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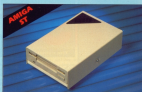


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ST AMIGA FORMAT

The complete package for Atari ST and Commodore Amiga owners

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	The shape of things to come, as seen at the latest PC show. All the latest news, plus new arrivals at the 'gameplayers' stall.			More bargains than Del-boy's stall - and yourself at the Format stall's contents.	
	PIXEL PUNCHERS	13		ST PD	22
	Today's top computer graphics, from STs and Amigas to Crays. We pull the best shots.			A handpicked selection of the finest new ST Public Domain utilities to come our way.	
	ST BLITTER BOOST	20		LETTERS	93
	Turncharge your ST by adding a blitter chip. A photo-by-photo guide to this cost-effective upgrade, plus HiSoft's 'software letter'.			The good strikers' views, and do just a smidge more. Roll up for some reports.	
	AMIGA MIDI INTERFACE	24		ESCAPE SEQUENCE	98
	Build your own Amiga MIDI interface and save yourself pounds on cheap prices.			Could this be the end of Format as we know it? Well, until next time anyway.	
	GOLD DUST	91		GAMES	
	Steal Gold hearts down the hottest, givest and roughest corners for ST and Amiga.			SCREEN PLAY	47
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	Get one full two solutions fully playable games. Reviews for the ST and Amiga for the Amiga, as well as our usual battery of reviews and features for all titles.			The biggest games created since and Paradise Lost team, plus a planning state-your-own may kit for Dungeon Master.	

GRAPHICS



CARTOON CAPERS

You don't need 43,000 words of hardware and software to create great pictures - just a little know-how. Learn the inside secrets of the cartoonist's trade.



REVIEWS



SPRITE FACTORY

17

CGI's new ST sprite designer cum animation editor lives in the Format team's toolbox.



ANIMATION: FLIPPER

18

A real-life animation prototype for the Amiga. String those pics together and make them fly.



ROBOKIT

74

Get your heart out (COPS) - robotics is here on the ST, with this brand new controller package.



31



LIGHTS! CAMERA! ACTION!

The ultimate Amiga slide show program arrives - mix music with some amazing video-effects and run your own art show.



DTP UPDATE

43

Reviews of the latest versions of Shakespeare (Amiga) and Timesaver (STP-ST).

EUROPE ONE, USA NIL?

Normally we're used to reading stories in the press about how this or that superb British innovation has been woefully neglected by the government, and the inventors have reaped off down the drain to the US of A to find fame and fortune.

With the Amiga and the ST, Europe is finding itself in a rather ironic situation - we're striking the first the States has to offer!

Consider the facts: in 1985, the dominant machines over here were the Sperry and 84, in America, Intel and Commodore were preparing to launch their 16-bit supermachines in an unimagining world.

To start with, Europe was the poor relation. We gaped at the graphics and gaped at the games, but the machines were in very short supply; all the software dribbled over the Atlantic when they could spare it,

and then at exorbitant prices.

But now it's all changed. The ST largely topped in America, and the Amiga has virtually become a specialist graphics workstation. But over here they're flourishing; there are probably more STs in the UK than in the States, and Commodore dominates the German and Scandinavian markets totally.

What does all this mean? It means more software for us, better support, better supplies and lower prices, because at long last programmers over here are getting to grips with the machines. Electronic Arts has released Fusion, their first all-UK game, this month.

With a worldwide user base of over a million between them, the future for the ST and Amiga looks pretty rosy. And that can't be bad.

MUSIC



SELL YOURSELF!

34

Make money from your music - Chris Jenkins explains how to record your compositions, and who's out there just waiting to buy what you do.

TECHNOPHILE



AMIGA TOOLS

77

Reviews of Copysmith Professional and WWord - two tools which aim to revolutionise your Amiga's programming environment.



LEARN BASIC

80

Part 4 of our teach-yourself series gets to grips with various data handling - arrays and more.



DESKTOP

82

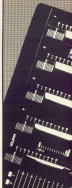
Only forbidden to all Amiga owners - here's where the ST's innermost secrets are revealed.



WORKBENCH

84

Strictly not for ST owners - icons, GUI icons menus and a host of uniquely useful tips.



Devpac Amiga Version 2

The Best just got Better!

