon Video in the U.S. costs $149.95. For the professionals out there, an optional extra is the Transport Controller ($299.95) which allows you to interface the Amiga into a studio quality frame-by-frame video editing console. Deluxe Video 1.2 costs £69.95.

■ *Microillusions' UK distributor is Activision, 23 Pond St, Hampstead, London NW3 2PN (01-431 1101)*

■ *Electronic Arts, 11/49 Station Road, Langley, Berks SL3 8YN (0753 49442)*

DTP gets serious

That Commodore are about to produce an Amiga-based Desktop Publishing package is all but official news now. The question on everybody's lips is, "Whose software will be chosen to head it up?"

Raring to go

Andy "zap-'em" Storer eyes up the news and games that arrived too late for review. Only the finest fresh titles make it into his roundup.

At COMDEX, the flagship DTP package was Gold Disk's Professional Page, at the flagship price of $395, or £249 in the UK. The 'Professional' part of the title reflects the fact that is has full PostScript output, so can be directly linked into Apple Macintosh laser printers or even phototypesetters.

This month's DTP buzzphrase is 'Colour Separations'. To print a colour page, a printer (the bloke who runs a printing press, that is) needs to do four passes, one each in magenta, cyan, yellow and black. Professional Page can take an Amiga colour screen and print out the four separations with the registration marks needed for printing.

Colour is certainly the area that the Amiga is strongest in, if Commodore are thinking of making an assault on Apple. The Professional Page demonstration at COMDEX was impressively sending draft prints to a Hewlett-Packard colour dot matrix printer, and printing final separations on a laser next to it.

■ *Gold Disk's UK distributors are HB Marketing, Brooklyn House, 22 The Green, West Drayton, Middx UB7 7PQ (0895 444433).*

Go faSTer

Forget all these fancy 68020 and 030 stories. Strange Systems were showing their ST Accelerator board, which doubles the speed of any model of ST for $249.

Kevin Henderson, a partner in Strange Systems, had to admit that they were demonstrating an early prototype. It seems his car had been broken into on the way to COMDEX and all their show models stolen.

ST Accelerator works by replacing the 8 MHz 68000 chip at the heart of the ST by a 16 MHz version, the 68000-16. The clock generating hardware also need to be replaced, and the whole upgrade is switchable – you can turn it off if it is making your favourite game too hard to play!

■ *Strange Systems, 109 W. Bay Area Blvd., Webster, Texas 77598, USA.*

■ Kevin Henderson taking philosophically the loss of all his fast ST stock, destined for the COMDEX show.

STARFLEET 1

Electronic Arts ■ ST & Amiga, £24.95

Judging by the manuals, which are at least two parsecs thick, you could be travelling the galaxy for years in this strategy game. You boldly go where aliens have no right to go and let them know it – ie. introduce them to the finer points of laser and photon torpedo technology.

MINDFIGHTER

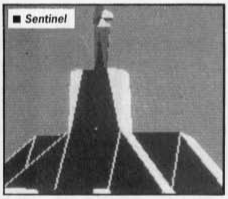
Activision ■ ST & Amiga, £24.99

Complete with a full-length novel, parapsychology is the central theme of this graphic adventure in which you have glimpses of the future – and it looks bleak. An impending nuclear holocaust to be exact. It's your small job to save the world (yet again). Digitised photos add a neat edge to your labours.

SENTINEL

Firebird ■ Amiga, £19.95

An eagerly awaited conversion of one of the most original releases of recent years. A strategy game in which you absorb and transfer energy from objects scattered about a series of landscapes in an attempt to defeat the Sentinel overseeing all. Since there are 10,000 levels you could end up expending quite a lot of energy yourself.



PANDORA

Firebird ■ ST, £19.95

Having beamed aboard the renegade spaceship Pandora, your task is to salvage alien artifacts and disable the craft. Assorted psychos, aliens and robots roam its vast interior. Crazy comic strip fights and a wealth of interactive characters look set to make this punch-em-up worth waiting for.

CORRUPTION

Rainbird ■ ST & Amiga, £24.95

Prove your innocence in Mag. Scrolls latest, and yuppiest, adventure. Pull down Filofax menus combine with artful images to illustrate a tale of high finance and low ethics. Deceit, greed and double dealing come your way after you're framed as the fall guy for cocaine dealing high-flyers.

WHIRLIGIG

Firebird ■ ST, £19.95

Intriguingly described as 'a sort of Pony express in space'. It claims to have 4.1 billion levels (count 'em!) of cruising and combat between stargates. This four-way shoot-em-up features solid 3D space craft with excellent light surface illumination.

CAPTAIN BLOOD

Infogrames ■ ST, £24.95

The English version is almost a brand new game compared to the French original. Now there's four times as many ways to converse with those strange aliens, and 32,000 planets later you may have found the five clones you're searching for. A visual treat with a certain Monsieur J.M. Jarre providing the sound.

STARGLIDER 2

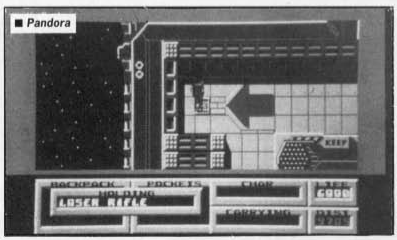
Rainbird ■ ST & Amiga, £24.95

A sequel which cuts through the hype stacked on its overrated predecessor. The demo of Starglider 2 we saw left all other animated solid 3D releases firmly on the ground. With over a hundred 3D objects moving at unheard of velocities, you'll appreciate why it took eight people a year to put this together.

SPACE HARRIER

Elite ■ ST, £19.99

A conversion of the stunning coin-op which doesn't seem to suffer in the way it looks and feels. Frantic action for which you should really be plugged into the mains – you'll be glad you don't have to keep sticking real £1 coins in the slot.



It's time we gave you the BASIC facts ...

BASIC for the Atari ST	HiSoft Basic	Power Basic	GFA Int.	GFA Comp.	Fast Basic	ST Basic 2
Retail price inc. VAT	£79.95	£39.95	£45.95	£45.95	£44.85	-
GEM Editor	✓	✓	✗	No editor	✓	✓
Max string length	No limit	No limit	32k	32k	64k	255 bytes
Max multi-DIM array size	No limit	No limit	64k	64k	No limit	64k
Complete AES & VDI access	✓	✓	✗	✗	✗	✗
Produce stand-alone programs	✓	✓	✗	✓	✗	✗
Assembly language support	Libraries	✗	✗	✗	In-line	✗
Sound commands	✓	✓	✓	✓	✗	✗
Joystick access	✓	✓	✗	✗	✗	✗
Quick reference card	✓	✓	✗	✗	✓	✓
Double precision floats	✓	✓	✗	✗	✓	✗
Multi-statement lines	✓	✓	✗	✗	✗	✓
Multi-line statements	✓	✓	✗	✗	✗	✗
Line numbers allowed	✓	✓	✗	✗	✗	✓
Line numbers optional	✓	✓	Line nos. *not allowed*		✓	✗
Load and use resource files	✓	✓	✗	✗	✗	✗
Create Desk Accessories	✓	✗	✗	✗	✗	✗
Program profiling	✓	✗	✗	✗	✗	✗
Average PCW benchmark time	0.47	0.47	1.4	0.6	1.8	5.6
BYTE Calc (floating-point) time	1.37	1.37	6.33	3.33	7.14	18
Compatible with	ST BASIC & Microsoft QB3		GFA Basic	GFA Basic	BBC Basic	

All the information given above is believed to be correct at time of printing. HiSoft BASIC & Power BASIC are HiSoft products.

NEW **Aztec C**: Produces the fastest & most compact code of all the C compilers. Industry standard with ANSI libraries, UNIX runtimes, overlay linker, assembler & much more. Professional version only £129. Developer (includes UNIX utilities) £179. Source code debugger coming soon!

NEW **WERCS** Powerful, easy-to-use resource editor that works in any resolution and for all languages. Many unique features e.g a find command. So much that we cannot list it all here. The most complete RCS available. Please write or phone for more details. £29.95.

FTL Modula-2 £69.95

FTL Modula-2

- one-pass compiler, 6000 lines per minute!
- full linker & assembler included
- multi-window GEM editor with macros
- very-fast compact code generation
- full GEM libraries supplied with source code
- create desk accessories and menus directly
- library manager and a free CLI
- completely standard Modula-2 compiler
- source level debugger & tools package available

Personal Pascal 2 £79.95

Personal Pascal

- Fast, multi-window GEM editor
- Full, standard Pascal implementation
- Completely integrated edit/compile/link cycle
- Complete GEM support with windows, menus, alert boxes, dialog boxes etc. BIOS, XBIOS calls
- String management plus STRING type
- All standard types + LONG_INTEGER & BYTE
- Random access and sequential file handling
- Fast, compact code plus link with assembler

DevpacST Version 2 £59.95

DevpacST 2

- complete, integrated development system
- fastest, professional assembler - 75,000 lpm!
- DRI and GST linkable code, TEXT, DATA & BSS
- local labels, assemble to memory, include binary
- multi-window, multi-resolution debugger
- disassemble to disk with labels
- full expression handling, conditional breakpoints
- source-code viewing, auto-resident debugger
- **DevpacST 2** - *now there is no competition*

Saved! Version 2 £29.95

Saved! Ver 2

- invaluable desk accessory saves you time
- all the desktop functions in a desk accessory
- PATH feature is essential for hard disk users
- plus a host of extra, incredibly useful utilities:
- TRACKBUF to double your floppy-disk reads
- UNDEL program to recover deleted files
- KEEPTIME to preserve data and time over reset
- reset-resident RAMdisk included **FREE!**
- configurable printer spooler included **FREE!**

All prices include VAT and UK postage and packing.You can order by post with a cheque/postal order or by phone using Access/Visa. We always despatch by first class post, usually within 3 days of order.

HiSoft High Quality Software

All products for the Atari ST. Devpac Version 1.2 for the Amiga is £59.95

The Old School, Greenfield, Bedford MK45 5DE ☎ (0525) 718181

FUTURES

■ *Kuma's K-Max 1 transputer board, already commercially available. It plugs into the ST's ROM port, has a T414 transputer chip and 256k of RAM. The processing speed is 7.5 mips. If you want, a second transputer can be added in the spare socket set. Price for a one-transputer system: £695. Programs are written in transputer assembler on the ST, cross assembled and downloaded via Kuma's "Cascader". The results are then uploaded for the ST to display.*

Kuma are great fans of Perihelion's Helios operating system. The K-Max 2 is designed as a Helios engine, can plug into standard IBM card slots, and has got Loadsamemory – up to 4 Mb. At the moment, due to the fluctuating price of RAM, the K-Max 2 is priced to order, but is typically around £2000 fully populated. There's only room for one T414 or T800 on the board, but extra boards can be plugged in to create a multi-transputer farm.

TRANSPUTERS DO IT IN PARALLEL

What's all this fuss about transputers? Both Atari and Commodore have announced transputer goings-on – ST Amiga Format battled its way through all the hype to discover who's doing what.

In the beginning was the transputer. Well, more or less. It took the efforts of Iann Barron, and a fair bit of taxpayer's hard-earned, but they got there. Now that the transputer chip itself is established as a reliable computing engine, other companies are beginning to exploit it commercially.

Kuma already market a transputer add-on board for the Atari ST, called K-Max. This comes in two models: K-Max 1 has one or two transputer chips (depending on the wadge in your pocket) and 256K of RAM. It's merely an ST-controlled processing unit, not a speed-up board for the ST. The K-Max 2 has up to 4 Mbytes RAM and comes as either an ST add-on or on an IBM expansion card.

Atari themselves have recently announced the Abaq. This is a wholly new machine, which can run between one and thirteen transputers, depending on the configuration. Although not a new ST, the Abaq is promised in both stand-alone form and as an add-on unit for the Mega. The Abaq will run an operating system called Helios, currently being developed by Somerset-based Perihelion Software. Commodore's efforts are a little more foggy. At the 1988 Hanover show they announced a transputer board for the Amiga, but the development is being done entirely by Commodore in Germany. Apart from confirming its existence, Commodore UK didn't seem to know much about it.

Kuma in control

Based in an industrial park in exotic Pangbourne (near Reading), Kuma was founded by John Day and Tim Moore. Despite a good deal of success in the PC and MSX markets (MSX still being big in Brazil!), Kuma haven't expanded wildly. They now boast around 15 employees, quietly mixing conventional database and spreadsheet programs for IBM PCs with leading-edge transputer work.

Tim Moore, the technical powerhouse behind their Transputer development, is the MD of Kuma and an ardent admirer of parallel computing as The Way Forward. "It became clear after the Norway conference of 1981 that RISC chips were really on the way, and that someone was going to go and do a proper job," he says. "We considered both the transputer and the Acorn ARM for our projects – the ARM is a good chip, better in some ways, but

OCCAM'S RAZOR

The official transputer language, Occam, gets its name from a 14th century philosopher (William of Occam) who proposed that "infinite entities should not be duplicated beyond necessity" – in other words, keep it simple

PERFORMANCE TESTING

Benchmarks are supposed to be a standard measure of processor performance. Two highly criticised floating-point testers are the Whetstone and the Dhrystone. It transpires that Dhrystone is a pun on Whetstone; the originators thought a Whetstone to be a wet stone and thus came up with dry stone. On seeing their mistake they added an h and removed a space.

in the end we plumped for Inmos because we needed technical support from the chip manufacturers and Acorn just weren't prepared to talk to us. Inmos were very helpful."

Kuma received their first transputer chip in mid '86, and developed K-Max 1 within six months. "There was a body of opinion within Inmos at the time that Occam, their parallel programming language, was the only valid way to program a transputer. As an engineer I didn't accept this", Moore says, "and wanted to get my hands on the assembly language. Inmos wouldn't tell, so I worked out from the chip what the machine code had to be. Then a week before K-Max was launched I rang Inmos and said, 'Look, we're about to publish a transputer Assembler – surely it makes sense to use your standard mnemonics?' There was a long silence on the phone, then two days later a complete instruction set arrived by post. As a result, our developers' kit was the first ever transputer assembler on the market."

K-Max has been on sale for 18 months now, so what do its users do? "It's primarily a research tool, not many home users would have a genuine use for one," Moore reveals. "Many of our customers are defence contractors who won't discuss their projects, and of course education is a big area. We've also got an Occam simulator running on the ST, and that has sold very well to universities. Students can write small Occam programs without the need to actually have a transputer."

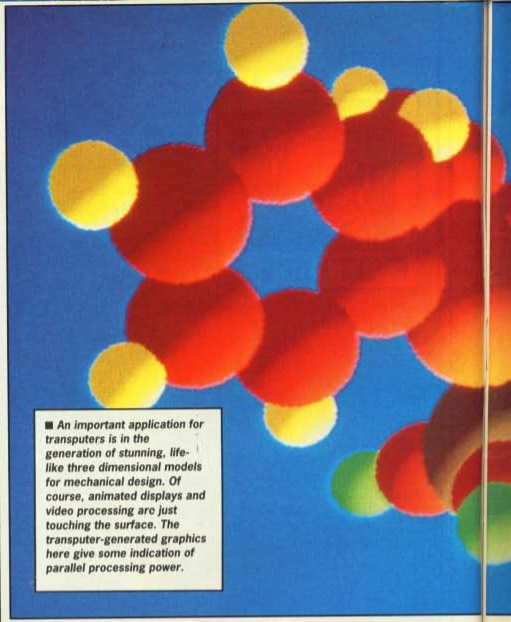
Kuma aren't planning an Amiga version of K-Max, though they comment that there's no reason why the K-Max 2 shouldn't run in one of the PC slots on an Amiga 2000 with a Bridge Board. "The transputer is a pretty good first go," Moore concludes. "Better chips will be along, but Inmos have done an excellent job for a first bash."

SUN PUNS

The name Perihelion derives from the word describing the closest transit of the earth to the sun, loosely ascribed to midsummer's day. This happens to be the name of a restaurant in Cambridge owned by Jack Lang, the founder of Perihelion hardware. Since Sun computers also make a very desirable RISC-based work station, the literal translation 'closest to the Sun' applies well to Perihelion's transputer machine.

WHAT'S IN A NAME

Although the Abaq has been well covered in the press, the name itself is only provisional, and is unlikely to be used for the finished machine as it's already used by a company in Belgium. Some wag suggested it might be called the 'Eclipse' as it would kill the Sun (see SUN PUNS to find out why this is funny).



■ *An important application for transputers is in the generation of stunning, life-like three dimensional models for mechanical design. Of course, animated displays and video processing are just touching the surface. The transputer-generated graphics here give some indication of parallel processing power.*

Letting the sunshine in

Tim King of Perihelion software bases his offices in a converted brewery in Shepton Mallet, Somerset. Hidden away on the top floor are some very fast micros with some very sober software engineers programming them for all they're worth. Out of their work will come the production version of the Abaq's multi-tasking operating system, Helios.

King left Cambridge for the academic wilds of Bath, where he lectured for three years while completing a PhD involving both database design and the workings of distributed systems (networks). After this he went to work for Metacomco,

■ *Tim King of Perihelion, architect of the Abaq's Helios operating system*

which at that time he describes as "three people working over a garage in Bristol" – very reminiscent of the early days of Apple Computers. It was while at Metacomco that King wrote much of AmigaDOS for Commodore, before starting to look for projects that would further his interest in RISC. King knew Jack Lang, the founder of Perihelion hardware, from his days at Cambridge and became interested in his ideas for a graphics workstation based around a RISC chip.

They singled out three candidates for the core processor of their new micro: the Fairchild Clipper, Acorn's ARM and the Transputer. It was not initially the parallel processing architecture that attracted them, but the

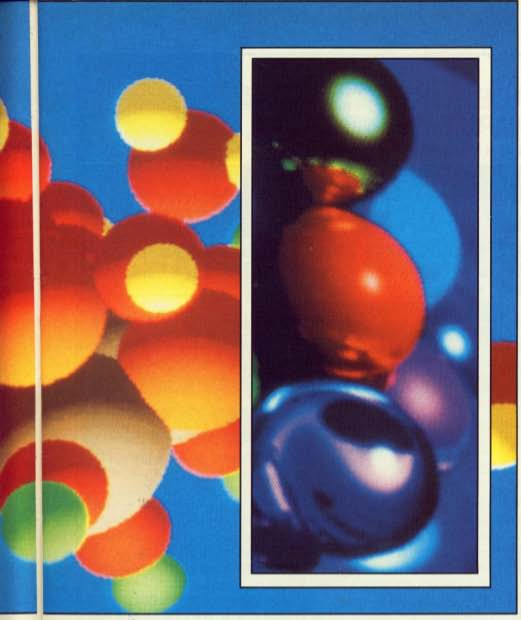
WHAT IS A TRANSPUTER?

The transputer itself is effectively a super-fast microprocessor. It is one of the new breed of 'Reduced Instruction Set' chips, or RISCs for short; RISC chips work fast because there are very few basic machine code instructions available and they are all processed extremely efficiently. The idea is that the core instructions are the most commonly used ones. The transputer has 16 basic instructions, one of which is an 'extend' command to allow it to run a set of more complex (but less efficient) microcoded commands.

The chips that are currently causing a stir, the T414 at around £300 and the T800 at over £500, are both 32-bit processors. They have a RISC-type central processing unit, fast on-chip ram (2K on the T414 and 4K on the T800), an external memory interface capable of addressing up to 4 gigabytes and four serial links which may run at up to 20 Mbits per second. Both chips come in an 80 pin square package.

From a programmer's point of view, the transputer offers three registers, a stack, and workspace and instruction pointers. The handful of instructions available are purpose-built for loading storing and manipulating values on the stack and altering the flow of control. This could prove limiting if it wasn't for the wealth of microcoded instructions – less efficient and slower perhaps, but greatly increasing the processor's capabilities.

Like other RISCs, the Transputer has on-board communication. This means many Transputers can be connected together into a Transputer 'farm' – which can lead to staggeringly powerful multiprocessor systems. On its own the transputer isn't that special, but when it's used with a battery of others amazing things are possible. Of course, parallel programming produces problems. Programmers are used to the serial nature of traditional processors, and trying to think in parallel (let alone program) is daunting.



RISC features of the chip. As Acorn were already developing the ARM for themselves, they decided to go with the Inmos chip and set out looking for the capital to back their project.

■ *Jack Lang, founder of Perihelion hardware, clutches an Abaq 'Farm Card'.*

King and Lang approached various companies, most of whom showed interest but wanted to know where the machine was going to sell. After several fruitless consultations, they contacted Atari who said "Yes, it's interesting. Let's do it!" Development has continued apace since then and release of the Abaq is scheduled for September.

What markets does King see for the machine? "To some extent it's targetted at people like ourselves, program developers. Secondly we're targetting at top level academic use; for research and teaching of parallel processing techniques themselves. There's then the whole area of CAD/CAM and graphics, where you really do need the processing power. The ability to plug in up to 16 extra processors really does make a fantastic difference". King says the possibility of home computers based around transputers is very interesting but depends largely on the cost of the Inmos chips and on which way the home market moves.

Perihelion themselves use a variety of different techniques to develop Helios. There are plenty of transputers, but in a host of different configurations ranging from cards in PCs through K-Max add-ons for Atari STs, to Abaq development machines, all linked together through a network to a large, Unix-based mini-computer.

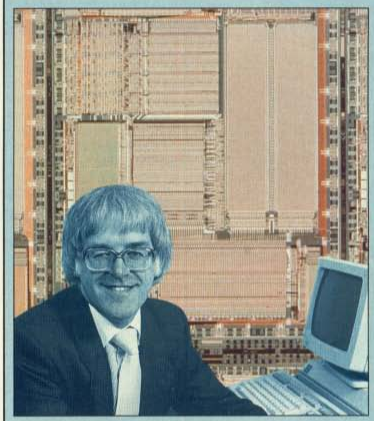
Helios is written in a combination of RISC assembler and C, both of which were written in-house by Perihelion to minimise time lost through problems with the software. That's not to say that Perihelion's C is bug-free, but any problems that do appear can be corrected by allocating programmers from within the company, presumably as strict parallel processors! ■

THE THIRTEENTH PARALLEL

On its own a transputer is basically a fast microprocessor. Where the fun starts (and the hype really hits the fan) is when you link several of them together. The chip has a special communications link so that many transputers can be easily networked together.

On a transputer the program being run is split into several parallel parts, all parts running simultaneously. The results are then combined at various strategic synchronisation points to get the desired results. Because most programs written nowadays run sequentially, they don't easily convert to parallel processing. Instead, programs are best designed from the start to be split between several parallel processors.

There are two ways of doing this: you can use Occam or run under Perihelion's forthcoming Helios operating system, which should do this allocation automatically for high-level languages.



■ *This cheery chap is Iann Barron who played an important role in the formation of Inmos. Together with a band of top Inmos intellects he announced the transputer in 1985. Two years later both the T414 and T800 were on the production line.*

THE INMOS CONNECTION

Inmos began life in 1978 with funding of 65 million pounds from the British Government's National Enterprise Board. The company's British headquarters are in Bristol and its US counterpart was located in Colarado. Back in the early days Inmos produced 16K static rams, which they'd introduced to the world in '81. In the following years they devised a family of 64K dynamic rams, a colour look-up table (included in IBM's PS/2 computers) and a digital signal processor. Today they boast over 350 computer products.

It was after the crunch years of 1984-85 – during which time the Government sold its share of Inmos to Thorn EMI – that Inmos announced the Transputer. The project, spearheaded by Iann Barron (now chief strategic officer at Inmos), was completed in '86 with the advent of the T414. Last year Inmos introduced its transputer with on-chip floating point processor, the T800.

Occam, the 'official' transputer programming language promoted by Inmos, was written in 1982 by David May and Tony Hoare. May, who now works for Inmos, is still introducing modifications and improvements to it. Essentially Occam takes the sting out of parallel processing. It can capture the integrated structure of a system by allowing an interconnected set of processes to be regarded from the outside as a single process.

ATARI
THE LEADING NORTH WEST SPECIALIST ATARI DEALER

LADBROKE COMPUTING INTERNATIONAL

33 Ormskirk Road,
Preston, Lancs, PR1 2QP.
Tel: (0772) 21474 (1 line)
(0772) 203166 (5 lines)
Bul/Board (0772) 27236
6.00pm to 9.00pm

DEALER ENQUIRIES WELCOME

HARD DISKS

Atari	20mg	£575
Supra	20mg	£575
Triangle	20mg	£499
Triangle	40mg	£699

PRINTERS

9 Pin D/M

Star LC10	£225
Star LC10 Colour	£275
Citizen LP10	£199

24 Pin D/M

NEC 2200	£375
Epson LQ500	£375
Star LC10/24	Phone
Epson LQ800	Phone

Daisy Wheels

Gachen	£199

Laser Printers

Atari SLM804 Laser	£1350
Star Laser	£2399

The Star Laser Price Includes 12 months On Site Warrenty
The Atari Includes 90 day Warranty
All Printers Come Complete With Cables ETC.
Interfaces Are Seperate

UPGRADES

Upgrades are available from stock. 2.5 and 4 Mg upgrade boards are available to fit the old 520 STFM boards only.

Upgrade boards	£135
Boards + 2.5 Mg	Phone
Boards + 4 Mg	Phone
1 Mg STFM (fitted)	£105
1 Mg STFM (Kit)	£90
STFM Upgrade fitting service.	£15

If any of the above Upgrades are purchased with Hardware then deduct £5 from total. Prices will be held as long as possible.

Our Atari trained engineers will repair all hardware in minimum time at competitive rates.

PERIPHERALS

Triangle 1 Mg drive	£119
Cumana 1 Mg drive	£109
Pro Draw Graphics Tablet	Phone
Image Scanner	£89
Hawk Scanner	£1250
CRP Digi Tablets	
A4	£414
A3	£818

ATARI HARDWARE

520 STM's Phone for availability

520 STFM's Summer Pack

520 STFM + 1 Mg internal drive + joystick + over £400 of latest release software for only £399

1040 STF's £480
While stocks last.
External Modulators for the 1040 STF's £54.99

SM124 mono monitor	£139
SC1224 colour	£375
Philips 8883 colour monitor	£299
Tv's and others	phone

Any of above bought with a computer Deduct £10

BUSINESS SYSTEMS

MEGA ST 2
2048K CPU+3.5" Floppy Drive + SM124 Mono Monitor.
.....£1034.99

MEGA ST 4
4096k CPU+3.5" Floppy Drive+ SM 124 Mono Monitor.
.....£1379.99

DTP SYSTEM 1
Mega ST 2
SLM 804 Laser Printer
Additional 3.5" Floppy Drive.
SM 124 Mono Monitor.
DTP Software.
.....£2874.99

DTP SYSTEM 2
Mega ST 4.
SLM 804 Laser Printer.
SH205 20Mg Hard Drive.
SM124 Mono Monitor.
DTP Software.
.....£3449.99

PC2 SD
512k CPU+5.25 Floppy Drive+PCM 124 Mono Monitor.
.....£689.99

PC2 DD.
512k CPU + 2x5.25 Floppy Drive + PCM 124 Mono Monitor
.....£747.49

PC2 HD
512k CPU + 5.25 Floppy Drive + 30Mg Hard Drive + PCM 124 Mono Monitor.
..... £1092.49

DUST COVERS

Computers	£3.99
Monitors	£4.99
Disk Drives	£2.99
Hard Disk	£4.99
Printers	£7.99

DISKS

	3.5 D/S D/D	5.25D/S D/D 96TPI
Each	£1.50	£0.70
x10	£14	£6.50
x10 + Plastic Lib. case	£15.50	£8.00
x100 + case	£140	£70
x500 + cases	£650	£330

All Disks are Top Quality SONY products and are covered by an unconditional liftetime guarantee.
We also stock High Quality VHS Video tapes.

Each	£2.99
For 2	£5.80
For 4	£11.40
For 10	£26.00

We also stock a full range of quality P/D ST Software at £3.99 per disk.

Send S.A.E for catalogue.

MUSIC

We stock Music Software and Hardware for the ST including a range of AKAI samplers and synths.
Suitable for Hobbyist and Professional applications

UTILITIES
AB ANIMATOR £14.99

Animated Graphics Tool for the ST.
Supports GFA and FAST Basics.
Compatible with DEGAS and NEOCHROME files.
Full Facilities such as Draw, Fill, Grid Copy etc Includes FREE basic routines and demo progs.

PICSTRIP £6.99

Full screen picture manipulator.
Supports GFA, FAST and ST BASICs.
Compatible with DEGAS, NEOCHROME and AB ANIMATOR.
Grab all or part of a picture in all resolutions.

QUICK LIST PLUS & MASTERMAT £6.99

Directory Database Compiler with customised format and copy protect prog on same disk.

EDUCTIONAL SPELL AND ADD WITH OSCAR £12.99 EACH

Spell teaches keyboard skills, spelling and motor coordination while Add teaches addition, subtraction, multiplication, and division.

TO ORDER Simply send, or phone your order, stating full name, address, VISA or ACCESS No's, Cheque or Money Order.
Make payable to:
LADBROKE COMPUTING INTERNATIONAL.
SEND SAE FOR FULL CATOLOGUE.

Our mail order dept. gives the same excellent service to our cutomers as our premises at the above address has done for the past 8 years. All Software/Hardware has been tested prior to delivery thus ensureing that customers receive working items and the frustration of returning faulty goods is now a thing of the past.
This kind of quality service does cost a little more but in the long run it is far cheaper.
All prices fully inclusive of VAT. Delivery, there are NO hidden extras. WYSIWYG.
For next day delivery add £3. Prices correct at time of going to press.

REVIEW

FAIR CRACK OF THE WP

Word Processing – it's the most important business application there is. Ben Taylor surveys the ST and Amiga scene, where new arrivals are threatening old faithfuls.

Everybody knows what a word processor is – a piece of software to help you produce neatly printed typescripts, and avoid exposing your appalling handwriting to ridicule. Software for the ST and Amiga isn't cheap, and the average price for a word processor is £70 or so. At that rate, you can't afford to make the wrong choice, so read on and find out which is the best one for you.

What should you expect?

The ST and the Amiga are both WIMP computers. This doesn't mean that they burst into tears when things go wrong, only that they provide the wherewithal for programs to run with windows and a mouse for maximum user-friendliness. Virtually all the word processors in this article use the WIMP system, where you mark blocks of text with mouse clicks and point to the relevant choice on a menu to make a style change.

Popular wisdom has it that a WIMP system is always a Good Thing. This is not true. For word processing in particular, programs that use the mouse a lot are often very hard to use, because when typing it slows your input speed right down if you have to take your right hand off the keyboard to move and click the mouse. For this reason, most programs allow you to use keystroke shortcuts for menu operations: 'Delete Line' might be [Control]+[Delete] on the ST, [Amiga]+[Del] on the Amiga.

Another current buzzphrase is WYSIWYG (What You See Is What You Get). This means that the screen shows a close approximation of what the printer will produce when its turn comes. Almost all word processors claim to be WYSIWYG, with varying degrees of truth. You should at least be able to see italics as italics, bold as bold, underline as underline and where the line breaks fall, which are the important things. Word processors that offer you fancy fonts may not be all they seem – unless you have a very good (=expensive) printer, you will get the best results by doing simple output using the printer's own fonts.

Features to look for

There's no real point dwelling on the basic word processing features. All programs have a core of functions to underline text, set margins, mark and manipulate a block of text. There are subtle differences in the way each program does these things, but you can get used to most variations. Here follows a list of 'value-added' features; very few word processors will have them all, but you can decide which ones are the most important to you.

SPELL CHECKER

The obvious add-on for a word processor. It is important that your word processor can spell check from within the word processor; usually you just choose a 'Spell' menu option and you're off. Cheaper WPs make you save the document, exit from the WP and run a separate spell checker program. Some programs even offer a 'Continuous checking' option where every word you type is checked as you type. This is probably overkill as it will slow your typing down abominably.

Your dictionary will probably come on a separate disk with between 50,000 and 100,000 words on it. (The words aren't all different – 'armadillo', 'armadillos' and 'armadilloid' would count as three.) For efficient spell checking it is essential to have two disk drives or enough memory for a large RAM disk to hold the dictionary.

MAIL MERGER

These are the things that generate the classic Once-In-A-Lifetime mail order offers: "You, Mr. Drainpipe, have been chosen from all the Mr. Drainpipes in Gutter Crescent for our Prize Draw!!!" and so on. You make up a standard letter in the word processor, leaving blanks where the person-specific data is to be inserted. By giving each item of data a name like "surname" or "amount_owed" you can read this data from another file and run off hundreds of form letters. As for the data itself, you can either type it in to a separate document using the word processor, or import it from a database.

THESAURUS

As the name suggests, this is a version of Roget's Thesaurus with hundred of thousands of implausible alternatives for words. Have hours of fun looking up synonyms of bodily functions. As with a spelling checker, the sheer size of the dictionary often demands two drives or lots of RAM. Using a spelling checker and a thesaurus is usually impractical – 2 to 4 megabytes of memory might do it.

OUTLINER

Outliners have recently become very trendy, probably something to do with the Filofax revolution. They are structured writing tools to encourage you to plan long documents properly. First you enter your main categories, which are numbered I, II, III etc., then the sub-headings A, B, C... within each, then sub-sub-headings 1), 2), 3)... and so on. The outliner can move and edit blocks and readjust the nesting of levels as required. You can then view the outline at different depths, or expand it into a full document.

TEXT JUSTIFICATION

An important area this, and sadly one that almost every WP reviewed failed on. When you ask for justified text what should happen is that every space on the line is expanded equally. This is called 'microjustification'. Since this means having fractional spaces, most WPs cop out and put in whole spaces in some places and forget about others, which makes the word spacing in a line uneven. For reference, the lines in this magazine are properly microjustified.

GRAPHICS IMPORT

It can often be handy to include pictures in your documents. An obvious use is to put graphs into business reports, but a more subtle application is to import headlines prepared in a fancy font with an art package. Almost all Amiga word processors can do this, but very few ST ones. The Amiga has the advantage of having a very standard

picture file format called 'IFF', whereas the ST has several different formats to confuse programs with.

AUTOSAVE

Some WPs can be told to save your document every 10 minutes or so, minimising the risk of lost text should the worst happen. This can be very handy if your power supply is prone to spikes or other irregularities.

MULTICOLUMN TEXT

Being able to run text in two or three columns like magazines can be ideal if you are preparing newsletters, but very few word processors offer it. Like Graphic Import, if you are crying out for multicolumn text you should be looking at Desktop Publishing.

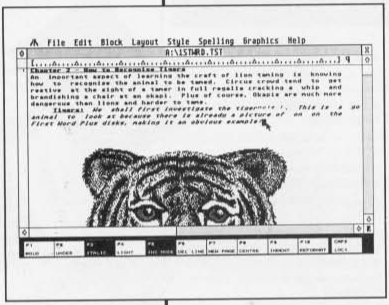
FOOTNOTES

A nice frill, particularly if you are an academic writing earnest treatises for earnest journals, is the ability to add superscripted numbers to the body of the text and print them out at the foot of the page with small-type notes.

ASCII SAVE

ASCII (American Standard Code for Information Interchange) files are just document files with all the information about margins, bold, italic etc stripped out. This makes them totally independent of the word processor they were written on, and much more suitable for exporting to other programs.

1ST WORD PLUS
£79.95 ■ Electric Distribution/ GST ■ ST



■ *1st Word Plus showing our old friend the GEM armadillo – or is it a tiger? When you're in graphics mode the screen is squashed to give you a better idea of relative size of text and graphics; with graphics off the text is normal height.*

1st Word Plus is one of the very few ST word processors that can handle graphics. You can read in Degas, Neochrome and Doodle format pictures, and there's even a 'snapshot' utility to capture screens directly in Degas format. In fact, the full feature list is very impressive, including an efficient spell checker and mail merger. One nice feature is the ability to print in multiple columns, although this is purely a print-time operation and you can't see your columns on screen.

However, the package falls short of being a classic word processor because of several little niggles: the menus have very few keystroke shortcuts which slows typing down, you can't print the file currently in memory (you have to save it to disk and print it from there), if you select a block of text and choose a new style like 'bold' you have to click on Restyle to effect the change; and a most heinous crime, the manual has no index.

Still, 1st Word Plus is a fast and efficient word processor with good features and a good display. If the ability to mix graphics and text is important, it's most definitely the word processor to go for.

features	4.5
performance	3.5
ease of use	3.5
manuals	3.5
format value	4

K-WORD 2
£39.95 ■ Kuma ■ ST

K-Word doesn't pretend to be an all-singing, all-dancing word processor, and it isn't. It does come with a mail merger and spell checker, but to use it you have to exit K-Word, run K-Spell and then return, which is tedious.

Disappointingly little use is made of the menus. Functions like Print and Save are there, but there is no Style menu. To set text in bold you resort to good ol' control sequences like [Control]B, which you have to look up in the manual and remember. Black marks for no index.

However, K-Word is a competent WP which scrolls and does find-and-replace efficiently, and since it is pleasantly priced it makes a fair entry level program.

features	3.5
performance	3
ease of use	2.5
manuals	2
format value	3

WORD WRITER
£79.95 ■ Electric Distribution/ Timeworks ■ ST

This is a lovely word processor; if it could mix graphics with text it would be perfect. Word Writer has a mail merger, spell checker and Thesaurus, all of which are well integrated.

There are ample keystroke menu shortcuts to pacify the expert user, and a good selection of extra mouse-clickable panels at the bottom of the screen. If you dislike obscure keystrokes you can do one click on these panels to, say, turn bold on or off. In other words, mouse-operated menu shortcuts! WordWriter scores over its nearest rival, 1st Word Plus, with an outliner to help you thrash out the basic structure of more complicated documents.

features	4.5
performance	4
ease of use	4.5
manuals	4
format value	4.5

■ *Word Writer showing off its Thesaurus. It automatically looks up the word at the cursor and allows you to insert the replacement.*

The one serious complaint against WordWriter is its ruler. You only have one per document, and no auto-reformatting. On a long document you are supposed to change the ruler, reformat the paragraph you want, leaving the rest unchanged. If you accidentally reformat the whole document you could lose a lot of structure. Multiple rulers are definitely needed!

It's touch-and-go to decide between WordWriter and 1st Word Plus, but overall WordWriter simply feels better – it makes better use of the GEM windows and has a faster response.

HABAWRITER
£39.95 ■ HB Marketing ■ ST

Habawriter is the pick of the lower priced word processors. Included in the relatively modest price are a mail merger and spelling checker, although like K-Word you have to run the spelling checker as a separate phase after you've finished editing.

It has an annoyingly sluggish response to some commands like block definitions, but is quick enough at scrolling and replacing. In contrast to K-Word where too many commands are key-combination only, HabaWriter has virtually no key shortcuts. Another niggle is that underlining is 'word only', meaning it does not underline spaces and tabs, which looks odd.

Other than that, HabaWriter provides all the necessary features of word processing competently enough, and is quite satisfactory for most purposes.

features	**3**
performance	**3**
ease of use	**4**
manuals	**2.5**
format value	**3.5**

WORDUP
£59.95 ■ HB Marketing/ Neocept ■ ST

WordUp looks very sophisticated. It avoids the ordinary boring GEM character font but instead offers a choice of Dutch, Swiss or Typewriter faces, in about three sizes, which can be freely mixed within a document. The fonts are proportionally spaced so 'i's take up less space than 'm's and, when justified, words are evenly spaced out on the line.

WordUp lacks a spelling checker, which is a blow. On the plus side it has a mail merger, and lets you include any standard format picture file in your document. There is excellent control of the fine detail of style: you can specify how high superscripts ought to be and whether underlining should be dotted, single or double. Almost any system setting can be altered and saved.

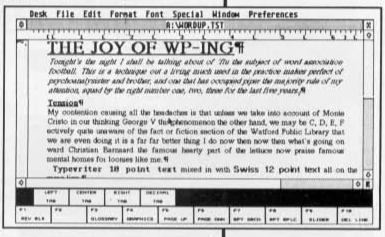
However, when it comes to printing, you're in trouble. WordUp can only print in its three internal typefaces, so you cannot use your printer's inbuilt fonts.

features	**4.5**
performance	**2**
ease of use	**4**
manuals	**4.5**
format value	**3.5**

Text is output in graphics mode, which means it is relatively slow and tends to look ragged unless you have a high quality printer Also, WordUp's designers have chosen an italic font which is horribly overskewed. You can actually send a file to the printer as simple ASCII, but all formatting and style information is then lost.

Still, if you use a laser printer, WordUp will produce excellent results, as its manual demonstrates. A word processor lives or dies by the quality of its printed output – at the moment it's a case of "nice screen, shame about the print." When that's fixed, WordUp will be a cracking word processor.

■ ***Word Up has a beautiful screen display, but unless you've got a 24-pin or laser printer the output will disappoint.***



PROTEXT
£79.95 ■ Arnor ■ ST now, Amiga in July

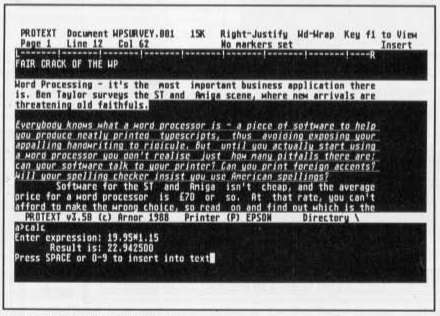
If you ever use IBM PCs or other pre-WIMP machines, you'll feel a nostalgic glow when you use Protext. It totally ignores all the GEM standards and is essentially a keyboard driven text editor. There are no menus or windows; to mark text in bold you type [Control]XB!

Protext works by command lines – press [Esc] and you are in command mode where you can type DIR for a directory or LOAD FRED to load a new file (called FRED). All commands can be stored in files and run as 'macros'.

Although there are no windows you can edit two files at once using the SWAP command to bring either file to the screen. Protext does use the mouse, but only for moving the cursor. This isn't to say that Protext is bad – it's just different.

features	**4**
performance	**4**
ease of use	**2**
manuals	**3.5**
format value	**3.5**

As a program for producing elegantly formatted documents, Protext leaves a lot to be desired, but as a bulk text entry program and programmer's editor it is superb. "What does 'bulk text entry' mean," you ask? As an example, we use Protext on ST Amiga Format for typing all our articles: we never print anything on paper because we send the results for direct electronic typesetting; we need a word processor with a clean, near-ASCII internal document format, so it can be read by virtually any other program. Protext also has a fast word counter.



■ ***Protext's distinctive split-screen display from command mode. Here the result of a maths calculation is about to be inserted into the document.***

GO WITH THE FONTZ!

If you're wondering how Word Up manages such lovely fonts, the answer lies in a program shortly to be marketed by HB subtly titled Fontz. This will let you design new GEM fonts from scratch or modify existing ones, to any size you like, and save them as printer fonts for any resolution printer. All GEM programs which use the correct GEM font mechanism can then access them. Watch these pages for news!

WIN A PROTEXT!

Protext is a paradise for connoisseurs of oddities: one beautiful command is 'qwxcl'. Type qwxcl <address> from command mode and you get a hex/ASCII memory dump of part of the ST's RAM.

Now Arnor seem curiously reticent to reveal why the command is called 'qwxcl', but they have set readers of St Amiga Format a challenge: they will give away two copies of ST Protext to the best (not necessarily correct!) guesses for what 'qwxcl' is. Get your imaginations working and send your entries on a postcard to QWXCL Competition, ST Amiga Format, 4 Queen St., Bath BA1 1EJ by July 22nd. Only one entry per person, and all the usual rules.

REVIEW

AMIGA PHILOSOPHY

One big difference between the ST and the Amiga is the way fonts work. On the ST, fonts are left for the software to organise, but on the Amiga they are built into the standard Workbench boot disk. This means that most Amiga programs – graphics programs, word processors and all – offer you the same choice of Topaz, Ruby, Diamond, Geneva, Opal, Emerald, Garnet and Sapphire screen fonts.

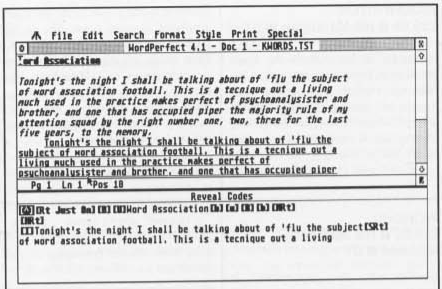
WORDPERFECT

£228.85 (ST)/£293.25 (Amiga)
■ Sentinel ■ ST and Amiga

WordPerfect is the big boy in the word processing field. It sells on all major computer formats, and is now reckoned to be the biggest selling word processor on IBM PCs. Its price shows a disdain for the opposition – the kind of people who will buy WordPerfect are (a) those for whom money is no object and (b) those who, how does one put it tactfully?, get it on expenses.

It takes up 4 Amiga disks or 6 ST disks, and the manual weighs in at over 500 pages. WordPerfect has almost everything you could want – massive dictionaries for the spelling checker and thesaurus mean that you'll be very pushed to run WordPerfect on a single disk machine, although it is possible.

It has to be said that WordPerfect is a disappointment for the money – it lacks a lot. One incredible fault is that if you choose justified text (an even right margin) the right edge is still ragged on screen. The only way to tell that it is justified is by selecting 'Reveal Codes' to show WordPerfect's embedded printer codes.

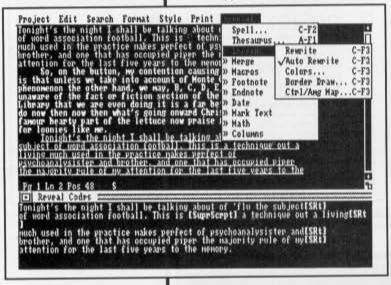


features	4.5
performance	4
ease of use	3
manuals	5
format value	3

The screen display can be set up in two columns, and you can edit text in those columns with correct reformatting as you work. On the Amiga you can call up a new CLI (the Amiga's non-WIMP command line interpreter) from within the word procerssor, which is a nice touch.

Very few concessions have been made to the WIMP environments of the ST and Amiga, and WordPerfect shows its generic PC origins with a bizarre choice of functions key commands (though you do get a function key template as a reminder). There is no provision for graphics within documents and the mouse handling seems buggy when you try to define a block bigger than one screenful.

The manual is exemplary in its indexing and clarity, but frankly the only reason to buy WordPerfect is if you run an office where every other machine you have runs WordPerfect.

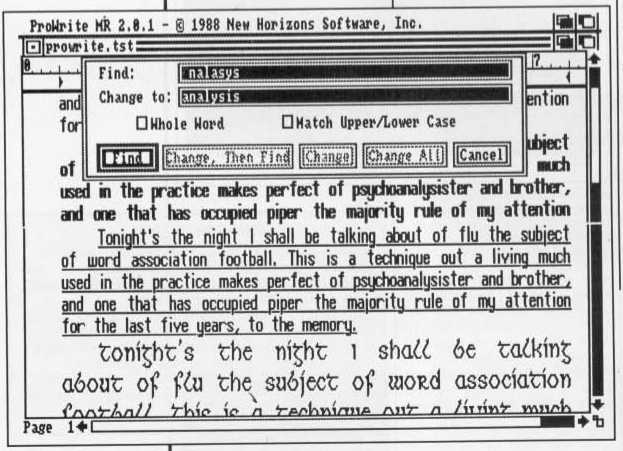


■ *WordPerfect running on the Amiga, but the ST screen (above) is virtually identical. Right justification is turned on, but you can only tell by the '[Rt Just On]' code in the Reveal Codes window.*

PROWRITE

£85.00 ■ Amiga Centre

Scotland/New Horizons ■ Amiga



The ProWrite master disk contains two versions of the program, one for medium resolution screens and another for high resolution. As with the majority of Amiga WPs, ProWrite draws on the printer drivers and fonts provided with the micro. It's fully WYSIWYG, and boasts a spelling checker and mail merger, but no thesaurus. You can import graphics images into documents, and resize and crop them to suit. ProWrite converts your picture into 7 colours only, but since most colour printers can't do full justice to 4096 colours, this is no great loss.