Devpac Amiga has always been the popular choice for assembly language programming on your Commodore Amiga. When it passed its second birthday we took a fresh look at it and realized there were a few things it didn't do that we, and you, wanted it to. So we re-wrote both the assembler and debugger totally from scratch, allowing us to add features that were not possible in the original versions. We then substantially improved the editor so as to give us an unbeatable combination of features - see the table.

The Editor - true integration

The last editor is based on the original but with entire file blocks highlighting, a file reporter and the ability to make backups of your source files. The assembler and debugger are both available, instantly, at the press of a key.

The Assembler - no waiting zone

GenAM was always fast but the all-new algorithms means it's even faster, particularly on larger programs. It handles multi-line code, 127-character significant labels, local labels, improved macros & conditionals, generates direct & relocatable, or linkable code, and a stand-alone version is included so you can use a CLI, a batch file or an alternative editor.

The Debugger - kills bugs, dead

How many times do you write a completely 'bug-free' program? Trying to debug a program by looking at guru numbers is what some development systems leave you to do. We include a disassembler/monitor/debugger called MetaAM, which uses its own screen display, listing your program's output alone. It has a range of different types of breakpoints (including count and conditional breakpoints). For example you can stop after the 24th call to print or stop if the contents of any, ptr become odd. You can also break into running programs, or you can even view your source code files from within the debugger and see multi-line program symbols.

Ideal for Beginners & Enthusiasts

The editor is fast and easy to use, you can assemble from memory to memory then execute it repeatedly to try your ideas out, all without a disk access. Press a key and you're straight into the debugger, you can even debug programs assembled in memory with their original symbols. No linking is required - the assembler can generate directly executable programs immediately. Interested in looking somebody else's code, such as the BIOS? - with the debugger you can disassemble to disk with automatic labels, including system calls. All programs will work on a 60 column display.

Ideal for Professionals

If you're not using Devpac for software development then you'd better hope that your trials aren't on fire. Why wait for your editor to load a file or for your assembler to churn through it - GenAM is the fastest professional assembler available and is fully source code compatible with the MOC assemblers. We write in 68000 assembly language every day so we understand what you need.

Ideal for You

Just compare the specification with any other product and we're sure you'll agree

Devpac Amiga 2 - There is No Competition

Comparison 1	GenAM	MetaAM	Comparison 2
--------------	-------	--------	--------------

Screen Editor	Y	Y	N	Y
Handles tabs on single char	Y	N	N	Y
Jump through assembly errors	Y	N	N	Y
Automatic backups	N	Y	N	Y
Integrated assembler	N	N	Y	Y
Integrated debugger	N	N	Y	Y
Macro parameters	10	10	0	10
Multi-line macro calls	N	N	N	Y
Conditional assembly	Y	Y	N	Y
Case Insensitive	Y	N	N	Y
Local labels	Y	N	Y	Y
Executable, relocatable code	Y	N	Y	Y
Linkable code	Y	N	N	Y
Meta-ASSEMBLER	N	Y	N	Y
80C186C binary files	N	N	N	Y
Assemble to memory	N	N	Y	Y
Stand-alone assembler	Y	Y	N	Y
Session types	Y	N	N	Y
Debugger supplied	Y	N	Y	Y
Disassembler	Y	N	Y	Y
Multi-window	N	N	N	Y
Screen mode viewing	N	N	N	Y
Single-step	Y	N	N	Y
Breakpoints	Y	N	N	Y
Conditional breakpoints	N	N	N	Y
Full expression evaluator	N	N	N	Y
Multi-screen	Y	N	N	Y
Break into running programs	Y	N	N	Y
Disassemble to disk	N	N	N	Y
Example program source code	Y	Y	N	Y
Operating System Libraries	Y	Y	N	Y
Version	1.0	1.1	1	2.0

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■ The PC Show 1988 - spot the Atari and Commodore alligators the Micropresses especially looking off for a big through system they are looking for this that it was worth all the Future Publishing stand bringing out readers and the latest manifestation of Atari's Atari, the amazingly computer form factor in the trade at The Micropress.

PC SHOW BRINGS 'EM IN

The 1988 Personal Computer (PC) Show duly came and went at Earls Court, running from 14th to 18th September. ST Amiga Format were there in force, both manning our stand to meet you lot, and sniffing out the newest product announcements.

Desktop Video for Amiga

Commodore are to release a video editing kit later this year, based around the Amiga 4000 and priced at below £100.

At last the potential of the Amiga's graphics hardware hasn't led to be realised, and with over a million video recorders in homes around the UK this could be a winning marketing strategy for Commodore.

The idea is that you can link up your Amiga to a domestic video recorder and use it to edit and mix in computer graphics with conventionally recorded images. Applications range from adding captions and labels to grainy on-film footage, right up to directing your own own video.

Until now you needed to buy a special piece of hardware called a "deck" at around £200 to make the Amiga video recorder link work, but Commodore have worked out a cheap deal with Digital Systems and Peripherals to build a suitable unit.

Software bundled in the kit will let Format's TV Show and TV Test Berni Thurston, Sales Director at Commodore, reclaim the price of this will be £499.95, which looks pretty good value.

Record companies of the

world can see orange at the prospect of receiving promo videos, atargate demo tapes!

16-bit shock!

Blimey! Look to this for a spec for a brand new price-performance-performing 16-bit wonder-machine:

- 51.2K of RAM expandable to a massive 540K maximum
- Speaker with volume control, capable of producing both quiet beeps and loud beeps (see tone only)
- Fast expansion slots
- Standard graphics mode display has a dazzling 4 colours
- Price with colour monitor a whop at £973.95 inc. VAT

"What can this be?" you ask, getting out your checkbook and getting off to place your order at Deans. Answer: the new Sinclair Professional PC2000, from Amstrad, only available at Comet.

The idea is that an IBM compatible games machine will appeal across the spectrum (to, hell of business and leisure users, that selling in millions. Until now everything Alan Sugar has done has turned to gold. Could this be his last mistake?

After all, even if you run your computer through a TV and do without the monitor the PC2000 costs £299 plus VAT that's £44.85 more than a lot price ST, and £95.75 less than a lot price Amiga. And you can easily find

discounted STs and Amigas, whereas Amstrad models almost invariably stick to their list price.

In short, no regrets for recent ST or Amiga buyers. The sad thing is that Amstrad's slick marketing campaign which will undoubtedly run up to Christmas, may well lead some people into a serious mistake.

ST cut official

As revealed only last in issue 3 of Format, Alan used the Show to announce a price cut of £100 on the ST.

A basic 520ST with a 1MB disk drive (the larger one is the only one now available) is down to £299, and there's also the Super Pack at £399. This consists of a 520ST bundled with what claims to be £490 worth of software. The final 22 titles chosen by Alan are: Marble Madness, Test Drive, Beyond the Ice Palace, Ruggo Guy, Eddie Edwards Super Star, Alan Kilburn, Thundercats, Konami's Gymp, Quashin, Starquake, Chopper 3, Roadrunner, Xmas, Arkwood 3, Mikal, Black Lamp, Genesis, Thrax, Secondly Out, Summer Olympics 88, and one non-game package, Thrangle's Organizer - a miscellany of skills.

Other ST models - 1040 and Mega - aren't changing in price,





but then they don't go up when the 120 was last Spring. However, the 1248 is now coming with a built-in TV modulator at standard, worth £30 at retail prices.

As for prices, there are 126,000 STs in the UK at present, and aim to make that 200,000 by Christmas - think big, boys.

Amiga push

Commissioners have been unable to resist in kind to Atari's price cut. After all, they did knock £100 off the Amiga only two months back. However, the incentive to return buyers is that all Amigas sold from November 1st will include a free TV modulator - the widget that used to cost £38.99 that was necessary to link up to a TV.

Commissioner's boss Steve Franklin admitted that they had thought of doing a games cut were deal. However, the economics would have pushed the M100 over £400. "We'd either keep the price of the A500 down that include a deal with probably only two or three really good titles," he said.

Joy for Amiga programmers

MSB, that prolific source of joy to programmers, have begun to assault the Amiga market in a big way.

Best news is of a compiler for Amiga BASIC. Due out around the end of October, MSB's Amiga BASIC will cost £69.95. It claims to compile both industry-standard Microsoft BASIC compatible programs, and ordinary Amiga BASIC programs unchanged.