Prowrite's screen update is not very fast – if you insert text into a paragraph, you notice quite a lag between typing and display. However, scrolling and other editing operations are fast enough.

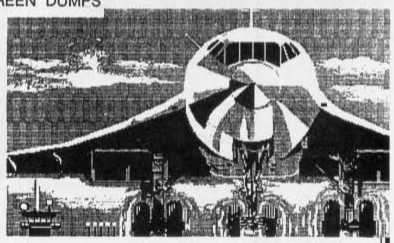
■ *ProWrite taking advantage of the Amiga's extra fonts.*

features	3.5
performance	4
ease of use	4.5
manuals	3.5
format value	3.5

Dare you Try ?

BOMB DISPOSAL

ACTUAL SCREEN DUMPS



The designers, programmers and artists at Classic Software welcome you to a new concept in computerised entertainment. From the moment you first boot up Bomb Disposal you will realise that this is no shoot 'em up arcade game or graphic adventure game, **you** are the trainee bomb disposal expert, with a steady hand and steel nerves. If you are faint hearted or of a nervous disposition we suggest that you revert to a less nerve racking and explosive game.

CLASSIC SOFTWARE

Avilable only from CLASSIC SOFTWARE

Send Cheque or P.O. for £19.95 inclusive To: PO Box 8. Sandown. I.O.W. PO36 8LT

☎ *Credit Card Hotline 0983 864674 or 0983 405600*

VISA

VIZAWRITE

£99.95 ■ HB Marketing/Viza ■ Amiga

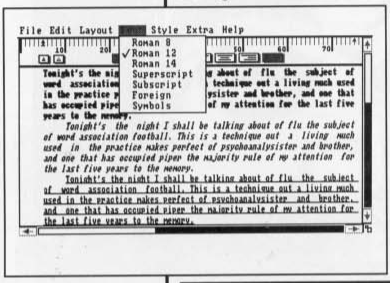
Despite a relatively high profile in the recent past, Vizawrite leaves a lot to be desired. It's a standard Amiga-type word processor, meaning that it can import graphics and display text in all the multicoloured glory of the standard system fonts. However, its main fault is being excruciatingly slow at reformatting. Even a competent typist (most two-fingered typists reach 30-40 words a minute) will get ahead of the screen update as they type in new text. As for modifying existing paragraphs, forget it.

Vizawrite has no spelling checker, unlike most of the others, and uses an odd khaki background for its text (although this can be changed). All in all, there's nothing really to recommend it.

features	**2.5**
performance	**2**
ease of use	**3**
manuals	**3.5**
format value	**2.5**

KIND WORDS

£49.00 ■ Amiga Centre Scotland/The Disc Company ■ Amiga



Kind Words sets out to solve the problem of reproducing screen fonts properly on printers. The snag is that most Amiga WPs lets you produce lovely screens with the Amiga fonts, but the printout is always a letdown. KindWords has a 'Super Fonts' disk which allows you to print text in one of three resolutions (standard, final or NLQ). In the lowest resolution it merely sends the text to the printer as ASCII codes to be dealt with by the printer. In the other two modes it sends graphics of varying complexity to the printer to produce nice fonts.

■ *Kind Words. The review copy still had the American-style short screen, but we're assured that the production version will have a full depth PAL screen.*

KindWords produces the best printed output of the Amiga WPs, and has good printer drivers to get results out of cheap printers. Even so, your printer's own NLQ fonts would still be better. As a word processor, KindWords has all the usuals in terms of mail merging commands, spelling checker and graphics import. It lacks an independent word counter (you have to go to the spelling checker).

KindWords has some nice ideas on the graphics and printing side, and its price gives it the edge over ProWrite as the best all-round performer.

features	**4**
performance	**3.5**
ease of use	**4**
manuals	**3**
format value	**4**

SCRIBBLE

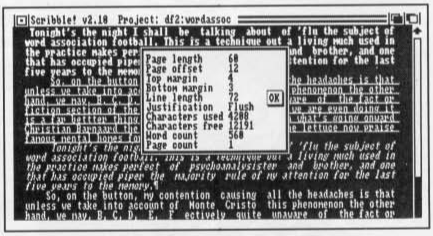
£99.95 ■ HB Marketing/Micro Systems Software ■ Amiga

At first sight Scribble seems a bit bare, compared to the other Amiga word processors. Its screen display uses ordinary text as opposed to one of the larger fonts, and you can't incorporate graphics in your documents.

However, on reflection these are all advantages. Smaller text means more characters per line and more lines per page, with the result that you see a much larger chunk of your document on the screen. Anyway, though Sapphire 24-point text looks lovely on screen, it usually looks pretty naff printed out.

Scribble comes with mail merger and spelling checker. It automatically reformats text as you type and is fairly fast about it, since it is working with characters of fixed size. It has a very unconventional way of handling operations on blocks of text: first you choose the operation (like Cut), *then* you mark the block to be cut. Once you're used to it, though, it's fine.

If you think you can live without pictures in your text – and most of us can – Scribble's simplicity makes it the best Amiga word processor. Scribble is the WP part of 'The Works' software bundle currently being sold in the Amiga 500 summer promotion.



■ *As Harry Enfield would say, there's loadsaroom for text on the screen.*

features	**3**
performance	**4.5**
ease of use	**3.5**
manuals	**4**
format value	**4**

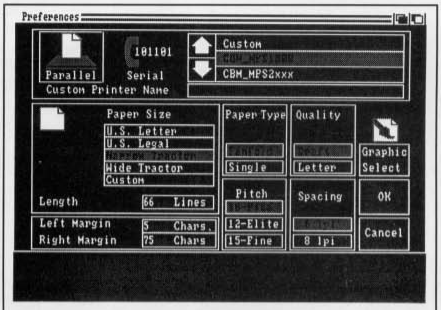
BEST BUYS

APPLICATION	ST	AMIGA
● Writing letters	● 1st Word Plus, WordWriter, K-Word or HabaWriter	● (Any will work adequately)
● Writing long documents (eg. a book)	● 1st Word Plus, WordWriter, WordPerfect or HabaWriter	● ProWrite, Kind Words, WordPerfect, Scribble
● Writing business reports (where the ability to import a graph or other illustration into the document is needed)	● 1st Word Plus, WordUp (if you have a laser printer)	● ProWrite, Kind Words
● Preparing bulk text files for transmission to other systems	● Protext, WordPerfect	● WordPerfect, Protext (due July)
● VERDICT	● WordWriter (or 1st Word Plus if you need graphics)	● Scribble (or KindWords if you need graphics)

What printer?

Printers come in three types – dot matrix, daisywheel and (more recently) lasers. By far the most common type is the dot matrix, where characters are formed by rows of tiny dots punching through an inked ribbon onto the paper. Daisywheels use typewriter technology, punching a whole character at a time onto the ribbon – they give very high quality, but the dot matrix printer can put a dot anywhere on the paper and so produces graphics output too. 95% of home users have dot matrix printers.

Laser printers combine the best of both worlds. They are effectively very high resolution dot matrix printers which have enough dots per inch (usually around 300 dpi) to rival daisywheel text in quality. Lasers cost a lot (£1000 upwards), but if you can afford one it's a great status symbol.



■ ***The Amiga's printer preferences screen, which you use to customise your Workbench disk.***

Setting up your printer

Once you've plumped for a particular printer, you've got to let your software know about it by seleting the correct 'printer driver'. If you've invested in a Zarquan model ZQ12345 you probably won't find it on the 'known printers' list, but don't panic: as long as it claims to be 'Epson compatible' you can tell your computer to use the Epson printer driver and everything should work fine. Look for Diablo compatibility for a daisywheel and HP Laserjet Plus emulation on a laser.

On the Amiga

To tell your Amiga what printer you have, you will need to run the preferences program on your Workbench boot disk. Once in, click on the Change Printer panel at the bottom right and you'll see the Printer Preferences screen come up. The most important thing to do is to go to the window at the top right and click on the scroll arrows to look through the list of available printers, then click on the one most similar to your own printer.

Once you've saved these new preferences to your Workbench disk all your Amiga programs should pick up the correct driver. Most Amiga software comes on its own boot disk, so there may be a wider selection of printer types than on the standard Commodore Workbench disk.

On the ST

There's no special set-up – each program you run will have its own list of printer drivers. Look in your manual to see how to select the correct one for your printer.

THE NAME GAME

There are 1001 different models of printer to choose from, but as a quick and arbitrary guide: good budget (=£200-ish) dot matrix printers are the Citizen 120, Star LC10 and Panasonic 1082. If you want a colour printer, the Star LC10-Colour and Okimate-20 are widely used. For daisywheels, the Panasonic 3131 is good value; as for lasers, Atari make their own for the Mega ST, but Amiga owners should scan the field.

UK SUPPLIERS

Electric Distribution – 103 Bashley Road, London NW10 6SD (01-965 5555

Kuma Computers – 12 Horseshoe Park, Pangbourne, Berks RG8 7JW (07357 4335)

HB Marketing – Brooklyn House, 22 The Green, West Drayton, Middx UB7 7PQ (0895 444433)

Arnor – Protext House, Wainman Road, Peterborough PE2 0BU (0733 239011)

Sentinel – Wellington House, New Zealand Ave, Walton-on-Thames, Surrey KT12 1TY (0932 231164)

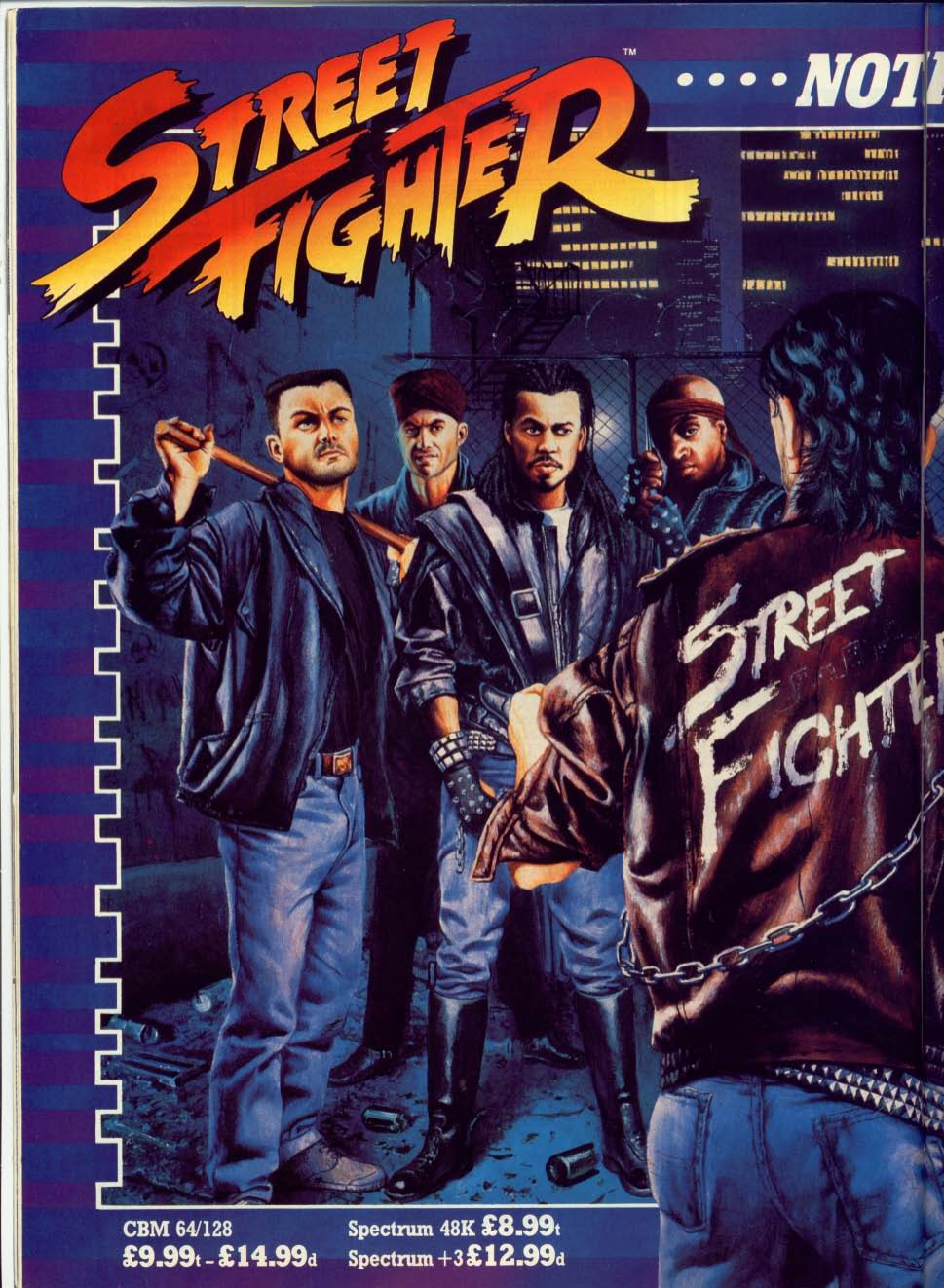
Amiga Centre Scotland – 4 Hart Street Lane, Edinburgh EH1 3RN (031-557 4242)

HOW THEY MEASURE UP

Name	Price	Machine	Mail Merger	Spelling Checker	Thesaurus	Micro-justifcn	WYSIWYG	Footnotes	Outliner	Two col. printing	Graphic import	Maths	Auto reformat	Word count①	Variable txt height	Autosave
1st Word Plus	79.95	ST	y	y	n	n	y	y	n	y③	y	n	n	y	n	n
Word Writer	79.95	ST	y	y	y	n	y	n	y	n	n	n	n	y	n	n
Protext	79.95	ST②	y	y	n	y	y	n	n	y	n	y	n	y	n	n
K-Word 2	39.95	ST	y	y	n⑤	n	y	n	n	n	n	n	n	y	n	n
Haba Writer	39.95	ST	y	y	n	n	y	y	n	n	n	n	n	y	n	n
Word Up	59.95	ST	y	n	n	y⑥	y	y	n	y	y	n	y	y	y	n
WordPerfect	(228.85 (ST) (293.25 (A)	Both	y	y	y	n	n	y	y	y	n	y	y	n	n	y
ProWrite	85.00	Amiga	y	y	n	y⑦	y	n	n	n	y	n	y	y	y	n
Vizawrite	99.95	Amiga	y	n	n	y⑦	y	n	n	n	y	n	y	y	y	n
KindWords	49.00	Amiga	y	y	n	y⑦	y	n	n	n	y	n	y	n	y	n
Scribble	99.95	Amiga	y	y	n	n	y	n	n	n	n	n	y	y	y	n

① 'Word Count' means without spell checking the file
② Amiga version due out in July
③ Prints in 2 columns but doesn't show on screen display
④ Partial – bold shows as reverse video
⑤ K-Roget is £49.95 extra, but needs 2Mb.
⑥ Only prints in graphics, can't print in a printer's internal NLQ font
⑦ Amiga graphics fonts microjustified, printer NLQ fonts padded with hard spaces

STREET FIGHTER™



CBM 64/128
£9.99t - **£14.99**d

Spectrum 48K **£8.99**t
Spectrum +3 **£12.99**d

THING STANDS IN YOUR WAY

Screen shot from Spectrum version.

Screen shot from Amstrad version.

Screen shot from CBM 64/128 version.

Screen shot from Atari ST version.

EXPLOSIVE COIN-OP ACTION!

Battle your way across the globe taking on the mighty fighting power of 10 awesome exponents of hand to hand combat.

"A SINCLAIR CLASSIC"

"Thoroughly impressive combat game which knocks Renegade for 6. Go damage someone." *Sinclair User*

"It's fast, good looking and well hard" *Your Sinclair*

CAPCOM™

GIANTS OF THE VIDEO GAMES INDUSTRY

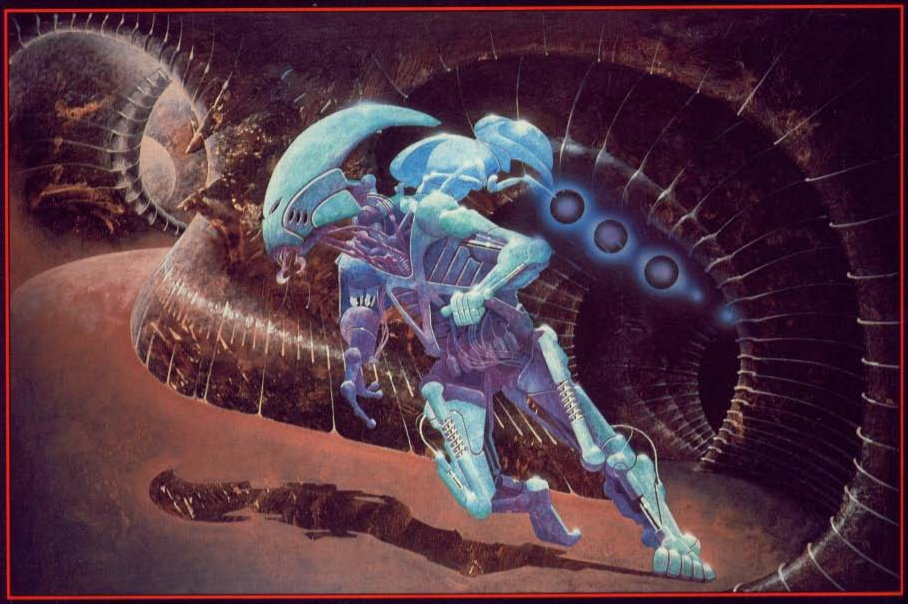
Amstrad
£9.99t – £14.99d

Atari ST £19.99d
Amiga £24.99d

GO! Media Holdings Ltd. A Division of U.S. Gold Ltd.
Units 2/3 Holford Way, Holford, Birmingham B6 7AX.
Tel: 021 356 3388.

CAPCOM U.S.A., Inc. © 1987

OBLITERATOR



OBLITERATOR

You are Drak the Last of the Obliterators, a genetically enhanced and awesome fighting machine, bio-engineered for the execution of incredible tasks, the ultimate solution to the most cataclysmic of predicaments.

In the voids of Federation space an alien cruiser has materialised. It is a ship of sinister and foreboding power. Federation defences have been smashed. Earth lies exposed, there is only one hope and you are it!

Summoned by the Federation council, your assignment is to use a prototype matter transporter to infiltrate the alien cruiser. Armed with a particle beam disrupter, lasers and whatever the alien habitat can provide, you must cripple the alien vessel thus enabling its destruction.

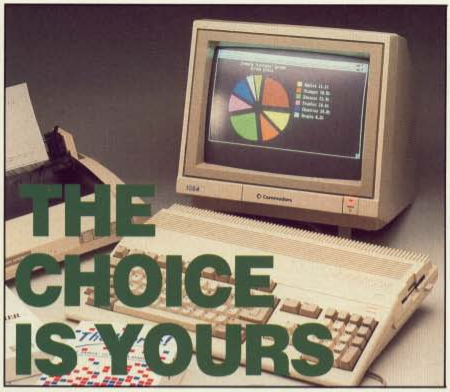
OBLITERATOR — £24.95

Other Psygnosis Titles

Terrorpods	— £24.95
Barbarian	— £24.95
Deep Space	— £24.95
Arena	— £24.95
Brataccas	— £24.95
Arena/Brataccas	— £29.95

All available for 512K Colour, Atari ST, Commodore Amiga.

PSYGNOSIS
FREEPOST
LIVERPOOL L3 3AB
UNITED KINGDOM
Telephone: 051-236 8818



THE CHOICE IS YOURS

Which machine – ST or Amiga? Richard Monteiro wades through the waffle to highlight the differences and similarities between the two micros and recommends the best choice for particular applications.

For business or pleasure, the machines making waves are Atari STs and Commodore Amigas. That's undisputable. But if you're a newcomer to the 16-bit world or you fancy upgrading your current model, the problem is deciding which machine to choose. Each has its good points and each its bad. More confusing is that both manufacturers have introduced several versions of each computer – some are being pushed into the entertainment arena and others into the bacchana of business.

Machines are one thing, but what about software and support? Thankfully, there's no longer that nagging doubt. Software is out there – plenty of it, with new releases hitting the shelves every month. The same is true for hardware: there are enough add-ons to keep the most ardent gadget freak happy. Even Atari and Commodore are about to produce new machines; that can't be bad.

That's the short term view. What will happen in six months, a year, even two years? The popular belief is that both machines are here to stay – in this country at least. In America the Amiga is seen as the machine to own; the converse is true in Germany where STs have the stronghold. This division is reflected globally – some countries have taken to the Amiga, some to the ST. It means good news for machine owners here, as foreign flavours in hardware and software will be around for a long time to come. Indeed, this is already much in evidence with many companies already flaunting imported goods.

Electric avenue

In the beginning there was the 520ST. This useful beast had no internal drive and GEM (the operating system) had to be booted from disk. Soon afterwards the 520STM arrived. This too had no in-built drive, but had the operating system embedded in ROM and a modulator socket for connection to a TV – hence the M in the name.

After the 520STFM – which now comes with a double-sided 80-track drive (take care when buying one that you're not palmed off with an earlier model with a single-sided drive) – came the 1040. And it was less than a year ago that the Megas, with larger memories and blitter, made an appearance in Britain.

Not to be outdone, Commodore introduced the A1000 with 256K of memory, Kickstart (the low-level operating system) on disk and a £1400 price tag shortly after the 520ST hit the streets. Those days are gone; and so too has the A1000. In its place, Commodore sprung the A500 and A2000 on the world. The 500 has 512K (expandable to 1 Mbyte) while the 2000 has 1 Mbyte (expandable to 4 Mbyte and slots for expansion cards).

Why so many versions of each computer? Commodore's line is that the 500 is a games machine, while the A2000, which can be made to emulate an IBM PC is being pushed as a business machine. It makes sense as the 2000 is well beyond the reach of most peoples pockets: the starting price is around £1100 for a single drive machine without monitor – not very useful in the office. Atari are taking a similar stance. The 520, and to a certain extent the 1040, are aimed at the lower end of the market – the entertainment sector. Atari's current bundling deal emphasizes this point: 22 major games titles and a joystick thrown in with the 520 for the summer.

PING PONG

Nolan Bushnell, who created the first video game titled Pong, was also responsible for naming his company "Watch out or I'm going to get you on your next move." If you're genned up on the Chinese game Go, you'll know that's the long way of saying Atari.

FRIEND OR FOE?

Amiga is Spanish – and for that matter Portuguese – for girl friend. But try touching more mature ladies in the right places from the Workbench and their true thoughts will be revealed. Hold both ALT keys, both Shift keys, function key F1 and swap the disk in the drive. Naughty, naughty.

BIT BLASTERS

So what's all the fuss about 16-bit? In one number, 68000. It's the common factor that links the ST and Amiga. At the heart of both computers is Motorola's 68000 silicon slither. This chip – which was announced in 1977 and appeared in 1979 – was conceived as a competitor to Intel's 8086/8088 (which has since found a happy home in IBM PC and its countless clones).

Sixteen-bit processors can handle big numbers, up to 65535, in a single operation. This is the most significant difference between 8-bit and 16-bit processors. Of course, its 14 different types of addressing mode, 17 registers capable of storing 32-bit numbers, relatively simple assembler syntax and the ability to address 16 megabytes of memory help to make it a firm favourite of software and hardware enthusiasts. The 68000 is the 16-bit beast causing the commotion and stealing the thunder from ageing 8-bitters (like the Z80 and 6502 which can be found in Spectrums and C64s). The Amiga and ST are the next generation of computer on the cutting edge of home micro technology. Obviously, other custom chips inside the computers help to make the machines what they are – Powerful.

COMMODORE AMIGA

The A500 comprises 512K of memory, an internal 3.5" double-sided 80-track drive and operating system on ROM – the whole caboodle in one stand-alone unit (except for the power supply). The 2000 consists of two bits: the keyboard and processing unit. The main unit houses one megabyte of ram and depending on your requirements can hold a Bridge Board (for PC emulation), hard drive or 5.25 drive. All units come with an internal 3.5" drive identical to the A500 and have the option of a second internal or external drive. Other differences include fan, internal slots for expansion cards and a better keyboard.

GRAPHICS

User-definable modes and a staggering palette of 4096 colours. Normal operational modes include 320 by 200 resolution with 32 colours on screen at once, 640 by 200 with 16 colours and a special hold-and-modify (HAM) mode which lets you have all 4096 displayed at the same time (restrictions come in to play which make this mode less than useful for animation). These modes can be displayed on televisions or Commodore's 1084 monitor. Using a special technique called interlacing the Amiga can double its horizontal line count; a special long persistence monitor is required. With specialized chips like the Copper co-processor and Blitter chip the Amiga makes light work of shifting large amounts of screen memory. Amongst its facilities are eight 3-colour and four 15-colour hardware sprites.

SOUND

The custom sound chip, affectionately called Paula (is she Spanish or Portuguese? – Ed) , provides the Amiga with stunning synthesizer-like musical power. Four voices can be used which have fully definable wave forms. Amplitude- or frequency-modulated sounds are possible. And output is in stereo with two voices per channel.

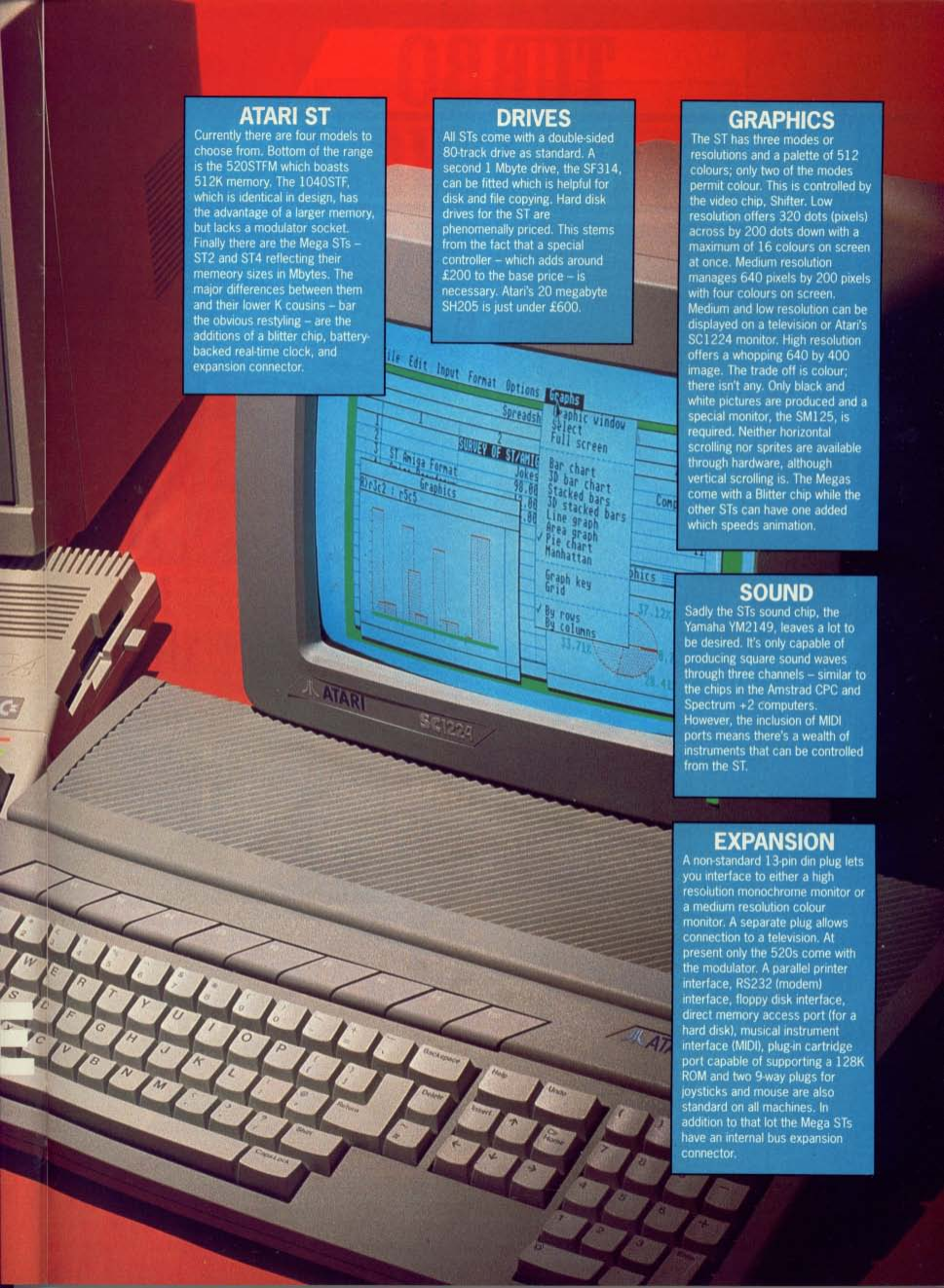
EXPANSION

Analog RGB, digital RGB, monochrome (composite video) and standard television jacks are present on the A500. The A2000 offers RGB and mono video only although, internally, it has an NTSC/PAL coder for composite video. A parallel printer interface, RS232 (modem) interface, floppy disk interface, 86-pin expansion connector, memory cartridge slot, audio outputs, lightpen jack and two 9-way plugs for joysticks and mouse are also standard on both machines. The 2000 also has several internal slots for PC cards and further expansion.

DRIVES

A second 3.5 inch 1 Mbyte drive, the A1010, is available and advisable. Hard drives for the A500 aren't available from Commodore; and this situation doesn't look to change in the near future. The A2000, on the other hand, can accept either an Amiga hard drive or a PC hard drive – it depends how you wish to use the machine (and how much you're prepared to pay).

THE CHOICE IS YOURS



ATARI ST

Currently there are four models to choose from. Bottom of the range is the 520STFM which boasts 512K memory. The 1040STF, which is identical in design, has the advantage of a larger memory, but lacks a modulator socket. Finally there are the Mega STs – ST2 and ST4 reflecting their memeory sizes in Mbytes. The major differences between them and their lower K cousins – bar the obvious restyling – are the additions of a blitter chip, battery-backed real-time clock, and expansion connector.

DRIVES

All STs come with a double-sided 80-track drive as standard. A second 1 Mbyte drive, the SF314, can be fitted which is helpful for disk and file copying. Hard disk drives for the ST are phenomenally priced. This stems from the fact that a special controller – which adds around £200 to the base price – is necessary. Atari's 20 megabyte SH205 is just under £600.

GRAPHICS

The ST has three modes or resolutions and a palette of 512 colours; only two of the modes permit colour. This is controlled by the video chip, Shifter. Low resolution offers 320 dots (pixels) across by 200 dots down with a maximum of 16 colours on screen at once. Medium resolution manages 640 pixels by 200 pixels with four colours on screen. Medium and low resolution can be displayed on a television or Atari's SC1224 monitor. High resolution offers a whopping 640 by 400 image. The trade off is colour; there isn't any. Only black and white pictures are produced and a special monitor, the SM125, is required. Neither horizontal scrolling nor sprites are available through hardware, although vertical scrolling is. The Megas come with a Blitter chip while the other STs can have one added which speeds animation.

SOUND

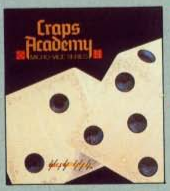
Sadly the STs sound chip, the Yamaha YM2149, leaves a lot to be desired. It's only capable of producing square sound waves through three channels – similar to the chips in the Amstrad CPC and Spectrum +2 computers. However, the inclusion of MIDI ports means there's a wealth of instruments that can be controlled from the ST.

EXPANSION

A non-standard 13-pin din plug lets you interface to either a high resolution monochrome monitor or a medium resolution colour monitor. A separate plug allows connection to a television. At present only the 520s come with the modulator. A parallel printer interface, RS232 (modem) interface, floppy disk interface, direct memory access port (for a hard disk), musical instrument interface (MIDI), plug-in cartridge port capable of supporting a 128K ROM and two 9-way plugs for joysticks and mouse are also standard on all machines. In addition to that lot the Mega STs have an internal bus expansion connector.

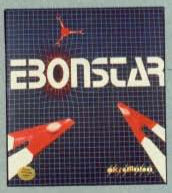
TURBO...
WAR ON WHEELS!

Join the road war and race through the cities, countrysides and treacherous mountains. Face the challenge to survive and use your driving skills while you battle your rivals to be the first to cross the finishing line. Turbo offers single, double and modem playability. **Amiga – £19.99.**



◄ **CRAPS ACADEMY** *Craps Academy will enable you to shoot craps with the best gamblers in the world. Learn which bets are favourable and which bets are for the suckers. Animated dice give you realistic playability, while learning what the numbers on the table mean, and how and what to bet. The table rules can be modified to adhere to the Las Vegas, Reno or Atlantic City house rules. Increase your winnings with Craps Academy.* **Amiga – £24.99**

EBONSTAR *The year is 3,000 AD. Man's natural instinct for competition has been intensified to amazing levels. This has resulted in Ebonstar – where you hurl your opponents into the ever-moving synthetic black hole while avoiding obstacles and attempting to destroy the Ebonstar. Played with one to four players and individuals or teams, skill and strategy reign supreme in Ebonstar.* **Amiga – £24.99** ►



ACTIVISION.

Mail Order: Activision (UK) Ltd., Units 3 & 4 Lloyds Close, Finedon Road Industrial Estate, Wellingborough, Northampton NN8 4SR. Tel: (0933) 76768.

Machine choice

Which machine is best for you? Decisions, decisions... we can't make them for you, but we can certainly put you on the right track. Do you want to use your machine in an office environment? Do you envisage your machine controlling your robotic armadillo? Perhaps you see yourself spending hours in front of a monitor pumping out red-hot code? Or do you plan to stop the aliens from touching down? You know what you want to do with a computer, all you have to do is decide which machine will do the job best. Easy really.

Follow our tables to help you out of your quandary. They show the various models available and the wadge of notes each demands.

■ *Commodore's A2000.. Trapped within are specialist chips Fat Agnus, Denise, and Paula*

■ *The Mega's sleek design hides the legendary blitter graphics chip.*

Other sources

The price of most official peripherals will certainly lessen the weight in your wallet; a third-party offering may prove a wiser choice. For instance, Atari's colour monitor, excellent as it may be, drops in at a penny under £400. Commodore's monitor isn't much cheaper (£350). The Philips 8833 at around £250 seems to be the favourite of many dealers. There are other options, but it's best to hunt around and decide exactly want you want and how much you care to fork out.

Ideally the Amiga's interlace mode requires a high-persistence monitor to cut out the flicker. Mitsubishi manufacture many. But there are several factors to take into consideration: screen size, degree of persistence, size of gun and so on. Whatever you choose, it will cost you upwards of £500.

THE PRICE IS RIGHT

	Atari	£	Commodore	£
Computers	520STFM	399.99	A500	499.99
	1040STF	599.99	A2000	1100.00*
	Mega ST2	1034.99†		
	Mega ST4	1379.99†		
Monitors	SM125 mono	149.99	520 modulator	24.99
	SC1224 colour	399.99	1084 colour	349.99
Drives	SF314 3.5 inch	159.99	1010 3.5 inch	149.99
	SH205 20 meg	599.99	20 meg PC	630.00*
			20 meg Amiga	730.00*

† Price includes monochrome monitor
* Prices are approximate and will vary from dealer to dealer

STORMY WEATHER

After leaving Commodore under a cloud, Jack "there was nothing left for me to do there" Tramiel bought a floundering company from Warner Communications. Jack's President of the company now, his son Sam is managing director and turnover is just swell. The company: Atari, of course.

	Atari ST	Commodore Amiga
Art and design	Has less colours than the Amiga. 520STFM comes with modulator for connection to TV, but for serious work the SC1224 monitor is required.	Favourite with artists. A500 can be connected to TV via modulator, but 1084 colour monitor is best for detailed design.
Business software	A monochrome monitor, second drive – preferably hard – and large memory are the usual requirements for business applications.	The A2000 is regarded as the business machine. Its PC emulation option gives access to thousands of applications and utilities.
DTP	Large memory machines, monochrome monitor and Atari's laser printer make a perfect combination. Hard drive recommended.	Impractical on A500 due to lack of memory. A2000 with hard drive is fine, although third-party laser printer is needed.
Games	Disappointing three-channel sound chip. Midi ports are included, but software requires lots of memory.	Custom four-channel sound chip capable of AM and FM synthesis. Sound reproduced in startling stereo.
Music	Large selection getting better all the time. The minimum spec 520 with modulator or colour monitor is fine.	Graphically and musically excellent. However, relatively few titles are produced for it. . A500 adequate.
Programming	Bundled BASIC is poor and can leave beginners floundering. However, lots of other languages are available.	Excellent BASIC comes with the machine. Lower level programming tough as the machine has a very closed architecture.
Word processing	Monochrome monitor is best. The more memory the machine has, the easier document handling becomes.	A second drive is a good idea. So too is the A2000 simply because it has more memory.

Hard drives – and, indeed, external disk drives – are another sore point. Commodore don't make a hard drive for the Amiga A500 so you have no choice but to seek elsewhere. Try Precision on 01-3307166. They distribute the Supra hard drive which costs £699.95 and has 20 megabytes of storage. Probably the cheapest 20 megabyte hard drive for the ST is the one offered by Silicon Systems (061-848 8959); Big Disc. Cost is £549. Look around for external drives. it should be possible to pick one up for a sprinkling under £100.■

FUTURE FORMATS

It looks certain that Commodore will release two new Amiga machines within the year. The first is the A2500 which is effectively seen as an expanded A2000 with 68020 processor (rather than the 68000), optional XT or Unix plug-in board and a more powerful graphics chip. The A3000 will be a soupped up A2500 with a 68030 processor. Opinion has it that the 68030 machine could be around 10 times faster than current Amigas. No prices as yet, but you can bet they will cost hundreds of pounds more than the A2000.

Perihelion Hardware of Cambridge – best known for their work on the Atari Abaq transputer-based machine – are currently prototyping an ST laptop computer. Although little is known about the machine, rumours have it that it will be available around Christmas priced at under £600. Also on Atari's list is a 1040STFM which, logically, will have a modulator included.

FORMAT LETTERS

Totally genuine comments, questions and cat-calls on all aspects of the ST Amiga scene.

Left, no right

Why does the whole computer world try to treat the ST and Amiga as pure games machines. They're so much more than this with their high-resolution graphics, superb sound systems and fast processors. There is now plenty of serious software available which just goes to prove that they make ideal business machines. Don't consign them to the kiddies playroom, bring them into the office where they belong.

B.B. Ness
London Centre for Hard Work

■ *Couldn't agree more*

Right, no left

Why is everybody trying to force the Amiga and ST into business. It's so obvious they were built to play games with their high-resolution graphics, superb sound systems and fast processors. There are masses of high quality games out there which proves that at last the micro's potential is being realised.

Joy Stick
Postschool Playgroups Assoc

■ *Couldn't agree more*

Moving files

How can I transfer files between my 1040STF and the IBM PC at work. The IBM is fitted with an external 3.5" drive (we also exchange data with PC laptops) and will take an ST disk, but the PC comes up with a 'General failure error'.

A.M. Eager,
Cheam, Surrey

■ *You've obviously tried to run the ST disk directly and nearly cracked the problem yourself. If you'd tried transferring data from the PC on a disk* formatted on the PC *(720K drive, not the high density 1.44M variety) you would have found that the ST can read and write to that without problems. As long as the transfer disk is formatted on the PC, both machines should be able to share data.*

The alternative route would be to transfer data via the serial ports of each micro. Connect the two with a 'null modem' lead (not one designed for a serial printer) and run a comms package such as Kermit (versions are available for both micros from most Public Domain libraries). Match up the baud rates, parity and number of data and stop bits and away you go. The same serial technique can be used between the ST or Amiga and most other micros.

Wrong mag

I've been breeding Argentinian Tapirs for the best part of 10 years now and take strong exception to your recent feature on fertility testing. It's commonly known that the ovulatory cycle of Tapirs is easily predictable with an instrument no more sophisticated than a clinical thermometer. Perhaps Mr Thrumpet should consult my book *Tapirs from the ground up* before making such rash statements as those in his article.

L.E. Fant,
Quorn, Leics.

■ *It's worth pointing out that ST Amiga Format is designed to cover all hardware and software available for the Atari ST and Commodore Amiga micros, and can boast very little expertise in the area of Tapir husbandry. If you have any problems directly concerned with the use of either of the above microcomputers we'd be only to happy to hear from your again. As it is, we feel your present letter would be better directed to a nature journal, though you are of course right about the ovulatory cycle.*

Software shortage

Why is it that the ST has much more software for it than the Amiga, which is so obviously a superior machine. There are at least three titles available for the ST for every one on the Amiga. It isn't fair.

S.T. Gnaff
Preston

■ *Fairness doesn't really come into it, it's all down to market forces. In Britain, and most of the rest of Europe, the ST was launched at a much lower price point than the Amiga 1000 and had close to a year's start before the A500 was released as a competitor. Software houses started to write for the ST soon after its launch and have continued to regularly release new games or conversions in this format. The Amiga market is still somewhat behind this, as fewer Amigas have sold. The situation is changing all the time, though, and more titles are released simultaneously in both formats. There is also a lot more software imported from the US, as the Amiga has a much stronger market than the ST over there.*

We're not really in the business of arguing which of the two machines is the better. They both have their strengths and weaknesses and it's pointless trying to pit one against the other. ST Amiga Format *intends, as far as possible, to maintain a balanced mix of features and reviews for the two machines.*

NAH! CLEVER DICKS

OK, so the letters on this page aren't genuine. You spotted it but don't win £5 for being a smartie. Rather than fill this page with letters from other mags which happen to be kicking around the floor, we thought we'd put together a sample cross-section of would-be letters to *ST Amiga Format*. We don't really want to do the same thing next month, though, so please write to us with any comments on the ST and Amiga scene, ST Amiga Format or any other relevant aspect of micro-computing. Technical questions are also welcome. We want to read your opinions and problems, and will publish the most interesting or controversial in our pages.

Send your letters to: *Format Letters, ST Amiga Format, 4 Queen Street, Bath BA1 1EJ*

REVIEW

SUPERBASE PROFESSIONAL

Much heralded as a 'serious' application for ST and Amiga, Superbase Professional claims to provide a true relational database with a dBase style programming language. Simon Williams gets caught up with mice and dongles.

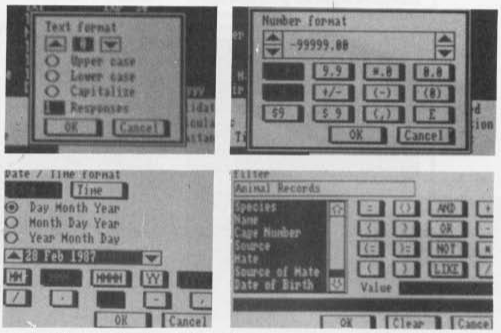
Amiga and ST ■ £249.95 ■ Precision Software, 6 Park Terrace, Worcester Park, Surrey KT4 7JZ ■ 01-330 7166

Since their launch onto the micro scene, both ST and Amiga have been thought of variously as games machines, graphics and sound manipulators and good 'home' computers. Certainly there were a few word processors for each but they were still lacking the 'serious' programs which would earn them recognition as worthwhile business machines. One of the first such programs was Superbase Personal, a window-oriented relational database with cassette-recorder controls (compact disc if you want to be yuppy about it) and a wide range of 'power-user' functions. Precision Software's latest release, Superbase Professional, builds on this idea by adding a powerful form editor and a programming language for building your own applications.

What's in the box?

Superbase Professional comes in a grey slipcase containing disks, two manuals and, on the Amiga version only, a small plastic 'dongle' which has to be plugged into the joystick port before the program will work. The manuals are fat, ring-bound affairs, well presented and with plenty of screen shots for illustration.

The first volume covers the basic features, essentially those of Superbase Personal, and has good tutorial sections on file creation, report generation and printing, and plenty of reference material. The second volume covers the additional features of the Professional version of the product, with details of the programming language and forms editor. The programming language is given much the same coverage as a BASIC reference manual gives BASIC and there is no noticeable tutorial material on program writing. This may be OK with BASIC, where there are plenty of third party books on programming, but a specialist language like this does require guidance from the authors. The occasional program fragment is not really enough.



■ ***Some of the comprehensive selection windows for field types and filters. Superbase makes extensive use of this type of window, which in general is very easy to use. It would be handy to have auto-repeat on the text length arrows, though.***

Forms, records and tables

As with any database manager, the first thing you have to do is define your file structure. In Superbase this means selecting the New File option from the Project menu. After giving the file a name and optional password the main field window

I SAY, I SAY

On the Amiga an interesting extra dimension is added to the report listing by the Say option. With this selected the report is fed through the speech processor, which chomps through the wording with barely a pause.

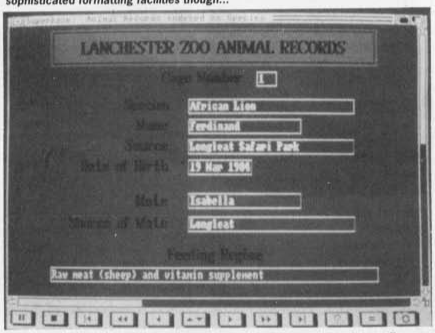
If the pause icon worked on reports, if there were more keyboard shortcuts for mouse driven commands or if the speech synthesizer could be used in other parts of the program, there could be distinct advantages for the partially sighted user. As it is, the Say option is not much more than a gimmick.

DONGLES

Software protection is a thorny problem, with software companies wanting to protect their investment and software users wanting as little hindrance as possible in using their purchases. Large companies and general market resistance have virtually ended software protection on serious PC software and it's surprising that Precision still feel they need to protect the Amiga version of Superbase with a dongle, especially when the ST version doesn't have one.

The Superbase Amiga dongle is a small sealed unit which plugs into the second joystick port. Without it the program won't run and dumps you unceremoniously back at the workbench. While *ST Amiga Format* deplores the illegal copying of software, we also stand by those users who expect to be able to use and back-up the software for which they have paid good money without the inconvenience of dongles and other protection devices.

■ *Once you've defined the fields in your file, Form view lets you rearrange them on the screen and group them together for readability. If you want more sophisticated formatting facilities though...*



■ *...you have to go to the Form Editor, which lets you add colour, boxes, lines and graphics to the screen and include fields from more than one file.*

■ *The split-screen program editor lets you see your record and a program segment at the same time. Full text editing facilities are available and, as you'd expect, line numbers are not in evidence.*

comes up and it's then just a question of naming fields and deciding on their types. However sophisticated your database program there's no real alternative to planning out your record on paper before entering figures into your micro. Plan the overall shape of the screen display, where you want different fields to appear and which ones should be grouped together. Make sure you've got the lengths of each field right.

Superbase is more forgiving in this area than most databases as you can return to the fields window at any time and change the size or type of a field. You can also change the format of the record itself in the Forms View mode, one of three optional display formats available for any file. You simply click on the field you want to move and drag it to its new position. To complete a file definition you have to specify at least one of the fields as a key by which Superbase can sort all records into order.

Once the file is defined, a blank record is displayed in Record View. This simply shows down the left hand side of the screen all the fields listed in the order they were created. The alternative views are Form View, where you can position fields in any order and in any position you like on the screen, and Table View where each record takes up one line of the display and you can scroll sideways to see all the fields. Views can be alternated at any time, but new records are always added in Form or Record view and the format shifts automatically. Entries are formatted according to the attributes you set up when defining the file, so for instance you can enter a date as 21.6.88 and it will be automatically reformatted to 21 June 1988, if that is the specified format for the field.