MSB's BASIC includes an interactive editor, so you are immediately referred to the correct point in a program when an error is discovered, and programs can be compiled to complete standalone machine code. Not only will they be faster than the standard interpreter, you'll be able to tell your creations at a single clickable click.

TOP OF THE CHARTS



Charts also only in first week in the shops. If you'd all games, including Frontier's Rise, the previous week's best seller.

Top of the charts

Microsoft Software's 31 games, designer, STOS, has achieved a unique feat in the heady arena of software history by being the first programme to top the Gallup sales charts.

Imagine what you'd think if in Top of the Pops and week Delaney went straight in at number one with his latest symphony CD, so he's dead... STOS, meanwhile also a French-organised game that otherwise untried, topped the Gallup ST sales charts for the first time in the shops. If you'd all games, including Frontier's Rise, the previous week's best seller.

Also due out, for the most expensive leader, is Demos 2 for the Amiga. Version 2, which was released on the ST a couple of months ago but cost £200, and features a completely integrated editor-debug cycle.

■ **Health, The Old School, Cambridge Bedford 9529 7108311**

Animators' delight

The Amiga's pre-existence in computer animation and interactive video continues to grow with new software products.

Top of the range is Order 40 Professional. At £268.00 inc VAT this is a professional reference package with a feature list as long as your arm: a projector for measuring angles, liquidlike matrices, metal, glass and mirror textures; the omnipresent but obscure 'thing cloning' support for 68020/030 processors; generic animation, and much more. Anyone who's used to Order 30 will know the quality to expect from the new version.

Forces in Flight 2 (479.000 inc VAT) is another 3D and 3D graphics package. It's all the usual animation features, but allows you to do 'feature mapping' - mapping an FF picture around a 3D shape; Fontation is an Amiga Animator-tooth, offering much the same facilities at half the price.

■ **Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh EH1 3JH (031) 667 4362**

Public service

If you're bothered by the vast number of Amiga PD disks out there,

George Thompson Associates are providing what looks to be a good way of feeling your feet.

For £6.99 you can get two disks with a complete catalogue of Amiga public domain, covering the Fish, Amiga, MAG and TOSG libraries, as well as a few special

QUICKIES

- **The ST Club** are expanding - as well as issuing permits to Sutton Place, 49 Stony Street, Nottingham NG1 1LX, they are introducing their first commercial product, **Frontier Plus** costs £8.99 (£8.49 for a double-density disk version) and allows you to edit all CGM or GEM screens and printer fonts.
- **George Thompson Associates** are releasing a tutorial book to sharpen your Amiga art skills. **Professional Results with Deluxe Paint II** is a handbook examined full of hints and tips on basic art techniques, colour cycling, screen photography and more. Cost is £24.95, or £44.95 inclusive of two disks of examples and tutorials.
- **Hi-Torque** (0734 761194) have developed a neat little Amiga hack, allowing you to display 25 colours on your games (Monochrome screens). The system takes up 30k of working memory, and comes with an easy Editor and Preferences editor. Price: £68.



- **Frontier's** new deal brings their Super hard disks to the Amiga.
- **Frontier** (0423 671403, longtime distributors of Super hard disk drives for the ST, have now clinched the distribution deal for the Amiga Super range too. 20MB, 30MB and 60MB drives are available, the contact is 0476 95-8000/943000 and 0476 95 847000.

computations. Also covered is a folder of the popular Amiga magazine-a-disk, Jambolic, in the form of a back issues listing and a sample of its articles, lists, tips and programs.

To what your appetite, the catalog pack includes a fully playable 3D Asteroids clone game, Orbital, complete with 3D spec.

You also get a 85 machine refundable against a purchase of

10 or more PD disks normally £3 worth - so you stand to make a net gain of 5p on the deal.

■ **George Thompson Associates, Finswood, Dimple, Strathclyde, Arns, 0427 588 0379 52 2341**

Deeply touching

ET's Computer has developed a new way of using your ST. Through the mouse only, just point to what you want with the new Touchscreen.

ET's Touchscreen is a transparent overlay which clips on the screen and plugs into the ST, after which pointing at an item on the screen is exactly equivalent to clicking the mouse button on it.

The screen consists of two facing nylon sheets, with a very slight gap. When you touch it, an electrical connection between the sheets is made.