With a few records entered into your file you can start using the control panel. This is the line of buttons at the bottom of the screen which have been designed to mimic the operation of a cassette deck control panel. You can move forward or back a record at a time, or flick through records on 'fast forward' or 'rewind'. You can also change the file's key field, filter records for particular information or call up an auxiliary external file to import graphics or extra text.

Superbase includes a text editor designed for putting together the form letters and reminders most useful with a mail merger, which is also included. Both work well and for simple applications should mean that you can do without a word processor.

JARGON JUNGLE

If you have trouble with some of the terms used in this review, think of the analogy of a card box full of index cards. The box itself is known as a *file*, each individual card is a *record*, and a single piece of information (for example a surname or post code) is a *field*.

A good relationship

Superbase claims to be a relational database, which means you can call on fields from one file while working on another. The advantage of this is that you can economise on disk space by only storing each field once. You could, for instance, call up costings from a finance database against the part numbers in a stock file, or even store details of the animals in a zoo and call up feeding information from a separate file for each animal in turn. Superbase Personal, the original product on which the Professional version is based, can only make these relational links using its query language. The newer product takes this idea a step further with its forms editor which can continuously display fields from many different files on the same screen.

Query is a way of filtering out records which don't match a particular set of rules. Using it you can create a sub-set of the records in your file, which you can then display or print out. In an address list, for example, you might want to pull out records of all people living in a particular area, aged under 35, who own armadillos. You could then mail them with details of your latest armadillo snackfood and expect to get a good response.

Query reports can be very useful and are easy to generate. They also enable information from other files to be brought into the report by specifying 'joins' between fields. You can direct the output of the report to the screen, to a printer or to a disk file. Query is the relational bit of Superbase Personal, which is fine for reports, but it would be much more handy if you could call fields from different files into a standard screen display. You can do this in the Professional version of the program using the Forms editor.

The Forms editor is like an expanded version of Form View, though much more versatile and containing many of the features of a painting package. You can use it to pull together fields froml different files and to combine them on screen with lines, boxes and logos. The finished form can be displayed in a selection of colours and can be up to three pages (80 columns by 66 lines) in length. On the Amiga you can choose 4, 8 or 16 colour screens, with a proportional increase in the display memory used.

For instance, in the zoo feeding example outlined earlier, the foodstuffs used to feed each animal could be given a series of numbers which are used within the Animal Record and Animal Food files to link them together. The foods can then be called up via the form to save entering the feeding regime for each animal individually.

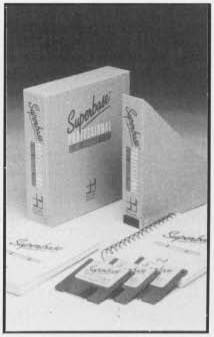
Professional perk

The other innovation included in the Professional version of Superbase is the DML, or Database Management Language. This is a BASIC-like language especially geared to creating customised database applications. It starts with all the variables, arrays, and control structures you would expect to have in a programming language and then goes on to major in file handling and control of Superbase from within. You can automate just about any procedure that you can perform manually through Superbase and can assign short programs (up to 255 characters) to the function keys.

The main use of the programming facility is to tailor the system to your own specific application. You can use it to refine the works of a database and at the highest level you can even redefine the pull down menus to contain only the commands you want. What it isn't capable of doing is writing stand alone databases which you can market independently of Superbase. In that sense it isn't a rival for a product such as dBase IV, but then that version of dBase isn't yet available on either ST or Amiga. A minor annoyance is that you can't create a field within Superbase with the same name as any keyword in the DML. An odd restriction in a modern language.

And for you?

Without doubt Superbase is a powerful and very complete database management system. Because of this power it can also appear complex in use, but Precision have sensibly cordoned off the more esoteric parts such as the programming language, so that the beginner can ease himself or herself into it comparatively painlessly. Considering that the language is largely for tailoring a personal copy of the program to a specific need and doesn't really open the doors to commercial program development, the asking price seems a bit steep, and most users will still be quite happy with the services of Superbase Personal at £99. It would also be reasonable to argue that a Forms Editor of the type now included should really be standard equipment in a modern micro database.■



REVIEW

STRANGE BUT TRUE

Talking of armadillos, few people know that these endearing creatures are the only animals other than humans that can suffer from Hanson's desease. If you keep one, feed it plenty of fruit and green vegetables to avoid this.

MAKING SPACE

On an Amiga 500 you have only about 100K spare for data, so you may need to cut back on the contents of your RAM disk. One peculiar symptom of lack of space is the Amiga's refusal to resize windows within Superbase, making it hard to see the control panel.

VERSION TO VERSION

Superbase is available for both ST and Amiga. The Amiga version is written under Intuition (the WIMP interface used by the Workbench) while the ST version works through GEM. The two are sufficiently similar that the same manuals are supplied for both versions, with appendices highlighting the differences. The main practical differences are the extra screen modes in the Amiga version, which allow more colours in forms (if you have the memory), and use of the speech synthesizer on reports or from the DML.

The differing graphics systems of the two machines are also catered for by compatibility with Degas, Neochrome and .IMG files on the ST and IFF files on the Amiga. Differences in keyboard layouts and key names mean that certain sequences described in the manual have alternatives or replacements on the ST.

for

- **Very full-featured database**
- **Uses graphics interface well**
- **Allows structural changes at any stage**
- **Can display pictures with data**

against

- **Tight on space in a half Mbyte machine**
- **Dongle on Amiga version**

features
0 1 2 3 4 5

performance
0 1 2 3 4 5

ease of use
0 1 2 3 4 5

manuals
0 1 2 3 4 5

format value
0 1 2 3 4 5

AN INVITATION TO JOIN THE BEST

You could be part of the team that creates the blockbusters.

You could be part of the program development force which has won commendations and acclaim from the computer industry.

Yours could be the name featured and revered as creator in the national reviews.

You could earn the respect and security that goes with being part of OCEAN –

The Brand Name in Entertainment Software

Make your mark NOW – If you're accomplished in coding for Z-80, 6502, 68000, or 8086 microprocessors, or have experience in the field of computer graphics/animation then write to us and we will quickly arrange an interview.

That's the invitation...

It's up to you to rise to the challenge ... and if you fit the bill – the rewards will speak for themselves.

ocean

Write at once in confidence to:
Gary Bracey
Software Development
Ocean Software Limited
6 Central Street
Manchester M2 5NS

GRAPHICS

OVER THE RAINBOW

If you thought the spectrum was made up of only seven colours, we've news for you. It's 64 with *Photon Paint* on the Amiga and a brilliant 512 in the ST's *Spectrum 512*. Matthew Gailes and Oliver Shapley dip their electronic brushes.

SPECTRUM 512

ST Only. Requires colour monitor.
£59.95 ■ Electric Software/Antic ■ 0954 61258

At last, from the ever expanding and more confusing ranks of ST art packages comes one which seems to have a legitimate claim to the coveted title of 'Ultimate art package'. *Spectrum 512* is the first ST art package to be able to display all 512 colours on screen at once.

Getting in Sync

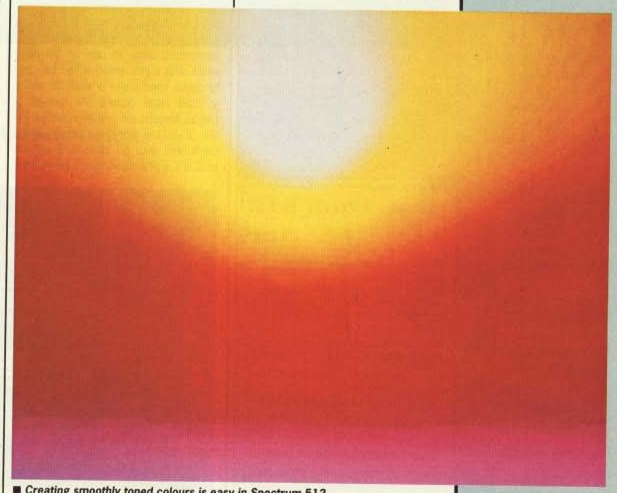
Displaying all 512 colours at once makes heavy demands on the ST's video chips, and as such a test program correctly synchronizes them at switch-on. Spectrum 512 will only run in low resolution, and automatically selects that mode when run. The main workscreen appears as a menu bar at the top and one of three colour palettes in the side borders. The menu bar, which can be hidden with a click of the right mouse button, includes the standard icons found in other art packages: Draw, Line, Circle, Airbrush, Brush, Fill, Magnify, Erase and Load & Save.

Although all are fairly common among art packages, *Spectrum 512* has a good few extras which differentiate it from the rest. Because there are so many available colours, the package uses three palettes instead of the usual one. The CUSTom palette allows you to create your own selection of colours for use in a painting. You can save this palette to disk. The FLOATing palette automatically calculates the 26 colours nearest to the one you're currently using, so you have a good range for tinting and subtle shading. This palette is updated each time you select a new colour. The third palette is FIXed and shows a particular range of colours which you have selected as useful.

NO ZAG is a particularly impressive feature. Used in conjunction with the line or circle functions it smoothes lines so they appear to be stepless as opposed to the unsightly jaggies formed by only using one colour to build up the shape. NO ZAG works by building up shades of the original colour and blending them with the background, so effectively forming a smooth transition.

The ANTI-ALIASER is a distant, and far superior, relation of the smear command found in packages such as the 16 colour Degas Elite. It has three distinct parts: The anti-aliaser itself which works in a similar way to NO ZAG, but smoothes all the edges in a pre-defined area; the blurrer which acts in a more exaggerated way, and does indeed blur objects round the edges; and lastly the contraster, virtually the opposite of the other two functions, which increases the contrast between adjacent pixels and sharpens the image. These functions can either be used within a pre-defined square block area (up to the size of the full screen) or with a brush on small selected areas. The degree to which they work, and accordingly the time they take, can be set on a scale of 1 to 9.

CYCLE works with the brush or airbrush, automatically changing the colour as you draw and working through all the



■ *Creating smoothly toned colours is easy in Spectrum 512.*

colours present in the custom palette.

BLOCK has all the usual functions for manipulating areas of the screen: Cut, Paste, Resize and Flip enable you to move parts of your picture around the screen, altering their dimensions and orientations. Blocks can be moved into a buffer which can hold two full screens on a basic 512 ST or ten full screens on a 1040 ST. Blocks can also be loaded or saved but this is by no means all the block feature can do: hidden in the depths of the block function is the most powerful feature on any art package – ST or Amiga...

GRADIENT FILL is used to smooth fill an area with colours emanating from two or more base colours. Given the number of colours available, the result is an area of incredibly smoothly graduated colour. First results may be a little hit and miss, but with practice it is possible to predict and control the final result. Using gradient fill on large areas can be a very lengthy process, sometimes taking over 20 minutes to complete.

Conclusions

512 colours on screen has to be good, and *Spectrum 512* is one of only two packages to offer this feature at present on the ST. A direct comparison of pictures created with Spectrum 512 and other leading art packages shows that the others really can't compete. When it comes to the crunch this must be the most important consideration and Spectrum 512 is a clear winner. There are a few niggling problems, though: the program makes quite longwinded calculations each time you change the pen colour and when using some other functions. This can be rather annoying at times. Far more important, though, is the omission of features which are normally considered standard in ST art packages.

Firstly there is no way of adding text to pictures. This came as a great surprise, as it imposes quite a limitation. Secondly there is no way to define an irregularly shaped block (ie. a general polygon draw-and-fill routine), and thirdly there's no gridlock to aid positioning of items on the screen. These omissions are all the more surprising when you look at the sophistication of some of Spectrum 512's features. It gives the impression that the designers of Spectrum 512 went all out for innovation and in doing so missed out the intermediate functions. This is by no means a condemnation, as Spectrum 512 is a competent, easy to use art package which with a little practice can be used to create spectacular artwork. Its ability to load other picture file formats – Degas, Neochrome and even Amiga IFF files, if you can find some way or getting them onto your ST disk, is a definite plus. It's a pity other screen resolutions can't be used, but this is not a major problem.

This type of art package represents a significant advance in ST art and there are sure to be many more like it in the future.

BEST OF THE REST – ST

Whilst Spectrum 512 offers the greatest colour range available to 520ST owners, owners of ST's with larger memories may find themselves being drawn towards Quantum Paint, which boasts a massive 4096 colours on machines of over 1 Mbyte and a less amazing, but still respectable 129 colours on the half megabyte ST's. What makes this package more amazing is its price – at £25, Quantum Paint offers power and economy to the budding artist; it's power is hard to beat, even for Spectrum 512.

If popularity is any indicator of quality, Degas Elite must be one of the best art packages around. When you use it you can see why. Degas works in all three screen resolutions and is packed with features which all go towards making computer art as painless as possible. If you are looking for versatility and ease of use at a price that now ranks among the budget art packages (after a recent reduction), Degas Elite should be on your short list.

For those who are only interested in mono pictures, there are a number of packages worth a second look. One recent one is Grafix from Shack Soft. Purely on number of features offered, it would seem to challenge the might of Degas and other more expensive packages. Grafix is priced at around £17.

Finally, if you find yourself in a state of complete bewilderment, know little about computer art, or are not even sure if it will suit you, then do not despair! Before spending wads of money on an art package have a look in the public domain catalogues. You'll find various versions of Atari's Neochrome program (one of which may well have been bundled with your ST) and Neochrome itself offers a good start into computer graphics. Later versions offer functions that many expensive art packages omit – animation for instance! There are also other PD art packages, some of which come from Higher Education Establishments – these may be the results of experimental research and are often well worth checking out.

features
0 1 2 3 4 5

performance
0 1 2 3 4 5

ease of use
0 1 2 3 4 5

manuals
0 1 2 3 4 5

format verdict
1 2 3 4 5

Spectrum 512 for

- 512 colours on screen at once
- Variety of good anti-aliasing methods for smooth edges
- 'Gradient fill' gives subtle shadings
- Can work on two or more screens at once, even on a 520

against

- Can't directly type text onto images
- Lacks polygon drawing and grid locking

■ *Spectrum 512 showing its multicoloured spelndours.*

■ *With a little skill, a digitiser, an interesting face and Spectrum 512 all things are possible!*

TWICE AS GOOD

There is a small problem in the way the Amiga's HAM mode operates which makes it better to use two pixels of the same size side by side than one pixel. Using this technique helps reduce any colour distortion on the screen. The problem is a 'feature' of the video chip.

FOR THE FAINT-HEARTED

Mastering computer-talk is one think, mastering graphics-talk is quite another. Briefly and loosely speaking, here's a glossary:

NTSC – the standard TV and video system in the USA. This uses fewer horizontal lines per screen than does the European system, so poorly converted American programs often have a blank 'dead area' at the bottom of the Amiga's display screen.

PAL – The European TV and video standard. It is higher quality than NTSC.

Overscan – a technique to squeeze more pixels onto the screen than normally fit by using the normally blank top, bottom, left and right margins.

Interlace – a technique to double the vertical resolution of a picture by displaying in two parts. On the Amiga you need a special high-persistence phosphor monitor; the standard monitor flickers heavily.

Anti-aliasing – a technique to reduce the jagged edges which arise when shapes are drawn on grids of pixels. Works by using different colour shades to fool your eye into seeing a smooth edge.

PHOTON PAINT
Amiga only
£69.99 ■ Activision/Microillusions ■ 0933 76768

There is one aspect of the Amiga's graphics that singles it out from other recent micros, the so called 'HAM' display mode. Hold and Modify, as it is in full, is a means of ensuring each separate pixel of a screen can hold a colour of its own without altering any other pixel on the screen. This technique allows for 4096 colours (something ST owners can only dream about). A basic Amiga with 512K of RAM can display this mode as it only takes up about 60 or 70K.

To date, this facility has been slow and painful with few packages showing any real achievements in handling HAM images. A package set to change all that is *Photon Paint* from Microillusions. It hosts a load of features missing from the likes of DigiPaint, until now the acknowledged leader.

The first thing you notice about Photon Paint is the colour palette – it shows 64 colours as opposed to the normal 32. This palette is comprised of 32 base colours and 32 HAM colours. The base colours work in exactly the same way as conventional art package palettes like Deluxe Paint, but the other 32 may be selected from the theoretical maximum of 2.2 million different colours available on the Amiga.

Drawing the line

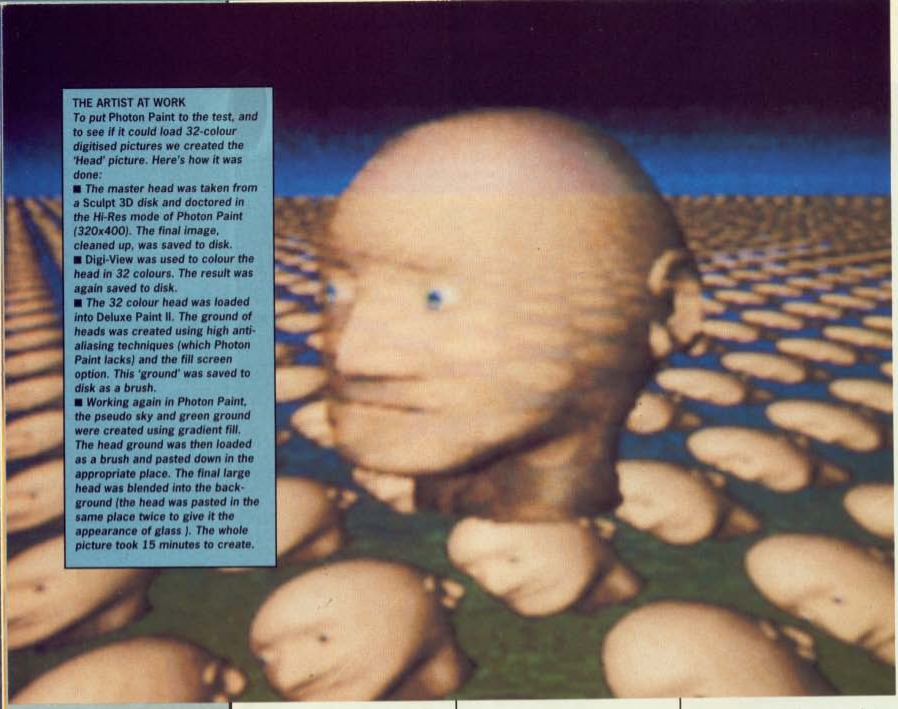
The colour palette is just one item in the tool selector window, which also includes the basic art tools: Draw, Line, Rectangle, Circle, Ellipse, Quick Freehand, Airbrush, Fill, Brush,

GET IT OUT

Now that you know about the various ways of getting a respectable image into a computer, how do you get hard copies of your masterpieces?

The best true way to reproduce a colour screen is by photography. You must have a camera which allows you to set the shutter speed, which most 35mm SLR cameras do. Because the display is a video screen displaying 50 frames a second, you must use a slow shutter speed to avoid strobe lines (catching the screen refresh in mid scan). Experience shows that shutter speeds of 1/8 or 1/4 of a second work best. Experiment with a variety of aperture settings. Slide film tends to give truer colours than print film, especially if you use a cheap 24-hour developing shop.

An alternative is to use a colour printer. The need for colour printing requires a new breed of printers from standard dot matrix ones, namely the thermal transfer printer. These printers use heat instead of hammers to print the required information onto the paper. Therefore, they are relatively quiet in operation. The Okimate 20 printer retails for about £170 and produces very good quality printout for the price. A newcomer to the scene at a little over £200 is the Star LC10, which also does plain black text printing very efficiently.



THE ARTIST AT WORK

To put Photon Paint to the test, and to see if it could load 32-colour digitised pictures we created the 'Head' picture. Here's how it was done:

- *The master head was taken from a Sculpt 3D disk and doctored in the Hi-Res mode of Photon Paint (320x400). The final image, cleaned up, was saved to disk.*
- *Digi-View was used to colour the head in 32 colours. The result was again saved to disk.*
- *The 32 colour head was loaded into Deluxe Paint II. The ground of heads was created using high anti-aliasing techniques (which Photon Paint lacks) and the fill screen option. This 'ground' was saved to disk as a brush.*
- *Working again in Photon Paint, the pseudo sky and green ground were created using gradient fill. The head ground was then loaded as a brush and pasted down in the appropriate place. The final large head was blended into the background (the head was pasted in the same place twice to give it the appearance of glass). The whole picture took 15 minutes to create.*

Magnify, Undo and Pixelize. Most of these tool names are self-explanatory, though pixelize perhaps needs a little note. It takes a group of pixels around the current pointer position, finds the colour which has been used most in that area and draws a filled rectangle in that colour. This process can be used to produce a mosaic effect with a scanning area of between 2 and 9 pixels. The Magnify function creates a new edit window, which can be resized and has gadgets for zooming in or out, selecting a new work area and jumping from minimum to maximum zoom.

The File menu offers options for selecting the base colour and remapping the picture (that is redrawing it with the new palette) as well as the obvious functions for loading and saving pictures. You can also create a spare screen, even on an A500. The Preferences menu includes a Screen Mode option which brings up a scrolling bitmap selector from the bottom of the screen (a neat touch) and allows for NTSC, PAL, Overscan and Interlace displays. Overscan in PAL mode is true edge to edge video – very effective. Other options from this menu allow for various screen adjustments, as well as for a mouse speed controller, which no other art package includes.

The Brush menu is probably the best part of Photon Paint. It lets you load and save brush definitions from disk, switch it from opaque to transparent and remap the colours in its palette. Not impressed? Well, to carry on – the power of Photon Paint comes from the bottom half of the menu options. There are options to twist the brush into an eggtimer shape, tilt it in 3D (very effective), bend it and turn 'Wrap' On. This function displays a side menu which maps the present brush onto a tube, cone, ball, ellipse, cube, cube with the brush showing on all 3 faces, or a freehand shape. This freehand option can create weird effects – you draw one half of the brush's new shape outline in a box and the computer calculates the rest. All of these functions take a while to execute and a countdown is displayed in the tool window to show you how things are progressing. There is one last feature in the brush menu – LUM, which provides primitive ray tracing.

Slow but sure

Text in a wide variety of styles can be loaded from any standard Amiga font

GET IT IN

Other than drawing every image you uses from scratch, most serious computer artist find digitisers very useful items. A digitiser is a piece of equipment used to capture an image from a video source like a camera or a video recorder and turn it into a screen of pixels which your computer can display and edit.

Digiview(£199.95, Amiga only, NewTek) is capable of producing scanned pictures in all of the Amiga's graphics resolutions. This image may then be made into black and white, negative or colour separation images, and the colour palette of 32 colours may be reduced to, say, 4 colours. The calculation of shading is extremely good and, for example, the well-known picture of King Tut may be reduced to 8 colours with little noticeable degradation of image. A500 owners are restricted to 320x200 and 640x400 Black and White scans only.

SAM (£249.95, ST only, Silicon Solutions) is only capable of making fast gray scale scans of an incoming video image. It is so fast that you can play a video tape into it and it will pick up each frame from the tape perfectly. The 520 ST can hold 10 pictures in memory at any one tim., 1040 ST owners can store 25 (about 1 second's worth of animation) and Mega ST owners can store between 50 and 100. The software that accompanies the digitiser can create Stop Frame animation and time lapse photography.

These days the Amiga is creating something of a specialist market for itself in video editing, so is a better bet than the ST for serious video artists. ST Amiga Format will be covering the video market in more detail at a future date.

DESKTOP PUBLISHER

£99.00
INC. VAT

Make The Headlines With Timeworks Desktop Publisher!

With the arrival of Timeworks Desktop Publisher, everyone can make the news . . . literally! Available for the Atari ST, IBM, Amstrad and compatible PCs, Timeworks Desktop Publisher unlocks your printer's hidden power. It's like having your own print shop, right there on the desktop.

Newsletters, brochures, advertisements, posters, signs or specifications - anything you produce on your word processor, by hand, or using professional agencies, you can now create yourself using Timeworks Desktop Publisher. Easier, quicker, cheaper - and better, too, because Timeworks Desktop Publisher puts you in control.

Timeworks Desktop Publisher has all the essential features of desktop publishing packages costing up to eight times the price - and some you won't find anywhere else. Fully WYSIWYG with an easy to use GEM interface, it has everything you need. Frame-based page layout with style sheets and master pages, documents up to 999 pages, multiple text and symbol fonts in a range of styles and sizes, text and picture import from leading programs, word processing features and graphics creation "straight on to the page". Drivers for a whole range of popular matrix and laser printers, including PostScript, are all supplied with Timeworks Desktop Publisher.

So whether you're a budding newspaper tycoon, small business, school, college, or would-be novelist, with Timeworks Desktop Publisher at only £99, you can afford to publish without being damned. Buy your copy of Timeworks Desktop Publisher today!

The Timeworks Family

Timeworks Desktop Publisher is one of a family of Timeworks' products from Electric Distribution. Other family members include Word Writer ST, a complete professional word processing system, Data Manager ST, a database package for report writing, SwiftCalc ST, an easy to use spreadsheet, each costing £79.95. Plus Partner ST, a suite of twelve desktop accessories to boost your efficiency for only £49.95. MS-DOS versions for IBM or Amstrad PCs and compatible computers will be available very shortly. Timeworks Desktop Publisher is available now.

Electric DISTRIBUTION

ELECTRIC DISTRIBUTION 8 GREEN STREET, WILLINGHAM, CAMBRIDGE CB4 5JA
TELEPHONE: 0954 61258 TELEX: 81113 (PMPROF G) FAX: 0954 80318

SOFTLINE
the ultimate software support service

If you've dreamed of having access to a helpline where your questions are answered by technical experts, receiving advance warning of upgrades, tips on bugs, regular newsletters . . . your prayers are answered! Subscribe for £19.95 and all your Electric Distribution packages will be covered by the Softline support service. Join now!

TEAR HERE

Please rush me your information sheet with full specifications of Timeworks Desktop Publisher.

Name _____

Address _____

Postcode _____

features
0 1 2 3 4 5

performance
0 1 2 3 4 5

ease of use
0 1 2 3 4 5

manuals
0 1 2 3 4 5

format verdict
1 2 3 4 5

Photon Paint

for

- Palette of 4096 colours and HAM quality
- Objects can be 'wrapped' around shapes
- Waves of colour gradients can be generated
- Works in lo- and hi-res, and overscan mode gives big picture area

against

- Light source ray tracing sounds useful but not powerful enough
- Hard to change colours once chosen

file, and the Blend menu provides more valuable options. From here you can select solid colour fills or add or subtract colour from other sections already in the picture. The Blend option itself is very powerful, offering gradient fills and altering the way in which most other functions work. Set brings up another little screen which lets you build up gradient fills from light to dark and back again. The Set function lets you fade colours in varying amounts up and across the screen, which can be used to produce some exciting effects.

With all these features, it is easy to forget what the package was actually intended for – creating stunning art pictures easily. Well, that aim certainly is met and the program – albeit a little slow at times – really does show off the graphical capabilities of the Amiga to the full.

Does Photon shine?

The obvious comparison that will be made is between Photon Paint and Deluxe Paint II, and there are definite omissions from Photon Paint. In particular, Photon Paint provides no Anti-aliasing techniques and there is no way to create a tilted background as seen in the composite-head picture printed here (it couldn't have been easily created from within Photon Paint). Another problem is that once you have pasted a colour onto the screen, it is very hard to change other than by remapping the entire picture with a new palette, but that can lead to strange colours appearing in other pixels.

There are no real complaints about the features that *are* included – there are certainly enough of them, but an art program that aspires to excellence is severely limited without a good anti-aliaser.

The ray tracing LUM function is extremely limited, and is best left alone. The manual did explain that it only works with the Wrap On function, but surely it would be better to make it work on all of the brush functions.

With these provisos though, and after a little practice with the package it's hard to go back to lesser programs like Deluxe Paint II. Overall; *Photon Paint* far exceeds any other art package available for any other home computer in terms of the end results achievable with a little expertise. With care the finished result can look like a digitised photo. ■

■ *Photon Paint showing off its capabilities with a magical display*

RAY TRACING

This is the technique used to create those spectacular displays of billiard balls and bare flesh where there's just enough highlight to make the object look very realistic. The art program which produces these highlights and reflections simulates a light source and predicts how the light will fall on every object in the picture by drawing imaginary lines and tracking them as they pass through the scene.

BEST OF THE REST – AMIGA

As programmers develop and overcome their initial panic when faced with the Amiga's 'Intuition' WIMP programming environment, so art packages have become very powerful.

Deluxe Paint, which used to be bundled with the A500, is one of the all time classics and few art programs can be as easy to use as this masterpiece of programming. The most complicated part is learning how to use medium and high resolution graphics modes, which are started with the commands `DPAINT HI` or `DPAINT MED` from the CLI.

Another classic is *Aegis Images* (Now being bundled with *Aegis Animator*). This program provides more advanced features than Deluxe Paint and has therefore created a genre of artists tuned to its capabilities. *Deluxe Paint II* is probably THE best art package on the Amiga, barring the extra facilities of Photon Paint as reviewed this month. Every imaginable feature is on offer and the program retains the looks and easy use of the original Deluxe Paint. The program provides very good anti-aliasing and the results can be very good.

The first package to break out of the 32 colour cage was *Express Paint* which offered 64 colours on the screen by a trick: the Amiga has a special graphics mode called Half-Brite where, as the name suggests, each primary colour within the 32 colour palette has a twin, but half as bright. Express Paint also has impressive text handling techniques which allow text to be imported easily and flowed around pictures and into drawn shapes.

The final, and most impressive leap for Amiga art is the arrival of the HAM paint packages. *Prism*, the first of these packages, appeared about two years ago. Soon after this came *Digi-Paint*. This is a rather simple program and to some extent is the poor man's Photon Paint. Digi-Paint features particularly good shading – it is possible to make a sphere from a circle that actually looks like a solid 3D object with proper highlights and reflections. Among the PD art programs are the imaginatively named *Paint*, on PD Fish disk 128.

SOFTVILLE PD SERVICE

55 HIGHFIELD AVENUE, WATERLOOVILLE
HAMPSHIRE, PO7 7PY, ENGLAND. TEL 0705-266509

A SELECTION FROM OVER 300 DISKS FULL OF PD SOFTWARE FOR THE

ATARI ST RNAGE

ACC 1 Over 50 files full of desk accessories including Clock, Calculator, Calendar, Ramdisks, Puzzle etc. Very Good.
LAN 10 'C' Compiler RSI command line processor, MicroEmacs, TinyBasic Disassembler, MAKE utility and more.
WP 12 STWriter 'Elite' plus full docs & tutorial, the best wod processor around.
MUS 5 SYNTH, Automatic patch generation for DX100 & CZ101.32 track MIDI sequencer.
MISC 2 ORBIT, Track any object orbiting earth, displays on screen data/graphics. Includes data for current satelites. Great program, mono only.
ACC 24 Arc, versatile file squeezer, BICLOCK, set data/time. CODER, set printer from desktop. MONOEMULATOR, the latest version, run all mono progs on your TV/colour monitor. Works with new TOS! Plus numerous other programs on this value disk!
INTRO A Disk full of sample PD programs for you to try and a full list of what's available. All these plus hundreds of ACCESSORIES, loads of GAMES, heaps of MIDI, LANGUAGES, DEMO'S, PICTURES, ART PACKAGES etc. More added monthly!

A SELECTION FROM OVER 150 DISKS FOR THE

AMIGA RNAGE

SOF 2 TUTORIAL DISK. Over 30 articles plus 24 programs in C & Assembler, inlcuding source. Get more from your Amiga, get this disk today.
SOF 9 PERFECT SOUND, a great recorder/editor/player. Disk includes over 24 sounds & instruments plus instructions. Create the sounds and music you've alsways envied!
SOF 21 PAGESETTER CLIP ART. Dozens of dip-art files for use with this program.
SOF 26 TELECOMMUNICATIONS. Contact the outside world! Includes Aterm 13, Starerm 2, Argoterm, Keemterm ertc. Great package, the low cost way to get started.
All these plus hendreds of demos, pictures, utilities and the full range of FRED FISH-AMICUS disks, we get them monthly as they are released.

All the above disks are only £3.00 each or £2.75 each for six. The ATARI INTRO disks only £1.50. Make cheques/PO's payable to SOFTVILLE.

SEND AND 18p STAMP NOW! for our FREE 20 page catalogue, state clearly the make of your computer, or phone Rod or Carol Gearing for further details. Find out what thousands of delighted users already know:-

PUBLIC DOMAIN SOFTWARE

COULD BE THE ONLY SOFTWARE YOU'LL EVER NEED!
GET YOUR'S FROM

BRITAINS' No 1 PD SUPPLIER

Introducing PROTEXT for the ST and Amiga

Arnor's acclaimed WORD PROCESSOR has now been implemented for the Amiga and ST computers. These are not cheap conversions but individually crafted programs designed to take full advantage of these powerful 16 bit machines.

ST User described Protext as:

"Probably the most powerful word processor on the Atari ST and quite likely to become the best selling tool"...

..."Every feature you could possibly want is here - word processing, Ascii text editing, mail merging and so on"

Look out for the reviews in ST/Amiga Format and ST World, or send an s.a.e. for further information.

The ST version is available NOW for all models at a price of £79.95. The Amiga version will be released very soon. Watch this space.

Releasing your micro's potential... ARNOR

Arnor Ltd, Protext House, Wainman Road, Peterborough PE2 0BU.
24 hour credit card hotline. Access/Visa. (0733) 239011.

SAVE ££££'s SAVE ££££'s SAVE ££££'s SAVE ££££'s SAVE ££££'s SAVE ££££'s SAVE ££££'s

WHOLESALE PRICES – DIRECT FROM THE WAREHOUSE!

Importers . . . Manufacturers . . . Distributors . . .
Telephone: 0664 410666

STORAGE BOXES

3.50" Lockable – Holds 40	£4.95
3.50" Lockable – Holds 80	£6.95
3.50" Lockable – Holds 120	£8.95
5.25" Lockable – Holds 50	£4.95
5.25" Lockable – Holds 100	£6.97
5.25" Lockable – Holds 140	£8.97

ALL WITH LOCK & TWO KEYS
DIVIDERS & ANTISTATIC!

ACCESSORIES

Mouse Mat	£4.95
BBC Printer Cable	£5.95
Atari etc Printer Cable	£6.95
3.5" Cleaning Kit (fluid)	£4.95
5.25" Cleaning Kit (fluid)	£3.95
Disk Notcher (doubler)	£4.95
12" Monitor Stand	£11.95
14" Monitor Stand	£14.95
Desk Top Copy Holder A4	£14.95
Desk Top Copy Holder A3	£14.95
Space Saver Printer Stand (80 col)	£24.95
Economy Printer Stand (80 col)	£13.95

!!! FLOPPY DISKounts!!! THE MORE YOU BUY – THE MORE YOU SAVE!!!

3.5" Bulk Packed–

Price each disk	25+	50+	75+	100+	150+
Single Sided 135 T.P.I.	84p	82p	80p	78p	76p
Double Sided 135 T.P.I.	86p	84p	82p	80p	78p

ALL DISCS ARE SUPPLIED WITH LABLES AND ARE CERTIFIED 100% ERROR FREE

5.25" Bulk Packed–

Price each disk	25+	50+	75+	100+	150+
Single Sided 48 T.P.I.	42p	37p	32p	30p	29p
Double Sided 48 T.P.I.	44p	39p	34p	32p	31p
Double Sided 96 T.P.I.	46p	41p	36p	34p	33p
Double Sided Col. 96 T.P.I.	55p	49p	45p	39p	38p
Double Sided Rev. 96 T.P.I.	55p	49p	45p	39p	38p

COLOURED DISKS, COME IN FIVE COLOURS (RED, BLUE, WHITE, YELLOW, GREEN)

REVERSIBLE DISKS HAVE TWO INDEX HOLES AND TWO NOTCHES!

ALL DISKS COME WITH ENVELOPE AND LABEL SET AND HAVE A HUB RING AND FULL GUARANTEE

BULK PACKED OFFERS – BEST VALUE IN TOWN

25 Double Sided 5.25" 96T.P.I. Disks with our storage box	£11.50
50 Double Sided 5.25" 96T.P.I. Disks with our storage box	£17.00
75 Double Sided 5.25" 96T.P.I. Disks with our storage box	£22.50
100 Double Sided 5.25" 96T.P.I. Disks with our storage box	£28.50

You can choose either 50 capacity storage box or 100 capacity storage box to go with your discs. If you want a 140 capacity storage box just add a further £2.50

20 Double Sided 3.5" 135T.P.I. Disks with our storage box	£19.95
40 Double Sided 3.5" 135T.P.I. Disks with our storage box	£36.95
60 Double Sided 3.5" 135T.P.I. Disks with our storage box	£49.95
80 Double Sided 3.5" 135T.P.I. Disks with our storage box	£64.95

You can choose either 40 capacity storage box or 80 capacity storage box to go with your discs. If you want a 120 capacity storage box just add a further £2.50

ALL BOXES COME WITH LOCK, 2 KEYS, DIVIDERS AND ARE ANTISTATIC

ALL DISKS COME WITH LABELS AND ARE 100% GUARANTEED ERROR FREE

All Disks are sent by Trackback or Courier Service at no extra cost!

MELTON COMPUTER SUPPLIES

PO Box 2, Melton Mowbray, Leicestershire.
☎ 0664 410666 (24 hrs)
Phone for our best price before placing your order
EDUCATIONAL & GOVERNMENT ORDERS WELCOME

Please ask for FREE catalogue

Remember the price you see is all you pay (U.K. only). Prices include VAT and carriage

SAVE ££££'s SAVE ££££'s SAVE ££££'s SAVE ££££'s SAVE ££££'s SAVE ££££'s SAVE ££££'s

GOLD DUST

Steve Gold, electronic mole extraordinaire, sniffs out the news behind the news on both sides of the Atlantic.

At the May Comdex show in Atlanta, USA, the red hot news on the Amiga front was the unveiling of a 68030 accelerator card for the A2000, as well as a version of every university's favourite operating system, Unix, for the machine. Commodore US has also confirmed the development of an 80286 card for the A2000, plus a very high resolution monochrome monitor for the Amiga range.

That's the good news. The bad news for Amiga and Unix fans is that Amiga Unix applications software. Commodore has said, however, that if the A2000 is equipped with an 8088 co-processor board, then Dos and Unix applications can be run concurrently on-screen.

The reason for this strange anomaly is that the Amiga Unix environment requires the exclusive use of the A2000's 68000 microprocessor. The Dos applications meanwhile, run quite happily (and independently) on the 8088-based co-processor card.

Of course, if it's speed you're after, then the 68030-based accelerator card comes equipped with its own memory management unit and can support up to 20Mb of its own RAM.

If Motorola 68000 chips don't take your fancy, then how about a lower powered 80286 co-processor board? Commodore has confirmed the development of just such an IBM PC-AT compatible board, as well as the much-rumoured (but never-seen) 68020-based co-processor card for the A2000.

Monitoring progress

All that processor power doesn't deserve to go undisplayed, so Commodore also unveiled their Model 2024 high resolution monochrome monitor for the Amiga. The monitor can be connected to a 1MB Amiga and supports a resolution of 1008 by 800 pixels with 2 bit planes.

Existing Amiga owners needn't despair either, as Commodore has also confirmed that it's working on a new resolution-enhancing chip set. This is reported to be pin-compatible with existing chip sets and will allow Amiga users to double the amount of video RAM in their machines. This would in turn allow a non-interlaced resolution of 640 by 400 pixels – even on the baby Amiga. Wow.

Pricing and firm delivery dates on all these new goodies has not been announced on either side of the Atlantic, but a little bird tells us that they should all be on show (and almost certainly available) by the time the U.K. Personal Computer Show (formerly the PCW Show) comes around in September.

Hot rumours still surround the "Baby Amiga" – the A500. This is still in line for a facelift, say Commodore US contacts. Expect to see a 1Mb-equipped A500 (maybe called the B1000?) Real Soon Now.

■ *The baby Amiga 500 – 1MB version with enhanced graphics due soon?*

■ *Gleadow – surprisingly candid*

ST laptop latest

Back in April, I bumped into Atari MD Bob Gleadow at the Atari Computer Show. I learned some interesting snippets of information: Stacy, the cute codename of Atari's ST laptop, is coming very soon indeed – faster than anyone thought.

Gleadow was surprisingly candid on the ST laptop. "We hope to have the laptop finished and on sale before the end of the year," he said. "If all goes well, you could see it on sale around October/November time," he added.

Gleadow remains coy on the subject of pricing, but the grapevine has it around the £700 price point. LCD screen resolution shouldn't pose any problems, said Gleadow, claiming that with Atari's expertise any screen graphics problems should easily be solved.

And now on to the ST software front. Multi-tasking on the Atari ST, as seen on the Commodore Amiga, has been around for some time, but true concurrent working of GEM applications has yet to be seen. The reason for this is that GEM requires operating system control of the screen – a task not possible for two or more packages to share at the same time.

Computer programmer Hanifi Houbart (of Ariadne Software fame) reckons that he's about to solve this problem, thus pushing the Atari ST's capabilities out to meet the Amiga.

"I've written a package to support ST applications software in a multi-tasking environment, and now I'm working on solving the GEM problem," Houbart told me. "I reckon I should have solved this problem very shortly," he added.

Houbart hasn't priced his as-yet un-named MTOS (multi-tasking operating system) for the ST. "I'll be making an announcement shortly," he said, "but I never intended to market it as a commercial package."

ST AND AMIGA ON-LINE

In the world of modems and comms, Compunet has now launched its ST and Amiga services.

Unlike the Commodore 64, the ST and Amiga computers do not require a special modem with onboard software. Instead, users of the ST or Amiga can use any Hayes-compatible modem, but require the special Compunet screen-handling software at £29.95. A package deal for both micros, including software, a free month's usage of Compunet and a Pace Linnet modem, is available at £135.00 (plus VAT). Subsequently, Compunet will cost you between £9.00 and £15.00 per quarter.

■ **Compunet Teleservices Limited,** Sheraton Business Centre, Wadsworth Road, Perivale, Middlesex, UB6 7JB. (01-997-2591)

SCOOP PURCHASE PRINTERS

ALL EQUIPMENT BRAND NEW AND BOXED WITH WARRANTY All include power cable and printer ribbon

We use our enormous buying power to make LOW PRICE SCOOP PURCHASES of Computer Hardware and Consumables.

YOU WILL NOT SEE THESE OFFERS MADE ELSEWHERE. Our hardware stocks are large – but limited once they are gone they CANNOT be repeated (at thes prices we sell out fast). Our consumable stocks are also large and unlimited. Most orders are despatched Sameday.

DAISYWHEEL PRINTERS

TRIUMPH ADLER 2000 £179.00

20cps parallel interface 1.5K buffer, wide carriage IBM AMSTRAD compatible Diablo 630 Tractor Feed. Extra £60.00

BROTHER HR 15XL

Very popular printer 20 cps, 110 col. width/10 pitch 3K buffer. Diablo 630 compat. Colour and black ribbons available. Parallel or RS232.

£115.00

BROTHER HR10

Prints bidirectionally at 12cps. 80 col width/10 pitch 2k buffer. Diablo 630 compat. Built in carrying handle. Choice of parallel or RS232 interface.

£79.00

BROTHER HR 1

Not a current model but an extremely robust reliable printer. Ribbons etc. readily available16ps. 132 col. width at 10 pitch.Choice of parallel or RS 232 interface.

£99.00

Note: Daisywheel Printers only:- (Subject to stock) where parallel interface is specified a serial RS232 printer may be shipped with a parallel interface converter plug supplied free of charge.

ATTENTION ALL EPSON FX OWNERS

Upgrade your printer with Epsons own 8190 Board for only **£19.00 Easily fitted**

This board enables your printer to output NLQ print. Pica, Elite fonts, italic emphasised, enlarged characters, subscript, superscript and underlining. **Suitable for FX80+ FX100+**.Comprises Board, Rom, Fitting Screws & Instructions.

PRINTER CABLES

IBM/PARALLEL £10.00
PARALLEL/PARALLEL £5.00
BBC/PARLLEL £5.00

DATA SWITCH

2 WAY £29.95
3 WAY P.O.A

PRINTER STANDS

either model suitable for 132 or 80 col

ACOUSTIC HOODS

Reduce 75-80% Noise 80 col £45.00 132 col £55.00

ALL PRICES EXC. VAT AND CARRIAGE.

PRINTER CARRIAGE Inc. Insurance

80 col.	**£8.00 + VAT**
132 col.	**£10.00 + VAT**
LASER	**£15.00 + VAT**

24 PIN DOT MATRIX

EPSON LQ 1000

Ideal for serious business use. A true letter quality machine currently selling for a lot more elsewhere. Wide 132 col. carriage 180 cps 60 cps. LQ. High definition graphics, 7k buffer, Optional Font Cartridges. Tractor Feeds available. Dual parallel and serial interface fitted.

£379.00

EPSON LQ 800

Exactly the same 24 pin precision as the LQ 1000 but with 80 col. print carriage. Tractor Feed available.

£299.00

24 PIN COLOUR

FUJITSU DPL 24C

Excellent for high resolution graphics and images. Accepts black or 4 colour ribbon (refits available)

- 288 cps draft
- 192 NLQ
- 96 LQ

WIDE COL. Friction & rear Tractor Auto Load.

£429.00

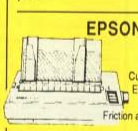
9 PIN DOT MATRIX

EPSON LX86

80 col 120 cps draft, 16NLQ 1K buffer, parallel interface Add £12.00 for Tractor feed Find a better priced EPSON if you can!

£137.00

EPSON LX800



£177.00

Current best seller from within the Epson stable. Superb all rounder 180 cps draft, 25 NLQ. Friction and Tractor Feed, 2NLQ. Fonts. 3K buffer; parallel interface.

FUJITSU DPMG 9

Definitely one of the best 80 col. printers we have seen. Perfect for constant print requirement. Epson/IBM graphics compatible 80 col. 180 cps. draft, 25 NLQ, Pica and Elite Fonts Friction and Rear Push Tractor; Parallel Interface.

£179.00

132 COL 9 PIN DOT MATRIX

COPAL SC 5500

180 cps
36 NLQ
3K buffer
Friction & Tractor
Full Warranty
Parallel Interface

Amazing value

£199.00

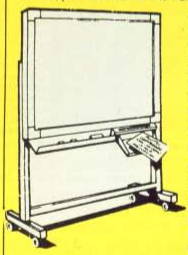
CENTRONIS PP8 LASER PRINTER £895.00

- 8 pages per min.
- Courier 10 Standard Font (others avail)
- Parallel or Serial Interface (please specify)
- Emulates Diablo 630, Epson, FX100
- Emulates IBM with card fitted.
- **Emulates HP LASERJET PLUS** (extra board neede add £175.00)
- Straight paper path
- Includes consumable starter pack.
- Brand New, boxed with manuals and manufacturers warranty
- Additional **ON SITE 12 MONTH MAINTENANCE CONTRACT AVAILABLE** Add £150.00

DO YOU HOLD MEETINGS?

- ELIMINATE NOTE TAKING
- ENSURE 100% AUDIENCE ATTENTION
- IDEAL SCHOOLS, COLLEGES, COMPANIES.

THE FUJITSU COPYBOARD ALLOWS YOU TO MAKE COLOUR (PEN WRITTEN) PRESENTATIONS THEN AT THE TOUCH OF A BUTTON PRODUCE A4 INSTANT COPIES OF YOUR PRESENTATION FOR DISTRIBUTION TO YOUR AUDIENCE. UP TO 4 PAGES CAN BE SCROLLED AND COPIES PRODUCED 5TH PAGE FOR USE AS PROJECTOR SCREEN, (WRITING AREA 35" x 49" PER PAGE).



THIS IS A ONE OFF OPPORTUNITY SAVE OVER £1,600.00 ON EACH COPYBOARD. NORMAL R.R.P. **£2,450.00 OUR ONCE ONLY PRICE £799.00**

Phone to order or for more details today only 50 available.

DO NOT WAIT PLACE YOUR ORDER TODAY!

CROWN COMPUTER PRODUCTS LTD

CREDIT CARD DESPATCHLINE

FAX 0704 895854 VISA 10 LINES

0704 895815

OR WRITE ENCLOSE PAYMENT. (Remember to add carraige then VAT)

FREEPOST CROWN COMPUTER

BURSCOUGH, ORMSKIRK , LANCS L40 4AB

OFFICIAL GOVT. EDUCATION PLC ORDERS ACCEPTED EXPORT TRADE ENQUIRIES WELCOME.

BYTEWARE

BYTEWARE
9 MARITIME TERRACE, SUNDERLAND, TYNE & WEAR SR1 3JT
TEL: 091-514 4222

LARGE RANGE OF TITLES AVAILABLE WIH UP TO 40% OFF RRP
ORDERS DESPATCHED IN 24 HOURS
ADVANCE ORDERS TAKEN FOR FORTHCOMING RELEASES – DESPATCHED ON DAY OF RELEASE
24 HOUR ANSWERING SERVICE

TITLE	ST	AMIGA
Beyond Zork	14.95	14.95
Defender of the Crown	17.95	17.95
Dungeon Master	14.95	—
Oids	11.95	—
Star Wars	11.95	11.95
Barbarian (Psygnosis)	14.95	14.95
King of Chicago	—	17.95
Ferrari Formula 1	—	17.95
Outrun	11.95	—
Winter Olympiad '88	11.95	11.95
Instant Music	—	17.95
Test Drive	17.75	17.75
Xenon	11.95	11.95
Obliterator	14.95	14.95
Flintstones	11.95	*
Captain Blood	14.95	*
Gunship	14.95	*
Bards Tale 1	17.75	17.75
Grid Iron	—	14.95
Roadwars	11.95	11.95
Sinbad	—	11.95
Degas Elite	17.75	—
Terrorpods	14.95	14.95
Deja Vu	14.95	14.95
Gee Bee Air Rally	*	11.95
Rolling Thunder	11.95	14.95
Chessmaster 2000	17.75	17.75
Legnd of the Sword	*	*
Silent Service	14.95	14.95
Battleships	8.95	8.95
Music Construction Set	17.75	—
Garison II	—	14.95
Computer Hits	17.95	17.95
Ikari Warriors	8.95	—
Backlash	11.95	11.95
Academy	11.75	—
Strike Force Harrier	14.95	14.95
International Soccer	11.95	—
Tau Ceti	17.75	—
Jinxter	14.95	14.95
Dark Castle	14.95	14.95
Pawn	11.95	—
Leatherneck	11.95	—
Spitfire 40	14.95	—

TITLE	ST	AMIGA
Crack	—	11.95
STAC	*	—
Police Quest	11.95	—
Bards Tale 2	*	*
Impossible Mission 2	11.95	*
Barbarian (Palace)	8.95	8.95
Fast ST Basic (Disc)	31.50	—
Fast ST Basic (Rom)	59.50	—
Fleet Street Publisher	85.50	—
Publisher 1000	—	99.95
Kings Quest Triple Pack	14.95	17.95
Flight Path 737	—	6.50
Flight Simulator 2	29.50	—
Jet	—	29.50
Three Stooges	*	17.95
Time & Magik	11.95	11.95
Annals of Rome	—	14.95
Star Quake	11.95	—
Bob Winner	11.95	—
Music Studio	24.50	24.50
Seconds Out	11.95	11.95
Balance of Power	—	11.95
Shadowgate	11.95	14.95
Leisuresuit Larry	11.95	*
Sherlock	*	14.95
Pink Panther	11.95	*
Adventure Con. Set	—	17.95
Karate Kid II	14.95	14.95
Guild of Thieves	14.95	*
Strike Force Harrier	14.95	14.95
Carrier Command	14.95	*
Buggy Boy	14.95	14.95
Vampires Empire	—	11.95
Arcade Force Four	14.95	—
Armageddon Man	*	19.95
Black Jack Academy	—	17.95
Faerytale Adventure	—	17.95
Port of Call	—	29.50
Sidewinder	6.50	6.50
ST Wars	*	—
Vixen	11.95	11.95
Screaming Wings	8.95	*
Mindfighter	—	*
Tempus	22.95	*

** Please phone for details*

2 FREE DISCS WITH ORDERS OVER £50
5 FREE DISCS WITH ORDERS OVER £100

Prices include P&P in the UK

Overseas orders please add £2 per title for first two titles and £1 per title thereafter

SOFTWARE ORDER FORM (BLOCK CAPITALS PLEASE)

TITLE	AMOUNT

MACHINE _____

CHEQUES/P.O'S PAYABLE TO BYTEWARE LTD VISA

Public Domain Software for the Amiga

from £3 per disk all inclusive

★ Membership not necessary
★ Fast service

We have one of the largest collections of PD software for the Amiga in the UK. We currently stock:

- FISH 1-138
- AMICUS 1-26
- SLIPPED DISK 1-40
- FAUG HOTMIX 1-53

All the above are £3 each + 1 FREE when you order 10

Catalogue **disk available for £3**

APDL special selections PaNorAmA and AUGE prices £4 each plus 1 FREE when you order 10, or £3 each for members of the Amiga Users Club.

Our own special selection

- APDL #6 CLI HELP
  Confused by CLI? This one's for you
- APDL #8 AMIGA DISK DOCTOR
  Life saving programs!
- APDL #9 SPACE SHOOT 'EM UPS
  Invaders, missiles, cosmonoids etc.
- APDL #11 AMIGA MOVIES
  Eye-popping demos
- APDL #12 AMIGA SONIX
  Let your Amiga sound off
- APDL #14 BEST ARCADE GAMES
- APDL #15 BEST BOARD GAMES
  Backgammon, Othello, Yahtzee etc.
- APDL #16 DRAWING PROGRAMS
- APDL #17 BUSINESS COLLECTION
  Editor, spreadsheet & database
- APDL #18 AMIGA ART

★ STOP PRESS ★

Just in:
from the USA, PaNorAmA 1-56, from Germany, AUGE 1-15
Catalogue disk available £3

THE AMIGA PD LIBRARY
140 Rushdale Road, Sheffield, S8 9QE
PD Hotline 0742-588429 (9am-9pm)

>> MAILSOFT <<

VISA

***** Simply the Cheapest Mail Order Company *****

TITLE	Atari ST	Atari AMIGA	IBM PC
Airball	14.99	–	–
Annals of Rome	14.99	14.99	12.99
Arena/Bratacass	19.99	19.99	–
Arkanoid	9.99	19.99	12.99
Autoduel	14.99	–	–
Backlash	11.99	11.99	–
Balance of Power	19.99	18.99	15.99
Barbarian PSY	14.99	14.99	–
Beyond Zork	14.99	19.99	15.99
Colonsan Conquest	20.99	–	–
Crash Garrat	11.99	–	15.99
Crazy Cars	12.99	14.99	12.99
Deja Vu	14.99	19.99	–
Dungeon Master	14.99	–	–
Eco	11.99	14.99	–
F-15 Strike Eagle	14.99	–	14.99
Form 1 Grand Prix	11.99	11.99	–
Frost Byte	9.99	9.99	–
Guild of Thieves	14.99	14.99	15.99
Gunship	14.99	–	24.99
Hitchhikers Guide	14.99	14.99	19.99
Knight Orc	11.99	11.99	15.99
Leaderboard	14.99	14.99	–
Leather Goddess	19.99	19.99	19.99
Macadam Bumper	11.99	–	12.99
Police Quest	11.99	11.99	12.99
SDI	19.99	19.99	15.99
Silent Service	14.99	14.99	15.99
Stargilder	14.99	14.99	15.99
De Luxe Scrabble	11.99	–	15.99
Battle Ships	9.99	11.99	–
Gnome Ranger	9.99	9.99	–
Into Eagles Nest	11.99	11.99	–
Strike Force Harrier	14.99	14.99	–
Star Wars	11.99	11.99	–
Tetris	11.99	11.99	12.99
Elite	–	–	15.99
500CC Grand Prix	11.99	–	15.99
Impact	9.99	9.99	10.99
Orge	14.99	14.99	15.99
Pirates M/Pro	–	–	15.99
Tomahawk	–	–	15.99
Trivial Pursuit	11.99	–	15.99
Chuck Yeagers	16.99	16.99	16.99
Destroyer	–	14.99	15.99
Power Struggle	9.99	9.99	9.99
Mach 3	11.99	11.99	15.99
W Weavers Baseball	16.99	16.99	16.99
Chessmaster 2000	16.99	16.99	16.99
Jinxter	14.99	14.99	15.99
Sokoban	–	19.99	12.99
Dark Catle	14.99	14.99	15.99
The Pawn	14.99	14.99	15.99
Adv Art Studio	14.99	–	–
Ultima 4	14.99	–	15.99
Flintstones	11.99	11.99	–

TITLE	Atari ST	Atari AMIGA	IBM PC
Carrier Command	14.99	14.99	14.99
Stargilder II	14.99	14.99	14.99
King of Chicago	–	18.99	–
U.M.S.	14.99	14.99	14.99
Jinxter	14.99	14.99	14.99
F.P.T	14.99	14.99	–
Legend of Sword	11.99	11.99	11.99
Bubble Bobble	11.99	11.99	–
Captain Blood	14.99	–	–
Roadwars	11.99	11.99	–
Defender of Crown	14.99	14.99	16.99
Time + Magick	11.99	11.99	12.99
Bionic Commandos	11.99	14.99	12.99
Soccer Supremo	9.99	9.99	–
Jewels of Darkness	9.99	9.99	9.99
Strike F Harrier	14.99	14.99	–
Badcats	11.99	14.99	16.99
Super Ice Hockey	14.99	14.99	14.99
Interceptor	16.99	–	–
3D Helicopter	14.99	14.99	12.99
Return To Genesis	11.99	–	–
Indoor Sports	14.99	14.99	14.99
Pink Panther	11.99	11.99	–
Three Stooges	14.99	18.99	18.99
Flying Shark	11.99	–	–
Gauntlet II	11.99	–	–
Rolling Thunder	11.99	14.99	–
Ikari Warriers	9.99	–	12.99
Gold Runner II	11.99	–	–
Vampire Empire	11.99	11.99	–
Foot Manager 2	11.99	11.99	12.99
Rocket Ranger	14.99	18.99	18.99
Test Drive	16.99	16.99	16.99
Obliterator	14.99	14.99	–
Out Run	11.99	–	–
Alien Syndrome	11.99	11.99	–
Silicon Dreams	9.99	9.99	9.99
Xenon	11.99	11.99	–
Black Lamp	11.99	10.99	–
Hotball	14.99	14.99	–
Leathernecks	11.99	11.99	–
Buggy Boy	11.99	–	–
Interal Soccer	11.99	11.99	–
Red October	14.99	14.99	16.99
Gee Bee Air Rally	–	13.99	–
Light Sim 2	26.99	26.99	39.99
Oids	11.99	–	–
Sentinals	11.99	11.99	–
Thundercats	11.99	–	–
Micky Mouse	11.99	–	–
Barbarian Palace	9.99	11.99	–
Asargh	11.99	11.99	–
Armaiton Man	14.99	14.99	14.99
Pandora	11.99	11.99	–
Shackled	14.99	–	–
Verminator	14.99	14.99	–

Accessories	Our Price
Quick Shot 2 J/S	7.99
Q Shot Turbo	12.99
Konixs Joystick	9.99
Konixs + A Fire	10.99
Euromax Profi	17.99
Euromax Non Auto	14.99
Cheetah 125+	7.99
Cheetah Mach 1	12.99
Cheetah 125 Special	11.99
Comp Pro-Black	12.99
Comp Pro-Clear	13.99
Comp Pro-Extra	15.99
Cruiser Joystick	9.99
Konixs IBM J/St	18.99
Konixs IBM Card	18.99
Konixs IBM J/S + Co	27.99
Delta Joystick	9.99
10 x 3.5" DS/DD	14.99
10 x 5.25"	7.99
10 x 3" Disks	24.99
Mausauder 2	29.99
Disk Disector	24.99
Digi View	189.00
Digi Paint	54.99
Digi View Adaptor	19.99
Mouse Mat	4.99
Amiga A500 Cover	6.99
Atari ST/FM Cover	6.99
PC 1512/1640	10.99
14" Antigiare Screen	19.99
Head Cleaner 3.5"	6.99
Head Cleaner 5.25"	5.99
Light Pen PC1512	17.99

SEGA SOFTWARE	
Sega System + Game	89.99
Light Phasor	42.99
3D Glasses	38.99
Sega Joystick	13.99
Konixs Joystick	11.99
My Hero	13.99
Spy V Spy	13.99
Black Belt	17.99
Space Harrier	22.99
Rocky	22.99
Outrun	22.99
World Grand Prix	17.99
World Soccer	17.99
Gangster Town	17.99
Great Golf	17.99
After Burner	22.99
Zaxxon 3D	22.99
Alien Syndrome	22.99
Zilton II	17.99
Fantasy Zone II	22.99
Glooal Defence	22.99
Super Wonderboy	22.99

Prices include P&P in U.K Europe add £1 per tape, elsewhere £1.50. Cheque/P.O payable to: **MAIL-SOFT** (SAF) P.O Box 589, London N15 6JJ. Please specify machine type in your order. Add £5 P&P for SEGA Machne. Price matching: If you see a title cheaper by another company in this mag we will match the price. If you don't see a the title you require, simply deduct 30% off the R.R.P and send to us. (Except Budget, Sega, Electronic Arts, Nintendo Titles). We stock software & joysticks for all machines. Access and Visa cards accepted.

GOLDEN GAMES

Welcome to the pages that are going to bring a whole new look to the ST and Amiga games scene. Every month we'll be providing in-depth coverage of all the big games in our own unique fashion. Once we've told you what we think are the hottest games around, we'll help you get more out of them with pokes and playing tips.

Let's start by introducing you to the man who's going to have the strenuous job of testing out all those games – Andy Storer. Andy's a screenplay writer and film-maker who's now set his sights on the small screen. And who can blame him ?. Of course all the games will be seen and played by at least two other people, so that the opinion of the game that we present is that of the whole magazine.

THE REVIEWING SYSTEM

So what's so special about this reviewing system that you haven't seen a hundred times elsewhere? The revolutionary step we've taken is to dispense with the traditional review to concentrate on the most important features of an ST or Amiga game – its visual impact. By doing this we can much more easily explain exactly what happens in a game and make the most of those fabulous graphics at the same time.

For all the big games you'll be treated to a sequence of screenshots, accompanied by detailed, descriptive captioning, that take you through the game. In addition there will be text boxes in which we'll summarise areas of the game that can't be conveyed visually. You should find everything self-explanatory when you flip over this page to our first game, *Interceptor*, but here's a quick run-down.

Introduction – here you'll find all the relevant details of price, machine availability, any compatibility problems and control methods. The text following that box sets the scene for the game and covers all the relevant background information.

Gameplay – this scenario stuff is all very well, but what do you actually have to do? You'll find the answer to that question here.

Graphics and sound – you can see what the game looks like, but here we tell you just how good those graphics are in action and what the accompanying music and sound effects do for the action.

Conclusion – we've told you everything there is to tell about the game and now we're going to tell you whether we think that adds up to a great joystick experience. We'll be highlighting the game's most important points, that may make you love or hate it.

THE RATINGS

Still graphics – this mark reflects the quality of the background graphics, the screen presentation and any other static elements.

Moving graphics – it may look OK in screenshots but what happens to those pretty graphics when they actually go into action? What's the scrolling like? Is the animation up to scratch? Does anything *actually* move? These are the factors that determine this rating.

Soundtrack – there's no way a magazine can play you the music and sound effects, so this rating reflects their impact on the game and whether you'll want to turn them up loud or dive for the ear-muffs.

Lasting interest – this tells you how long we reckon you'll be hooked. Is it a one-day wonder or will you be playing it for months to come?

Overall – this takes into account all of the other ratings and reflects our general opinion – whether the game is actually worth shelling out hard earned cash for.

SMALLER REVIEWS

We'll be saving our most detailed coverage for the big games we're convinced every gamesplayer will want to add to their collection. Where games are covered in less detail, it doesn't reflect the time spent on them. Every game will be thoroughly tested so the ratings box gives a fair and accurate opinion.

GAMES INDEX

FORMAT GOLD

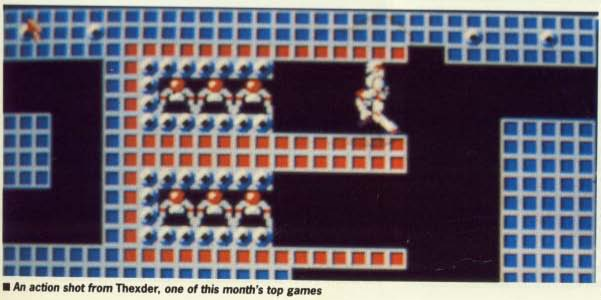
Interceptor Electronic Arts 50
Virus Rainbird 52

REVIEWED

Out Run US Gold 55
Thexder Activision 55
Sundog Mirrorsoft 56
Firepower Activision 56
Leatherneck Microdeal 59

THE INDISPENSABLES

10 top adventures 58
10 top arcades 61



■ *An action shot from* **Thexder,** *one of this month's top games*

REVIEW

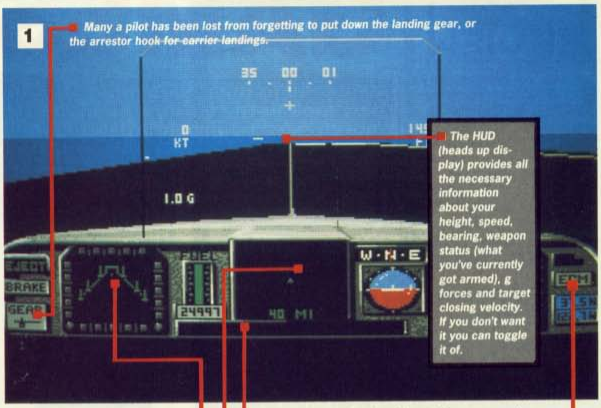
INTERCEPTOR

ELECTRONIC ARTS

Amiga – £24.95, joystick or keys, any machine. | **ST – no version planned.**

There are two things you can be sure of when dealing with hornets: disturb a nest of them and you'll regret it, disturb an F-18 Hornet and you won't live to regret it. The F-18 is misnamed. In this combat simulator it's a caged beast that roars to life in response to your controls..

The setting is San Francisco and the surrounding coastline. Here you can train and experiment with flying the Hornet amongst the bridges and skyscrapers, before tackling the hazardous combat missions. It's not a true flight simulator, but takes the best elements of a flight sim and turns them into an airborne adventure.



GAMEPLAY

Once you've familiarised yourself with the F-18's controls, which shouldn't take long, you can take her up for a spin. During training you can practice the manoeuvres that you'll need during combat, like rolls, break turns, inverted flight and the split-s. All you have to do then is manage a take-off and landing from the aircraft carrier to qualify for the combat missions. This shouldn't prove too difficult but hostiles will appear and make life difficult if you take too long.

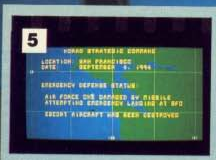
The instructions don't tell you about all the combat missions, and as in real life you'll find that the information and aims given at the start of a mission aren't always accurate – act and think fast; you're judge, jury and executioner in the air.

The simplest mission is to scramble and identify a plane and then return to base. As with most missions you are instructed not to fire unless fired upon. As each mission is successfully completed you're allowed to progress on to the next – your personal flight log being updated each time.

■ *This is the carrier you've launched from. It always faces to the north, so that landing approaches should be made from the south*

■ *Now you're up in the air with your instructor to practice a few aerial manoeuvres. You won't get marked on them but you'll need to be familiar with them if you're to survive long in the air.*

4



■ *You've practiced enough and feel ready to take on a mission. It's a real tough one – saving the President's life. The map shows the positions of Air Force One and a bogey. It can be referred to in flight to show you a wider area than your radar. If you don't intercept that Mig fast then AF-1 is going to be so much scrap metal at the bottom of the Pacific.*

■ *Breaking off from practicing you decide to take a low-level flight around the bay area. You can fly under bridges, around buildings with shadows and even buzz EA's offices in San Mateo.*

■ *Blasting over the water to intercept the Mig. A mistake at this height could be fatal, but from here you can blast up behind the Mig and catch him by surprise.*

■ *You distracted the enemy for long enough to allow AF-1 to make a safe landing at San Francisco airport. Now all you have to do is head for home and doubtless the President's congratulations.*

GRAPHICS AND SOUND

The in-cockpit views aren't terribly interesting unless you buzz buildings and bridges, but the screen updating is fast and convincing. Where the graphics really score is in the ability to go outside the cockpit and view the action and surroundings from all sorts of camera angles. This may not be realistic, but it adds tremendously to the presentation, atmosphere and overall affect of the game.

There isn't a great deal of detail or use of colour in the graphics, but they are sharp, clear and functional, giving a very atmospheric edge to the action. This is added to by the engine sound which is a credible roar that sounds most impressive when you're outside the cockpit, and is complimented by sonic booms, explosions, warning beeps, cannon fire and sometimes deathly silence as the fuel runs out and the nose cone starts to tilt ominously earthwards.

■ *He's in your sights. You've loosed off a couple of AMRAAMs – aimed by the target designator square and missile seeker diamond on the HUD. The bottom right hand corner of the HUD tells you he's in range.*

CONCLUSION

You can't help but be amazed by the graphic sequences that are possible. They are every bit as thrilling as those in films like Top Gun or Firefox, but the big difference is that you're in control. The difficulty level has been set just right so that even a beginner can get plenty out of the game in a short time, but it will continue to offer increasingly difficult challenges as the player improves.

The combat action is fantastic. You will have to work hard to out-fly a hostile Mig that has several missiles with your name on them. The satisfaction of triumphing in a dogfight against a wily opponent is immense. It's a stunningly absorbing game that is impossible to put down once you've taken up the challenge.

■ *Whoops. Lack of concentration on the homeward journey proved fatal as a mig knocked you out of the sky. Never mind, you managed to bail-out using the ejector seat and can spend all that time floating down thinking about your revenge.*

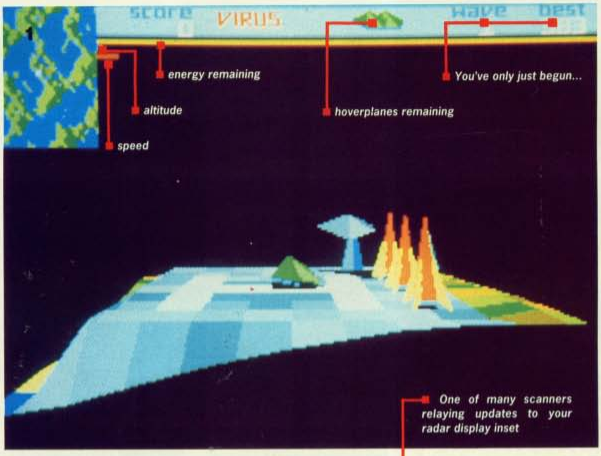
REVIEW

VIRUS

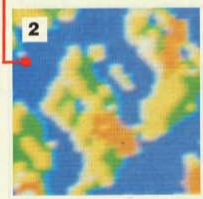
FIREBIRD

FORMAT GOLD

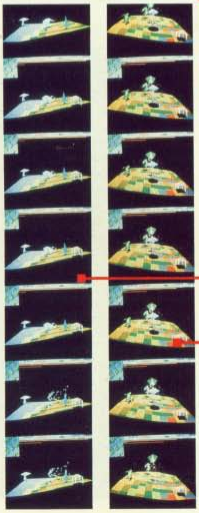
ST 19.95 Mouse or joystick, all models | **Amiga version expected soon**



■ *Home, home on the range... among the rockets where your mission begins and where you need to return to refuel. Mind that you land strictly parallel to the surface though or it's curtains...*



■ *Your radar shows the archipelago over which you fly. Infected areas are shown as brown; you and the aliens appear as coloured blips. If they have knocked out any scanners, some areas will appear black. and you'll be flying blind.*

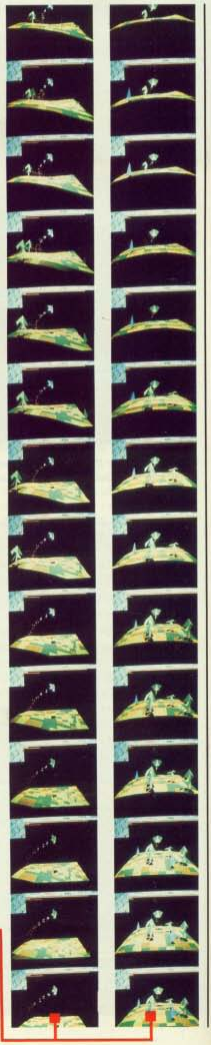


■ *Your energy just hit bottom and you take the fall. You can't always win them all but you still have a couple of hoverplanes left...*

■ *Your pursuit fails as a Seeder disappears off screen towards you in less than 1/25th of a second..Did you hit him or not ?*

A gentle pull on your mouse and the landscapes shift from side view to plan. The transitions take less than half a second of effortlessly smooth motion.

■ *super 8 sequences : each frame 1/25th second.*



Something wonderful has happened... David Braben's own conversion of his Archimedes' high profile shoot-'em-up, Zarch. Released to unanimous critical acclaim, the game had only one problem – you needed a cool £800 for the hardware to get it up and running. Now it's out on the ST, with seemingly little changed save the name. The only discernable differences are the loss of 'depth cueing' – the landscapes don't grow darker as they recede to the horizon – and the reduction in colour range – from the 256 on the Archie to 16 on the ST. Neither detract from the flawlessly smooth animation; Virus seems to run just as fast as Zarch, indeed it's all too easy to believe something wonderful has happened to your ST. But no, it hasn't become a RISCy 32-bit!.

3

■ *A Seeder sows its silent spores and you move in for the kill... but what's that coming up fast on radar?*

■ *A Pest swoops in from below on a kamikaze course. A quick turn and...*

■ *Almost blew it there, but you took him out first time. Now where's that Seeder got to?*

■ *Here he is...*

■ *...and there he was.*

GAMEPLAY

The object is quite simple; ecology with a vengeance. Fly a hoverplane over a surface of oceans and patchwork fields on a search for alien craft spraying the landscape beneath you with red virus. Locate and Destroy are the operative words here; with your scanner, laser cannons, and heat-seeking missiles to help you. Alright, nothing highly original about that, but it's the position from which you view the proceedings which makes Virus unique.

Your hoverplane floats before you in mid-screen, tracing the slightest touch of your mouse, in solid 3D flight. There's no simulation as such since you're well outside the action, but you certainly don't feel isolated for long. Translating 2D mouse movements into 3D flight paths can be quite tricky at first, but once you've learnt to keep the hoverplane's nose tilting down, manoeuvring comes naturally and you're in control. Left button for thrust, right for fire.

The landscape can scroll in all directions as you fly everywhichway in pursuit of scanner blips and if you head off up into the black above you meet the stars. Back down below, the sparse distributions of trees, houses, pagodas and radar scanners play host to the real object of your attentions, the low flying Seeders. They quietly go about their work, hovering from one tree to the next, sowing salvos of killer genes. Since you gain points and bonuses for the land areas remaining unpolluted, it's your solemn duty to blast all Seeders to kingdom come and go for the 5000 points you need to take you to the next wave.

Firing on the defenceless Seeders brings out the heavy duty boys. Drones and Mutants, Bombers and Pests and, worst of all, Fighters; out to total you with their own lasers and missiles. And this is where the real fun starts. The aerial combat is something else entirely. As what you see is only a virtual window on a much larger world, it's possible for your foe to disappear off screen towards you too! You'll be forgiven for ducking clear but your momentary lapse could be fateful. You soon find you have to weave, dart, swoop and swerve in order to gain enough height on your opponents to take them out. But remember to watch the shadows below to be sure you are not about to suffer a mid-air collision.

GRAPHICS AND SOUND

The solid, true perspective 3D imagery is certainly outstanding though it's the movement which puts Virus in a class of its own. You could quite easily just hover around up there all day and take in the world below. From the twisting curvatures of the landscape to high-speed low-level attack runs, scrolling action has an effortless grace. The effect is quite uncanny and difficult to explain; no matter what speed you move relative to the ground, the hoverplane seems to glide with an ease you'd normally equate with slow-motion. When you fire off a burst of cannon, the shots lazily spray groundward as if defying gravity. Even the explosions have a smooth slo-mo quality; objects calmly cascade into a million pixels with ease. Perhaps this is why sound plays such a minor role in the game; anything even slightly jarring would destroy the sense of calm. What sound is there is almost ambient – nothing special.

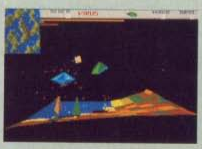
CONCLUSION

Is there any game that has attracted so much interest for its graphics? Although Zarch always seemed to be mentioned in the same breath as the tremendous processing power of the Archimedes, Virus underlines the vision, style and attention to detail contained in the original game design and coding. Of all the games of the late Eighties, people will look back on this one as setting a standard for graphics in the Nineties.

4

■ *Back on the beat now, you may as well burn up those infected trees while you're at it... more points towards the bonus!*

■ *Here's the culprit; just take position with a little thrust... but he's about to take off.*



■ *And whoops, here we go again. Another Pest out for revenge.*

■ *A little thrust to get above him while you try and take out the Seeder... but that's it for this life folks, that Pest is just about to run smack bang into you.*

"THE ADVENTURE PRODUCT OF THE YEAR"
ST USER

$TAC

THE ATARI ST ADVENTURE CREATOR

Adventure writing made easy!

Feature packed STAC makes it simple for you to produce 'stand alone' illustrated professional adventures . . . Let your creation begin!

"A SUPERB ACCOMPLISHMENT . . . 10/10" ST USER

"AN EXCELLENT PRODUCT" ST UPDATE

The many features include:

- Graphic Editor/Designer – includes import feature
- Character Font Editor
- LINK feature enables adventures of unlimited size to be created
- Ooops ability
- Test adventure within STAC
- Over 120 different conditional actions
- No licence fee to pay
- Advanced Parser – that can also accept and handle String Inputs
- Hundreds of flags and counters
- Loading screen option
- RAM/Save and load features
- Music in messages
- Synonym recognition
- 40 and 80 column text under player control. Change from within STAC and the adventure
- Print text anywhere even over graphics
- Printer options etc. etc. etc.
- Easy to use, powerful and flexible

STAC is supplied complete with a 'Quick Start' file, a small demonstration adventure, a variety of character fonts, Shymer – A complete 150K adventure, a slideshow of sample adventure screens plus a comprehensive 70 page manual.

STAC is the ultimate adventure creation utility for little more than the cost of one commercial adventure game.

STAC is available from all leading retailers. Also available direct from Incentive using our fast mail order service.
Credit Card orders ring (07356) 77288.

STAC ORDER FORM

Please rush me (first class post free) STAC for the Atari ST. I enclose cheque/PO for £39.95
or please charge my Credit Card

No. | | | | | | | | | | | | | | | | |

Name

Address

incentive SOFTWARE LTD

ZEPHYR ONE, CALLEVA PARK, ALDERMASTON, BERKS RG7 4QW. TEL: (07356) 77288.

OUT RUN

US GOLD

ST – £19.99, joystick or mouse, colour only

Amiga – no version planned

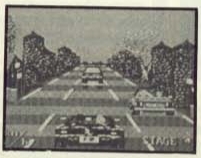
This much hyped, much sold and much pilloried arcade game has been big news for over a year now, but ST owners have had to wait a long time for this version. On the 8-bit machines it was a dreadful game – so have they come up with a winner this time?

The concept is simple: driving a Ferrari Testarossa you have to complete five stages of a roadrace course within the time limit. What made the arcade game a hit was the amazing graphics and "feel" of the car. These have been well reproduced, except when driving with the mouse – very difficult.

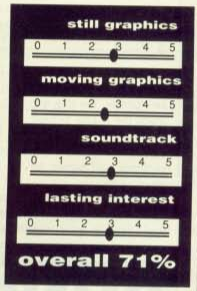
The stages are branched so that at the end of each you can fork left or right. The relevance of this is that the stages range widely in terms of road layout and obstacles. Some routes are far easier than others.

The road dips and rises alarmingly at times and bends can be very tight. Hit an obstacle and you'll be slowed down or somersaulted all over the place, losing you valuable time. Other vehicles on the road are quite a hazard as well.

It's an excellent conversion of the game and captures the feel and action of the arcade version. However, it is a little on the easy side and it won't take long to exhaust the routes. If you seek life in the fast lane, *Out Run* delivers.



■ Flat out at 293 kmh on the first stage. Mind out for traffic and trees.



THEXDER

SIERRA

Amiga: £19.99, joystick

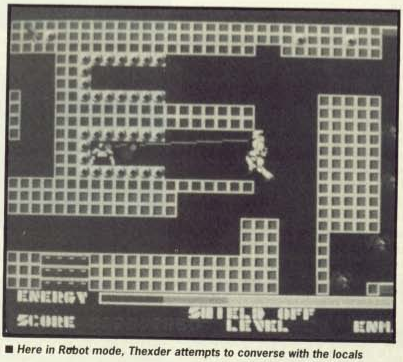
ST: No version planned

Billed as the best selling action game from Japan with over half a million units sold, Thexder is a little like living in Tokyo – space is scarce, the food alive, and the action frantic. Add to that the fact that you pilot a 'Hyper Dual-armor Robot Jet Transformer', armed with heat seeking lasers, battling hundreds of bizarre creatures and you might get an idea of how the Japanese deal with claustrophobia.

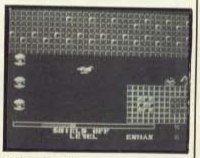
There are 20 different nasties inhabiting the 16 levels of caverns, tunnels and cargo holds comprising yet another of those forbidden worlds run by an evil computer. You have to trace the various mazes, dodge the booby traps and maintain your energy by, yes, you guessed it, killing things.

The most difficult stages are to be found at the beginnings and ends of levels, and as the Robot Jet Transformer doesn't do its transforming all that easily, you can find yourself unable to flip just when you most need to. Whether this is a feature or a bug is unclear. Also, the heat seeking lasers have a habit of hitting the nearest creature or lava pool to hand – even if it's the other side of a wall. However, when combat gets tight they're wonderful things to have. No need to aim – just blast.

It's a shame though that Thexder, like other games ported over to the Amiga, hasn't been spruced up more to make fuller use of the machine's facilities. The graphics on this one are adequate, with the sound made up of a simple melody with overlaid machine gun fire, and even Beethoven's Moonlight Sonata kicking around in there somewhere. Maybe it should have been the Ninth Symphony; it would still barely be enough time for you to get through all 16 levels of Thexder!



■ Here in Robot mode, Thexder attempts to converse with the locals



■ Thexder flies for cover and finds a few sushiburgers on the way.

REVIEW

FIREPOWER

MICROILLUSIONS/ACTIVISION

Amiga – £19.99, joystick only, any machine

ST – under development

For some time now two player games have been all the rage. Now you can not only take on another player at tank warfare, but he/she can be at the other end of a modem link. Unfortunately it's restricted to those with Hayes compatible modems, but it's a step in the right direction.

You're in control of a tank that starts life safely ensconced in its own fortress. The task is to find and attack the enemy fortress, capture its flag and return to base. The action is viewed from above, with a vertically split screen for the two player game.

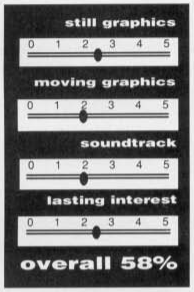
The tank can be one of three types, each having different speeds, fuel capacity, armour, number of mines and capacity to rescue men.

■ *The two tanks are in the midst of the opponents fortress with debris scattered all around.*

Each fortress is composed of a large number of gun turrets and other buildings. As you rumble around you have to watch the guns, mines and helicopters that can blast the rivets out of your tank.

You can destroy just about everything in the game, even the trees and the little men that run out of destroyed buildings. You can also rescue your own men and return them to base. The two player game is a straight race/battle to get the opponents flag first, while in the one player game you have a limited number of lives to do it in.

The graphics are OK but lack variety. The sound effects are more pleasing – a near constant series of large explosions. Certainly best played with two, but even then the action eventually becomes repetitive.



SUNDOG: FROZEN LEGACY

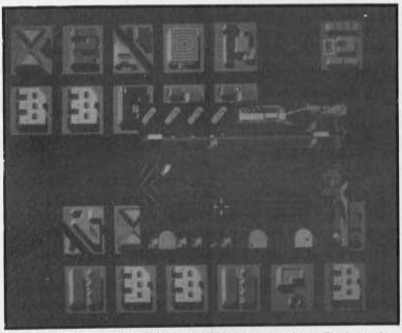
FTL/SOFTWARE HEAVEN

ST: £14.99, mouse

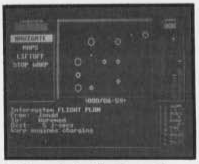
Amiga: No version planned

In which your long lost uncle leaves you a deep space freighter and a little unfinished business. You have to locate a religious colony your uncle was under contract to supply. Moving among eighteen planets strung across the twelve systems of the Drahew Region, you need to find, buy and deliver all the goods needed to complete the colony's construction. Between planets pirates will attack you for your cargo, and once you've managed to land in a city it's the muggers' turn to clean you out. The colony has its problems too – like no colonists!. They've been freeze-dried and stored in warehouses scattered throughout Drahew so you have to find and defrost them as well. A great guy your uncle – what an inheritance!.

Sundog's screen adopts a plan view of the cityscapes and the interior of your freighter, with sub-screen icon boxes for mouse commands and character interaction. In deep space you at least have the relief of moving star fields in which to loose your canons and lasers, but neither styles are particularly interesting or convincing. However, some of the city sequences are quite compelling: you can visit bars, restaurants, hotels, armouries, tube stations, teleports – all the usual places where you meet unusual punters, the kind who say "Get lost warp head, you're wasting my time" when you refuse to bribe them for directions. And as the only food available on all eighteen planets seems to be beer and Big Macs, this kind of response is hardly surprising. Bribery, charm, fast talking and, of course, armed combat are the kind of social skills you'll need to acquire.

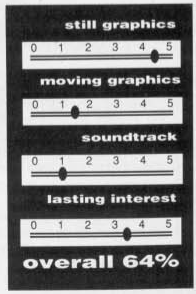


■ *Into a hotel lobby for a quick beer and some information. That's you in white. Behind the insert, the city awaits you.*



■ *The controls of Sundog await you. Warp-heads prepare for lift-off*

Sundog should appeal to all those who enjoy an old fashioned space trading adventure and who aren't too fussy about sound and graphics.



NOW TAKEN

Castle Computers

CASTLE HOUSE
11 NEWCASTLE STREET
BURSLEM
STOKE-ON-TRENT
TEL: 0782 575043
(10 LINES)

ATARI ST SPECIALS

Uninvited	£15.95
Vixen	£12.95
Outrun	£12.95
Carrier Command	£15.95
Dungeon Master	£15.95
Legend of the Sword	£15.95
Starfleet 1	£15.95
Obliterator	£15.95
Starglider	11.95
Slapfight	£9.95
Shadowgate	£15.00
Test Drive	£15.95
Sentinel	£9.95
Spy V Spy	£8.95
Foundations Waste	£11.50
Trantor	£12.95
Tee Up Golf	£7.95
Rolling Thunder	£12.95

Gauntlet 2 ..... £12.75

Oids	£12.95
Quantum Paint Box	£12.95
Pink Panther	£11.95
Impossible Misssion II	£12.95
Skyfox	£4.95
Leathernecks	£12.95
Lords of Conquest	£15.95
Phoenix	£9.95
Degas Elite	£16.95
Annuls of Rome	£9.95
Amazon	£6.95

ATARI SPECIALS

CLASSIQUES:-
Breakout, Pacman
Invaders £11.95

Supercycle	£7.95
Roadwars	£12.95
International Soccer	£12.50
Ikari Warriors	£10.00
Gold Runner II	£12.95
Hacker II	£6.95
Mean 18 Golf	£9.95
Hardball	£9.95
Skulldiggery	£9.95
Wanderer	£7.95
Captain America	£12.95
Boulderdash Coin Kit	8.95
U M Sim	£15.95
Sorceror	£9.50
Seastalker	£9.50
Tau Ceti	£4.95
Academy	£4.95
Extensor	£4.95
Vampires Empire	£12.95
Time & Magik	£12.95
Buggy Boy	£12.95
Trivia Trove	£7.25
BMX Simulator	£10.95

ST ADVENTURE
Creator
R.R.P £39.95 Our Price £29.95

ATARI SPECIALS

Strip Poker Two Plus	£10.95
Bubble Bobble	£11.95
Get Thexder	£12.95

Sidewinder £6.95

Fire and Forget	£12.95
Spitfire 40	£15.95
The Three Stooges	£21.50
Pandora	£12.95
Bionic Commandos	£12.95
Shackled	£12.95
Staff	£12.95
Beyond The Ice Palace	£10.95

Captain Blood £15.95

Road Blaster	£12.95
Flintstones	£12.95
Tanglewood	£12.95
Gunship	£15.95
Preditor	£12.95
Crash Garrett	£12.95
Battleships	£10.95
Return to Genesis	£15.95

ATARI ST OFFERS

Pool	£7.25
Dark Castle	£15.95
Warhawk	£6.99
Mission Genocide	£7.25
Thrust	£6.99
Spidertronic	£12.95
Scrabble Deluxe	£12.95
Warlocks Quest	£12.95
I-Ball	£7.25
Wargame Con Set	£15.95
North Star	£12.95

Please Note:
We stock all the lastest St Software, besides many older titles, at competitive Prices. Phone Now!!

AMIGA SPECIALS

Garrison II	£15.95
Rolling Thunder	£15.95
Bionic Commandos	£15.95
Impossible Mission II	£15.95
Carrier Command	£15.95
Football Manager II	£12.95
Xenon	£12.95
Sidewinder	£6.95
G.B Air Rally	£12.95

AMIGA SPECIAL OFFERS

Inerceptor	£16.95
Portal	£9.50
Road Wars	£12.95
Bubble Bobble	£12.95
Sentinel	£12.95
Firepower	£16.95
Obliterator	£15.95
Stationfall	9.50

Leathernecks £12.95

Hardball	£10.95
Mean 18	£9.95
Time & Magik	£12.95
Starglider	£15.95
Xenon	£12.95
Star Wars	£12.95
Arkanoid	£15.95
Aaarg !	£12.95
Alien Syndrome	£15.95
Seconds Out	£12.95
Protector	£6.95
Space Station	£6.95
Western Games	£6.95
Fireblaster	£6.95
Warzone	£6.95
Trinity	£9.50
Witness	£9.50

AMIGA SPECIALS

Station Fall	£9.50
Space Port	£4.95
Shooting star	£4.95
Space Fight	£4.95
Test Drive	£15.95
Ferrari Formula I	£15.95
Cutthroats	£9.50
A Mind Forever	£9.50
Pac Boy	£4.95
Plundered Hearts	£9.50
Mindshadow	£6.95
Borrowed Time	£6.95
Black Shadow	£4.95
Chessmaster 2000	£15.95
Bards Tale	£15.95
Bards Tale 2	£16.95
Marble Madness	£15.95
Starfleet I	£15.95
Witness	£9.50
Trinity	£9.50
Temple of Apshai Tril	£5.95
Silent Service	£15.95

We stock many more Amiga Games than are listed!!

Phone our hotline now !! 1st Class Post used.

Any game not released will be sent on the day of release.
These are the mail order prices only
CASTLE COMPUTERS THE COMPETENT MAIL ORDER COMPANY

TEN BRAVE NEW WORLDS

Double format, double trouble – the Pilgrim and the White Wizard, two of Britain's foremost adventure columnists, who share more pseudonyms between them than Moriarty, come up with their Ten Favourite Adventures. Choosing adventures is a highly subjective affair – as far as this Top Ten is concerned, the honour is not coming first, but simply being included.

1 Beyond Zork

Infocom ■ £24.99

Combines the character attributes of role-playing games with the wit and depth of Infocom's acclaimed text-only games – plus on-screen mapping into the bargain. Your aim is to locate the fabulous Coconut of Quendor, using magic, ingenuity, and force of arms.

2 Guild of Thieves

Rainbird/Magnetic Scrolls ■ £24.95

One for the graphics fans, this game has stunning pictures. We chose it because it combines a simple gametask (finding treasure) with some excellent puzzles. It isn't too difficult and although it's not quite as sophisticated as their later game, Jinxter, we both had more fun playing it.

3 Jewels of Darkness

Rainbird/Level 9 ■ £19.95

A classic compilation of three early games, featuring Colossal Adventure, Dungeon Adventure, and Adventure Quest. Although these old titles really show their age, they've been lovingly reprogrammed with graphics and a better parser. Discover the early days of adventuring, wallow in nostalgia, and save a fortune with this bargain pack.

4 Bards Tale

Electronic Arts ■ £24.95

The Bards Tale series combines graphic action with role-playing exploration. You form teams of adventurers who then sally forth through town, country, and cavern battling, stealing, and generally wreaking havoc. Little brainpower required, but lots of long term enjoyment.

5 Lurking Horror

Infocom ■ £24.99

Almost certainly one of the best text-only games ever, in which Infocom lovingly recreate the horror fiction of H.P.Lovecraft. Explore the forgotten labyrinths beneath your American college and discover something a lot nastier than rats...

6 Hitchhikers' Guide to the Galaxy

Infocom ■ £24.99

Douglas Adams' flirtation with interactive fiction led to this minor masterpiece from Infocom, though traditional adventurers tend to be less impressed by the humour and uncomfortably aware of the illogicality of the game structure and puzzles – but then that's what Hitchhiker's is all about, isn't it?

7 Time and Magik

Mandarin/Level 9 ■ £19.95

Level 9 do it again with this trilogy release. The oldest game, Lords of Time, is a treasure and the best of the three. Red Moon comes a close second with a strong atmosphere and a few spells to cast; The Price of Magik rounds up the collection with lots of spells but not much else. However, for the price, this is definitely a winner.

8 Ultima IV

Microprose ■ £24.95

You view the countryside in the form of an overhead scrolling map, with close-up graphics when you're in towns or on boats. Form a party of adventurers and tally-ho across the land of Britannia, casting spells, trading, murdering, and gaining experience all the way. Slightly crude graphics, but the gameplay is absorbing and lasting.

9 Kings Quest III etc

Activision/Sierra ■ £24.99

Succeeds remarkably well in combining graphical action with textual input. Your character

solves puzzles by finding and manipulating objects, casting spells, and so on. Very pretty graphics, slightly 'twee' presentation, and different plots ranging from Police Quest through Space Quest to the magic of the King's Quest series.

10 Deja Vu

Mirrorsoft/Icom ■ Amiga £29.95, ST £24.95 (later titles £24.95 on both)

The best of the icon-driven adventure brigade. You manipulate objects and solve problems using the mouse and make good use of sound and graphics to generate atmosphere, though experienced gamesters may find the gameworlds limited. Deja Vu is the earliest – later titles include the Uninvited and Shadowgate. They get better every time...