The unit has a resolution of 256 by 256, and retails for £299 inc. VAT. You'll never quite match the mouse for pixel-accurate drawing ability, but ET's system it will go down a storm with physically handicapped users, students and others who need to give demonstrations to an eager audience.

■ **ET Computer Exhibition Centre plc, 2nd floor, Birmingham House, David Street, Cardiff CF1 3JH (0302) 262280**



ET Touchscreen, available at ET Computer Exhibition Centre



Not-so-Mini Office II

Mini Office II, the staggeringly successful budget software suite which has progressed from BBC through DTP, PCd and PC, is now arriving on platform 5 for the ST.

Comprising a word processor, spreadsheets, databases, contact lists and graphics editor, the cunningly named Database Software Suite offers other formats access too will be repeated.

However, they seem to have abandoned the budget ground for a grander stage. Past versions of Mini Office have cost £19.99 (Microsoft CPD, £29.99 (Microsoft PC), £49.99 (PC) - but the ST version will be £29.95 per module. That's £149.95 the lot. At £29 or so people are prepared to forgo a few bugs, but it's going to have to be good at £29.

Database Software, Europa House, Adlington Park, Adlington, Macclesfield SK10 4NP (0425 876888)

The shows go on

How many computer shows can you fit into one year? How many angels fit on the head of a pin? If you don't make the PC Show,

don't fret - shows for both ST and Amiga owners are scheduled for November, 1988 for picking up their Christmas bargains.

The 12th official Commodore Show takes place at the Harewood, Harrogate, Yorkshire November 19th-20th, closely followed by the Atari Christmas Show at Riverside Plaza from November 26th-27th. Hardware Database Exhibitors are appearing then both, and forwarding personal like corporate letters... I will be among the crowds at both.

Prime attraction at the Atari Show is a games exhibition - you fancy yourself as a games writer, this could be your chance to enter a million. Write your program and take it along to the show, where you'll meet from us Galt, MacIntosh/Amiga and Lynxnet will get you advice on design and presentation, or even make you an offer if it's really good.

Meanwhile Commodore are offering prizes in a Christmas Card design competition - take your disks along and win a prize - plus special graphics and games rooms with major demos running at the time.

Database Exhibitors, Europa House, Adlington Park, Adlington,

Macclesfield SK10 4NP (0425 876888)

EEK! It's Mouse Music

Edisoft are setting out to prove that the ST can outplay an Amiga when it comes to sound sampling. Mouse Music, presented at the PC Show, is a 4-channel sound sampler and sequencer for the ST. You can get sampling rates of up to 44.1 kHz, which is the same as CD players use. It will take samples in 8-bit mode (like 16-bit CD quality), but can copy in higher quality 17-bit mode. Edisoft plan to supply a disk of 12-bit samples for you to edit into your own projects, but you can't directly sample at 12 bits.

Mouse Music plugs into the cartridge port, and the software can optionally be fitted in ROM, freeing you from carrying disks around with you to live shows.

Mouse music will be sold at £175, or a special deal with a key-board at £299. A keyboard for £20 doesn't sound bad! First sales are planned for the Atari Show, November 26th-27th.

Amiga owners needn't despair though - a version of Mouse Music is well under way, which will sample on eight channels!



Edisoft's Mouse Music board is presented here at the PC show

Edisoft, Unit 27, Royal Mills, Esher, Surrey KT10 6AG (0420 520 742)

A SCANNER IN THE WORKS

Two new ways of getting images into your computer were unveiled at the PC show.

The Camera Handy Scanner is a 10-grey scale, 640mm wide digitiser. It looks like a flat scanner, and to use it you place the object to be scanned on a flat surface and sweep the scanner over it.

If your image is more than 640mm wide, you need to do several sweeps and composite the image with a graphics editor.

A key addition is OCR software - Special Character Recognition. If you scan a page of text, the pixels from the image can be processed



The Camera Handy Scanner in action



Eye, eye, what's all this then? A sample from Bentley's OCR ST

The 10-grey scale Handy Scanner is available for both ST and Amiga at £243.85 inc. VAT. A cheaper 2-grey scale model (black and white only) costs £205.85.