HOW TO USE THIS PAGE

1. You've never played an adventure...

Poor you. Adventures and role-playing games are now the fastest growing sector of the software industry in the States, and are catching up over here. The genre has been rapidly growing in sophistication to include complex interaction with computer controlled characters, powerful text compression techniques, and superb graphics. The pen, it seems, is mightier than the laser....

2. You've played adventures and have upgraded to 16-bit...

Lucky you. Almost all your favourites are available on the ST, and although Amiga owners are slightly less fortunate the situation is steadily improving. Best thing about 16-bit games is the quality of the graphics (obvious, really).

3. You've never played an adventure, you hate Hobbits, you haven't upgraded, you can't type, you only like arcade games, you think adventures are for cissies, you can't spell for toffi, and so what anyway?

Medical assistance is available under the NHS, but you might have to wait some months. Best to overcome the condition yourself – no surgical knowledge required, only a realisation that adventure and role-playing software can, at its best, show you just what state-of-the-art programming can achieve. And as for Hobbits, we think they should shave between their toes and get lost.

LEATHERNECKS

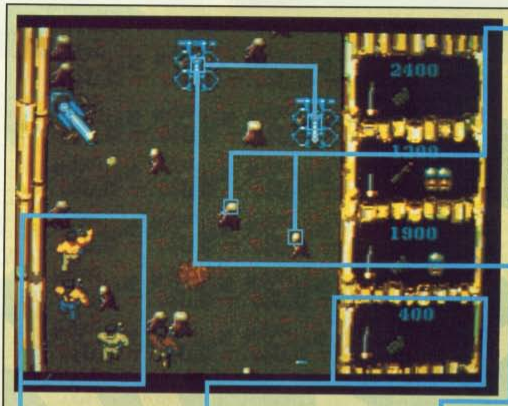
MICRODEAL

ST – £19.95, joystick only (£9.95 interface for 3 and 4 players), colour only.

Amiga – £19.95, coming soon.

Commando had one player, *Ikari Warriors* had two, now *Leathernecks* brings you simultaneous four player action in the jungle. Of course to get four players all on joysticks you have to buy the interface that plugs into the printer socket on the back of the machine.

It's not the most sophisticated game concept you'll have come across – kill or be killed – as the screen scrolls downward and the bad guys come charging at you. Of course you don't have to have four players, you can play with one or two if you don't want to get the interface. What's intriguing is the idea of the interface being used by other software houses to produce multi-player games as well. If it could be established as a standard then the potential is enormous – and no more cramping around the keyboard either.



■ *Background scenery can cause problems since it can force players into "funnels" where death can come quickly, sometimes from the guy behind you.*

■ *With four players at once, a "buddy" system soon develops if anyone wants to live long – you take that side, we'll take this one and mind where you put those grenades.*

■ *The weapons each player is using are shown here. The heavy machine gun is best for long distance work and gets rid of bad guys fast. The ammo level is indicated by the bullet next to the weapon, which gradually disappears.*

■ *These gun emplacements are difficult to get within range of to take out with a grenade, but they yield big points if you can do it.*

GAMEPLAY

Each player is equipped with three types of weapon: heavy machine gun, light machine gun and grenades. The HMG has a longer range and is preferable to the LMG, while grenades cover a wider area and destroy some special obstacles.

As the players move up the screen it scrolls and enemy soldiers will race on firing rifles and throwing grenades. All you have to do is wipe them out and stay clear of their shots. You also have to be careful not to shoot, or be shot by, one of your comrades. It's a cutthroat game and back-shooters will be swiftly dealt with by their ex-buddies.

The enemy will appear in various types of wave, made more awkward by the scenery which can get in your way – beware in particular of being "funnelled" into one area. Large static gun turrets and "spinning" guns are a big danger and only a well placed grenade will deal with them. Ammo is also a problem for trigger-happy heroes because once you've run out you'll either have to find an ammo box or lose a life to get some more.

GRAPHICS AND SOUND

The scrolling is perfectly smooth and the background's well designed. The flashing of the bodies when they die seems unnecessary but it's a minor point. There's a good range of backgrounds and each is extensive and cleverly designed.

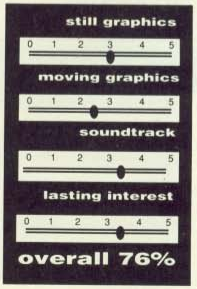
The sound effects are excellent. Screams when someone eats lead, terrific weapon noises and explosions, and some OK title music too. The only moan about the presentation is that it would be nice to have had a wider playing area, because four players can get rather too cramped.

■ *Just look at that screen – absolutely packed with explosions, bullets and men. Survive that little lot and you're in line for a purple heart, if not the hi-score table.*

CONCLUSION

As a one or two player game it hasn't got anything you couldn't find elsewhere. Where it scores is in good presentation and the excitement of four player action. There's nothing like four gun-crazed lunatics huddled round a monitor, each on their own joystick and shouting instructions at each other as to what to do next. In such circumstances it becomes a much more tactical game than just a one player blast-em-up.

A fun action game for just one or two players but a real event for three or four. Invite your friends round and you're guaranteed hours of magnificent, mindless mayhem.



LAN COMPUTER SYSTEMS

Show Room open Mon to Sat 10.30 am to 5.30 pm

ATARI SYSTEMS

1) 520STFM + Pack A	259.00+VAT
2) 520STFM + Pack A + Pack B	279.00+VAT
3) 1040STF + Pack A	379.00+VAT
4) 1040STF + Pack A + Pack B	399.00+VAT
5) 1040STF + SM125 Monitor + Pack A	479.00+VAT
6) 1040STF + SM125 Monitor + Pack A + Pack B	499.00+VAT
7) 1040STF+1084 Hi Res Colour Monitor + Pack A	569.00+VAT
8) 1040STF + 1084 Hi Res Colour Monitor + Pack A + Pack B	589.00+VAT

PACK A

FREE ATARI LANGUAGE DISK
FREE ST OWNERS MANUAL
FREE ATARI MOUSE CONTROLLER
FREE ST BASIC QUICK REFERENCE GUIDE
FREE MOUSE MAT
FREE 10 BLANK 3.5" DISKS
FREE JOYSTICK
FREE 5 PUBLIC DOMAIN DISKS
FREE DUST COVER

PACK B

3 PROGRAMS FROM THE FOLLOWING LIST:
MUSIC STUDIO – HACKER II – KINGS QUEST 1 – KINGS QUEST II – KINGS QUEST III – HACKER – BOULDERDASH I, BALL – SENTINEL – SHANGHAI – INTERNATIONAL KARATE – THRUST – GENOCIDE – WAR HAWK – SKULLDIGGERY – SPY VS SPY.

Atari's New Summer Pack: 520STFM Computer with 1Mb integral drive includes £400's worth of games software and a free joystick... All this for the incredible price of just £299.00

DRIVES FOR ATARI

Cumana 1MB disk Drive ..... 134.95 inc VAT
Including all the connecting cables and power supply unit
FREE 10 x 3.5 DSDD disks
FREE Disk Drive Cover
FREE Mouse Mat
FREE Delivery in UK

SUPRA 20BM Hard Disk ..... 499.00+VAT
5.25 1MB Disk Drive 40/80 Switchable ..... 149.95 inc VAT
Including all the connecting cables and power supply unit
FREE 10 x 5.25 DSDD disks
FREE Disk Drive Cover
FREE Mouse Mat
FREE Delivery in UK

LANSOFT CLUB

Do you want to save enormous amounts of money on your software throughout the year? No more hunting around at shows, scanning magazines for the latest bargains, waiting for new releases to be discounted before purchasing them, the solution is here LANSOFT!

Lansoft is Lan Computers Software Club entitling its members to discount of 30% on all software applications and games. The memberships costs £20.00 annual membership, £35 overseas annual membership, £200.00 lifetime membership and £250.00 overseas lifetime membership. Phone now for an application form or just forward membership amount stating which computer.

AMIGA A500 SYSTEMS

1) A500 Computer	339.00+VAT
2) A500 Computer & TV Mod	359.00+VAT
3) A500 Computer & Hi Res Green Screen	538.00+VAT
4) A500 Computer & Commodore 1084	399.00+VAT
5) A500 Computer & Phillips 8833	568.00+VAT
6) Cumana 2nd Disk Drive	99.00+VAT
7) Phillips 8833 Monitor	220.00+VAT
8) Commodore 1084 Monitor High Resolution	199.00+VAT

1084 High Res Colour Monitor for only £199.00

TRANSFORMER To run PC Software for only £28.95

AMIGA A2000 SYSTEMS

1) B2000 Computer	£949.00+VAT
2) B2000 1084 Monitor	£1095.00+VAT
3) B2000 Phillips 8833 Monitor	£1149.00+VAT
4) B2000 Amiga Hard Disk 20MB	£499.00+VAT
5) B2000 5.25 Disk Drive PC Card	£399.00+VAT
6) B2000 PC Hard Disk from	£219.00+VAT
7) B2000 PC Hard Card 32MB	£259.00+VAT
8) B2000 2MB RAM	£399.00+VAT
9) B2000 8MB RAM	PHONE

BUSINESS PACK
£699.00
+VAT

A500 Computer
1084 Colour Monitor
128 cps Printer
The Works
Transformer

PRINTERS

Lan 120D	£129.00+VAT
Panasonic KXP 1001	£145.00+VAT
Sytar LC10 Printer Stand Paper and Cable	£169.00+VAT
Star LC10 Colour Printer	£199.00+VAT
Star NB24 – 1024 Pin Printer	£399.00+VAT
Nec 24 Pin Printer	£259.00+VAT
Epson LX800	£179.00+VAT
256K Printer Buffer	£199.00+VAT
Printer Cable	£14.95+VAT
Box of Paper 2000 Sheets	£13.00+VAT
Printer Stand	£9.95+VAT
Printer Stand	£26.00+VAT
Printer Ribbons from	£3.00+VAT

HOW TO ORDER

Enclose letter with cheque, postal order or credit card number for amount including VAT and delivery charge. Credit card holders may order by telephone contact sales desk. Despatch normally within 24hrs. Official Orders from Educational Establishment, Local Authorities and Government Departments welcome. Contact Education dept.

EXPORT HOTLINE 01-597 8854
TELEX: 995548
Dealer and export enquiries:
Contact Trade Dept.
ALL SOFTWARE AND BOOKS INCLUDE VAT AND DELIVERY
ALL HARDWARE SYSTEMS £10.00 COURIER SERVICE
Prices exclusive of VAT Unless otherwise stated and Correct at time of going to press.
Education callers ask for Tony Judge or Mike Brown

Come in and see us at 1063 High Road, Chadwell Heath, Romford Essex.
just around the corner to Chadwell Heath station or easy parking in Manstead Gardens, just opposite, or PHONE 01-597 8851 show room open Mon to Sat 10.30 am to 5.30 pm

THE INDISPENSABLES

The 10 games that no ST or Amiga owner should be without, plus some commendable runners-up that were just out-gunned.

Picking the best games for the ST and Amiga is no easy task. Many titles flatter to deceive with their graphics and sound, while others are little more than hurried conversions of 8-bit games. What we're after is games that stretch the machine and the player to the full.

The list we've arrived at almost certainly won't coincide with yours, but we've tried for a spread of tastes from the most addictive and simple of arcade games to the most involved and complicated of strategy games. The list is presented in purely alphabetical order because it's impossible to put them into any sort of order of merit.

There were so many contenders for a Top 10 that we've also come up with a list of commended titles that may appeal to your tastes as well. None of this month's games are included in the list – though some might deserve it.

ST TOP 10	AMIGA TOP 10	COMMENDED
Balance of Power	Balance of Power	Academy
Bubble Bobble	Bonecruncher	Get Dexter
Carrier Command	Bubble Bobble	Leaderboard
Chessmaster 2000	Chessmaster 2000	Powerplay
Defender of the Crown	Ferrari Formula One	Super Sprint
Dungeon Master	Flight Simulator II	Tetris
Flight Simulator II	Impact	UMS
Impact	Mercenary	Wizball
Oids	Sentinel	
Sentinel	Sidewinder	

Chessmaster 2000

Electronic Arts, Amiga £24.95, ST £24.95

A very strong chess game that provides all the opposition you'll ever need. Plenty of difficulty settings, a pretty display and even speech synthesis to make this a match for any master.

Balance of Power

Mindscape/Mirrorsoft

Amiga £26.95, ST £26.95

A classic game of international power and the struggle between the USA and USSR. You can control either side and try to rally the countries of the world to your camp. Make the wrong move and a nuclear war could ensue. A superbly detailed and thorough piece of work that totally absorbs you.

Carrier Command

Rainbird

Amiga £24.95, ST £24.95

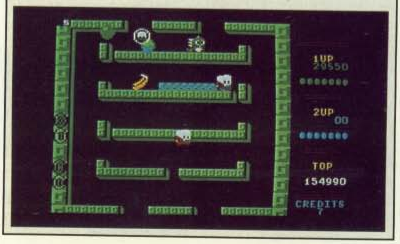
A strategy game that not only puts your dexterity to the test but provides excellent solid 3D graphics and a tough tactical challenge. Can you command the carrier and its weaponry to take control of a network of volcanic islands?

Bubble Bobble

Firebird

Amiga £19.95, ST £19.95

This one won't tax the grey matter much but with so many levels and such wackily, addictive action it's still a must. Two dinosaurs blowing bubbles are the stars, and after that it gets sillier still.



Bonecruncher

Superior Software

Amiga £14.95

One of those games that seems simple but wraps you up in a series of mind-twisting puzzles. It's all down to collecting bones and making soap, but it's the kind of arcade puzzle that will turn a mild-mannered player into a totally manic obsessive.

Defender of the Crown

Cinemaware/Mirrorsoft

Amiga £29.95, ST £29.95

A graphical extravaganza that looks fantastic on both machines, but lacks a lot of gameplay on the Amiga. Battling for control of mediaeval Britain is more involved on the ST, but both versions are packed with atmosphere.

Dungeon Master

Cinemaware/ Mirrorsoft

Amiga £24.99, ST £24.99

Not out for the Amiga yet, but for ST owners it provides an enormous area of dungeon to explore in search of treasure, powers and nasty monsters. A terrific game for exploring long into the hours of the night.

Ferrari Formula One

Electronic Arts

Amiga £24.95

The best racing simulator there is. Behind the wheel of a Ferrari you can experience the thrill of driving at the world's greatest racing circuits. You are the manager, engineer and driver through a whole motor racing season.

Mercenary

Novagen

Amiga £24.95, ST £24.95

A 3D, vector graphic cross between an arcade adventure and a flight sim. You're on a search for a ship to get you off a planet wracked by civil war. Aerial action and underground exploration of a large game area.

Oids

Cinemaware/ Mirrorsoft

ST £19.99

Game control is everything in this one. You are trying to rescue the Oids from captivity. Facing you are six systems composed of many planets, each one with extraordinarily complex and devious defences. If that wasn't enough there's a screen designer as well.

Flight Simulator II

Sub-Logic

Amiga £49.95, ST £49.95

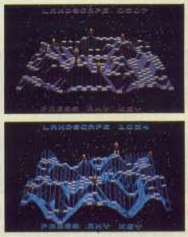
This one is a bit expensive and is only available on import, but it is the best in its field. You can fly a Lear jet, Cessna or World War 1 bi-plane in solid 3D. There's even the modem option allowing two pilots on connected machines to fly against one another.

Impact

Audiogenic,

Amiga £14.95, ST £14.95

The best of the new-wave Breakout clones. This has more levels than you can cope with, a screen designer, good graphics and sound, and total addiction. An essential buy for all arcade freaks.



Sentinel

Firebird

Amiga £19.95, ST £19.95

An original concept of epic proportions because it has 10,000 levels. Futuristic landscapes are dominated by the Sentinel and on each one you have to usurp his position by getting higher than him. Sounds easy, but every level is different and presents masterly difficulties.

Sidewinder

Melbourne House

Amiga £19.95, ST £19.95

A shoot-em-up that has everything you could desire. Amazing graphics and explosions, ear-rumbling sound effects, hordes of horrible aliens and increasing difficulty to challenge the best. Guaranteed to overwhelm the senses.

THE SUPPORTING CAST

If you're looking for something a little more specialised then maybe the titles that didn't quite make the grade will fit the bill.

War game fanatics will want to get to grips with the *Universal Military Simulator* which provides many scenarios and plenty of flexibility in creating your own. Golf fans will want *Leaderboard* and its sequels that get you as near to the real thing as your micro will allow.

If you're looking for a wacky mental puzzle of speed and dexterity then *Tetris* should do you nicely. It's all based around tetronimoes don't you know? If it's trivia you're into then *Powerplay* will not only provide that but a hot game too. It's a very playable mixture of the two.

If pure arcade action is what you're after then *Super Sprint* will give you joystick wrenching, three player driving action, *Wizball* will provide bouncing, colouring, blasting action of stunning originality, and *Academy* sends you into a space adventure that only the toughest will survive. Arcade adventure fans will also get there money's worth from *Get Dexter* which presents lots of tricky puzzles and humour.

Academy
CRL
Amiga £19.95, ST £19.95

Get Dexter
Infogrames
ST £19.95

Leaderboard
US Gold,
Amiga £24.99, ST £24.99

Powerplay
Arcana
Amiga £19.95, ST £19.95

Super Sprint
Activision
ST £19.99

Tetris
Mirrorsoft
Amiga £19.99, ST £19.99

Universal Military Simulator
Rainbird
Amiga £24.95, ST £24.95

Wizball
Ocean
Amiga £19.95, ST £19.95

DISK EXTRA

ST Amiga Format's unique dual format disk gives you the best of both ST and Amiga worlds!

Demos of the hottest new games – life-saving utilities – it's like a hundred extra pages!

FOR THE ST

64 **OIDS DEMO**
A brand new level of Mirrorsoft's incredibly addictive Oids game not found on the standard release. Whether you've not yet played Oids or are a seasoned Oidster, you'll find this playable demo hooks you.

65 **VIRUS KILLER**
Protect your disks against possible Virus attack.

65 **RAM DISK**
Configure part of your ST's memory as a fast disk drive. This appears to GEM as a perfectly standard disk, allowing you to run and save programs extremely quickly.

65 **GAME POKES**
A few underhand tactics to give you the upper hand in your game playing. Run these poke programs to get more out of Autoduel, Gauntlet and Metrocross.

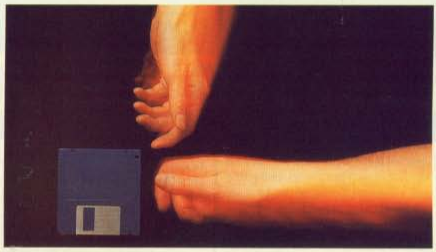
65 **MONOWARE**
Do you own a colour ST but want to run programs written exclusively for mono monitors? This handy utility allows you to do just that.

65 **INVADERS**
A pleasant diversion for you serious-minded mono ST owners – a version of the classic Invaders game.

65 **DISK FORMATTER**
Format single- or double-sided disks faster and to a larger capacity. Single-sided discs (normally 357k) will have roughly 400k free, and double-sided disks twice that.

66 **ART GOODIES**
A screen snapshot saver for any ST screen mode, and a utility to convert art package files between all popular formats.

66 **DESKTOP ACCESSORIES**
A set of desktop accessories to give you a breakout game, a calendar, an MS-DOS-type command line interpreter, a text editor and a hidden novelty! Can you resist?



FOR THE AMIGA

64 **INTERCEPTOR DEMO**
Electronic Arts' stunning Amiga flight simulator sets new standards in solid graphic animation. Even though this month's review gives you a glut of screen shots, there's no substitute for the real thing – except a live demo of the real thing! Get stuck into 370k of superb aerial action graphics.

67 **VIRUS KILLER**
Kills 99% of all known Viruses dead. This life-saver gets rid of the original SCA virus, and also most of the newer and more insidious versions. Keep your discs clean; live long and prosper

67 **OTHELLO**
A devilishly cunning version of the classic board game. Can you beat your Amiga?

67 **DRUNKEN MOUSE**
Click it and see! A droll little number to confuse your mouse.

WE'RE PAYING £800!

FOR GOOD SOFTWARE ON OUR COVER DISK

We're looking for good quality software to fill our cover disk each month. If you're a nifty programmer you could earn big bucks from your labours – games, business applications, utilities, or anything of general interest. We're also interested in any especially original graphics you may have created with art packages, either for inclusion on the disk or printing in the magazine.

Turn to the end of this section for more details on how to get your software onto the ST Amiga Format cover disk.

SIZZLING GAME DEMOS!

OIDS

All colour STs

Oids is possibly the most addictive ST game ever. In the unlikely event that you haven't played it yet (that is, you haven't got Brokenfiringfinger Oidsiensis, as the medical profession now terms it), here's a quick summary. You're in a spaceship whose rotate, thrust and fire actions are very like the famous Asteroids. You've got to manoeuvre your craft to blast the evil Biocretes and rescue the beleaguered Oids.

This demo gives you a whole playable level of Oids with one life – see how far you can get!

To run the demo: open the folder OIDS and double-click on OIDS.PRG. An instruction screen tells you what keys to use.

INTERCEPTOR

All Amigas (except 256K A1000)

What can you say about Interceptor? Quite simply, no other flight simulator on any computer has ever given the sheer feeling of *flying* that Interceptor delivers. The solid graphics, the looming targets, the veering horizon all combine to make you feel you are in total control of a high tech F-18 Hornet fighter.

Yes sir, those good ol' boys at Electronic Arts sure know how to program. (*Okay, that's enough hype – Ed.*) But don't just take our word for it. Read this month's review, then try it yourself – that's the beauty of of having a disk on the front cover each month.

To run the demo: take the ST Amiga Format master disk, turn your Amiga on and put the disk in. The Interceptor demo boots automatically. It's a watch-only demo, so there are no joystick controls to learn.

Note: The method of backing up the master disk described at the end of this Disk Extra section does not transfer the Interceptor demo files, so you can't run it from your copy. Always make sure the master disk is write protected and run the demo from that. It *is* possible to copy the Interceptor files, if you know CLI commands – see the margin note.

A2000 users: The Interceptor loading screen says that you get extra sound effects if you run with 1MB of memory (ie. on an A2000 or an expanded A500). However, because of the limitations on disk space we have been unable to include the extra sound effects with this version. On such machines you will see a warning message 'sfx error 1 texttof not found' as the game loads and there will be a few strange crackles on take-off. Don't worry, the demo runs fine!

COPYING INTERCEPTOR

If you do want to make copies of the Interceptor demo, you will have to get your hands dirty with the Amiga's Command Line Interpreter (CLI) as described in chapter 7 of the Amiga manual. For those of you who have mastered such things, you can copy the Interceptor files as follows:

- Make a note of the name of the disk you want to copy the Interceptor files onto (this shows beneath the disk icon on the Workbench). Let's assume it is MYDISK.
- Open up a CLI window.
- To copy all files and subdirectories from the master disk (called FORMAT#1) to the new disk, type `COPY FORMAT#1: TO MYDISK: ALL` and press [RETURN]. You'll have to do an awful lot of disk swaps though, unless you have two disk drives.

ST PROGRAMS

First, copy and load the disk as described at the end of the Disk Extra section.

Virus Killer
All STs

Nothing to do with the new ST game, as reviewed in this issue. Sorry, but Viruses, previously thought to be the bane only of Amiga owners, are the new ST terror.

With this Virus killer you can check that your disks are infection free. It can be run directly from the CLICK_ME menu program as described later. Alternatively, if you just go into the VIRUS.DIE folder and run VIRUSKIL.PRG by double-clicking on it you will be asked to insert the disk(s) you suspect of being infected, and they will be checked and 'immunized'.

Warning: don't use this program on any games disks or other copy-protected commercial software package master disks. The immunization process can wreck the loading process of these non-standard disks. It is quite safe with ordinary GEM disks though.

RAM Disk
All STs

Until you've used a RAM disk, you'll never know how useful it can be. Essentially, this utility makes the ST reserve an area of its memory for use as a disk drive. This RAM disk appears as a normal GEM disk icon, and files can be copied into it and run from it like any other disk. The virtue is that it is lightning fast since there are no mechanical parts to put a spanner in the works.

Full details are given in the disk documentation, which you can read from the CLICK_ME.PRG menu program. If you're the kind of person who just won't read documentation files, here's a quick way in: open the RAMDISK folder and copy the contents to a blank disk. Reset the computer and insert the disk with the files you just copied. A 200K RAM disk (drive D) will install itself automatically.

For the more technically minded ST users, the ramdisk creation program itself can be run in several ways: either as a desktop accessory (.ACC), a .TTP (TOS takes parameters) file or a standard .PRG file. It's simply a matter of renaming the RAMDISK file. The mechanics of this can be found in the documentation file.

Game Pokes
All STs

This folder contains hacks which – by modifying certain commercial games – give you a better chance at winning. If you want to get your name flaunted in the hall of fame, these pokettes will do the trick. The games in question are Microprose's Auto Duel (the poke creates a supercharacter with extra money, armour etc.) and two US Gold titles, Gauntlet (get extra energy) and Metrocross (get extra time).

The pokes can't be run from the CLICK_ME menu; instead double-click on the POKES folder and again on the file of your choice. For instance, if you want to cheat at Gauntlet, click on the file called GAUNTLET.TOS. When requested insert the correct original Gauntlet disk into drive A. Follow the prompts.

Take care when using the pokes. They modify some of the code held on the games disks – if you use them on the wrong disks you're asking for trouble. We can't accept any responsibility for your misuse of these files. And we certainly can't repair corrupted disks.

Monoware
Colour STs only

Pssst! Over here! Want to run monochrome software on your colour monitor or television? Well, with this handy utility you can do just that, and it works with many commercial programs as long as they adhere to the constraints of GEM, like Signum, Fleet Street Publisher and even the mono Invaders game featured elsewhere on this month's disk.

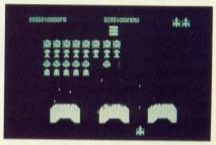
What are you waiting for? Simply select it from the CLICK_ME menu and wait for it to load. Note that executing it will cause the ST to perform a soft reset – this means you will not be returned to the menu program. From now on everything will appear in glorious technimono, black and white even. But don't just sit there: run CLICK_ME again and select Invaders from the menu.

Of course, displaying such a high resolution screen takes it out of the poor old ST's processor. For this reason the program allows you to select a combination of fast screen update (but slow program running) or fast programs (but reduced quality display).

Invaders
Mono STs only

Take a break from being really serious. Drop your word processing, your desktop publishing, your book keeping and spend a few hours saving planet Earth. What, you can't afford the time. Nonsense. What's more important? Earth? Or a few lousy facts and figures?

Glad to see you're taking things seriously. 'Cause these Invaders sure are a menace. There are waves upon waves of the blighters and nothing except you to stop them. If you've been around a while you might even recognise the extra-terrestrials: they tried to



land sometime in the late '70s.

Look, if you don't know what the game is by now, you'll just have to find out yourself. Suffice to say that Invaders only works on a monochrome monitor (or a colour monitor if Monoware has been run beforehand) and uses right-Shift, / and the [ALTERNATE] key for control. You can run it from the CLICK_ME menu.

Fast Formatter
All STs

GEM allows you to format a single sided disk to a capacity of 357k – achieved by single clicking on a disk icon and selecting Format from the Options menu. Twice this amount is attainable if the drive is capable of formatting both sides of the disk. In most cases this is ample, but what if you

DISCLAIMER TIME

We have done our best to check that the programs supplied on this month's disk are simple to use, error free and have no known viruses. However, we cannot answer telephone queries on using the software, and we do not accept liability for any consequences of using the programs.

If your ST Amiga Format disk is faulty – and out of 40,000 duplicated some are unfortunately bound to be – you should send it back for a free replacement to:

ST Amiga Format July Disk, DisCopy Labs, 20 Osyth Close, Brackmills, Northampton NN4 0DY.

Amiga owners: if your Amiga refuses to accept the disk, try using the DISKDOCTOR utility on your Commodore Workbench disk to rescue it before sending off for a replacement. For details on using DISKDOCTOR, see the Amiga hints and tips section towards the back of this issue.

have a really huge text file or you want to fit just one more graphic picture on the disk? The answer is you use the Format program supplied.

You can boost your disk's storage capacity by over 50K on a single-sided disk (twice this on a double-sided disk). That's nothing to be sniffed at either.

Select Fast Formatter from the CLICK_ME menu and follow the prompts. By clicking on the boxes with the right mouse button you can highlight and select the options. Formatting will erase all data on a disk. Use with care.

Art Goodies

All STs

Double-clicking on the CONVERT.ART folder will reveal two more folders, SNAPSHOT and PICSWTCH. Inside these folders you'll find useful programs for capturing GEM screens and converting graphic files from one program's format to another.

Inside the SNAPSHOT folder you will find:

SNAPSHOT.TOS

Run this program first. It will install a screen capturing routine which sits around in the background. Now run any GEM program as normal from the desktop, and when the screen you want to save is displaying press the [Alternate] and [Help] keys together. A flash will indicate that the screen has been saved to memory. The routine works for any resolution screen.

SNAPSAVE.TOS

Once you've captured the screen in memory you must save it to disk. This is done by clicking on the above file. Files are saved with the default name of SNAP1.NEO; it makes sense to rename them. These are true NeoChrome files and can be loaded and modified within the art package.

SNAPVIEW.TOS

Displays all files with a .NEO extension on the current disk, in a rotating slide show. Space bar to exit.

Inside the PICSWTCH folder you will find:

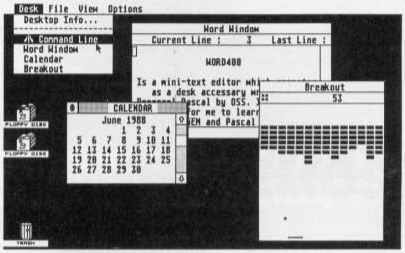
PICSWTCH.PRG

A conversion program allowing art packages to read one another's files. NeoChrome to Degas and vice versa, Amiga IFF to NeoChrome or Degas, and Macintosh MacPaint to Degas format are all possible.

Desktop Accessories

All STs

This folder contains 5 intriguing GEM desktop accessories. Getting them up and running is simplicity itself: on your copy of the ST Amiga Format disk you will see a folder called ACC; click on this to open it and you will see – amongst other things – five files ending in .ACC with names corresponding to the accessories described below. Copy these by dragging them out of their folder into the top level of the disk's directory. Now reset the ST and put this work disk in the drive. GEM will automatically load the accessories, and when you put the mouse over the 'Desk' menu title at the very top left of the screen the accessory menu will drop down.



Breakout

A version of the classic Breakout game. Your task is to keep hitting the ball with your bat and try to get rid of the bricks.

Calendar

Keep up to date with this handy utility. Selecting this accessory from the desktop brings up a calendar of years between 1980 and 2009. Use the scroll bar to roll away the years.

CLI

Were you weaned on CP/M or MS-DOS computers? Do you dream of typing command lines rather than clicking fancy GEM icons? This accessory gives you a command line interpreter as a substitute for GEM – for example, entering `COPY A:README TO B:` will copy the file README from drive A to drive B.

Mites

Well, telling would spoil the surprise. Read the documentation, set up a boot disk so that MITES.ACC is loaded, and watch. Don't worry that MITES doesn't appear on the Accessory menu, and rest assured that no harm can result.

Word400

This is a mini text editor, with a couple of nice features for Pascal programmers. It can process files of up to 400 lines.

These accessories do of course eat up your system memory, so you probably won't want all five on your usual boot disk. Make sure that on the disk you use to start GEM with you only have the .ACC files for the accessories

AMIGA PROGRAMS

First, copy the disk as described at the end of the Disk Extra section. These programs run on both the Amiga 500 and the 2000. We have been unable to test them on Amiga 1000s.

VirusX

All Amigas

By now you've all read quite enough scare stories about the dreaded Virus on the Amiga to thoroughly terrify you. Cutting through all the popular press 'AIDS' metaphors, here are the facts:

Whenever you put a disk into an Amiga disk drive, the AmigaDOS operating system detects it and checks it. Some months ago a bunch of jokers called the Swiss Cracking Association (SCA) wrote a program which hacked the disk checking part of AmigaDOS so that it would subtly infect all disks used.

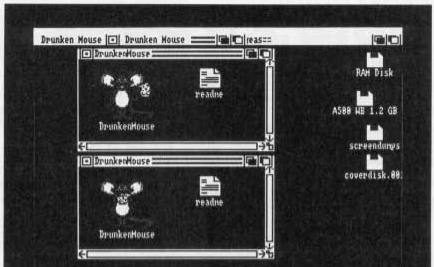
This original SCA virus is fairly benign by comparison to it's later cousins from unscrupulous programmers; some of them give you no warning at all before destroying vital data. VIRUSX is a public domain program written by American Steve Tibbett, which claims to erase all known Viruses from disks, and it works in a very ingenious way.

To run VirusX, just open up the VirusX drawer and click on its icon. An extra title bar appears on the main Workbench title bar, showing you VirusX is active. It immediately checks all disks in all drives, and from now on it hangs around in memory checking all disks you use as you put them in.

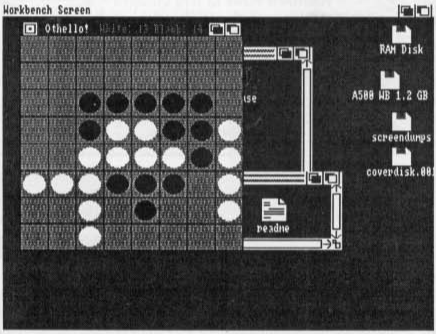
The VirusX title bar is really just another window title bar with the usual close and front/back gadgets. You can close VirusX down if you really want to by clicking on the Close gadget. Also, if you move the VirusX window so you can see all the Workbench title bar, then

when you click on the VirusX title some statistics of how many disks have been checked so far appears on the Workbench title.

■ *Running VirusX. The warning message 'non-standard boot code' means te disk in the drive might be infected. The menu bar at the top of the screen reveals that 2 disks have been checked for viruses, but none have yet been found.*



■ *Amiga icons are much more fun than ST icons. Here is Drunken Mouse, before clicking and after.*



Othello
All Amigas

An excellent version of the classic board game, sometimes known as Reversi,

A brief summary of the rules is given in the documentation file on the disk. Essentially, you are playing on an 8 by 8 grid of squares, and the object is to capture as the majority of the squares.

Each player puts a counter of their own colour in turn on a square so as to sandwich their opponent's counters between two of their own. The captured counters then change colour, but can be recaptured later on. You must make at least one capture with each counter you put down.

Once on a square, counters never move around but only change colour. When the board is full, the player with the most counters wins.

To run Othello, just open its drawer and double-click on its icon. The Amiga always plays white, you play black and have the first go. To make a move, simply click the mouse in the square you want to go in; the Amiga turns the captured counters for you and after a pause for thought makes its go.

If you want to end the game prematurely, just click in the Close-window gadget at the top left of the Othello window.

Drunken Mouse
All Amigas

This is a great fun program, worth running just to see its icon! Open up the Drunken Mouse drawer, double click on its icon, and be amused. If the joke starts to wear thin you can get rid of it by clicking on the close-window gadget for the Drunken Mouse title bar which appears at the top of the screen in the Workbench title bar.

PD AND SOURCE CODE

Some Public Domain programs are distributed with their 'source code' – ie. the text of the program so that you can alter it if you want. Due to the pressure of space on our cover disk we have not been able to distribute any source code for these programs; our apologies to the PD authors in question.

If you would like to see more PD programs, including their source code, a very good source of Amiga PD is George Thompson Services, FREEPOST, Dippen, Brodick, Arran, Scotland KA27 8BR (phone 077 082 234). They have a complete list of 140 of the famous 'Fish Disks', which contain the collected best of Amiga PD-ware and which we have used as a source for cover disk material.

ST AMIGA FORMAT

WIN ST AMIGA FORMAT FOR A YEAR!

We're throwing out a challenge to skilled ST Amiga Format readers: design us an opening screen for our cover disk and we'll give you a free subscription to the magazine.

What we want is a small file (preferably no more than 20k or so) which can be run as a clickable icon from the Desktop (for STs) or Workbench (for Amigas). The utility should be able to display a menu of all programs on the disk that month, and offer the option of displaying a documentation file or running the program and returning to the menu when finished. Imaginative touches with graphics and sound score highly!

Remember that although our cover disk is dual format, STs and Amigas both think it is a normal ST or Amiga disk. Just write the program exclusively for your machine, and don't worry about the other's files.

THE NUMBER 1 DISK SUPPLIER

TOP QUALITY DISKS AT ROCK BOTTOM PRICES

5.25" BULK PACKED–TOP QUALITY	25	50	100	150	250
Single Sided 48T.P.I.	£9.97	£17.58	£30.88	£39.43	£58.43
Single Sided 96T.P.I	£10.21	£18.05	£31.83	£40.85	£59.85
Double Sided 48T.P.I.	£10.45	£18.53	£32.78	£42.75	£62.70
Double Sided 96T.P.I.	£10.93	£19.48	£34.20	£44.18	£66.03
Double Sided Coloured 96T.P.I.	£13.06	£24.46	£46.08	£62.23	£94.76
Double Sided Reversible*	£14.25	£27.08	£47.98	£64.13	£97.38
Coloured & Reversible*	£16.39	£31.11	£60.08	£81.94	£123.26

Coloured Disks come in five colours (Red, Blue, White, Yellow, Green). Reversible disks have two index holes and two notches! Reversible disks work with 40T or 80T (48T.P.I/96T.P.I.) Coloured and reversible disks come in five colours and have two holes and notches. All Centec disks are packed with a protective jacket (envelope) and come with a full user set, including a label and a write protect tab. The disks are manufactured to top international standards and have a hub ring for added protection.
All disks carry our no quibble replacement guarantee and are certified 100% error free.

SILLY SUMMER SALE

STORAGE BOXES NEW RANGE

(All boxes are anti-static, come with lock, 2 keys, dividers and are hinged)

3.5" 120 capacity lockable £8.95
5.25" 140 capacity lockable £8.95

ANY TWO FOR £13.99
ANY THREE FOR £19.99

STORAGE BOXES

Anti-static, two keys, hinged + dividers

3.50" Lockable – Holds 40	£5.95
3.50" Lockable – Holds 80	£6.95
5.25" Lockable – Holds 50	£5.95
5.25" Lockable – Holds 100	£6.95

ANY TWO BOXES FOR £11.95
ANY THREE FOR £14.95

PROFESSIONAL PRINTER STAND

This new printer stand is very space efficient as it takes hardly any more room than your printer. Due to the unique positioning of the paper guide mechanism and refold compartments that is one above the other, the desk space is effectively halved. The space saving design allows easy access to the paper from both sides, the special dial controlled paper feed system with adjustable deflector plates ensures smooth paper flow and automatic refolding.

80 Col £19.95
132 Col £24.95

JUDGE FOR YOURSELVES

You'll be guilty of paying more & getting less if you go elsewhere

Same Day Despatch

THE FAMOUS CENTEC DISK & BOX OFFER!

We can be copied on style but not on quality and Price!

3.5"	5.25"
3.5" DS/DD 80 Disks & 80 Capacity Box–£69.95	5.25" DS/DD 100 Disks & 100 Capacity Box–£29.95
3.5" DS/DD 40 Disks & 40 Capacity Box–£39.95	5.25" DS/DD 50 Disks & 50 Capacity Box–£19.95

3.5" TOP QUALITY BULK PACKED DISKS

	10	25	50	100	150	200
Single Sided 135T.P.I.	£9.49	£22.95	£41.95	£79.95	£116.95	£154.95
Double Sided 135T.P.I.	£9.95	£24.95	£43.95	£81.95	£119.95	£158.95

Rainbow Pack of five colours – New Lower Prices

Single Sided 135T.P.I.	£12.49	£23.95	£46.95	£91.95	£129.95	£169.95
Double Sided 135T.P.I	£14.49	£26.95	£52.95	£98.95	£145.95	£189.95

Rainbow disks are available in Blue, Red, Green, Yellow and Orange
Packs of 10 3.5" Disks come with Free Plastic Library Case (worth £1.49!)
All discs are supplied with labels and are certified 100% error free

VISA

E&OE

CENTEC DISK SUPPLIES

UNIT 3, THE METRO CENTRE, BRIDGE ROAD, ORPINGTON, KENT BR5 2BE
TEL: (0689) 35353 (6 Lines) (24 Hours) Fax: 0689 77737

Please note we operate a call stacking system. Outside office hours a telephone answering machine will take your order.
Remember – all prices include VAT and delivery! There are no hidden extras to pay! Personal callers welcome: Monday-Friday 9.30am-4.30pm

All disks are sent by Trackback or Courier service at no extra cost

SIREN SOFTWARE

SECOND DISC DRIVE

Add an extra drive for only £84.99

Our superb drive can really help you make the most of your ST allowing complex software to be run without disc swapping etc. The drive comes complete with all cables to connect it to any ATARI 1040 STF or 520 STFM

- ★ Ultra quiet
- ★ Slim styling, colour matched to the ST
- ★ Top quality Citizen/NEC drive mechanism
- ★ 1 megabyte capacity (unformatted)
- ★ Full one year parts and labour guarantee.

Available now only £84.99 inc. VAT & P&P

NEW NEW

★★★ AMIGA SOUNDBLASTER ★★★

Everyone knows that the Amiga has the best sound facilities available on any popular computer today. Unfortunately until now, unless you could connect your Amiga to your stereo system you could not appreciate the quality of the sound.

The AMIGA SOUNDBLASTER is a small stereo amplifier that comes complete with 2 high quality 20 WATT 3 way speakers. It is easily connected to your Amiga 500/1000 and adds a new dimension to all games.

- ★ Comes complete with 2 high quality stereo speakers
- ★ Twin volume/balance controls
- ★ Headphone socket
- ★ Very easy to connect
- ★ Compatible with all software/hardware

★★ Free stereo headphones with all orders for a limited period ★★

Amiga Soundblaster is just £39.99 including VAT and P&P

SIREN SOFTWARE TEL 061 228 1831
2-4 OXFORD ROAD, MANCHESTER M1 5QA

Access VISA

HOW TO USE THIS DISK

DISK

The ST Amiga Format cover disk is a special format disk which both the ST and the Amiga can read. Even if you are a seasoned computer user, please follow these instructions carefully or you run the risk of permanently damaging the disk.

The first thing you must do is make a backup copy of the disk. Because of the special format, the normal bulk disk copying methods as recommended in the Amiga and ST manuals won't work. Instead you will need to format a blank disc and copy all the files you need individually. Don't panic, this isn't at all difficult.

ON THE ST

(assuming a single drive machine)

1. Take a blank disk and format it in the usual way.
2. With the blank disk still in the drive, double click on the A disk icon to open up the (blank) contents window.
3. Now drag the icon for disk B into the open window of disk A. This will copy all the files one by one off the master disk to your new disk. *Make sure that the master ST Amiga format disk is write protected* (the sliding tab should be back so that the hole is open) and put it in the disk drive when asked for disk B.
4. You will now be prompted at various times to insert disk A and disk B while copying takes place. There will be a lot of swapping to do on a single drive ST! Disk B should be the master disk, disk A your newly formatted copy.

If you want to cut down on disk swaps and you understand enough about the ST's GEM system, you can set up a RAM disk using the utility provided on this month's disk and use that as an intermediate step.

ON THE AMIGA

(assuming a single drive A500)

1. Start your Amiga up with your normal Workbench boot disk.
1. Take a blank disk and initialize it in the usual way.
2. *Make sure that the master ST Amiga format disk is write protected* and put it in the disk drive. Double click on the disk icon that appears. Drag any icons you see in the contents window onto the 'RAM disk' icon.
3. When the disk activity light has gone out, put your newly formatted copy disk in the drive instead. Double click on the RAM disk to open its window up, and drag the icons from that onto the new disk icon. This will copy the files one by one.

The files for the Interceptor demo are not copied – it isn't that they are copy protected, just that they are too big to fit on the RAM disk. See the description of the demo for more details.

Running the programs

ON THE ST

When you turn the ST on and put your working copy of the disc in the drive, you will see a window opened with the contents of the disc displayed.

One of the icons is called CLICK_ME.PRG – just do what it says, double-click to run it. Up comes a list of the disk contents. Type the number of the program you want to run, and you are asked whether you want to read the disk help file or not.

You will now be asked whether you want to run the program or not. For technical reasons not all the programs can be directly run from this menu file: the Virus Killer, Monoware utility, Invaders game and Disk Formatter *can* be run from within the CLICK_ME program. The Oids demo, RAM Disk, Pokes, Desk Accessories and Art utilities *cannot* be run from CLICK_ME.

ON THE AMIGA

The Interceptor demo is self-booting – just turn on your Amiga, put the disk in, sit back and watch.

Each utility described in the previous pages is in a folder of its own with a drawer icon. Click open the folder you want. For detailed comments from the program's author click on the README file icon in the folder; to run the program click on the main icon.

When you click on the documentation file, a new window is opened and the text is displayed a screenful at a time. To continue reading the next screenful, press any key; to cancel the reading process click in the Close gadget at the top left of the text window.

DISK DOCUMENTATION

Many of the programs on ST Amiga Format disk are Public Domain. In such cases we've simply passed on their standard documentation files unchanged, as is required by the PD code of practice. Some of the phrasing is 'idiosyncratic', shall we say, so please don't blame us for misspellings!

NEXT MONTH'S DISK

Next month's ST Amiga Format cover disk will contain still more of the most up-to-date and exciting games demos for both machines, with useful and diverting utilities.

There'll also be the unique ST AMIGA FORMAT PRODUCT SELECTOR – the world's first interactive buyer's guide. Just type in your specification – say, all word processors under £100 – and a list appears of what's available on your machine, where to go, and which is the best. Can you afford to be without it?

WE WANT TO GIVE YOU MONEY!

If you've got any programs for either ST or Amiga which you think other readers would find useful, interesting or amusing, we'd like to know. Programs should be your own work, although we will also pay a modest 'finders fee' for good new Public Domain programs brought to our attention.

Here's how to go about securing international fame for yourself:

1. Only send in programs on 3.5" disks; we cannot accept printed listings.
2. Make sure your disk is clearly labelled with your name and address, the program name(s), and marked 'ST' or 'Amiga'.
3. Make sure there is a documentation file on the disk called README.
4. Enclose a clear covering note explaining what the program does, and if you possibly can please also send a printout of any on-disk documentation files. Remember your address and a phone number where you can be contacted. Include a stamped return envelope for the disk if you want it back.
5. THIS IS IMPORTANT: there must be a signed statement that the program is yours and that you are prepared to assign publication rights to ST Amiga Format. Use the following wording:

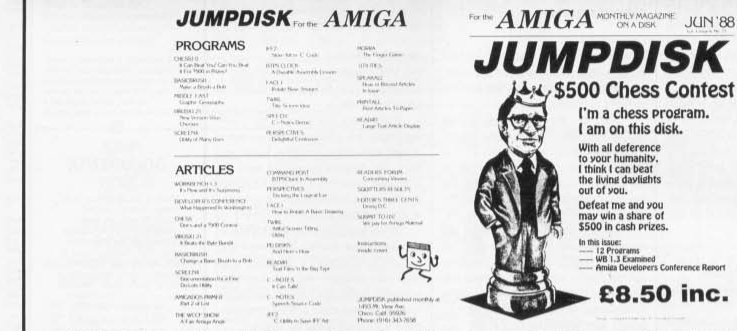
The program (write the title here) is submitted for publication by ST Amiga Format magazine. It is my own work and has not been submitted for publication elsewhere.

Signed ...

If we accept your program, we will get in touch with you before publication to agree terms and payment rates. We will evaluate all submissions in a batch once a month, so please allow up to 40 days for return of your disks. *We will only send back disks with adequate return postage and packing.*

6. If you are sending us a Public Domain program of which you are not the author, please send all documentation and example files that should go with it, and if possible add the original author's name and address. Obviously the signed statement in (5) is inappropriate in this case.
7. If you send us a disk with a virus on it, we reserve the right to send round the heavy mob in the small hours and do unspeakable things to your pet budgie. Seriously, now that you've got Virus-killers on this month's disk, do check your disks very carefully.

JUMPDISK



We attended the recent Amiga Developers Conference in the U.S.A and are one of the first magazines to report on 'what's in store' for Amiga owners. **Did you know that Subscribing to JUMPDISK for six months costs only £45.00?** A saving of £6.00. Your copy will be sent on the date of publication and with effect from June 1st you will benefit from numerous special hardware and software offers.

PUBLIC DOMAIN – LATEST NEWS

Even at a price level of £3.00 per disk, many Amiga users shy away from using Public Domain material. This could be the result of their experience with poor quality P.D. programs on other formats or perhaps some of the less known Amiga P.D. libraries.
To entice you to try FISH, AMICUS and FAUG Disks we have put together the P.D. STARTER PACK. It includes the JUMPDISK LIBRARY DISK which details the contents of nearly 250 P.D. disks from three of the most popular libraries + The BEST OF AMICUS (4 disks) + GOLD FISH (3 disks). Three disks have been compiled by the librarians, who consider the programs to be among their best. The cost of this very special collection is only £19.99. A saving of over £4.00 if the disks were purchased separately (they are available at £3.00 each). If you already have the Directory disks please substitute any other P.D. disk in this listed.

BEST OF AMICUS1: Gemini – Two computer-player game. **Subscripts** – Example of. **Decoder** – Also Compacts. **CeIscripts** – For Aegis Animator. **Waveform** – Sounds Workshop. **BasicGadgets** – Tutorial. **Household** – Inventory program. **FutureSound** – Examples, utilities etc. Recommended. **TicTacToe** – Well known game. **AutoRequester** – Call from Basic. **Worldmap** – Just that! **IFFBrush2BOB** – Converts IFF Brushes to AmigaBasic Bobs. **Synthesizer** – Experiment with different types of sound. **RatMaze** – 3D Ratmaze game. **PerfectSound** – Software for Sound Digitiser. **DiskCat** – Useful Disk Catalogue program.

BEST OF AMICUS 2: C: SkinnyC, Gadgets, Boolean, Propgadget, Comal. H, Emacs.Keys C. **Filetype** – Identifies types of files eg. distinguishes C from Assembly etc. **ShowPrint** – IFF picture file screen dump utility. **Txt** – Read text files from other systems. **PrtDriverGen2.3** – Make your own custom Printer Driver. **DougieBase** – Create your own Database. Recommended. **ARC** – File Compressor + Tutorial. **HP10C** – Binery, Octal, Hex, Decimal & Scientific Calculator. **DiskSalv** – Attempts to salvage a disk with bad blocks. Very useful.

BEST OF AMICUS 3: Journal – Records sequence of mouse & keyboard events. Good for demos or looking for bugs. **Starchart** – Displays & identifies approx 600 stars, galaxies and nebulae in the Northern Hemisphere. **WBLander** – W:B Hack. **Hockey** – Card game. **LPerr** – Try out a Long Persistence Monitor. **Munch2** – Munching Squares. **MacGag** – Liven up W:B windows as they open and close. **Target** – W:B Hack. **World** – Pic of the World rotating. **Piano** – Play with the Mouse. **RSLClock** – Indicates free memory, time and date. **GOMF** – Makes the Guru go away for clean shutdown. **Modula2** – Play8SVX, SMUSinfo. **PopCLI3** – Start another CLI at any time. **ExtraHalfBright** – Description of this feature plus Demo.

BEST OF AMICUS 4: IconMaker – Build icons for those files created without them. **DU4.3** – CLI replacement. **SpriteMaster** – Design and Animate Sprites. Recommended. **CLIinformation** – From pull-down menus learn about main CLI commands. **Startup Sequences**. Printer Stuff & Workbench Stuff – utilities, hints & tips. **ConMan** – Replacement Console Handler. **BasicFunctionKeys. Grids.MSB. BrushtoBob.MSB. ScrollDemo. Hillbert.MSB. Switch.MSB. MOuseTrack.MSB. BasicSorts. DiskLib. PointerEd. BMAPReader. Requester. HuePalette. Yoyo. Amortize. Address. Shuttle. DeLuxeDraw. Medows3D.MSB.**

GOLDFISH 1: CuteStuff – Collection of amusing display hacks. **Cycles** – Simple but enjoyable game inspired by the cycle game in the "Tron". **Gravity Wars** – Object of this game is for one player to hit the others ship with a missile, before being hit yourself. **Rot** – Generates and displays 3D objects. Consists of object and action editors. Recommended. **Shanghai** – Demo version the underated Activision game. **Triclops** – Very nice graphics orientated 3D space invasion game. Previously a commercial product. A must for any games collection.

GOLDFISH 2: Comm – Nice terminal program with support for a phone number database and function key bindings. This is my current terminal program of choice for everyday use. **Compress** – Reduces te size of the files using adaptive Lempel-Ziv coding. **Csh** – Csh like shell, modified for Manx C. **FixObj** – Strip extraneous garbage off the end of object files transferred with xmodem. **HunkPad** – Fixes an executable progrm, in a manner acceptable to AmigaDOS. **Kermit** – Port of the popular "C-kermit" program flexible virtual terminal and file transfer program from Columbia University. **Make** – From mod. sources. Vol7 No91. Cleaned up. Manxified plus new features. **MG1b** – Release 1b of MicroGNUEmacs, a small but powerful text editor. **Shar** – Can pack and unpack archives compatibile with Unix "shar". **Tracker** – Converts a boot-load disk (such as kickstart disk) into a group of files for electronic transmission and reassembly. **UUencode** – Programs to encode/decode binary files for transmittal via mail or other text-only methods. **Vt100** – V2.6 of terminal emulator with kermit and xmodem file transfer. It just keeps getting better and better.

GOLDFISH 3: ASDG-rrd – Extremely useful shareware recoverable ram disk. **AuxHandler** – Example of a dos handler that allows use of a CLI via the serial port. **ClickToFront** – Extends the user-interface so that a double click into a window brings it to the front. **Cmd** – Redirects the serial/parallel, device output to a file. **Commodities** – Exec library which can be opened and used by application programs to gain access to input in a very flexible way. **DiskSalv** – Recovers files from a trashed AmigaDOS disk. Can also "undelete" files deleted by mistake. **DropShadow** – Makes your WorkBench windows have dropshadows. **HardCopy** – Creates a hardcopy transcript of any CLI session. **IconExec & SetWindow** – These two tools allow execution of a program from an icon without having to recompile the program. **IconType** – change the type of an icon after editing with IconEd. **ID-Handler** – AmigaDOS device handler, that generates unique identifiers. **LowMem** – low memory server. **MemWatch** – Intended to sit in the background and watch for random trashing of low memory. **MoreRows** – Makes the workbench screen larger than normal. **NewZAP** – Multi-purpose file sector editing utility. **PipeHandler** – An AmigaDOS pipe device which supports OPEN, CLOSE, READ, WRITE, LOCK, EXAMINE and EXNEXT. **PopCLI** – Provides a simple way of starting another CLI at any time without having to load workbench or exit whatever program you may be using. **SetAlternate** – Merge the images from two icons to produce one icon. **SetFont** – Change the font used by a workbench screen. **Spool** – Consists of 3 programs: A queue manager, a printer driver, and a SPOOL request program. **SunMouse** – Makes your mouse behave like the Sun Microsystem's Sunwindows mouse.

WHY BUY P.D. DISKS FROM US?

We are Amiga enthusiasts and only sell products related to the Amiga. ★ All our P.D. disks are guaranteed ★ We only use the best media – Sony DS/DD Disks ★ Our prices are inclusive, there are no extras ★ If you experience problems using any P.D. software we will always try to help ★ The latest P.D. releases in the U.S.A. are Fedexed to use as soon as they are available. If you would like to know more about the world of PD for the Amiga, why not send £3.00 for the NEW JUMPDISK DIRECTORY DISK.

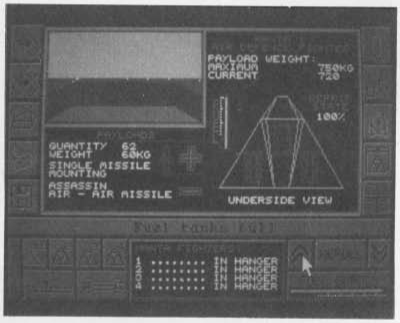
We are **GEORGE THOMPSON SERVICES** – Our address is: **FREEPOST, DIPPEN, BRODICK, ARRAN, SCOTLAND KA27 8BR**. Our telephone No. is **(077 082) 234**.
All PUBLIC DOMAIN are **£3.00 each** or **£30.00 for eleven** inc. first class post.
Please send a cheque (with your Bank Card No./Expiry Date on the reverse) or P.O. for the appropriate amount and we will despatch your order immediately.

GAME BUSTERS

If it don't look good and you're outta fuel; if you need more lives and ya wanna cheat; where ya gonna go? Gamebusters! Inside info to help you get further in your game playing.

Carrier Command ■ ST

To locate the enemy carrier, start an action game and set course for Isolus (east of Thermopylae). Keep out of range of the island and wait ten minutes. As soon as the message "Isolus is now an enemy island" appears, launch a Manta and head towards the north side of



the island. The enemy carrier will be directly ahead of you.

A Walrus can be loaded with missiles and a laser by loading the two on the same tank about five or six times.

It is best to attack an island from the rear to ensure the Walruses are sent out in the right direction. Doing this also means you can use cruise missiles against island defences.

Out Run ■ ST

During the game press the keys making up the word STARION followed by one of these keys to give the following effects:

B – extended play
D – save screen in Degas format
Q – information about program
S – takes you through locations
T – ten second bonus
X – very useful – crashes program

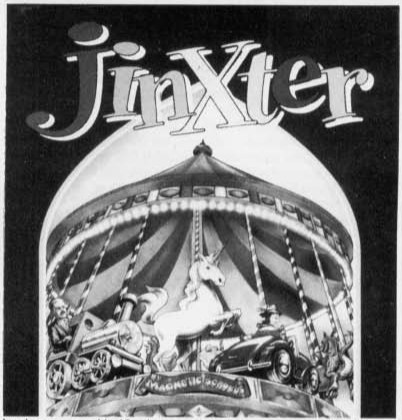
Jinxter ■ ST & Amiga

If you can't do much after getting home, open the back door with one of the keys on your key ring and walk into the garden. Get the cutters and the gloves. When you find the wire fence, wear gloves and then cut the wire with the cutters. Shout to the miller to enter the windmill.

Grid Start ■ Amiga

To personalise this game, load Deluxe Paint or Deluxe Paint 2 and insert the Grid Start disk. Select LOAD BRUSH and, from the file menu, choose the SCENES folder. Load one of the files contained within.

Simply modify what you want and resave (as a brush again). The



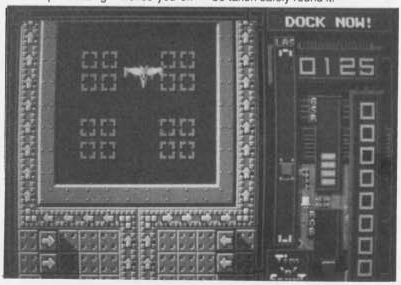
brushes are saved in 16 colours so use care when loading and saving to pick the right colour combinations. When saving brushes try to get the brush the same size as the picture.

Goldrunner ■ Amiga

Pressing and holding function key [F5] for a couple seconds during gameplay will give you an indestructible ship. Pressing I moves you on to the bonus screen while U gets you off it again. By continually hitting I and U it is possible to go through all the levels.

Test Drive ■ Amiga

Don't say you find steering increasingly difficult as the night wears on? Good news for Test Drive players – when moving round a sharp corner press Fire: the car will automatically be taken safely round it.



Eagles Nest ■ ST

Here's a short poke for Pandora's military shoot-'em-up-cum-exploration game. The poke does not work with the version of Eagles Nest supplied free with Atari's Summer Pack.

Type the listing into ST BASIC. Insert the Eagles Nest game disk and type RUN. A file called CHEAT.PRG will save itself to the disk. Exit from ST BASIC and double-click on the CHEAT.PRG file. When the game loads you will have infinite bullets, be able to sustain an infinite number of hits and have infinite keys. Note that you must pick up one key before you can have them in infinite supply.

There are two versions of ST BASIC. One written in 1985 and the other in 1987. The later version doesn't support the DEF SEG command in line 50. If you have the later version then remove this line. To check for your version simply click on 'About ST BASIC' from the Desk menu. The copyright message will display the date.

```
10 ' EAGLES NEST
20 ' infinite bullets/hits/keys
30 ' by Richard Monteiro
35 ' *** DOES NOT WORK WITH ***
36 ' *** SUMMER PACK VERSION ***
40 BLOAD "A:\AUTO\EN.PRG",&H20000
50 DEF SEG=0
55 ' Remove line 50 if you have
56 ' the new version of BASIC
60 POKE &H2035E,&H73F4
70 POKE &H20004,&H0410
80 FOR T=&H20410 TO &H20426 STEP 2
90 READ A$:POKE T,VAL("&H"+A$):NEXT T
100 BSAVE "CHEAT.PRG",&H20000,&H480
110 DATA 4239,0007,14DF,4239,0007
120 DATA 32F3,4239,0007,2AAB,4EF9
130 DATA 0007,0000,0000,0000,0000
```

WIN AN ENTIRE ISSUE'S GAMES!

Tips, pokes and game-busting ploys. Yes. We want the lot. If you've discovered a secret password, written a poke, mapped a game, completed an adventure, found out ways of getting high scores or know of any method that lets you win (by foul means preferably) then send us details. By doing so you could win the entire collection of games reviewed in an issue for your machine, ST or Amiga. Worth: around £100. Remember, we only review the hottest releases each month.

Interested? Well stop gawping. Get your Gamebusters to us. Send them to *Gamebusters, ST Amiga Format, 4 Queen Street, Bath BA1 1EJ.* Please state whether tips are for ST or Amiga. Pokes can be any length as they will be included on the cover disk rather than printed. If a poke is very long please send on a 3.5" disk, and also enclose a jiffy bag and return postage if you want it back.

This month's contributors:

■ Jason Holborn
■ Richard Monteiro

POKES ON DISK

To save you the effort of entering lengthy poke listings – and us the hassle of answering the phone when mistakes crop up – the major ones are provided on the cover disk in a tried and tested format. This month only the ST side of the disk has pokes. However, in future months we hope to have some goodies for the Amiga. This month's ST pokes are in the folder named POKES.

We've got pokes for the games Metrocross, Auto Duel and Gauntlet – all ST of course. You can only get at them from the Desktop: double click on the POKES folder. You should see three files called METROX.TOS, AUTODUEL.TOS and GAUNTLET.TOS.

Caution: unless you have the original games disks to hand don't under any circumstances double-click on these files – they write to disk.

■ METROX.TOS

Provides players of US Gold's hilarious barrel-jumping and running game, Metrocross, with extra time to complete each level. Simply double-click on the METROX.TOS file and wait until a message appears asking you to insert the original Metrocross game disk. Follow all other prompts from there – very carefully.

■ AUTODUEL.TOS

Provides players of the Microprose strategic role-playing game, Auto Duel, with a super character. Your character will have loadsamoney, loadsahealth, loadsaprestige, loadsadrivingskill loadsamarksmanships and loadsamechanicskill. *(That's enough loadsa jokes – Ed.)* You must create a character, save it to the original game disk – disk 2 as stated in the instruction manual – and then run the poke. Double click on the AUTODUEL.TOS icon and follow the instructions. When it asks you to insert the second Auto Duel disk make sure it *is* the second disk.

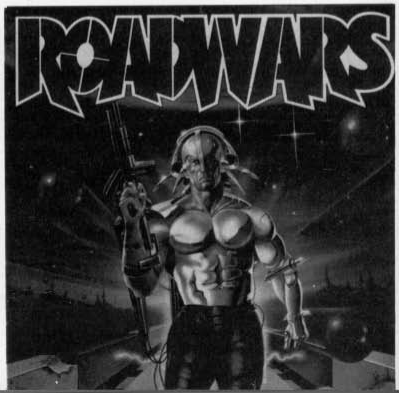
■ GAUNTLET.TOS

Provides players of US Gold's multi-character, multi-level, multi-monster game with lots of health. Double click on GAUNTLET.TOS and follow the prompts. When asked, insert Gauntlet disk A in the drive (with the write protect tab off). Take care that the disk is the correct one and is the original.

Roadwars ■ ST & Amiga

Choose the single player game, making sure you're controlling the craft on the right. The computer plays on the left. Make sure the computer gets all the drones. In this way it will be there to help you out during later stages of the game. Angle your gun to the left of the track for the first screen.

When lives start running low, bring the player on the left side back to life (by pressing [F1]) and destroy your craft. Press [F2] to revive yourself and knock the other player off the track. This brings the computer back into play. Continue this process until you reach Satellite Street. Revive player 1 and kill yourself before reaching the end of Satellite Street. Bring yourself back and finish the level. You should have two lives to finish the first bonus round.



FORMAT COMPETITION

WIN A LASER

Yes, you stand the chance of winning a fantastic Epson GQ3500 laser printer or a high quality LQ850, 24 pin printer in our easy to enter competition. Consider the questions below, pop a card in the post and you could be answering the door to a man delivering your very own laser or letter quality printer, courtesy of Epson UK!

Whether you print text from your word processor, pages from your DTP program, graphs from your spreadsheet or pictures from your art package, they will all look clearer, blacker, smarter and more eye-catching than they've ever looked before.

The Epson GQ3500 is a new generation, 6 page per minute laser printer which provides full HP Laserjet and Epson FX80 emulation to ensure compatibility with the maximum number of software packages. It connects to your micro like any other printer via the parallel printer port and opens up near-typeset quality print to all your applications.

The LQ850, with its advanced semi-automatic paper handling, lets you can run single sheets for urgent letters *without* removing the pin feed continuous paper from the printer. The printer offers 2 LQ fonts at 88 characters per second, as well as a draft mode at a sprinting 264 cps.

Either printer will improve the print quality of your work out of all recognition, so buy yourself a picture postcard, write down the answers to the three questions below (just the letters) and pop it in the post to us at:
Epson laser competition, ST Amiga Format, 4 Queen Street, Bath BA1 1EJ

Cards must reach us by Friday, July 15th.

RULES

1. Entries must arrive no later than Friday, 15 July, 1988.
2. The judge's decision is final and no correspondence can be entered into.
3. The competition is being run in collaboration with our sister magazine, 68 000 User, and a draw will be made from the total entry.

1. What do the letters DTP stand for?
   A. Desk Top Publishing
   B. Dual Task Printing
   C. Don't Touch Please

2. How does a laser printer print?
   A. By burning an image onto the paper
   B. By depositing toner from a charged Selenium drum
   C. By melting coloured wax on specially coated paper.

3. Which of the following Epson printers was used to produce the printout shown?
   A. LX 800
   B. LQ 850
   C. GQ 3500

There was
Whose Lir
When aske
She said

MUSIC

ANIMAL FEEDS

The inclusion of a MIDI port on the ST has proved to be a very clever move. As Chris Jenkins discovered, STs have wormed their way into The Animal House studio in Clerkenwell as a cost effective alternative for sequencing.

As most of you will know, MIDI – the Musical Instrument Digital Interface – is a communications standard, similar to RS-232. It allows suitably equipped computers, synthesisers, sound samplers, effects units and other devices to exchange musical information, such as the pitch of a note, its duration, or its sound. Practically all new electronic musical instruments now come equipped with MIDI, and can therefore be controlled by an ST with suitable software.

Because MIDI allows the process of music making to be treated in the same efficient way as a word processor treats documents, it's brought about a revolution in studios of all sizes from back-bedroom four-tracks to huge commercial setups.

Into the cage

London's Clerkenwell is best known as a business centre, but nestling in a small mews is *Animal House Studio*, the first professional music studio designed around computers. Studio manager Clive Mitten, formerly of progressive rock band *Twelfth Night*, created the studio from the ground up. It's been in operation for six months, and is booked solid by musicians who appreciate the mixture of high-tech, speedy operation and comfortable settees! Clients so far include session musicians from bands such as *Five Star*, *Go West*, and *Howard Jones*. Unlike some studios, which have had to try to integrate computers with existing equipment, *Animal House* had three 1040 STs installed "even before the walls were put up!"

Computers have three main roles in music-making: recording and editing musical 'sequences', editing and cataloging synthesiser and sampler sounds, and automating the process of mixing the finished multi-track tapes. *Animal House* uses an ST for each task.

The sequence

"We thought of using an Apple Macintosh, which has some good music software", explained Clive, "but the ST was the obvious choice because there are so many software packages and it's more reasonably priced". For sequencing, *Animal House* uses the *Steinberg Pro-24* package. This was one of the first professional-standard MIDI sequencers, and has been kept in the forefront of development by regular updates. Used by bands including *Marillion*, *Dire Straits* and *Ultravox*, *Pro-24* was the first software package to be seen live on *Top of the Pops!* "*Pro-24* is very easy to use" explained Clive, "you can think of it like a 24-track tape recorder". *Pro-24* is now up to version V3, which features numerous improvements such as a display of the MIDI channel assignment of each track, and the ability to 'punch in' to a sequence and edit it in mid-flight.

The £250 *Pro-24* package, like

WAY IN

The animal house is available at reasonable commercial rates for any musicians who want to make use of its facilities. Ring them on 01-242 6616

Inside the Animal House *lies the Platinum Level IV mixer, synchronised Fostex recorders and the Atari ST*

■ *The Atari 1040 ST running* Steinberg's Pro-24 *sequencer*

many other MIDI sequencers, allows you to record a keyboard performance in digital form, edit it to eliminate mistakes, quantise it to correct timing, loop it, even reverse of invert it. By combining and merging many sequences into songs, *Pro-24* can play an entire composition perfectly, over and over again if you require, while you tape the results. Engineer Russell Raisey reckons to get around 20 songs stored on each ST disk, and has never yet run out of memory on the 1040 ST.

Animal House has an impressive array of rack-mounted musical instrument modules, including Akai S900 and S612 sound samplers, Roland D550 and Super JX synthesisers, and a Yamaha TX81Z module, DX7 MK2 keyboard and RX5 drum machine. All of thse are connected via MIDI to the ST running *Pro-24*.

Because the connection is via a series of Akai MEOP programmable MIDI Patch Bays, *Pro-24* can take control of any instrument – in the middle of a performance, if you want – without re-wiring. Say, for instance, you want a quiet overall echo, and a huge reverberation sound on just one beat of a snare drum; just select the MIDI program numbers you require on your effects unit, write them into the *Pro-24* sequence, and the change is handled for you automatically. *Animal House's* effects rack includes Korg, Roland, Yamaha and Lexicon MIDI units, all of which can be controlled by the ST.

A hardware addition to *Pro-24*, the SMP 24 unit, also allows the ST to take control of the tape recorders. The two Fostex E16 units sit side by side next to the computer. At £5000 each, they cost a lot less than a 24-track recorder, which would cost around £40,000. Yet, using the ST, the two Fostex machines can be synchronised together, giving a total of 32 tracks of tape to play with.

This is done using *Pro-24*, which generates SMPTE code through the SMP-24 add-on; the tape machines read the code and stay in time with each other. Another £30,000 saved by the ST! As a bonus, the SMP-24 unit gives you four independent MIDI OUT sockets for a total of 64 MIDI channels (four times the standard MIDI channels 1-16.) This means that timing errors, often caused when synths receive unwanted MIDI information aimed at other units, can be eliminated.

The Mix

If you think that's a clever trick, just imagine the skill and co-ordination required to create a final mix on a 40-channel mixer. Bear in mind that with all the tape channels and all the sequencer channels playing at once, there can be up to 128 audio signals in the final mix. Only a computer can perform the mix flawlessly, and here the ST comes into its own again.

Automated 'Solid State Logic' mixing desks, where the motorised faders are controlled by a central computer, cost over £50,000. *Animal House's* solution is another 1040ST, plus the American automation system, Megamix. Megamix is an innocuous-looking black box containing 40 VCAs (Voltage Controlled Amplifiers). It connects into special insert points in the Platinum Level IV mixing desk, and takes control of the overall volume for each mixer channel. The Megamix software is then programmed with the changing settings for each channel, the master tape is run, and the Megamix unit performs the final mix faultlessly. The result is a perfect song, which can then be mastered for cutting.

The Sound

Of course, nothing would happen if the synthesisers and samplers were not provided with sounds to play, and this is where the third ST comes in. Modern synthesisers have so many sound programming parameters that it would be prohibitively expensive to provide a hardware knob to adjust each one – besides which, the resulting instrument would be the size of a small car. The solution is 'digital access'. There's just one control knob; each sound parameter, such as volume, filtering, waveform, FM algorithm and so on, is assigned a number, and you key in the number you want and adjust its value with the knob. A laborious way of working.

MIDI provides a solution, because it allows synthesisers and computers to exchange the digital information which describes each sound. 'Patch editing' packages by companies such as Hybrid Arts, CompuMates, C-Lab and Sonus present a graphical display of the sound parameters of a synth. Using the mouse, you can edit the sound quickly and efficiently, then save it to a disk. Most synths, such as the Yamaha DX7, usually use sound storage cartridges, which store around 64 sounds for about £50. Compare the software alternative, where you can save something like 2000 sounds on one 3.5 inch disk!

■ *Megamix automation system, MIDI patch bays, samplers and synths controlled again by the good ol' ST*

Animal House can provide the necessary ST sound editing software for any common synthesiser. It's also possible to use the ST to polish sound samples from the Akai samplers. Using packages such as *Digidesign*, you can display a waveform representing the sound held in the sampler's memory. Using the ST's mouse, it's then possible to edit, loop and truncate the sound, achieving much better results than would be possible by ear using the sampler's own limited controls. The power of the ST's 68000 processor also allows *Digidesign* to create unreal sounds using the complex principle of 'harmonic synthesis'.

Despite having all the facilities of a 'music programming suite' in addition to the more conventional studio equipment, everyone at *Animal House* is keen to stress that it's music, and not computers, that comes first. Live elements such as guitars, drums, brass and vocals are well provided for with acoustically controlled recording areas. The results, whether acoustic or electronic, are stunning, and a tribute to the talent of the musicians as well as the flexibility of their computers. ■

SMPTE

The Society of Motion Picture and Television Engineers (SMPTE) time code is a digital code recorded onto one channel of the tape on each machine to be synchronised. It counts in hours, minutes, seconds and frames (usually 24 frames per second) and ties the two machines together, note for note.

WHO, WHAT, WHERE?

Steinberg's Pro-24 is available at £285 from Sound Technology. Tune into them on 0462 480000 for more info.

DATEL ELECTRONICS

AMIGA PRO SAMPLER STUDIO

- A top quality sound sampling system at a realistic price.
- All the usual features of a sampling system plus many more.
- 100% machine code software for realtime functions.
- Hires sample editing.
- Realtime frequency display.
- Realtime level meters.
- Files saved in IFF format.
- Adjustable manual/automatic record trig level.
- Variable sample rate and playback speed.
- Separate scroll line waveform windows plus zoom function with fifth windows for fine accurate editing.
- Hardware compatible with many other software packages.
- Software files can be used within other music utilities.
- Reverse, copy, mix, clear plus other edit facilities.
- Microphone and line input ¼" Jack and Din connections.
- 3D shot of sound waveform. Wave editor to design your own waveforms or adjust existing ones.

ONLY £69.99 COMPLETE SYSTEM, PLEASE STATE A500/1000/2000

DATEL JAMMER

To complement the Sample Studio the Datel Jammer gives you a 5 octave keyboard to play and record your sampled sounds.

FEATURES:

- 2 and 3 note chords.
- 4 track sequencer up to 9999 events.
- Tempo and Beat Controls.
- Mixer Controls on Instruments.
- Load and Save sequence.
- Works on standard IFF file sounds.

DISK/STORAGE BOX OFFERS

- DD40 holds 40 3½" disks lockable.

ONLY £6.99

- DD80 holds 80 3½" disks lockable.

ONLY £8.99

- Disks – 3½" D/DS/D.
- Top quality, bulk packed with cables.

ONLY £24.99 FOR 25.

DATA/SWITCH BOXES

- A/B type connect two printers to one computer or (vice-versa).
- Centronics connections or RS232 (Serial) connections (25 pin) please state.

ONLY £24.99

- ABC type connect three printers to one computer (or vice versa).
- Centronics or RS232 connections.

ONLY £34.99

- Intelligent Printer Sharer.
- Share one Printer between four computers.
- Automatic switching – no need to leave your computer.
- RS232 serial or Centronics connections – please state.

ONLY £79.99

MIDIMASTER

- Full Midi Interface for A500/2000/1000 (Please state model)
- Compatible with most leading Midi packages (inc. D/Music)
- Midi In – Midi Out x 3 – Midi Thru
- Fully Opto Isolated
- No need to pay more – Full Midi standard

ONLY £34.99

PRINTER CABLES

- 25 pin 'D' to 36 way Centronics parallel lead.
- A 500 or 1000 please state.
- 1.2m length.

ONLY £8.99

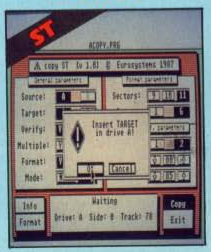
- 25 pin 'D' to 25 pin 'D' – serial printer lead.
- A500 or 1000 – please state.
- 2m length.

ONLY £8.99

ST COPY – DEEP SCAN NIBBLER

- Copy an entire disk – even highly protected programs – in under 60 seconds.
- Works with one drive or two.
- Multiple copy option allows you to make many copies from one original.
- Copy 1 or 2 disk sides – upto 85 tracks.
- Special format parameters for non standard formats.
- Using 1040 ST copy a whole disk in one pass with single drive.
- Compatible with 520 and 1040 ST.
- Unique 'INFO' analyser – displays vital disk parameters, including sector distribution, data dispersion, interleave status, etc., etc.
- Full verify option.
- Easy to use Icon driven program takes the mystery out of disk backup

ONLY £29.99

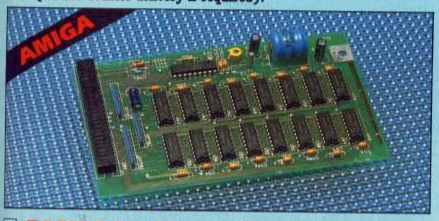


DATEL ELECTRONICS

❑ EXTERNAL 3.5" DISK DRIVE

- Slimline extra low profile unit – only 6" long!
- Top quality NEC drive mechanism.
- Throughport allows daisychaining other drives.
- A superbly styled case finished in computer colours.
- Fully compatible.
- 1 meg unformatted capacity.
- Good length cable for positioning on your desk etc.
- **Value for for money** – before you buy a drive, please compare the features – this drive has an NEC drive unit and is housed in a superb housing – many units available are built to a price and not to a standard. Don't spend a few pounds less and end up with 'rubbish' – and remember your are buying from the manufacturer.
- Complete – no more to buy.
- Atari version comes complete with necessary power supply.

ONLY £114.99 POST FREE
ADD (£5 for Courier delivery if required).



❑ 512K RAM EXTENSION ● A500

- Available with/without calendar clock option
- Simply plugs internally into a A500 slot
- Fitted in minutes – no soldering etc.
- With calendar/clock onboard time/date automatically booted
- Battery backed to retain time/date

ONLY £89.99 FOR STANDARD 512K CARD OR
ONLY £99.99 FOR VERSION WITH CLOCK/CALENDAR

❑ MARAUDER II

● Quite simply the best disk copier available for the Amiga (all models)

- ❑ Superfast disk copier will copy almost any commercial disk
- ❑ Friendly user Interface – Mouse driven throughout.
- ❑ Completely compatible with Amiga multitasking system
- ❑ Even decrypts many encoded programs including D.Print/Video/ Paint/Music/II etc.
- ❑ Special 'Strategy Files' cope with even the most advanced protection schemes
- ❑ Supports upto 5 drives simultaneously for multiple copies
- ❑ Regular updates available – we always ship the latest
- ❑ Fast operation – typically around 80 seconds
- ❑ USA's top selling copier

ONLY £29.99 POST FREE

● 1 MEG INTERNAL DRIVE UPGRADE

- ❑ Replace internal 500K drive with a full 1 meg unit.
- ❑ Top quality NEC drive unit.
- ❑ Full fitting instructions.
- ❑ Easily fitted no special skills required.
- ❑ Direct plug in replacement.
- ❑ Available now.

ONLY £99.99

● 1 MEG RAM UPGRADE KIT

- ❑ Complete kit to fit internally into 520 STFM.
- ❑ 512K of FASTRAM to bring your 520 upto a full 1040K!!
- ❑ Fitting is a straightforward soldering job – achieved by anyone who has a little experience.
- ❑ Makes unit fully 1040 Ram compatible.
- ❑ Complete with illustrated instructions.

ONLY £79.99

● SOLDER/DESOLDER KIT

- ❑ If you wish to do you own Ram upgrade then we can supply the tools.
- ❑ Quality soldering iron plus a desolder sucker tool and solder.
- ❑ No more to buy.
- ❑ Useful for many other jobs too.

ONLY £9.99

ALL ORDERS NORMALLY DESPATCHED WITHIN 48 HRS

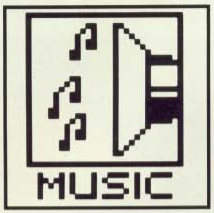
HOW TO ORDER . . . .

BY PHONE	BY POST	FAX
0782 744707 24 hr Credit Card Line	Send cheques/POs made payable to 'Datel Electronics'	0782 744292 UK ORDERS POST FREE – EUROPE ADD £1 OVERSEAS ADD £3

DATEL ELECTRONICS

DATEL ELECTRONICS LTD., FENTON INDUSTRIAL ESTATE, GOVAN ROAD, FENTON, STOKE-ON-TRENT, ENGLAND.

SALES ONLY	TECHNICAL ONLY
0782 744707	0782 744324



PRO SOUND DESIGNER

How did they get the screams into Barbarian? Or the red alert into Star Trek? They used a sound sampler, and now you can too. Richard Monteiro investigates Eidersoft's Pro Sound Designer. Just released is an Amiga version to complement the already successful ST package.

£64.95 ST, £79.95 Amiga ■ Eidersoft, Unit 4 Stannets, Laindon Trade Centre, Basildon, Essex SS15 6DJ ■ 0800 581742

After the graphic impact, what attracts you to a game? Sound – that's what. But let's face it, the ST's sound chip – which is little better than those on the Amstrad CPC and Spectrum+2 – isn't capable of anything startling. Even the Amiga's custom sound chip which offers four voices, stereo output and both amplitude and frequency modulation still falls short of perfection. For this reason programmers have looked for alternative methods of sound generation. And what better way than by using real, everyday tunes and sound effects?

Of course, to grab real sounds you need specialised hardware, hardware that can digitise, or 'sample', it. Eidersoft, based in downtown Laindon in Essex, have the right equipment – Pro Sound Designer.

Sordid details

One mouse-sized box protruding proudly from the parallel port contains all the necessary circuitry for converting analog sound data to the digital signals that the ST or Amiga understands. Plug a miniature jack into the socket on the side and you can transfer sounds from

EXPORT XXX

If you're one of our transatlantic readers, you'll be glad to know that there will be an American version of Amiga Pro Sound. Eidersoft are confident that the software will go down a storm, even up against established US products like Future Sound and Perfect Sound. The US version will boast individual volume controls for each channel, unlike the UK version, and NTSC display compatibility.

FUTURE SOUNDS

Pro Sound Designer is a fun package and should be used as one – that's what Eidersoft would like us to believe. Their reasoning may have something to do with their September product launch which, if all goes according to plan, could see the hottest sampler-cum-expansion board for the ST or Amiga.

The Modular Sampling System (MSS), as it's being provisionally called, is set to rock the sampling fraternity: it's a substantial motherboard with processor, operating system, slick sampling system, provision for 32 extra devices, up to 32 megabytes of RAM, networking capabilities and open architecture to allow third party add-ons. The ST version is due out first with the Amiga model following fast. As Eidersoft's software production manager, Clive Wood, enthused: "It will far surpass the Amiga Pro Sound capabilities including multi-channel output. People can buy what suits their pocket." Of course, this power isn't coming cheap; it's aimed at professional musicians and artists. The base unit is likely to cost upwards of £300. The more you want, the more you pay.

Like IBM's PC which has several slots for expansion cards, MSS will be totally user-configured. The base unit will probably consist of motherboard, processor and operating system. To that you add and add. The software will detect what you've got plugged in. For instance, if you install a 16-bit sampling board, extra software features would become available. Eidersoft hope other manufactures will catch on to the idea of producing extra cards or modules for their board.

AMIGA SPECIFICS

Because the Amiga has such advanced sound and processing hardware, it can replay four samples simultaneously – that's two different digitised sounds per stereo channel. Hook up your machine to an amplifier and speakers; the output is breathtaking.

Up to eight samples can be stored in memory at any time. Each sample has its own dynamic pool of memory, which means that the buffers grow or shrink according to the size of the sample. The function keys can be thought of as the buffers; they are used to access samples. Although eight buffers are available, stereo samples take up two, to you may only fit in four different samples in all.

Pro Sound Amiga has two Record buttons. One is used for capturing mono samples, the other for stereo samples. If you record a stereo sample you will get two waveforms in the large window.

A500 and B2000 computers have, as part of their circuitry, an 'anti-aliasing filter' which smooths high frequency signals. Since this would deaden the sounds of drums, cymbals and so on the Pro Sound software has a function allowing you to disable the Amiga's anti-aliasing.

Unfortunately you have to pay extra (£24 or so, the price hasn't been fixed yet) for the software hooks to allow you to play saved digitised samples from your own BASIC or C programs. This does reduce the package's usefulness.

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

ease of use 0 1 2 3 4 5

manuals 0 1 2 3 4 5

format value 0 1 2 3 4 5

Pro Sound (Amiga) ■ £79.95

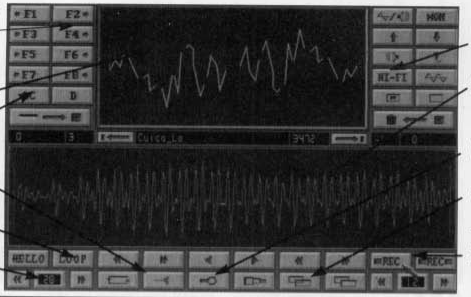
for

- Four samples can be played simultaneously
- Samples can be compacted
- Eight samples can be held in memory
- Good editing features

against

- Sounds can't be used in your own programs without paying extra
- Editing can be slow

Amiga Pro Sound Designer



your Hi-Fi straight into the micro's memory.

The Pro Sound software lets you edit the sampled sounds. You can vary the rate at which sound is fed into the micro, cut and paste portions of the sample and play it back at various speeds. Both Amiga and ST software is similar – indeed, layout and menu selection is identical. Certain functions are specific to each machine and these are detailed in a separate panel.

Eidersoft like to make their products look exciting – the Pro Sound software is no exception – they also take care that their products work as well as they look. The result is that Pro Sound has a very friendly user interface and a lot to offer. Trendy metallic-grey icons, selected in typical WIMP fashion, set the scene. Two windows – for displaying the incoming sound waves and for showing the sample's shape in memory – complete the screen.

At the bottom of the screen are two rows of cassette-deck style icons which are used, logically enough, for recording and playing back samples. The sampling rate, measured in kHz, can be reduced to save memory, but sound quality is directly proportional to the sampling rate, so you have to strike a reasonable compromise.

Once a sound is in memory and shown on screen as a oscilloscope style trace, sections may be cut, copied or merged. By using the merge option it is possible to combine two sounds – great for echo effects. Similarly, cut and paste gives you the power to create N-N-N-Nineteen choruses. Samples can be played backwards, speeded up or slowed down.

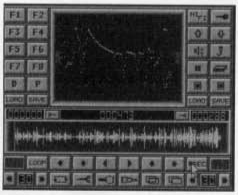
Pro Sound lets you compress sounds and save the compressed versions. The practical use of this is that a high quality sample can be taken and compressed to half its length, but then replayed at half its playback rate; thus a 50% memory saving can be made with little loss of quality for most sounds. Unfortunately the colour ST version of Pro Sound can't do this – only the Amiga and mono ST versions. Another feature not available to colour ST owners is playing a section of a sample with fade-in or fade-out

Lots of fun can be had with Pro Sound Designer. Indeed, it's been geared that way. It's a good looker and a good performer – most important though, it's enjoyable to use. The quality and range of features make it very attractive not only to home users, but also to software houses for adding sophisticated soundtracks to their games. ■

ST SPECIFICS

As the ST's printer port hasn't any power lines, a nine volt battery must be connected to the Pro Sound hardware. This is achieved via a couple of ugly wires soldered to the circuit board. There's also an additional socket which can be used for sending sound output to a Hi-Fi.

In the colour ST version of Pro Sound, sounds generated by the ST's YM2149 sound chip can be edited from the chip editor section of the software. This allows you to alter the chip registers and create sound effects, but that's all – there's no note-by-note composition facility. The mono ST Pro-Sound doesn't have this sound chip editor, but does boast (like the Amiga version) sound compression and fade-in/out, as explained in the main review.



■ *ST Pro Sound Designer in action*

The function keys – icons of which are held in the top left of the screen – are used to store the positions of the two pointers defining the start and end of the sample, and current playback speed. Only the pointer positions are saved and not the actual part of the sample. So, if you load another sample or cut bits from the current sample, you'll replay whatever is between the pointers and not what was there when you set the function keys.

Completed sound effects can be saved and translated for use in BASIC, C or machine code programs.

GOLD DISKS

Several backup products are currently being developed for Pro Sound. On the Amiga is a creation tool, for mixing Deluxe Paint pictures and animation sequences with samples, and a 'Gold edition' of Pro Sound with external memory editing up to 8 Meg and better cut and paste features.

Already out for the ST Pro Sound are Pro Light and Pro Midi, at £19.95 each.Pro Light flashes colours in time to the music, Pro Midi allows a sample to be played across an instrument's scale. Amiga versions are promised. ■

Pro Sound (ST)

■ **£64.95**

for

- Sample rates from 3kHz to 30kHz
- Editing is fast
- Samples can be used in your own programs

against

- Colour and mono versions different
- Merging causes volume loss

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

ease of use 0 1 2 3 4 5

manuals 0 1 2 3 4 5

format value 0 1 2 3 4 5

WHAT IS DTP?

With high resolution graphics and fast processing speeds, both ST and Amiga are well suited to the graphic-intensive application of Desk Top Publishing. But what is DTP and what makes it different from word processing? Simon Williams hits the headlines...

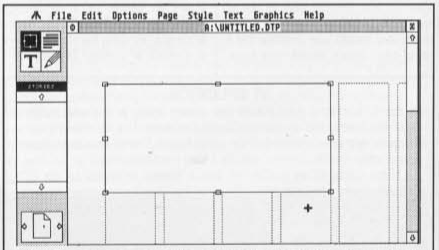
When word processing took off, in the mid 1970s, it was largely to provide the same manipulation of words as computers had done for numbers a decade earlier. Companies such as Wang had marketed dedicated computers for producing letters, reports and other corporate documentation that only these corporations could afford. With the advent of the micro in the early 80s, the term *word processor* came more and more to mean the software which would provide the same kind of facilities as the specialised machine had earlier.

Both the dedicated word processor and the early micro relied for their characters on a set of letters, numbers and punctuation marks built into a ROM within the machine. Memory was still dear and graphics applications were uniquely hungry for memory. Ah, for the good old days when Space Invaders were asterisks and lunar landers were capital 'A's!

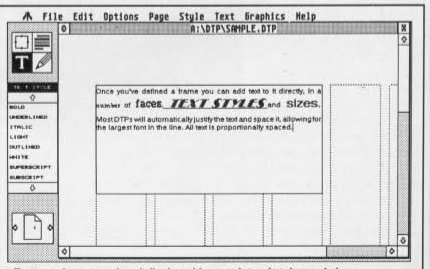
As RAM grew cheaper and micros came with more of it, programmers and marketing people started to think of new and exciting things to do with it on their faster, modern micros. Why, thought some, should people be restricted to one typeface, usually a fairly ugly one, in one size, in one format on the screen, and relying on the character set of the printer for the look of the final document?

DTP 4 WP

DTP tries to mimic on the screen what will finally appear on the paper. The celebrated buzzword WYSIWYG says it fairly plainly – What You See Is What You Get. In fact, what appears on the screen is only ever a loose approximation to what is printed out (WYSIOEALATWYG?), as the resolution of the average micro's screen is a lot lower than even the humble 9 pin dot matrix printer. A Desktop Publisher is mainly concerned with the look of the final page and less with the contents of the writing. To this extent most DTPs only provide rudimentary text editing facilities, majoring instead on typography, the incorporation of graphics, simple box and line drawing and page layout.



■ *Start by opening a frame on the page layout screen. You can then add text or graphics to this area of the screen.*



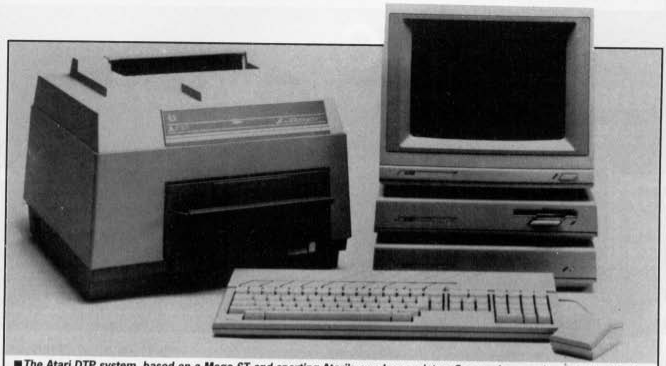
■ *Text can be entered and displayed in a variety of styles and sizes.*

SETTING UP

What do you need to set up a DTP system? Well the first requirement is a micro, and both Amiga and ST are eminently suitable. It's a distinct advantage to have 1 Mbyte of memory or more as most DTP packages use a lot of it. It's possible to use the base machines (ST520 or A500) for DTP but there are limitations, particularly with the restrictions of single drives. If disk swapping is your only form of exercise during the week you'll probably be reluctant to give it up. For the rest of us, twin drives are almost essential for serious page make-up.

The advantages of better quality printers are never more obvious than when printing a DTP document. The basic rule is to go for the best quality printer you can afford. 24 pin dot matrix is a good deal better than 9 pin, while a laser printer is best of all (but also the most expensive by a long way). A recent development which may help to bridge the gap between dot matrix and laser output is Hewlett Packard's ink jet printer, the Deskjet. Output from this printer is near laser quality, while the price is rumoured to be around £800.

There are numerous DTP packages available for the two machines. On the ST, *Fleet Street Publisher* and *Timeworks DTP* are well regarded, while the Amiga user should look up *Page Setter* and *Publisher 1000*. New DTP products for both are on the horizon and *ST Amiga Format* will review them as soon as they're available.



■ *The Atari DTP system, based on a Mega ST and sporting Atari's own laser printer. Commodore are known to be finalising their own DTP package.*

ATARI DTP

Atari have recently released a complete DTP system, which comprises a Mega ST, *Fleet Street Publisher* software and Atari's own laser printer. The interesting thing about the Atari laser is that it makes use of the memory in the Mega ST to compose each graphics page, rather than relying on separate memory (which would cost more) within the printer itself. Prices start at a very reasonable £2850.