Meanwhile, an exciting new digitiser was on display from Rembrandt ST takes black and white images from video cameras in real time. This means it can grab a single 1/50th second image without you needing to freeze the motion.

You can store frames at a claimed rate of 12 per second (it's a real mouse system), edit the images and/or grabbed and replace them at up to 25 per second. Up to 250 frames can be stored on a 1MB ST. All this for only £395.95! Can it really be true? - yes.

Rembrandt Ltd, 128 Peter Road Street, London W11 9W (01-899 9131)

Rembo Productions, 207 Rotherham Road, Luton LU4 8PW (0528 25046)



QUEUE FOR ACTION

Bewildered by the billions of new games announced at the PC show? Andy Storer battled through the crowds to find the truth behind the hype, and presents the best of the month's upcoming games on ST and Amiga.

LORDS OF THE RISING SUN

Comesaux/Mirrosoft ■ Amiga & ST ■ £78A



The follow up to Defender of the Crown and Comesaux's most ambitious project to date is a real time arcade adventure set in 12th century Japan with you in command of war armies of Samurai taking on Ninja in an all-out effort to become Shogun. As you might expect, the interactive graphics and animation are going to be out of this world.

PIONEER PLAGUE

Mantarin ■ Amiga only ■ £19.95

Proudly announced as 'the world's first 4,000 colour mode game', Pioneer is the only game to date developed using the Amiga's 148M graphics capability and comprises eight directional walking, digitised speech and stereo music. You're after a self-replicating, transforming robotic probe that's got its wires crossed in a maze of multi-level arcade strategies. The hyper-fast fractal sequences have to be seen to be believed.



■ PIONEER PLAGUE

DAMOGLES

Comesaux ■ ST & Amiga ■ £78A

Despite rumours that the '86 PC Show demo was so different from the one at '87, the follow up to Mercury will be out by Amos, Beatz. After toying long you make it to the Gamma planetary system where the comet Damogles is about to smite Earth. And yes, it's up to you to avert disaster. Reputedly with 50 times more data than its predecessor, Damogles features fast solid 3D graphics.

AFTERBURNER

Megasonic ■ ST & Amiga ■ £24.95

Argonaut's Starblazer 2 team bring you this compressed clone after stripping down the 5 Megabytes of the number one arcade game of the year to deliver a fast and furious 3D assault. There is stereo FX and you're left with a spectacular daylight that aims to capture the fields and gaps of the original. Can you believe it's also out on the Spectrum!



■ AFTERBURNER

ROCKET RANGER

Comesaux/Mirrosoft ■ Amiga only ■ £29.95

It sounds like a Sunday Sport story: the Nazis win World War Two, then hang out on the moon manufacturing deadly bombs. A bunch of scoundrels from the future send you a rocket suit, a city girl and a secret decoder wheel in the mail, whatever you set off to rescue your childhood sweetheart and her scientist father before heading for the moon. Wacky or what? Be prepared for something special with this real hot comic conception — stunning arcade action and a varied plot.

Want to compete against version Mega. There'll also be a facility to challenge another pilot in machine to machine combat as you hit Blast 2 with a plenitude of missiles, bombs and cannons.



■ FALCON



■ ROCKET RANGER

DRAGON-SLAYER

Uziel ■ Amiga & ST ■ £29.95

A state of the art arcade adventure featuring over 300 locations in castles, forests and villages, it's pretty obvious from the title what your role is in the scenario — let's just say there's 50 different enemies some of whom occupy half the screen as a single sprite. And the animation we can say, something really special — the Amiga version will display 80 colour throughout, another demand is that 3D bit horizons are being ditched.

FALCON

Spectrum Hoelodyne, Mirrosoft ■ Amiga & ST ■ £78A

Interceptor-style 3D graphics combine with multiple views in a simulator where you'll have 12 mis-

PACMANIA

Grandlars ■ Amiga & ST ■ £29.95

Grandlars's great run-up conversion comes your way in 64 colours with Pac Man himself in 16 shades as he works his way through the 22 levels. Worth a look for nostalgia at least as the pioneering figure of computer entertainment guarantees his rightful place in the 20th century's archives.



■ PACMANIA



PIXEL PUNCHERS

Many computer artists use programming, non-interactive techniques for creating pictures. Artists like Mike Powell use mathematical procedures that don't yield a final image for hours or even days. The results are often surprising and spectacular. Other artists prefer the interactivity offered by painting software; the ability to change, erase, store and repeat images instantly.