Almost all DTPs use the same method of handling blocks of text or graphics. They demand that you lay down marked boxes, or frames, which can be filled with copy or pictures. The frames and their entire contents can then be moved or resized very easily. Also, there are often facilities to overlay frames and to crop and scale graphics. When frames are laid over other frames most DTPs will automatically re-flow the text within the outer box to fit around the new one.

The sizes and styles of text which most DTPs can produce allow a wide variety of effects and support a number of different types of document. You could, for instance, use the same piece of software to produce an internal company report, newsletter for a club or parish, flyer for a new product, or book manuscript. You can usually adjust the size of each font, the space between lines of text ('leading'), the width of each column in a multi-column page ('measure') and the space between characters ('kerning').

As well as being able to import graphics from a variety of sources, including art packages and digital picture scanners, most DTPs offer basic facilities for drawing lines, boxes, circles and ellipses so that you can design boxouts and flashes to highlight portions of your document. Many packages also offer a number of tints and fill patterns to vary the design and give weight to areas of the page.

DTP is a application distinct from word processing. Its purpose is to lay out text and graphics to make up attractive pages once the copy has been written. It continues to be a growth area for both ST and Amiga users and need not cost the earth if you're prepared to accept 9 pin dot matrix output. If you can afford a laser printer (or can charge it against company expenses!) you can produce near typeset quality output for a fraction of the cost of a manually compiled document, and have full control over its final appearance.

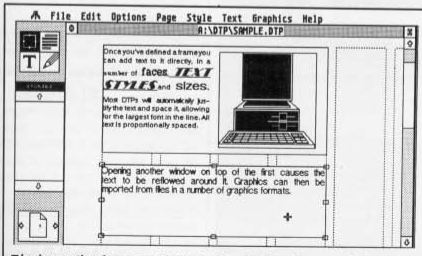
COME THE RESOLUTION

The resolution of a screen or printer is simply defined as the number of dots per inch (dpi) it can display. This figure directly affects the apparent 'quality' of the image. At low resolutions diagonal lines and curves appear ragged and the viewer is very aware that all images are composed of dots. As the resolution increases so lines get smoother and the eye glosses over the space between the dots and begins to see the image rather than its components. When you reach the resolution of newspaper photographs (about 120 dpi, but with a varying dot size) most people are prepared to accept them as 'true' photographs.

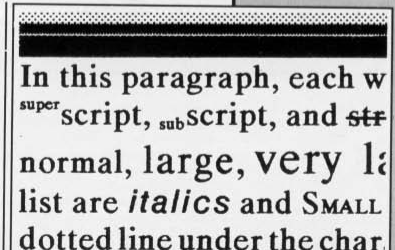
The resolution of monitors is normally well under 100 dpi, with colour monitors displaying lower resolution than monochrome ones. The ST colour monitor (SC1224) has a resolution of 40 dpi, while the monochrome SM124 provides 80 dpi. The Commodore 1084, normally supplied with the Amiga, sports around 50 dpi.

An interesting subjective effect is that the number of colours a monitor can display has a bearing on the apparent resolution of the screen. The more colours that can be displayed, the higher the perceived resolution. This fact is often exploited by games producers to make their games appear 'hi-res'.

Printer resolution starts at about 150 dpi for 8 pin printers, rises to over 200 for 24 pin printers (actually as much as 350 dpi in multi-strike modes), up to 300 dpi, the standard for laser printers. Above this are high-res laser printers at 600 dpi, and photo-typesetters like the Linotron 100 and 300 series which are used to produce ST Amiga Format at 1200 dpi. These machines are capable of twice this resolution, but with a slower throughput.



■ *Laying another frame over the first automatically re-flows text in the outer frame.*



■ *Sample output from the Hewlett Packard Inkjet printer.*

S.D.C.

309 Goldhawk Road, London W12 8EZ

OPEN TO THE PUBLIC 10am-8pm 6 DAYS

BUY BY PHONE
RING 01-741 1222
01-995 3652
0525 371884

PRICE PROMISE

If you wish to purchase any product from our list and find that you can buy the same product cheaper from another mail order company, simply enclose the lower amount, stating the name of the other company and where you saw the advert. (It must be the current issue). Price Promise does not apply to other companies "Special Offers".

ENQUIRIES
RING 01-748 3597

TITLE	ATARI ST	AMIGA
Aaargh	15.95	15.95
Alien Syndrome	12.95	12.95
Bad Cat	12.95	15.95
Barbarian (Palace)	9.50	12.95
Barbarian (Psygnosis)	15.95	15.95
Backlash	12.95	12.95
BMX Simulator	9.50	9.50
Balance of Power	19.95	19.95
Bubble Bobble	12.95	12.95
Battleships	9.50	12.95
Bionic Commandos	12.95	15.95
Buggy Boy	12.95	N.A
Bureaucracy	23.50	23.50
Black Lamp	12.95	N.A
Captain Blood	15.95	N.A
Carrier Command	15.95	N.A
Crazy Cars	12.95	12.95
Combat School	12.95	15.95
Computer Hits Compilation	19.95	19.95
Dark Castle	15.95	15.95
Defender of the Crown	19.95	19.95
Deja vu	19.95	19.95
Demolition	N.A	6.95
Dungeon Master	15.95	N.A
ECO	12.95	15.95
Enduro Racer	9.50	N.A
Enlightenment	N.A	12.95
F15 Strike Eagle	15.95	N.A
Flight Simulator II	27.50	27.50
Flight Sim Scenery Discs 7 or II	15.95	15.95
Flintstones	12.95	12.95
Firepower	N.A	15.95
Feud	6.95	6.95
Football Manager	9.95	N.A
Foundations Waste	15.95	N.A
Garrison I or II	N.A	15.95
Goldrunner I or II	12.95	15.95
Guild of Thieves	15.95	15.59
Gee Bee Air Rally	12.95	12.95
Gnome Ranger	9.95	9.95
Golden Ranger	12.95	12.95
Get Dexter II	12.95	N.A
Gauntlet	12.95	N.A
Gunship	15.95	N.A
Galactic Invasion	N.A	15.95
Hardball	15.95	15.95
Hollywood Poker	9.95	12.95
Hitchhikers Guide	19.95	19.95
Hunt for Red October	15.95	15.95
Hotball	15.95	15.95
Impact	9.50	9.50
Impossible Mission II	12.95	N.A
Insanity Fight	N.A	15.95
I Ball	6.95	N.A
International Soccer	12.95	12.95
Indoor Sports	12.95	15.95
Ice Hockey	12.95	15.95
Ikari Warriors	12.95	N.A
Jewels of Darkness	12.95	N.A
Jinxter	15.95	15.95
Joe Blade	N.A	15.95
Jinks	6.95	6.95
Jet	N.A	27.50
Jump Set	9.95	9.95
Karate Kid 2	15.95	15.95
Kingot Chicago	N.A	15.59
Kikstart I	N.A	6.95
Knight Orc	15.95	16.95
Kings Quest Pack	16.95	16.95
Kampfgruppe	15.95	15.95

TITLE	ATARI ST	AMIGA
Legend of the Sword	15.95	N.A
Las Vegas	6.95	6.95
Leaderboard	16.95	15.95
Leaderboard Tournament	6.95	6.95
Leisuresuit Larry	12.95	15.95
Leather Goddess of phobos	19.95	19.95
Lurking Horror	15.95	15.59
Leatherneck	12.95	12.95
Mach 3	12.95	12.95
Mercenary Compendium	15.95	15.95
Mission Elevator	12.95	12.95
Masters of the Universe	12.95	N.A
Mouse Trap	9.95	9.95
Mission Genocide	6.95	N.A
Ninja Mission	6.95	6.95
North Star	12.95	N.A
Nord and Bert	12.95	15.95
Obliterator	15.95	15.95
Ods	12.95	N.A
Outrun	12.95	N.A
Pawn	15.95	15.95
Pandora	12.95	12.95
Powerplay	12.95	12.95
Paciand	12.95	12.95
Pink Panther	12.95	12.95
Platoon	12.95	N.A
Phalanx	N.A	6.95
Predator	12.95	N.A
Plutos	9.95	9.95
Police Quest	15.95	N.A
Pool	6.95	N.A
Project Stealth Fighter	15.95	N.A
Phantasie 3	15.95	15.59
Rennunner	12.95	N.A
Return to Genesis	12.95	12.95
Road Blasters	12.95	15.95
Roadwars	12.95	12.95
Rolling Thunder	12.95	24.95
Rampage	9.95	N.A
Spidertronic	12.95	N.A
Star Wars	12.95	12.95
Sidewinder	6.95	6.95
SDI	19.95	19.95
Scrabble Deluxe	12.95	N.A
Shadowgate	15.95	15.95
Strike Force Harrier	15.95	15.95
Strip Poker II Plus	9.95	9.95
Slaygon	12.95	12.95
Spitfire 40	15.95	N.A*
Silent Service	15.95	15.95
Star Trek	12.95	N.A
Sinbad and the Throne of the Falcom	N.A	19.95
Stargrider	15.95	15.95
Space Quest II	15.95	N.A
Supersprint	9.95	N.A
Silicon Dreams	12.95	12.95
Sentinel	12.95	12.95
Seconds Out	12.95	12.95
Sky Fighter	N.A	9.95
Scrupies	12.95	N.A
Shackled	12.95	N.A
ST Wars	12.95	N.A
Tanglewood	12.95	N.A
Time Bandits	12.95	12.95
Terramex	12.95	15.95
Terropods	15.95	15.95
Tetris	12.95	12.95
Thai Boxing	6.95	6.95
Thunderboy	N.A	12.95
Thrust	6.95	N.A

TITLE	ATARI ST	AMIGA
Time and Magik	12.95	12.95
Trivial Pursuit	12.95	N.A
Top Gun	12.95	N.A
Tour De Force	12.95	N.A
Tranter (Last Stormtrooper)	12.95	N.A
Temple of Apshai Trilogy	15.95	15.95
Unmvited	19.95	19.95
UMS	15.95	15.95
Ultima II	15.95	15.95
Ultima III	15.95	15.95
Ultima IV	15.95	N.A
Virus	12.95	N.A
Vampires Empre	12.95	12.95
Verminator	15.95	12.95
Wizball	12.95	15.95
War Game Construction Set	15.95	N.A
Warlocks Quest	15.95	N.A
Western Games	12.95	12.95
Winter Games	15.95	15.95
The Wall	N.A	9.95
Winter Olympiad 88	12.95	12.95
War Hawk	6.95	N.A
Xenon	12.95	12.95

SPECIAL OFFERS	ST	AMIGA
Borrowed Time	7.99	15.95
Ballyhoo	8.99	19.99
Enchanter	8.99	19.99
Infidel	8.99	19.99
Mind Forever Voyaging	8.99	23.50
Mindshadow	8.99	15.95
Moonmist	8.99	19.99
Planetfall	8.99	19.99
Sorceror	8.99	19.99
Star Cross	8.99	19.99
Suspect	8.99	9.99
Trinity	8.99	13.50
Wishbringer	8.99	19.99
Witness	8.99	19.99
Zork I, II or III	8.99	19.99

BUSINESS/UTILITY	ATARI ST	AMIGA
Advanced Art Studio	15.95	N.A
Art Director	37.50	N.A
Analyze II	N.A	99.50
Digi Drum	18.50	N.A
Devpac ST	37.50	N.A
Fast Basic (disc)	33.50	N.A
Fast Basic (rom)	67.50	N.A
Film Director	44.99	N.A
Graphic Tablet	215.50	215.50
Fleet St Publisher	86.50	N.A
Lattic C 4.0	N.A	120.50
Lattice C Compiler	74.95	N.A
Lisp	99.50	99.50
Lattice C Professional	N.A	185.00
Macro Assembler	37.50	N.A
Music Studio	15.95	23.50
Organize	N.A	74.95
Publisher 1000	N.A	125.50
Pascal	67.50	67.50
Paintworks	23.50	N.A
Pro Sound Designer	45.00	N.A
Pro Sprite Designer	27.50	N.A
Quantam Paint	12.95	N.A
Scribble	N.A	74.95
Super Conductor	37.50	N.A
Superbase Professional	74.95	74.95
Superbase Professional	180.50	180.50
S T A C	27.50	N.A

S.D.C. ORDER FORM
Please send the following titles. BLOCK capitals please!

Type of computer ST/AMIGA

	Amount

Total Enclosed £

Name

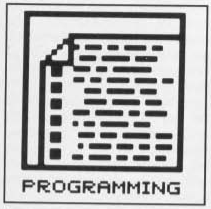
Address

Tel. No.

4 GREAT TITLES
GAUNTLET
INDIANA JONES
ROADRUNNER
METRO CROSS
RRP £24.99 -
Our Price £15.99

Please make cheques or postal orders payable to SDC
Price includes P&P within the U.K. Europe please add £1.00 per disc
Elsewhere please add £1.50 extra per tape

Visit our New Shop
18 Market Square-
Leighton Buzzard
Beds



GETTING GOING

What essentials are necessary to get the most out of your ST or Amiga, particularly if your interest lies in program ming? Jeremy Vine and Mark Burgess offer some pointers.

WELCOME TO THE ST...

So you've just purchased your Atari ST computer. You've this great idea for a piece of software and you're convinced that you could do the job yourself. However, be you an experienced programmer or a newcomer to the world of bits and bytes, you will need a certain amount of assistance in creating your program. What essential tools of the trade will you require?

In building up the essential programmers' toolbox, you will acquire a cross-section of books, utility programs and programming languages – all designed to make your task that little bit easier.

Reference books

A good place to start is by reading. The Atari ST is supported by a wealth of written material to supposedly guide and assist the ST user. In practice, not everything proffered as being the "essential" and "definitive" guidebook to the Atari ST is what it claims.

Books tend to split into either the general purpose "everything you need to know about the Atari ST" book or the "Lets look at this specific subject in great detail". There is nothing wrong with either approach, and you can find good books in both these areas. What you choose depends on your needs. If the ST is your first computer, you will probably need a general guidebook to explain the jargon and different elements of a computer's operation. Many books exist to help you teach yourself a programming language, but be careful in your selection. Books which teach programming are often written with no specific machine in mind. This can cause problems if, for example, the implementation of the language you are using is different from the one the author had in mind.

By and large this is not a problem. What is more likely is that your version of, say, BASIC, will contain commands not included in other BASICs. These commands will usually relate to specialised features of the ST, such as Graphics and Sound.

The following lists many of the ST books available:

ABACUS – *Atari ST Tricks and Tips; Atari ST Graphics and Sound; Atari ST Logo Users Guide; Atari ST Peeks and Pokes; Atari ST Introduction to MIDI Programming; Atari ST 3D Graphics; Atari ST Disk Drives: Inside and Out; Atari ST Basic Training Guide; Atari ST Internals; Atari ST for Beginners*

BANTAM – *Atari ST Application Programming*

COMPUTE! – *Compute's ST Artist; Intro to Sound and Graphics on the ST; Elementary ST Basic; Atari ST: VDI*

GLENTOP – *Using LOGO on the Atari ST; The Concise Atari ST; 68000 Programmers Reference Guide*

KUMA – *The Atari ST Explored*

SYBEX – *Mastering Sound and Music on the Atari ST*

TOS and GEM

If you are a newcomer to the ST, you might be unaware of the operating systems at the heart of the machine. To confuse the issue further, the ST has not one but two operating systems. But first of all, what is a DOS (Disk Operating System)?

Simply put, the purpose of a DOS is to process commands within the micro. It manages the firmware within the computer and provides the user with a number of utilities that make the everyday tasks of computing easier. A DOS is a program, or more accurately a number of programs that process commands within the micro. These operations are often related to the disk drives, hence the term DOS.

But the commands that you type can sometimes be less than friendly. Atari overcame this problem by placing a friendly "front-end" onto the system. In essence, GEM (Graphics Environment Manager, for the acronym-hungry) provides a cosmetic face-lift to what would otherwise be an awkward, unfriendly operating system. A good reference

■ ***A Mega ST with the luxury of a hard disk – ideal for building a program development system around, if you can afford it.***

MIND YOUR LANGUAGES

There is no shortage of programming languages for the ST and programmers are spoilt for choice, often with several implementations of the same language. The list below is by no means comprehensive but gives a very good indication of what is available.

ASSEMBLERS

Comp Concepts – *Ultra Fast 68000 Assembler*
Kuma – *K-Seka Assembler*
HiSoft – *Devpac* (Assembler,Debugger)
Metacomco – *MCC Assembler*

BASIC

Comp Concepts – *Fast Basic* (Basic Interpreter for ST on ROM cartridge)
Glentop – *GFA Basic compiler*
HiSoft – *PowerBasic*
PhilonFast – *Basic Compiler*

C

Megamax – *C*
Mark Williams – *C For the Atari ST*
Metacomco – *Lattice C*

LISP

Metacomco – *Cambridge LISP*

Modula-2

MOC Medix Ltd – *Modula-2/ST*

Pascal

Optimized Systems Software – *Personal Pascal*
Prospero Software – *ProPascal*

BUYING BOOKS

You don't have to hunt high and low through advertisements just to buy a book. Any half-decent bookshop can order any book you want, so long as you know the name of either the author or the book title. Tell them to look it up in *Whitaker's Books in Print*, the definitive list of all books on the market.

Some of the books mentioned in this article are American, which is a bit trickier. Tell your bookseller the publisher's name, and you will probably find there is a UK distributor listed.

book should provide you with all the necessary information to get inside the system, though you will need to be a competent programmer to benefit from all the information provided.

In the Public Domain

By the time you've put together your essential library of programming languages, utilities and reference books, you could easily have spent far more than the cost of the machine. There is however, a way of obtaining software at little or no cost – and it's perfectly legal.

Public Domain software is available to everyone to use for no cost. You will find adverts for PD software in all magazines – just write off for a catalogue (send an SAE). A disk of PD software typically costs around £3, which is the material cost of the disk plus the firm's copying charges.

Whatever your programming experience or requirements, there is ample material to assist you. Don't be afraid to make use of other people's routines (providing they approve!). Take program listings that are available to you and study the way in which they work. Other people's experience is the best way of increasing your own knowledge.

■ *Jeremy Vine is a freelance journalist and author of* 'The Atari ST Companion'.

WELCOME TO THE AMIGA...

For most people, buying a computer system means not only buying a computer but also selecting software and buying books. Amiga buyers can expect to spend several hundred pounds on software over and above the basic Workbench utilities provided free with the machine. Here is a brief guide for anyone thinking of purchasing an Amiga for programming.

Getting at the hardware

An unfortunate but important feature to look out for in any piece of Amiga software is its susceptibility to crashing the machine. Unfortunately for the Amiga's reputation there are a large number of programs on the market in a state of semi-completion and which crash frequently, making them impossible to use in any serious way. This is particularly true of some programs just after their release.

One of the attractive features of the Amiga is that it holds exciting possibilities for programmers. The Amiga package provides a head start in the form of a BASIC interpreter which allows access to many of the Amiga's powerful graphics and sound facilities. To explore the Amiga at the operating system level, however, either for writing Workbench utilities or to access the Amiga's multitasking requires programming either in C or in Modula 2. The best bet for anyone new to 'foreign languages' is C, owing both to its new found popularity and also the fact that all the Amiga programming manuals are addressed to the C programmer.

The *Lattice C* compiler is a full featured compiler and sells for around £150. However, a word of warning for anyone wishing to use the Amiga primarily for programming: it is quite impossible to run a C compiler without two 3.5" disk drives. Doing so would be inconceivably awkward, with all the disk swaps involved.

Amiga C compilers supply little in the way of documentation of the Amiga's special library of routines. Programmers certainly require at least two of the fat programmer's manuals which describe access to the Amiga's software interface. A set of four manuals is available from Addison Wesley. The titles are:

The Amiga Intuition Reference Manual
The Rom Kernel Reference Manual: Libraries and Devices
The Rom Kernel Reference Manual: Exec
The Amiga Hardware Reference Manual

Each book costs around £30. Due to the great expense, it's worth buying them one at a time. The first two manuals will probably satisfy the needs of most programmers, though it is worth buying just one to appreciate their highly technical nature before going for broke on the remainder. The Intuition manual describes how to control screens, windows, menus gadgets and requesters; the elements of the Amiga's Intuition system. The Libraries and Devices manual covers sound, graphics, disk interface and input/output. The Exec Hardware manuals are concerned with the more technical features of the multitasking operating system and are therefore of limited use to the majority of programmers.

Words from the wise

If there were one single piece of advice to offer Amiga buyers it would be "buy a machine with two disk drives". It is almost essential for any prolonged use. Regular users expecting to employ the Amiga for business would also be advised to use a hard disk, despite the criminally high prices (between £600 and £800), particularly if some enterprising company produces a sensibly priced interface in the near future.

For buyers the most useful thing to do is to browse through magazines to check for advertisements and news of new products. Joining an Amiga Users Group could also prove very useful. This can be an efficient way of getting to know what is available for the Amiga and often has benefits in the form of discounts on software products.

Finally, do not rush into buying anything. Check the columns and ask people's advice about books and software. Good advice makes it quickly possible to pin down the products which are both best suited and at the best price!

■ *Mark Burgess is a freelance computer writer and author of* 'AmigaDOS; a Dabhand Guide', *which he recommends entirely impartially.*

■ *Amiga 2000 with a second floppy disk – this one's a 5.25" drive.*

CLI OR WIMP?

This Amiga is fortunate in having both a CLI and WIMP interface: that is the ability to accept commands either as typed commands like DELETE and COPY or from menu selections with the mouse. The typed AmigaDOS commands are extremely useful and offer many facilities not available from the Workbench, the Amiga's WIMP interface.

Inexplicably, the manual which is supplied with the Amiga barely mentions the CLI, and does not give a complete list of commands available. Bantam Books' volume entitled *The AmigaDOS Manual* sells for around £23, and rectifies this. It describes using the text editors ED and EDIT on the Workbench disk, together with a complete command list.

The AmigaDOS Manual documents these commands in a rather terse and formal way, which will be of little help to inexperienced computer users. However, it does offer additional information to C programmers about the filing system commands and the multitasking 'locks' ; this is the system which prevents more than one program from writing to a file at the same time. Other books with a more helpful attitude to AmigaDOS include the *AmigaDOS Reference Guide* by Compute! and *AmigaDOS; A Dabhand Guide* by yours truly, soon to be available from Dabs Press. Beware the flurry of cheap books from the States which were rushed out during the early stages of the Amiga's career. These are both expensive and contain no more information than your own *Amiga Owners Manual.*

NEW LOW PRICE ST!

ST PRICE INCREASE

Due to a worldwide shortage of memory chips, prices of many computers have gone up. From April 1988, the Atari ST range is also likely to be affected. For details of any price increase, please return the coupon below for our latest literature.

ONLY FROM SILICA

Finally, there's a personal computer that not only solves problems like other computers, but also solves the one problem that other computers have created. Affordability. Silica Shop are pleased to present the ST range of personal/business computers from Atari. The ST was designed utilizing the most recent breakthroughs in semiconductor technology, producing a personal computer that performs tasks with fewer parts. Which means it costs less to make. And less to buy. The latest ST computers now include built in power supplies and built in disk drives. The TOS operating system and GEM window environment are now on ROM chips which are already installed in the ST keyboard. This enables automatic instant booting when you switch on. Silica Shop are pleased to offer the complete Atari ST range. Our mail order department is situated in Sidcup and we have 3 retail outlets at Sidcup, Lion House (Tottenham Court Rd) and Selfridges (Oxford Street). We have eight years experience of Atari products, longer than any other UK company, and are well established as the UK's No.1 Atari specialist. With a group turnover of over £9 million and in excess of 80 staff, we offer you unbeatable service and support. We provide several facilities which you will find invaluable during your Atari computing life and most of these facilities are available **ONLY FROM SILICA**. We suggest that you read through what we have to offer, before you decide where to purchase your Atari ST.

£260 +VAT=£299

SO MUCH FOR SO LITTLE!

There is nothing that can compare with the incredible value for money offered by Atari's 520ST-FM. For only £260 (+VAT=£299), you can purchase a powerful 512K RAM computer, with a 95 key keyboard (including numeric keypad), MIDI interface, GEM, a palette of 512 colours, mouse controller, and a 512K built-in disk drive. The 520ST-FM has a TV modulator built-in, and comes with a lead to allow you to plug it straight into any domestic colour television set. The mains transformer is also built-in to the keyboard, so there are no messy external boxes. You couldn't wish for a more compact, powerful and stylish unit. Atari ST computers are now firmly established in the UK, there are nearly 500 software titles already available for a wide variety of applications and the list is growing all the time. And that's not all. When you buy your new 520ST-FM (or any Atari ST computer) from Silica Shop, you will get a lot more, including a FREE Silica ST Starter Kit worth over £100. Read the ONLY FROM SILICA section on the left, to see why you should buy your new high power, low price 520ST-FM from Silica Shop, the UK's No1 Atari Specialists. For further details of the range of Atari ST computers and the FREE Silica ST Starter Kit, complete and return the reply coupon below.

ATARI 520ST-FM NOW ONLY £260 (+VAT=£299)

520ST-FM with 512K RAM & mono monitor £399 (inc VAT) — **Upgrade from 512K RAM to 1024K RAM £100** (inc VAT)

FREE STARTER KIT - Only From Silica

When you purchase any Atari ST keyboard, you will not only receive the best value for money computer on the market, but you will also receive the following from Atari Corporation as part of the package:

** BASIC Language Disk * BASIC Manual * ST Owners Manual * TOS/GEM on ROM*

If you buy your ST from Silica Shop, you will also receive:

** NEOchrome Sampler - colour graphics program * 1st Word - Word Processor*

In addition, we at Silica would like to see you get off to a flying start with your new computer, so we have put together a special **ST STARTER KIT** worth over £100, which we are giving away **FREE OF CHARGE** with every ST computer purchased at our normal retail prices. This kit is available **ONLY FROM SILICA** and is aimed at providing users with a valuable introduction to the world of computing. We are continually upgrading the ST Starter Kit, which contains public domain and other licensed software, as well as books, magazines and accessories all relevant to ST computing. Return the coupon below for full details.

DEDICATED SERVICING - Only From Silica

At Silica Shop, we have a dedicated service department of seven full time Atari trained technical staff. This team is totally dedicated to servicing Atari computer products. Their accumulated knowledge, skill and experience makes them second to none in their field. You can be sure that any work carried out by them is of the highest standard. A standard of servicing which we believe you will find **ONLY FROM SILICA**. In addition to providing full servicing facilities for Atari ST computers (both in and out of warranty), our team is also able to offer memory and modulator upgrades to ST computers.

1MB RAM UPGRADE: Our upgrade on the standard Atari 520ST-M or 520ST-FM keyboard will increase the memory from 512K to a massive 1024K. It has a full 1 year warranty and is available from Silica at an additional retail price of only **£90.96** (+VAT = £100).

TV MODULATOR UPGRADE: Silica can upgrade the 1040ST-F to include a TV modulator so that you can then use it with your TV set. This is an internal upgrade and does not involve any untidy external boxes. A cable to connect your ST to any domestic TV is included in the price of the upgrade which is only £49 (inc VAT). The upgrade is also available for early 520ST computers at the same price.

THE FULL STOCK RANGE - Only From Silica

We aim to keep stocks of all Atari related products and our warehouse carries a stock of over £5 million. We import many software titles direct from the USA and you will find that we have new releases in advance of many of our competitors. Unlike dealers who may only stock selected titles, we have the full range. In addition, we carry a complete line of all books which have been written about the Atari ST. A range as wide as ours is something you will find is available **ONLY FROM SILICA.**

AFTER SALES SUPPORT - Only From Silica

Rest assured that when you buy your ST from Silica Shop, you will be fully supported. Our free mailings give news of releases and developments. This will help to keep you up to date with new software releases as well as what's happening in the Atari market. And in addition, our sales staff are at the end of a telephone line to service all of your Atari requirements. If you purchase an ST from Silica and would like any technical advice, we have a full time technical support team to help you get the best from your computer. Because we have both the staff and the systems specifically dedicated to providing after sales service on Atari ST computers, we are confident that our users enjoy an exceptionally high level of support. This can be received **ONLY FROM SILICA.**

FREE CATALOGUES - Only From Silica

At Silica Shop, we recognise that serious users require an in-depth information service, which is why we mail free newsletters and price lists to our ST owners. These are up to 48 pages long and are crammed with technical details as well as special offers and product descriptions. If you have already purchased an ST and would like to have your name added to our mailing list, please complete the coupon & return it to us. This information service is available **ONLY FROM SILICA.**

FREE OVERNIGHT DELIVERY - From Silica

Most orders are processed through our computer within 24 hours of receiving them. Most hardware orders are sent by the overnight GROUP 4 courier service FREE OF CHARGE to customers within the UK. This method helps to ensure minimum delay and maximum protection.

PRICE MATCH - Only From Silica

We hope that the combination of our low prices, FREE UK delivery service, FREE Starter Kit and FREE after sales support, will be enough to make you buy your Atari equipment from Silica Shop. If however, there is something you wish to purchase, and you find one of our competitors offering it at a lower price, then please contact our sales department, providing us with our competitor's name, address and telephone number. If our competitor has the goods in stock, we will normally match the offer (on a same product - same price basis) and still provide you with our normal free delivery. We realise that we are not the only company who will match a competitor's price. However, if you come to us for a price match, you will also be entitled to our after sales service, including free newsletters and technical support. This makes our price match promise rather special, something you will receive **ONLY FROM SILICA.** We don't want you to go anywhere else for your Atari products. So shop at Silica, the UK's No1 Atari Specialist.

SIDCUP (& Mail Order) **01-309 1111**
1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX

LONDON **01-580 4839**
Lion House (1st floor), 227 Tottenham Court Rd, London, W1P 0HX

LONDON **01-629 1234 ext 3914**
Selfridges (1st floor), Oxford Street, London, W1A 1AB

ATARI 1040ST-F - NEW PRICE

We are pleased to announce a new reduced price point on the 1040ST-F which is now available for only £499 (inc VAT). The 1040 is a powerful computer with 1Mb of RAM and also includes a built-in 1Mb double sided 3½" disk drive. The 1040 has been designed for use on business and professional applications most of which require a high resolution monochrome or colour monitor. It does not therefore have an RF modulator for use with a domestic TV set. Modulators can be fitted for £49 (inc VAT).

1040ST-F Keyboard : Without Monitor ..... £499 (inc VAT)
1040ST-F Keyboard + High Res SM125 Mono Monitor ..... £599 (inc VAT)

If you would like further details of the 1040ST-F, return the coupon below.

MEGA STs NOW IN STOCK

For the user who requires even more RAM than the 520 or 1040 ST's offer, the new MEGA ST computers are now available. There are two MEGA ST's, one with 2Mb of RAM and the other with a massive 4Mb. Both new computers are fully compatible with existing ST's and run currently available ST software. The MEGA ST's are styled as an expandable Central Processing Unit with open architecture and a detachable keyboard. They are supplied with GEM, a free mouse controller and all extras as with the 520 or 1040. Prices are as follows:

MEGA ST 2Mb Keyboard + CPU ..... £899 (inc VAT)
MEGA ST 2Mb Keyboard + CPU + SM125 Mono Monitor ..... £999 (inc VAT)
MEGA ST 4Mb Keyboard + CPU ..... £1199 (inc VAT)
MEGA ST 4Mb Keyboard + CPU + SM125 Mono Monitor ..... £1299 (inc VAT)

If you would like further details of the MEGA ST's, return the coupon below.

To: Silica Shop Ltd. Dept STAMF, 1-4 The Mews, Hatherley Road, Sidcup, Kent. DA14 4DX

PLEASE SEND ME FREE LITERATURE ON THE ATARI ST

Mr/Mrs/Ms: ..... **Initials:** ..... **Surname:** .....

Address: .....

.....

.....

Postcode: 0788

Do you already own a computer
If so, which one do you own? .....

PROGRAMMING

BACK TO BASICS

So many languages, yet BASIC is undoubtedly the most popular. Richard Monteiro compares dialects with the supplied offerings from Atari and Commodore.

ST

Ever since Atari bundled ST BASIC with their machines, the language has come in for criticism. It's been held up for lack of speed, poor documentation and a number of bugs. Atari recently released a revised version, which now comes with all new ST computers, but is not fully compatible with previous releases.

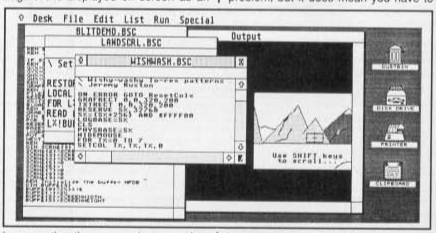
Third party companies noticing the problems with ST BASIC soon got to work producing their own versions. There are no less than eight BASICs to choose from, but a good proportion of these run from the CPM environment and can therefore be discarded. Consider the following as the pick of the crop.

Fast BASIC

Computer Concepts ■ £44.85 disk, £89.90 cartridge

If ST BASIC was a car it would be a Ford Fiesta. On that scale *Fast BASIC* would be a Ferrari Testarossa. It *is* fast, but then it would be very hard to produce anything as slow as ST BASIC. Unlike many BASICs, Fast BASIC doesn't require line numbers – although you can use them if you wish. And, like BBC BASIC of old, it includes an inline assembler. Fast BASIC is available on cartridge or disk. The cartridge system adds an icon to your desktop which, when clicked, enters BASIC instantly – that and having extra RAM space are the main advantages of the cartridge version.

Up to ten programs can be stored in memory at once and each program has its own cell or segment of memory. Segments aren't fixed in size. Each occupies as much memory as its program needs – they needn't all be the same size, nor be concurrent. Each segment is displayed on screen as an icon sporting the program's name. Any program can be called up (simply by double clicking on the appropriate segment icon or from the drop-down menus), modified, executed or dumped to the printer. However, programs in segments can only be run individually, not simultaneously.



The editor is very swish. At first sight it looks like a simple text editor, but control key sequences and pull down menus reveal its hidden talents. Cursor control is competent and complete (even cursor flash can be switched off). There's a choice of text size; three in medium or low resolution and four in high resolution. A pity the various sizes can't be mixed on screen. Oddly commands must be entered in upper case otherwise they are treated as variables at run-time. This can confuse the interpreter, so Fast BASIC contains an optional capitalising function which automatically converts commands to uppercase once the line has been entered.

Commands are plentiful, except when it comes to accessing GEM and lower levels. Assembler can be mixed with BASIC which is one way round the problem, but it does mean you have to be competent at 68000 and know its various traps. Documentation in this area is sparce.

Fast BASIC is relatively easy to use; most of the time its just a case of pointing and clicking. As you get to know your way around the system you'll find plenty of labour-saving short cuts. Program creation isn't much of an effort either. With a decent editor, stacks of powerful and obviously-named commands, and various bug-finding features its plain sailing – most of the time.

No compiler for Fast BASIC, but Computer Concepts can supply a run-time interpreter. This is simply the normal interpreter minus program development functions. Cost is £11.50.

fetures	**4**
performance	**3.5**
ease of use	**3.5**
manuals	**3**
format value	**3.5**

John Kemeny (left) and Thomas Kurtz, pictured here, are none other than the dynamic duo responsible for the most popular programming language ever. The language more people know than Norwegian, Danish and Swedish combined. The language that preceded DARSIMCO and DOPE. The language that has been converted hundreds of times to hundreds of machines. The language that was completed in May 1964. The language that was put into the public domain stream. The language that uses near-English commands. The language whose acronym means Beginner's All purpose Symbolic Instruction Code. Okay. That's it! We can't give you any more basic clues. If you haven't worked out what it is by now, you don't deserve to be told.

GFA BASIC

Glentop ■ £45.95

After seeing Computer Concept's Fast BASIC, Glentop responded by importing *GFA BASIC* from the land that produced 'Vorsprung durch Technik' and 'Software fur Kenner'. That was a year ago. Versions have been drifting in ever since – version 3 (due later this month) is claimed to be more than a slight improvement. GFA is also fast – the Lamborghini Countach of BASICs. It certainly gives Fast BASIC a run for its money. As for ST BASIC... well, it's left standing. Version 3 is roughly 25% faster than the earlier GFA.

The editor ranks amongst the elite. The cursor can be moved in character, line or screen increments. Other word processor-like options allow you to jump to the top or bottom of the program quickly, UNDO undoes all changes to a particular program line, words or sentences can be searched for and modified, and blocks of code can be copied, deleted, moved or saved. A built in syntax checker sifts out most mistakes and program logic is shown automatically by various degrees of indentation.

GFA insists on one command per line, which can be un-nerving if you're used to the old school of BASIC programming which maintains that the more you can fit on a line the better. GFA's method guarantees your programs look neat and goes some way to ensuring better structure and fewer bugs.

GFA BASIC has a very full complement of commands. Structured programming is catered for with instructions like DO LOOP, REPEAT UNTIL, WHILE WEND and multi-line IF THEN ELSE. Using the graphics commands it is possible to draw boxes, boxes with rounded corners, circles, arcs, lines, polygons, circles and ellipses. In addition, objects may be filled with a pattern or colour. Commands like GET and PUT allow software sprites to be manipulated quickly and efficiently. Other instructions simulate blitter operations and theses are particularly useful for fast screen handling.

Included on the GFA disk are a number of sample BASIC listings, a run-time version of GFA (you can run GFA BASIC programs with it, but you can't edit them – useful if you want to show off your programs to your friends) and a utility that will convert ST BASIC programs to GFA format.

Glentop publish a compiler for their BASIC which can seriously pump up the speed, but just as seriously deflate your bank balance. Current price is £45.95.

features	**4**
performance	**4**
ease of use	**3.5**
manuals	**2**
format value	**4**

Power BASIC

HiSoft ■ £39.95

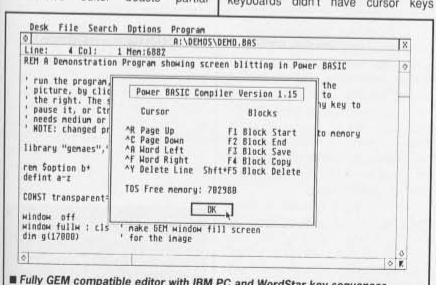
Most BASICs are interpreted. But then *Power BASIC* isn't like most BASICs. It adds itself to the ever growing list of compiled languages. Development takes longer, but the extra benefits gained from a compiled program – speed and the ability to run as a stand alone file – soon make up for lost time. With its foot on the gas its most like the much-mused Porsche 959.

Many compilers require you to write source code using one program – a text editor usually – and compile from another. Moving between sections wastes a lot of time. Thankfully HiSoft have cut out this needless operation. Program development, compiling and testing takes place from the same environment. A pity more languages don't have this much thought put into them.

HiSoft's editor boasts partial WordStar command compatibility. But who wants WordStar compatibility? It's not even available for the ST and was invented in the days when computer keyboards didn't have cursor keys (which forced the peculiar control sequences WordStar used).

The editor is RAM based, which means program length is restricted to the amount of available memory, about 157K on a 520 ST. What is very irritating though is that the editor's default text limit is 10,000 characters. If you reach the limit you can alter it, but doing so loses your current data.

ST BASIC users will feel at home with Power BASIC: the commands are identical. So similar, in fact, that HiSoft have deliberately replicated several ST BASIC bugs. The advantage of this apparently perverse idea is that ST BASIC programs can be loaded into HiSoft's BASIC and compiled with no modification. It can also compile programs from Microsoft's QuickBASIC with only minor changes, opening it up a huge range of source programs from the IBM PC world. After running a translation routine, the compiler can also cope



■ *Fully GEM compatible editor with IBM PC and WordStar key sequences thrown in. But, quite frankly, who wants WordStar or PC key compatibility?*

INTERPRETERS VERSUS COMPILERS

BASIC is available in both forms. An interpreter reads one program line at a time, converts it to machine code and then executes the code. A compiler, on the other hand, reads the whole program, decides what actions are required and then generates machine code for the whole lot. Essentially, interpreted programs can be run straight off whereas compiled programs pass through two stages before being ready to run.

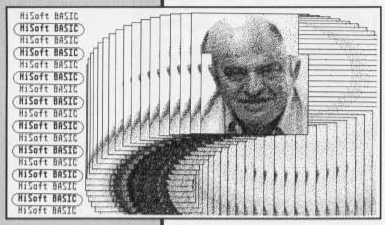
The first difference, therefore, is development time and for that matter ease of development. Interpreted languages win hands down. Programs can be knocked up quickly and errors removed relatively smoothly. With compilers it's a case of writing, reams of code and hoping everything is correct: usually mistakes only come to light during compilation. Program production is comparatively slow.

Of course, compilers have their good points. Why do you think so many languages – like Pascal, C and Modula 2 – are available only in this form? The reason is speed – not development speed, but run-time speed. A compiled program consists of machine code (the nitty-gritty bits and bytes that a processor feeds on) which makes for fast execution. That's part of it. The other contributing factor is that the final compiled code can be run on its own; it needs no interpreter with which to run.

These descriptions are generalisations. Some compilers are fast and have intelligent editors capable of weeding out most errors. Similarly, some interpreters can execute programs at speeds approaching compiled code.

ADVANCED GFA USERS

For the sum of £15.95 Glentop (01 4414130) can supply you with the book *GFA BASIC: Advanced Programming*. Add £3.55 to the price and you'll get a 3.5 inch disk crammed with sample BASIC programs.



with Fast BASIC programs. Power BASIC is certainly very versatile and very compatible with existing BASICs. Its command set is extensive with provision for sub-programs, functions, structured statements and low-level system calls.

Power BASIC has no interpreter. Programs must first be compiled to either memory or disk. If an error is encountered during compilation, Power BASIC reverts back to the text editor and highlights the mistake. Although development is lengthy, run-time speed is impressive.

HiSoft BASIC is Power BASIC plus options for user libraries and program profiling (tracing). For this version you can expect to pay £79.95.

features	**4**
performance	**4**
ease of use	**3**
manuals	**3.5**
format value	**4.5**

AMIGA

Amiga BASIC is everything ST BASIC isn't. It's fast enough, comprehensive, and user-friendly. So what reason could any Amiga owner have for wanting to flash cash for another BASIC. More features? More speed? Less money in the bank? Hardly. The most likely reason is the ability to create stand-alone programs. That is, programs that can be run on their own without the need for a bulky interpreter.

There are three major compiled BASICs: *True BASIC*, *A/C BASIC* and *F-BASIC*. Unfortunately only one (F-BASIC) made it here for this issue. True BASIC is the latest BASIC from the inventors of BASIC, Kemeny and Kurtz. It comes in various parts: True BASIC (£70), True BASIC run-time system (£70), program libraries (£40 each). A/C BASIC compiles Amiga BASIC listings. This would make it the most attractive to Amiga users but for the price, a crippling £195. BASICs A/C and True are distributed by Precision (01 3307166).

THROUGH THE AGES

Digital Research commissioned Bristol-based Metacomco to write a version of BASIC for the PC – Personal BASIC. It was then converted for and supplied with earlier Amigas until Microsoft, who had originally been drafted in to write Amiga BASIC, finished their version. Commodore switched to Microsoft's BASIC when it was completed and Atari adopted the cast-off, now known as ST BASIC.

F-BASIC

Delphi Noetic Systems/Amiga Centre Scotland ■ £70

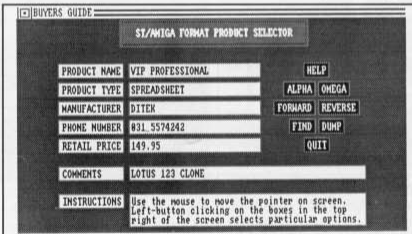
There have been countless dialects of BASIC ever since the language's conception in 1964. Some have been good, some bad. Programmers of later clones have always attempted to simplify the development and maintain some compatibility by copying earlier commands and syntax (and most of the idiosyncrasies) of earlier releases. None seems to have strayed as far from the original as Delphi Noetic. It seems they have worked especially hard at creating a BASIC that is so non-standard that it can almost be considered a new language.

Creating F-BASIC programs is a sore point: the supplied text editor is ED. Yes, the same program as on one of the Amiga system disks. Nothing wrong with that (although, as editors go, it is below average), but Delphi have kept up the good old Commodore custom of not supplying any operating instructions. Astounding. To use the thing you have to fork out 20-odd quid for the AmigaDOS manual. Of course, says the manual, any text editor capable of ASCII output will do. What if you haven't got another editor?

How many BASICs use the question mark as an abbreviation for REM? How many BASICs use the semicolon (;) to separate commands? How many BASICs use the ampersand (&) to concatenate strings? Answer: One – and it begins with F. Why have Delphi deliberately set things out to confuse users? It's simply not possible to sit down and knock out a program quickly. The manual has to be scoured from cover to cover, and even then you've only a 50/50 chance of getting the syntax correct.

Programming F-BASIC is very galling *(Ahh, so you've discovered what the F stands for – Ed)(But galling begins with a 'g' – other Ed)*. A range of exotic commands lift the language into a league of its own and yet simple things that shouldn't be given a socond thought can drive you close to suicide.

Once an F-BASIC program is written, it must be compiled. Only then can it be run. The compiler is so large that it takes an eternity to load from disk – it's advisable to use a RAM drive. Even so, actual compilation is slow. Delphi's idea of a stand alone file is a 30k+ library file as well as the compiled program at roughly five times the source size. And the price for using a compiled program commercially? $10, which must be sent to Delphi Noetic Systems, Rapid City, South Dakota, USA. It would cost you more than to send it!



■ ***The Amiga Product Selector written with F-BASIC. A few lines of code can produce pleasing results - problem is finding out how.***

F-BASIC has its good points *(I was beginning to wonder – Ed)* It contains some fantastically powerful commands like WHEN IS, IF ELSEIF, WHILE DO, REPEAT UNTIL that make some structured programming unbelievably easy. Speech, sound, windows, shapes, screen resolutions, menus and mouse detection are so well implemented that it takes little program code to produce startling results.

An interesting inclusion is pattern matching – something introduced in the SNOBOL4 language back in the early 60's – which is the process of examining a string for the occurrence of a substring with various characteristics. There's tremendous potential.

features	**4**
performance	**3**
ease of use	**1.5**
manuals	**1.5**
format value	**2.5**

CONTACTS

Computer Concepts ■ Gaddesden Place, Hemel Hempstead, Herts, HP2 6EX ■ 0442 63937

Amiga Centre Scotland ■ 4 Hart Street Lane, Edinburgh, Scotland, EH1 3RN ■ 031 5574242

Glentop ■ Bath Place, High Street, Barnet, Herts, EN5 5XE ■ 01-4414130

HiSoft ■ The Old School, Greenfield, Bedford, MK45 5DE ■ 0525 718181

3½

Lifetime Guaranteed, double sided, double density, 135 TPI, bulk wrapped discs with labels

Quantity	Price
10	£9.25
20	£18.00
25	£22.99
50	£45.00
105	£89.99

5¼

Lifetime Guaranteed, double sided, double density, 48 TPI, bulk wrapped discs with labels

Quantity	Price
10	£3.50
20	£6.50
25	£7.99
50	£15.50
105	£31.00

VERBATIM

Fully guaranteed 3.5" 135TPI Verbatim discs

Single Sided Discs		Double Sided Discs	
Quantity	Price	Quantity	Price
10	£11.99	10	£13.49
20	£23.49	20	£25.99
30	£34.99	30	£37.99
50	£57.99	50	£63.49
100	£114.99	100	£125.99

LOCKABLE DISC STORAGE BOXES

3.5"		5.25"	
40 capacity	£5.49	50 capacity	£5.49
80 capacity	£7.49	100 capacity	£7.49
120 capacity	£9.99	140 capacity	£9.49

Plastic Storage Box – holds 10 (state 3.5" or 5.25") 75p

AT LEAST 30% OFF ALL 16 BIT SOFTWARE

30% OFF ALL JOYSTICKS
eg Pro 5000 £11.99

30% OFF ALL CABLES AND ACCESSORIES

SPECIAL!!!
Premium Quality Mouse Mat Now only £3.49

HARDWARE
AT LEAST 10% OFF ALL HARDWARE

ATARI 520 STFM	£259.00*
STAR NL10	£189.00
Seikosha SP 180 NLQ Printer	only £149.99
Cumana Disc Drive Atari/Amiga	£117.99
NEC 1Mb Disc Drive Atari/Amiga	£99.99

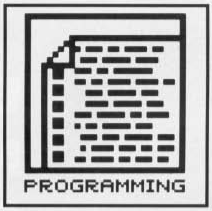
* While stocks last

P&P Free on all orders over £15, under £15 add 75p P&P (UK only)
Overseas Disc Orders, Add £3 P&P. All prices include VAT

Cestrian Software

52, Brook Street
Chester CH1 3DN
Phone 24 hour 0244 312666
24 hour Access Hotline

UNBEATABLE PRICES



DESKTOP

Two pages of tips, hints, wrinkles and dodges exclusively for ST owners. Read all the bits the manuals tried to hide.

And then animate

NeoChrome V1.0 (the graphics package) has hidden talents. If you have the package, try clicking the right mouse button while the mouse pointer is in the circular bit of the last R of GRABBER. An animation section will appear.

Desktop disclosure

You're probably familiar with the GEM desktop; the screen on which you spend half your life pointing little arrows at menus, files and windows with the help of a mouse. What you may not know though, is that there are a contingent of keyboard controls that can cut the clicking.

Say you wish to find out the contents of several disks. Standard procedure is to insert a disk in the drive and double click on the drive icon. Fine so far. When it comes to inspecting another disk the previous directory window must be removed, another disk inserted in the drive and the drive icon double clicked. What a performance! A handy trick is simply to insert the first disk in the drive and double click the drive icon. Whenever you wish to view the contents of further disks simply swap disks and press the [Esc] key. The currently opened directory window will automatically be updated. Yes, it's that simple. Note this only works if you are at root directory level, ie. not in any folder.

When you want to select a group of files or folders (for erasing or copying, say) it is usual to press the left mouse button and drag the mouse over the desired files. In reality you never want all the files in a given area – or you may want some that you can't reach in a single mouse drag. Easy. By holding [Shift] down and clicking the mouse button when the pointer is over a file, selections are *added* to the currently active selection. Thus it is possible to highlight as many or as few files as required.

How do you move the pointer if you're mouseless? By holding [Alternate] and pressing the cursor keys in any direction. To select an item, ie. to do a left-button mouse click, press [Insert] (while still holding Alternate). Pressing Insert twice simulates the double-click action of the mouse. The right mouse button can be simulated by pressing [Clr].

Pause for thought

Sometimes it's nice to sit back and take a break from the action. Sometimes it's necessary to halt on-screen movement for a more detailed look. Sometimes your pet armadillo will insist on wanting to be let out at the wrong moment. Unfortunately many games don't have pause modes (and if they do the screen often becomes cluttered with ugly messages) and who's ever heard of a serious application with a pause mode?

Assuming you *haven't* got a printer connected, press [Alternate] and [Help] together. Everything freezes while the computer works out why it can't send data to the printer (approximately 20 seconds). Of course, this won't work with every program. But for those it does work with, it can be jolly useful. For instance, we use this feature to freeze the action of a game to allow us to photograph the screen

Protext party tricks

There appear to be a number of interesting and undocumented commands lurking in Arnor's word processor. From the command mode (where the cursor is adjacent to the 'a>' prompt) type `PANIC` and press return – you'll be treated to an explosion of characters. Agreed, it isn't very useful, but try `QWXCL 40` followed by return. In fact, almost any number can follow QWXCL. You'll enter a memory monitor; a section of Protext that will let you explore the murkiest depths of your computer's memory. Try hunting around memory locations 84000 for fun.

Not only can you view any part of memory – control is via the cursor cluster – but you can also edit memory. So, yes, you can amend Protext's messages and so on. Either hexadecimal entry or ASCII entry is permissible (the [Tab] key toggles between modes). Remember, though, entering any old value could cause Protext to crash thereby losing all your data. We certainly don't recommend you use it if you haven't a clue what memory, hexadecimal and so on are. After all, if we said jump off the nearest cliff, would you?

The mouse also has some undocumented properties. When in command mode, moving the mouse will scroll through any previous commands typed in at the prompt. Pressing the left mouse button will execute the command displayed

```
PROTEXT  Document ST-TIPS.BDI     10K  Justify Off   Wd-Wrap  Key fl to View
 Page 1   Line 13   Col 48                No markers set              Insert
L--------|--------|--------|--------|--------|--------|--------|--------|----R

Protext party tricks
There appear to be a number of interesting and undocumented commands
lurking in Arnor's Word processor. From the command mode (where the
cursor is adjacent to the A> prompt) type PANIC and press return -
you'll be treated to an explosion of characters. Agreed, it isn't very
useful, but try QWXCL 40 followed by return. In fact, almost any
number can proceed QWXCL. You'll enter a menory monitor; a section of
Protext that will let you explore the murkiest depths of your
computer's menory. Try hunting around menory locations 84000.
      Not only can you view any part of menory - control is via the
cursor cluster - but you can also edit menory. So, yes, you can amend
Protext's messages and so on. Either hexadecimal entry or Ascii entry
is permissible (the Tab key toggles between modes). Remember, though,
entering any old value could cause Protext to crash thereby losing all
 PROTEXT V3.50 (c) Arnor 1988    Printer (P) EPSON      Directory \
00050EA0  4A 75 6E 0D 4A 75 6C 0D  41 75 67 0D 53 65 70 0D  Jun.Jul.Aug.Sep.
00050EB0  4F 63 74 0D 4E 6F 76 0D  44 65 63 0D 0D 05 DE 8C  Oct.Nov.Dec.....
00050EC0  0D 05 DE 98 08 05 DE 94  0D 05 DE 90 0D 05 DE 9C  ................
00050ED0  0D 05 DE A0 0D 05 DE A4  0D 05 DE A8 0D 05 DE AC  ................
00050EE0  0D 05 DE B0 0D 05 DE B4  0D 05 DE B8 53 75 6E 0D  ............Sun.
```

■ ***The Protext word processor contemplating its own navel. `QWXCL 40` drops you into a memory editor..***

Single disk driving

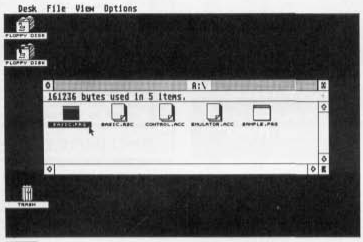
If your system consists of a single drive, copying files and running applications which require data to be stored on a second disk can prove confusing.

To copy any type of file it is simply a matter of selecting the file's icon and dragging it to where you want to put the copy. However, if you want to copy a file from one disk, sitting in drive A, to another disk, don't drag the file and plonk it on the drive A icon: doing so will recopy the file onto the original disk – not very useful. Instead drag the file to be copied onto the drive B icon. True, you haven't got a second drive; GEM knows this. A message asking you to insert disk B into drive A will appear. Do just that. Insert the disk you wish the file to be copied to. Copying takes several passes, that is, you'll need to swap disks often. By taking note of the messages all will go smoothly.

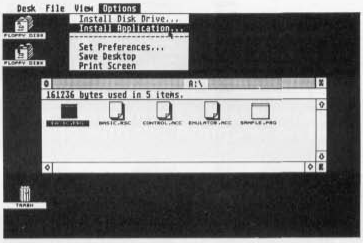
It is bad practice to have data files on the same disk as an application disk. For a start there probably won't be the room. Some applications use overlays or require extra bits from time to time which means a disk with the necessary files must always be present in drive A. Data must obviously be saved somewhere – the best idea is to force it to drive B. Of course, it can't actually be saved to drive B if one doesn't exist. Instead it forces a message requesting you place a different disk in drive A (the data disk, if you like). Normally you can force a program to save to drive B by altering the directory string. Change the A: to a B: at the start of the file name.

Clever keyboard

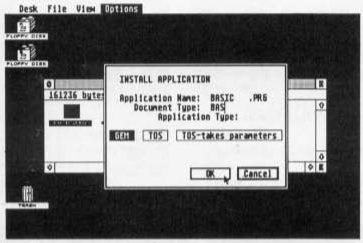
The ST's keyboard is intelligent. It can't wash the dishes or take the armadillo for a walk, but it does a



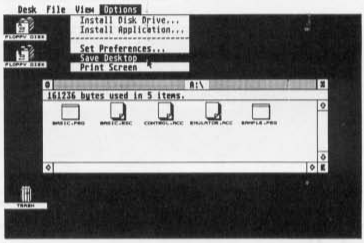
1



2



3



4

■ *How to 'install' BASIC so that when you click on any file ending .BAS BASIC is loaded and that file run automatically.*

good job of decoding mouse, key and joystick data. Due to the 1MHz HD6301 8-bit processor handling the keyboard, it is possible for traffic to go to and from the main keyboard. For a chip with RAM, ROM, I/O lines and serial interface this is no problem.

But what if you want more power? What if you want to give the keyboard more intelligence? Easy really. Just unplug the 6301 and insert a Hitachi 63PO1 – price is around £25 from the Maplin catalogue – which hasn't any in-built ROM, but boasts a socket for an EPROM (2732 or 8K 2764). From then on it's up to you. The potential is there for using the joystick ports as universal 4-bit input/output ports. Do note that this operation invalidates any guarantee and should only be undertaken by seasoned hackers and bearded boffins.

Installing applications

It's a hassle to have to load an application (graphics package, Midi sequencer, word processor, spreadsheet or whatever) and then load previously saved data. It's so much easier to double click on the data file and have the application boot up and the data file load itself into the application. For instance, it is possible to alter the desktop so that double-clicking on a .BAS file causes ST BASIC to load with the clicked file in it ready for further editing or running.

This example assumes ST BASIC is the application you wish to install: from the desktop open a directory window of the ST BASIC disk. Single click on the BASIC.PRG file so it goes black but doesn't run, pull down the Options menu and select Install Application. You will be asked for the document type: enter BAS. Press [Return] or click on OK. Again bring down the Options menu, but this time choose Save Desktop. Ensure the disk is not write protected.

Doing the above means you can double click on any file with a .BAS ending; ST BASIC will automatically load and the BAS file you clicked on will load into ST BASIC. As you saved the desktop, you will be able to do this whenever you switch on the machine and insert that disk with ST BASIC on it.

Slightly useful

In all pre-blitter versions of ST ROMs there is a bug which results in a crash if you press the underline character (_) when the cursor is in the directory string. The directory string is located in the top of all file selector windows.

Not useful at all

The ST's keyboard is controlled by a clever HD6301 processor which boasts both ROM and RAM. But try holding down the two mouse buttons when switching on your machine. The keyboard processor can cope with either left or right button being depressed at power up, but it isn't sure what to make of the two-button signal and consequently belly-flops. The mouse pointer won't move and a horrendous clicking will be heard. The reset button cures this.

MONEY FOR NOTHING

Well, that's not altogether true – but almost. We want your tips. On anything and everything ST related. Be it a tip on hardware mods, getting the best out of software, low level ROM calls or simply how to use the desktop to better effect. We need them. In return, the star tipster each month will win £30. Now that can't be bad: money for your discoveries.

Rush your GEMs (ho, ho!) to *Desktop, ST Amiga Format, 4 Queen Street, Bath BA1 1EJ.* Label your letters clearly: We publish several magazines each month, and we certainly don't want your Armadillo husbandry tips reaching the eyes of prospective diesel car buyers.

clik

AMIGA SPECIALISTS

Unit 1, Willowsea Farm, Spout Lane North,
Stanwell Moor, Staines, Middx TW19 6BW
Telephone: (0753) 682988

TITLE	SSP	OUR PRICE
Ad. Con. Set	29.95	21.50
Amegas	14.95	11.50
Arazoks Tomb	29.95	21.50
Arkanoid	26.00	20.50
Backgammon	9.99	7.50
Backlash	19.95	16.50
Balance of Power	29.99	21.50
Bards Tale 1	24.95	18.50
Battleships	19.95	16.50
Beyond Zork	24.99	18.50
BMX Simulator	14.98	11.50
Borrowed Time	24.99	18.50
Brainstorm	9.99	7.50
Bubble Bobble	19.95	16.50
Casino Roulette	19.99	16.50
Chess. The Art Of	24.99	18.50
Chessmaster 2000	24.99	18.50
Computer Hits	29.95	21.50
Crack	19.95	16.50
Crazy Cars	24.95	18.50
Dark Castle	24.99	18.50
Defender of the Crown	29.95	21.50
Deja Vu	29.95	21.50
Destroyer	24.99	18.50
Diablo	19.99	16.50
Eagles Nest	19.99	16.50
Eye	14.95	11.50
Extensor	9.99	7.50
Fairy Tale Adventure	49.99	32.50
Ferrari Formula One	24.95	18.50
Feud	9.99	7.50
Fireblaster	9.99	7.50
Fire Power	24.99	18.50
Flight Simulator II	39.95	29.50
Flintstones	19.95	16.50
Football Fortunes	24.95	18.50
Frostbyte	14.95	11.50
Galactic Invasion	24.95	18.50
Garrison I	24.95	18.50
Garrison II	24.99	18.50
Geo Bee Air Rally	19.99	16.50
GFL Football	24.95	18.50
Gnome Ranger	14.95	11.50
Golden Path	19.99	16.50
Gold Runner	24.95	18.50
Grid Start	9.99	7.50
Hitchhikers Guide	29.99	21.50
Hollywood Poker	19.95	16.50
Impact	14.95	11.50
Indoor Sports	24.99	18.50
Jet	39.95	26.50
Jinxter	24.99	18.50
Joe Blade	9.99	7.50
Jump Jet	14.95	11.50
Karate	19.95	16.50
Karate Kid II	24.99	18.50
Kings Quest Pack	24.99	18.50
Kwasimodo	9.99	7.50
Leaderboard	24.95	18.50
Leaderboard Tournament	9.99	7.50
Leather Nun of Phobos	29.99	21.50
Leathernack	19.95	16.50
Leisure Suit Larry	24.99	18.50
Lurking Horror	24.99	18.50
Mach 3	19.99	16.50
Marble Madness	19.99	16.50
Mean 18	24.99	18.50
Mercenary Compendium	24.99	18.50
Mind Forever Voyaging	34.99	24.75
Mission Elevator	19.99	16.50
Moebius	24.99	18.50
Moon Mist	29.99	21.50
Mouse Trap	14.99	11.5
Nord & Bert	25.00	19.00
Obliterator	24.99	18.50
Othello	9.99	7.50
Passengers on the Wind	24.99	18.50
Pink Panther	19.99	16.50
Plutos	14.95	11.50
Portal	34.99	22.50
Port of Call	39.99	26.50
Pool	9.99	7.50
Power Play	19.99	16.50
Power Struggle	14.95	11.50
Red October	24.95	18.50
Return To Atlantis	24.99	18.50
Roadwars	19.95	16.50
Roadwar 2000	24.99	18.50
Rocket	9.99	7.50
Rockford	19.99	16.50
Scenery Disc 7	24.95	18.50
Scenery Disc 8	24.95	18.50
Seconds Out	19.99	16.50
Seven Cities of Gold	14.99	11.50
Shanghai	24.99	18.50
Sidewinder	9.99	7.50
Silent Service	24.95	18.50
Silicon Dreams	19.99	16.50
Shadowgate	24.99	18.50
Sherlock	24.99	18.50
Skyfighter	14.95	11.50
Skyfox	14.99	11.50
Slaygon	19.95	16.50
Soccer Supremo	14.99	16.50
Star Glider	24.99	18.50
Star Wars	19.95	16.50
Stellar Conflict	26.50	21.50
Stock Market	19.95	16.50
Strip Poker	9.99	7.50
Strip Poker II	14.98	11.50
Sulgeon	49.95	32.50
Swooper	19.95	16.50
Temple of Apshai	24.99	18.50
Terramex	19.95	16.50
Terrapods	24.99	18.50
Test Drive	24.99	18.50
Time Bandits	19.99	16.50
Ultima III	24.99	18.50
Unrivited	29.99	21.50
Vampire Empire	19.99	16.50
Vyper	14.99	11.50
Wall. The	14.99	11.50
Winter Olympiad	19.99	16.50
Wizball	24.99	18.50
World Games	24.95	18.50
Xenon	19.99	16.50

SPECIAL LOW PRICES WHILE STOCKS LAST

TITLE	SSP	OUR PRICE
Cutthroats	29.99	12.00
Challenger	9.99	5.50
Demolition	9.99	5.50
Dr Fruit	9.99	5.50
Deadline	24.99	12.00
Final Trip	9.99	5.50
Hacker	29.99	12.00
Hacker II	29.99	12.00
Infidel	29.99	12.00
Las Vegas	9.99	5.50
Mindshadow	24.99	12.00
Phalanx	9.99	5.50
Space Battle	9.99	5.50
Spellbreaker	29.99	12.00
Suspended	29.99	12.00
Suspect	29.99	12.00
Stationfall	29.99	12.00
Starcross	29.99	12.00
Seastalker	29.99	12.00
Trinity	34.99	12.00
Thai Boxing	9.99	5.50
Tass Times	29.99	12.00
Vaders	9.99	5.50
Wishbringer	29.99	12.00
Zork I	29.99	12.00
Zork III	29.99	12.00
XR35 Fighter Mission	9.99	5.50
Insanity Fight	24.95	12.50
Flight Sim II	49.95	12.50
Knight Orc	24.95	12.50
Winter Games	24.95	12.50

UTILITY LIST

TITLE	SSP	OUR PRICE
Adrum	39.95	32.50
AC Fortran	295.00	202.50
Art Parts 1	9.95	7.50
Art Parts II	9.95	7.50
Assembler Metacomco	69.95	49.50
Animator Images	103.50	75.50
Aquisition 1.3	249.00	185.00
Animate 3D	129.95	105.00
AC Basic	195.00	132.50
Butcher	29.95	21.50
C64 Emulator	69.95	50.50
City Desk	114.95	85.00
CLI Mate	39.95	29.50
Calligrapher	69.95	50.50
Dos to Dos	39.95	29.50
Deluxe Paint	24.95	18.50
Deluxe Pain II (PL)	69.95	48.50
Digipaint (PAL)	59.99	42.50
Digiview 2.0 (PAL)	185.00	142.50
Digiview Adpt	29.95	19.50
Deja	57.50	42.50
Draw Plus	184.00	135.00
Express Paint	79.95	62.50
Future Sound	175.00	155.00
Grabbit	29.95	23.50
Hot in Cool Jazz	9.95	7.50
Instant Music	24.95	18.50
Laserscript Driver	32.95	29.50
Lisp	149.95	102.50
Lattice C 4.0	172.50	122.50
Microfiche Filer	79.95	62.50
Module II developer	149.95	110.50
Modula Standard II	99.95	72.50
Modula II	129.95	95.00
Maxiplan A500	99.95	72.50
Maxiplan Plus	149.95	110.50
Music Studio	34.99	34.75
Micro APL	99.95	72.50
Marauder II	99.95	69.50
MCC Pascal	89.95	69.50
Organiser	99.95	72.50
Publisher Plus	99.95	72.50
Pro Board	475.00	375.00
Rock 'n Roll	9.95	7.50
Shakespeal	129.95	105.00
Superbase Professional	249.95	185.00
Superbase	89.95	69.50
Sonix	52.50	39.50
Scribble II	99.95	72.50
Seasons & Holidays	9.95	7.50
Shell	49.95	34.50
Sculpt 3D Animate	129.95	105.00
TV Show	99.95	72.50
TV Text	99.95	72.50
The Director	59.95	45.50
The Works	149.95	105.00
Toolkit	39.95	29.50
Video Titler 1.1	110.00	85.50
Videoscape 3D	143.75	110.00
Word Perfect 4.10	228.85	175.50
Zuma Fonts I	34.95	24.50
Zuma Fots II	34.95	24.50
Zuma Fonts III	34.95	24.50
Blank discs 10	27.75	13.50

LIGHTSPEED SOFTWARE

31a BROADWEIR. BRISTOL. BS1 3AY
TEL: (0272) 225604

24 HOUR ANSWER PHONE FOR ALL QUERIES
NEW TITLES AVAILABLE FROM DAY OF RELEASE FOR ST AND AMIGA.

ATARI

Barbarian (Psygnosis)	20.00
Blue War	16.50
Bubble Bobble	13.95
CAD 3D	20.00
Captain Blood	16.50
Carrier Command	16.95
Crash Garrett	13.95
Cyber Paint	59.95
Cyber Studio	61.50
Desktop Publisher	99.74
Disector	24.95
Dungeon Master	16.95
Enduro Racer	9.99
Fast Basic (Disc)	32.50
Fast Basic (Rom)	55.00
Flight Simulator II	39.95
Flt Sim II Scenery Disc II	19.00
Flt Sim II Scenery Disc 7	19.00
GFA Basic	30.00
GFA Companion	20.50
Goldrunner II	16.99
Gun ship	16.95
Hisoft Basic	55.00
Home Publisher	16.95
Hunt For Red October	19.00
Impossible Mission II	13.99
Ikari Warriors	9.99
Jinxter	18.50
Lurking Horror	25.50
Mach III	13.95
Midi Maze	29.95
Mouse Master	24.95
Oids	13.95
Outrun	13.95
Predator	13.95
Pool	7.75
Power Basic	28.50
Pro Sound Design	42.50
Prodoy 1.6	27.50
Pro Light	12.50
Pro Midi	12.50
Powerplay	16.50
Quantam Paint	13.95
Rampage	9.99
Rolling Thunder	13.95
Screwballs	13.95
Seconds Out	13.95
Slap Fight	13.95
ST Wars	16.95
ST Replay	58.50
Stone Braker	8.50
Superbase Personal	69.95
Superbase Professional	219.95
Tau Ceti	8.50
Terramex	16.50
The Pawn	19.00
U.M.S	16.95
UPS	16.95
Word Writer	61.50
Xenon	13.99
Mouse Mat (Soft)	3.99
Mouse Mat (Hard)	5.75
Hard Covers 520 STFM or1040	15.99
Joystick/Mouse extender lead	4.75
E180 Video Tape	3.25

All prices are inclusive of VAT and delivery inside the UK.
Please make cheques, P/O payable to
"Lightspeed Software"
all orders despatched within 24 hours, please allow 7 days

Computer Adventure World

WE STOCK OVER 300 TITLES AT OUR STORE & SPECIALISE IN
ADVENTURES - FANTASY - WARGAMES - STRATEGY

LATEST ST TITLES		LATEST AMIGA TITLES	
Starfleet One	£24.50	Starfleet One	£24.50
Breach (TACTICAL SCI-FI)	£34.00	Reach for the Stars	£24.50
Breach Scenario	£19.00	Interceptor	£24.50
Empire (STRATEGIC WWII)	£35.00	7 Cities of Gold	£14.50
Great Battles (18TH.C)	£34.00	Ports of Call	£14.50
Gridiron (US FOOTBALL)	£35.00	Kampfgruppe	£26.00
3 in 1 Football (US)	£32.50	Soccer Supremo	£13.75
SIMULATIONS CANADA WARGAMES:		Bards Tale Two	£24.50
7th Fleet	£35.00	Farey Tale Adventure	£26.00
Grey Seas. GREY SKIES	£35.00	Beyond Zork	£21.50
Long Lance	£35.00	Sherlock	£21.50
Stalingrad	£35.00	Leisure Suit Larry	£18.50
Golan Front	£35.00	Chuck Yeager AFT	£21.50
5th Escadra	£35.00	Jet	£36.00
Fall Gelb	£35.00	Ferrari Formula 1	£24.50

WE CONTSTANTLY SEEK NEW PROGRMMES AND IMPORT MANY GAMES FROM OVERSEAS - ALBEIT THESE TEND TO BE "PRICY!"

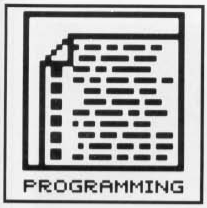
SEND LARGE SAE FOR FREE 20 PAGE PRICE LIST
THIS INCLUDES ST AMIGA IBM PCW APPLE C64 ATARI AMSTRAD BBC ETC.

SPECIAL OFFER: **TRIANGLE 1 MGB. DRIVE £115 INC UK POSTAGE**
AMIGA OWNERS - TRY CAMOD, THE MAGAZINE ON DISC £4 INC. POST
STFM OWNERS - JOYSTICK & MOUSSE EXTENSION LEAD £6 INC .POST

PAYMENT: VISA MASTERCARD - UK CHEQUE-EURO-GIRO CHQ
POSTAGE: UK FREE: PER GAME EUROPE £2 - ELSEWHERE £4

Computer Adventure World

Bank Buildings, 1A Charing Cross, Birkenhead L41 6EJ
Telephone: 051-666 1132



WORKBENCH

Two pages strictly for Amiga owners – discover unknown secrets to make life with the Amiga even better!

CLI

Most of the clever technical tricks you can do with the Amiga involve the 'CLI', or Command Line Interface as it is more fully known. If you're only familiar with running programs by clicking on friendly icons from the Workbench display, you're in for a bit of a shock. The CLI seems very unfriendly at first, but once you've got the hang it lets you really get at the Amiga's guts.

It's all there in chapter 7 of the Amiga manual, but here's a quick summary of how to get to the CLI prompt:

1. Start your Amiga up with your usual Workbench disk (of course, you're using a *copy* of your master disk, aren't you?)

2. Open the disk icon, then the System drawer.

3. If you see a CLI icon (a blue rectangle with a 1> in it), go to step 4. If there is no such icon you've got an old system disk: close the System drawer, run the Preferences icon, and turn the preference marked CLI to ON. Click on Save to get back to the Workbench, re-open the System drawer and you'll see the CLI icon there.

4. Double-click on the CLI icon, and a new window opens up with a prompt of 1>. This is where you type your command lines. You can resize this window by dragging its lower right corner around in the usual way, but there's no Close gadget at the top left. You can still use the Workbench icons normally simply by resizing the CLI window and moving it out of the way.

If you want to get rid of the CLI window entirely, just type `ENDCLI` at the 1> prompt. (Make sure you've clicked on the CLI window to activate it before typing, or nothing will appear!)

Damaged disks?

The Amiga can be really pernickety with disks at times. How often have you put a valued disk in the drive only to see the dreaded message, "Disk is not readable – use DISKDOCTOR"?

Curiously, the DISKDOCTOR program isn't mentioned at all in the Amiga manual's index, which might lead you to suppose that you need to buy it separately. Not at all, DISKDOCTOR is a stunningly useful utility on your Workbench disk which can recover most corrupted disks. Indeed, if you find that this month's ST Amiga Format cover disk won't load properly, try using DISKDOCTOR on it before screaming and sending it off to DisCopy for replacement.

However, DISKDOCTOR can only be run from the CLI, not the Workbench:

1. Start up the CLI as previously described

2. Type `DISKDOCTOR DF0:` and press [Return]

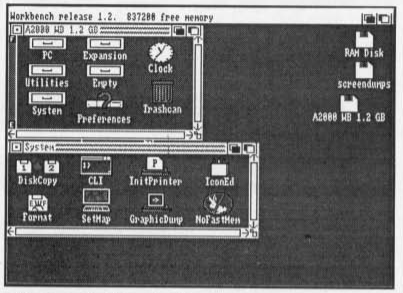
You are now prompted to insert your suspect disk in the disk drive. Do this and press [Return]. DISKDOCTOR now checks your disk, and if it finds any damaged sectors will report a 'hard error'. When it has checked the whole disk it will reorganise the files to avoid the bad areas and write them back to the disk.

Because of the secure way the Amiga stores its data, DISKDOCTOR can usually recover most files from a disk. However, once a disk is known to be suspect you ought not to trust it again. Format a fresh disk and copy all your files onto it from the damaged one.

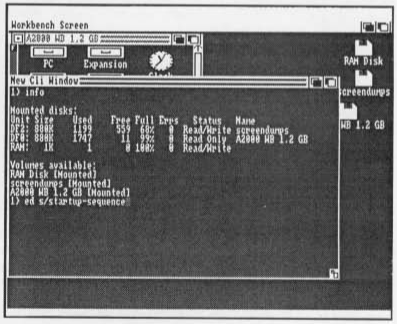
Start the day the Amiga way

Wouldn't it be nice to be greeted in a civil and personal way by your Amiga every morning? The secret lies in the file STARTUP-SEQUENCE on your boot disk.

STARTUP-SEQUENCE is a text file in the S directory of the disk. When your Amiga starts up it automatically reads this file, which contains a set of command lines. These commands are ordinary CLI commands like `ECHO "Workbench 1.2"`, which makes the Amiga echo the text in quotes to the screen. One command in the file is `LOADWB`, which is the command to load the WorkBench after the usual blue AmigaDOS screen appears.



■ ***About to double-click on the CLI icon...***
■ ***A typical CLI window open. The INFO command, incidentally, tells you how much free space there is on all your disks.***



The first thing to do is to make up a useful copy of the Workbench disk. The Amiga master disk is full to the brim, so you haven't got any room to create your own files on it. Make up your own working copy as follows:

1. Take a blank disk and copy the whole Amiga Workbench master disk in the usual way (put your blank disk in the drive and drag the Workbench disk icon onto it).

2. With your copy now in the drive, restart the Amiga.

3. Get to the CLI prompt as previously described.

4. Delete some useless files by typing very carefully

```
DELETE UTILITIES ALL
[Return]
DELETE DEMOS ALL [Return]
```

Now you've got room on the disk to start doing things. To modify the startup process as you want, first you need to edit the file. Luckily the Amiga has a text editor on its master disk (not mentioned at all in the manual, of course): at the CLI prompt, type

```
ED S/STARTUP-SEQUENCE
```

You are now in the text editor; you can use the cursor keys and delete keys to modify the text on the screen.

A fun line to add is to make your Amiga speak to you. Press [Return] to open up a blank line at the start of the file, then type in the following:

```
SYSTEM/SAY "Good Morning, O Superior Being. How can I be of service?"
```

Now save the modified file by pressing [Esc] and typing X (for eXit) and [Return]. You will be returned to the 1> CLI prompt.

Wait for the disk drive light to go out, then reboot your Amiga. Hey presto, it speaks to you! The voice may be a little stilted, and you may find that spelling words phonetically gives you better results. Type 'servis' rather than 'service', for instance.

You can of course put any text you like inside the quotes of the SAY command, and have any number of lines of SAY commands.

Life with a single drive

Once you start using your Amiga for serious applications – anything except load-and-go games – one thing becomes apparent. Only having one disk drive is a pain. To copy one disk to another takes half a dozen disk swaps, and every time you type a CLI command you have to put your boot disk back in the drive.

A good way around all this is to use the RAM disk. First, you need to understand what happens when you try to run a command on the Amiga: imagine you are at the CLI and you type DIR to get a directory of the current disk. The Amiga needs to find a file on disk called DIR, which contains the DIR program. It first looks in the current directory, and then the C directory of your boot disk. What this means in practice is that if you have a disk other than your boot disk in the drive, you will be asked to swap it.

It is possible to make the Amiga look for the commands in the RAM disk instead, so you need never swap disks to run simple CLI commands. With your normal boot disk in the drive, get to the CLI prompt and type:

```
COPY C/DIR TO RAM:
COPY C/COPY TO RAM:
COPY C/CD TO RAM:
COPY C/DELETE TO RAM:
COPY C/LIST TO RAM:
COPY C/INFO TO RAM:
PATH RAM: ADD
```

Now if you want to work on another disk, just put it in the drive and type CD DF0:. This logs you onto the new disk in drive 0. Now you can use all the commands like DIR from the RAM drive without swapping disks. Of course, if there are other commands you use then you should copy the files for these into the RAM disk too. The final line, PATH RAM: ADD, is what tells the Amiga to look in the RAM drive for files.

It's a good idea to put these commands in your STARTUP-SEQUENCE file to save typing them in every time. As described in the 'Start the day the Amiga way' tip, edit it by typing ED S/STARTUP-SEQUENCE. Now go to the end of the file, by using the cursor-down key, to just before the line which says ENDCLI. Type in the new lines as before. If there is already a line in the file saying PATH RAM: ADD then you needn't type it again.

If you want to be left at the CLI prompt when the startup process finishes rather than in the prettily iconified Workbench, then delete the LOADWB line from STARTUP-SEQUENCE. Now save the modified file by [Esc]X, and re-boot to test it.

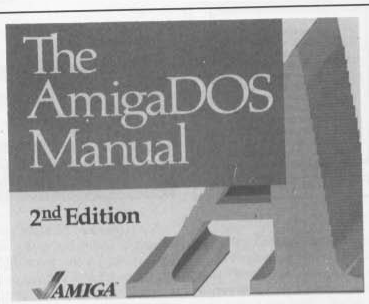
If you have removed the Workbench line from the startup sequence and then find you wanted the Workbench after all, just type LOADWB at the CLI prompt.

DigiView distortion

A handy tip for anyone out there using NewTek's DigiView digitiser with a colour video camera, for general frame-grabbing. If you are suffering from colour signal distortion interfering with the digitiser (which normally expects mono input), and you aren't afraid to do a little wiring, then help is at hand. One small item will turn all your colour video signals into glorious monochrome. What you need is an 8-ohm loudspeaker as found in any old transistor radio.

1. Firstly, of course, turn off the power to the digitiser.
2. Get hold of a spare video lead and cut it in half. The cable will have a central core and a braided outer sleeve – strip an inch or two back from either side of the break.
3. Connect the central core from one half to one loudspeaker terminal, and the other central core to the other terminal. Join the two braids together (twisting them will do).
4. Check there are no short circuits – wrap some insulating tape around the braided join to make sure.
5. Turn on the power, and connect the video directly into the back of your Amiga monitor, if you have one. The colours should have faded or gone altogether. If so, the camera should now work better with DigiView's digitising system.

If nothing works, check your wiring, or else give up and go back to your old lead. It's worth saying that at video frequencies electrical components such as loudspeakers can appear as complex components and even those with identical impedances may give varying results.



■ ***If you're going to do much work with the CLI, you'll need a good book since the Amiga manual is very sketchy. "The AmigaDOS manual" from Bantam Books is a good reference work, if a little pricey at £20 or more.***

Modem users!

If anyone out there owns a modem and software then try giving GOSPORT a ring. This is a free membership bulletin board, and the system operator is Steve Cole. There is an Amiga section with a few downloadable demos and programs (you can use Xmodem, Ymodem, Zmodem, Kermit and other protocols). Be nice and leave a message for the sysop before you ring off! The number to dial is 0705 524805.

I NEVER KNEW THAT!

If you've got any special wrinkles that make your life easier with an Amiga, we'd like to know. We'll pay £30 for the best Amiga tip received each month, whether it's a devilishly obscure CLI command, a tip for a specific package, or just a cheap way to build an Armadillo cage. Send your suggestions to *Workbench, ST Amiga Format, 4 Queen Street, Bath BA1 1EJ.*

This month's contributors:

■ Matthew Gailes, Beaminster
■ Ben Taylor

THIS MAGAZINE IS RUBBISH.

DISK BOXES AND MOUSE MATS ARE USELESS.

THE SPECTRUM IS THE WORLD'S GREATEST COMPUTER.

If you agree with any of these statements, please turn the page now. For those still reading, we'd like to make an offer you'll find hard to refuse. Take out a launch subscription to *ST Amiga Format* and we'll send you a complimentary gift pack, consisting of a high-quality, hard-wearing mouse mat (RRP £5.95) and a smart, lockable disk box capable of holding 70 disks (RRP £12.95).

A 12-issue subscription costs just £29.95, and that of course includes a disk packed with software on every issue.

We hope you'll agree that *ST Amiga Format* offers spectacular vaue for money and provides valuable coverage of all aspects of your computer. If so, you'd better guarantee yourself a monthly copy, because you can be sure of one thing: the magazine won't be hanging around long on newsagents' shelves.

NO QUIBBLE GUARANTEE

If after receiving three issues of ST Amiga Format you decide you no longer wish to subscribe, you may write to us and claim a pro rata refund for all outstanding issues – you would still be able to keep your gift pack.

FREE WHEN YOU SUBSCRIBE!

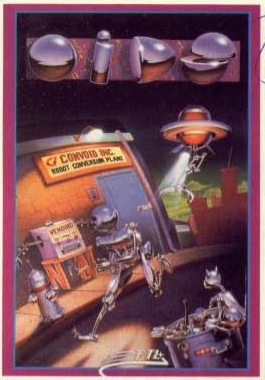
- Smart, high-quality **disk box** holding up to 70 3.5in disks.
- Hinged, smoked perspex, lockable lid keeps away the dirt.
- Supplied with dividers for easy disk filing.
- Normal retail price £12.95.

plus

- High-quality, hard-wearing **mouse mat.**
- Rubber base, nylon top for smooth mouse movement.
- Helps prevent mouse getting clogged with dirt.
- Normal retail price £5.95.

HOW TO ORDER

Please use the FREEPOST form on the following page or the identical card attached to the outside of the magazine. Alternatively dial 0458 74011 with your credit card details.



OIDS

FTL/Mirrorsoft

You've been tantalized by the demo on our cover disk, now try the real thing, complete with five galaxies each with up to 8 planets, a game designer, redefinable keys, and five lives each time.

Version	RRP	Our price	Order code
Atari ST	19.99	**15.95**	FO148ST

GAUNLET 2

US Gold

Follow up to the arcade classic – the new dungeons are deadlier than ever.

Version	RRP	Our price	Order code
Atari ST	19.99	**15.95**	FO123ST

OUTRUN

US Gold

Conversion of the coin op smash hit motor racing game.

Version	RRP	Our price	Order code
Atari ST	19.99	**15.95**	FO128ST

DUNGEON MASTER

FTL/Mirrorsoft

Enter the enormous eerie dungeons at your peril in this incredible role-playing adventure. Astonishing 3D graphics, incredibly detailed gameplay.

Version	RRP	Our price	Order code
Atari ST	24.99	**19.95**	FO149ST

ROLLING THUNDER

US Gold

Impressive conversion of the Namco coin up featuring an undercover cop in platform shoot-em-up action.

Version	RRP	Our price	Order code
Atari ST	19.99	**15.95**	FO146ST
Amiga	24.99	**19.95**	FO146AM

JINKS

US Gold

Incredibly addictive, horizontally-scrolling bounce-em-up. Fabulous sound effects!

Version	RRP	Our price	Order code
Amiga	24.99	**19.95**	FO157AM

S.T.A.C.

Incentive

The ST Adventure Creator is a remarkable piece of software allowing you to create sophisticated, commercial-standard adventure games, complete with graphics.

Version	RRP	Our price	Order code
Atari ST	39.95	**25.95**	FO161ST

SPITFIRE 40

Mirrorsoft

If you prefer the Second World War to modern day air combat, this is the program for you.

Version	RRP	Our price	Order code
Atari ST	24.95	**19.95**	FO158ST

LEADERBOARD

US Gold/Access

The golfing simulation *par excellence*. 18 holes depicted in great detail, superb animation, long-term challenge.

Version	RRP	Our price	Order code
Atari ST	24.99	**15.95**	FO107ST
Amiga	24.99	**19.95**	FO107AM

INTERCEPTOR

Electronic Arts

You've seen it on the cover disk, now buy the real thing. Incredible, fast 3D graphics, numerous different views of the action. The greatest combat flight simulator yet..

Version	RRP	Our price	Order code
Amiga	24.95	**19.95**	FO160AM

EPYX ON ST

US Gold/Epyx

Compilation of four great titles: Winter Games, World Games, Summer Games, Pitstop 2.

Version	RRP	Our price	Order code
Atari ST	19.99	**15.95**	FO156ST

STRIKE FORCE HARRIER

Mirrorsoft

All action flight simulator featuring 3D cockpit view, combat, and huge ground area to explore.

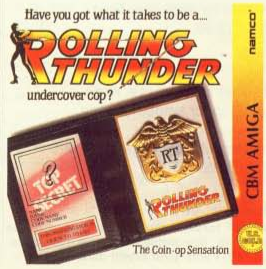
Version	RRP	Our price	Order code
Atari ST	24.95	**19.95**	FO115ST
Amiga	24.95	**19.95**	FO115AM

FERRARI FORMULA ONE

Electronic Arts

Superbly detailed simulation of the formula one championship. Numerous courses, car preparation, high-speed racing, etc.

Version	RRP	Our price	Order code
Amiga	24.95	**19.95**	FO159AM



ST AMIGA FORMAT READER OFFERS

Fantastic savings on some of the hottest 16-bit software around!

Fast delivery • Friendly service • Fabulous discounts

HOW TO ORDER

Just make a note of the details of the items you want, including the order code. Then fill these in on the free-post form printed on this page, or use the identical perforated card attached to the back of the magazine.

Post this, together with your credit card details or cheque to the Free Post address listed – you need pay no postage.

Alternatively ring 0458 74011 and ask for Format Credit Card Orders.

PLEASE NOTE

1. All items are despatched by first class mail.
2. All prices include VAT, postage and packing.
4. You will normally receive software within 7 days of ordering.

CREDIT CARD HOTLINE
0458 74011

ORDER FORM

Please rush me the following items from the ST Amiga Format special offer pages.

Order code	Title	Price
1.		
2.		
3.		
4.		
5.		

Total Software Order Box A

■ Send this form to:
FORMAT Offers
FREEPOST
SOMERTON
Somerset TA11 7BR

No stamp required if posted in the UK, Channel Islands or Isle of Man.

SUBSCRIPTION ORDERS

☐ Tick here for a 12 issue subscription to ST Amiga Format costing £29.95. This entitles you to a FREE disk box + mouse mat.

Subscriber's total payable (box A + £29.95) Box B

Name

Address

Phone (if poss) **Computer**

Method of payment ☐ ACCESS • ☐ VISA • ☐ CHEQUE • ☐ P.O.

Cred. card no. **Exp.date**

Please make out cheques and postal orders to Future Publishing Ltd.
This form is valid until August 31st, 1988

ESCAPE SEQUENCE

... until next month, it's goodbye from me (Ed), and goodbye from him (other Ed).

Pilgrim's progress

Meet Jeffrey Armstrong, better known to the American computer-show-going public as Saint $ilicon. Saint, if we may use first names, makes his living by giving seminars as light interludes at boring trade shows, and generally being weird – *St. Amiga Format* met St. $ilicon at May's COMDEX show in Atlanta.

An ex-Silicon Valley techie, he saw the light and founded C.H.I.P. – the Church of Heuristic Information Processing. During a transcendental experience his book, The Binary Bible, was dictated to him by G.O.D. – the Giver Of Data.

The Binary Bible is a wonderful mish-mash of computing and religious in-jokes: adherents of the CHIP are known as DOSciples. In case you're wondering, his 'pulpit' in the picture is a cray supercomputer, and there's a microprocessor stapled to his forehead.

He also sells a variety of computer products. One that particularly caught our eye was the *Amigraine*™ – a new Commodore-like product.

ST AMIGA FORMAT

ST Amiga Format swoops onto the shelves on the third Thursday of each month. Watch out for issue 2 on July 21st.

Real science fiction

Sometimes it's very difficult to distinguish truth from fiction – especially where science fiction is involved.

Red blooded SF fans will know that the hottest name of recent years is William Gibson, begetter of the 'cyberpunk' movement. His first novel was *Neuromancer*, an incredible story which had people cybernetically plugging into computer networks and launching virus attacks on one another's systems. (It was published in 1984, long before real viruses ever happened).

Now from the States comes news of a computer game set in the Neuromancer world. The real corker is that the gameplay design is by none other than Dr. Timothy Leary, guru of the beautiful people of the flower power era. Wow! When psychedelia meets cyberspace this could be the first computer game to simulate a highly illegal state of mind.

Oriental surprise

While not strictly relevant to STs and Amigas, one recent story is too good to miss. ICL, the UK mainframe computer manufacturer, were negotiating to buy silicon chips from a new supplier in Japan. Normally ICL's quality control insist on a failure rate no greater than 25% in a batch, but for the Japs they decided to ask for only 10% failures.

When told that ICL insisted on 10% as the failure rate, the Japanese looked puzzled. They went away, and ICL prepared to be tough. The Japanese came back and said, "OK, it's a deal. But these failed chips you want us to supply, do you want them with the good ones or separately?"

Superheroes, Inc.

by Sarkar

Cut the cost
Cut the hassle
Cut the coupon!

AMIGA
3.5" Disks and Storage Box information included in this pack. please send for details.

DEPARTMENT **SAF**
JUBILEE DRIVE
LOUGHBOROUGH
LEICS LE11 0XS
TEL: 0509-610444
FAX: 0509-610235

Send Now for your *Free* copy of the Compumart ST Information Pack and discover a full range of ST Accessories at Super Low Prices . . . .

For IMMEDIATE RESPONSE, simply send this coupon to:
COMPUMART · FREEPOST · LOUGHBOROUGH · LEICS · LE11 0BR

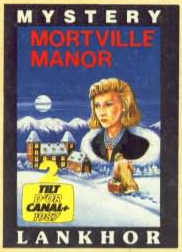
Please rush me . . . .

	PLEASE TICK
A FREE Compumart ST Information Pack	
I own/am interested in an AMIGA / ATARI ST	

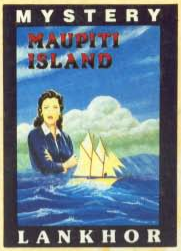
Name . . . . .
Address . . . . .
Postcode . . . . .
Date . . . . .

SAT

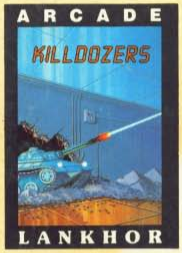
B & JL LANGLOIS **KYILKHOR CREATION** **D SABLONS**



MORTVILLE MANOR
A mysterious adventure with full text and speech. Last years 'Game of the Year' in France.
ATARI ST £24.95 AMIGA £24.95
P.C. Due out soon.



MAUPITI ISLAND
The follow up to MORTVILLE MANOR. Jerome Lange is once again out to solve the mystery. Excellent graphics with speech.
ATARI ST £19.95
Due out September.

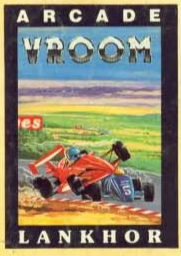


KILLDOZERS
An arcade adventure of the highest standard. Destroy UNICOM, the mad computer, set to annihilate humanity. 150 screens, music and sound, plus a Construction Kit.
ATARI ST £19.95

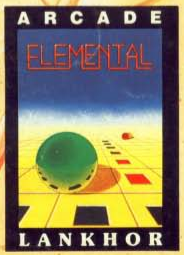
DEALERS AND RETAILERS

CALL US FOR YOUR

FREE LANKHOR VIDEO.



VROOM
A fast furious racing car simulation. Pit your reflexes and skills on some of the hardest courses in the world.
ATARI ST £19.95



ELEMENTAL
An arcade game where you must try and overcome the four natural elements.
ATARI ST £19.95

Lankhor

FOR FURTHER INFORMATION CONTACT:-
Active Distribution Limited,
Greyhound House,
16 Greyhound Road,
Hammersmith,
London W6 8NX
TEL: 01 385 7622/3/4
FAX: 01 381 2757

Game with Speech