The graphics capabilities of computers are advancing apace; and the uses for so-called superworkstations are many: video tiling, animation, scientific research, CAD, DTP. Richard Monteiro looks at the machines creating pixel masterpieces and graphics grandeur.

You'd be hard put to watch a day's TV without seeing some form of computer-generated art. Scores of television adverts and programs use computer animation; travel agents, insurance brokers and estate agents use pixel pictures to display product information; some train stations and airports take advantage of computer graphics to inform travellers of arrival and departure times, gate numbers and other useful information.

The story doesn't stop there, far from it. Computer imagery reveals the invisible. Computer graphics enhance images grabbed by medical scanners or factors can really see what's going on. Much more data is available to the geologist on a computer screen than a seismograph. A computer-generated car can be driven into a computer-generated wall and the results observed by engineers without the cost of any auto hardware.

Early computers didn't have any graphics capabilities; output was generally through teletype printers or, at

most, teletext-like devices. Such limitations didn't prevent programmers from experimenting, however. In 1960 an operator on the ILLIAC (Electronic Delay Storage Automatic Computer) at Cambridge University produced an image of a Highland dancer on one of the computer's oscilloscopes. A few years later Christopher Strachey at Manchester University programmed a computer to play draughts on screen. Humble beginnings, indeed for computer-generated art.

Machines making movies

Perhaps the most talked about, if not misused, graphics system is Quantel's Paintbox. Several versions of the megastation exist. The best known is Video Paintbox which is used by many television and video companies for generating realistic effects and sports introductory sequences. Cost for this system is between £80,000 and £100,000. Over 200 systems exist worldwide, with

the UK having a 10% share. The 800 alone has 20 systems.

Quantel's Paintbox is another of Quantel's babies; this one is used by the printing industry. It boasts an atmospheric colour palette system that can be used to produce new colours, resolution enough to create pictures of photograph quality and a £205,000 price tag. Unsurprisingly there aren't too many Graphics Paintboxes in the country - three or four according to Quantel.

If all sudden silicon made Paintboxes Quantel aren't keen to divulge any information on what makes the systems tick, but you can bet it's circuitry is pretty hot.

Technology like that afforded by Paintbox is constantly chipping in price. Silicon Graphics, for instance, manufacture a workstation by the whopping name of 40/8001. This machine boasts a 16.7MHz RISC processor functioning at 10 MPFS, 200Mbyte hard drive, 19" 1280 by 1024 colour monitor and 8 Mbytes of memory. It runs Unix Version 3 with Windows and Sun's Xerox windowing

COMPUTER GRAPHICS EXHIBITION

The 1988 Computer Graphics Show will be held at Brompton London Centre, London, between October 11th and 13th. Show hours are from 10am to 5pm every Thursday. The 12th when opening times are from 10am to 8.30pm. At 10.15 on October 11th a graph or a program for those. Tickets cost £2 and are available from Brompton Centre 01-838 6666. Under 16's not admitted.

GRAPHICS



MAD BASTARD

These CPUs require follow-up. The T4e T4e has a 50-rib-out construction featuring a custom automation coating through a 400-ton, flat Bastard in the name of the full-size electronically-activated epoxy. The badge in the title is actually a 100-gram 150-gram. Best advice: use computer software to control a million pounds.

environment. The 40-9007 allows users to design and manipulate complex, fully rendered and fully lit (ray-traced) images without the need for creating preliminary wireframe images. This is achieved by a proper story graphics subsystem coupled to the processor - basically, it's one hell of a machine, and all for the mere fee of \$65,000.

Still too pricey? For £30,000 you can get hold of the T4e Plant 9700 system. Painting software, graphics tablet, an advanced font library, don't appear tagged due to subtle colour shading, vibrant graphics and 40-Mbyte hard drive included.

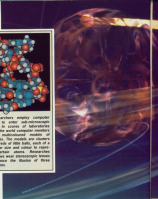
The next best thing to a graphics superworkstation - if you don't have several hundred thousand pounds spare - is an expansion card for your PC.

Something like the Falcon Color Card which features 256 colours on screen from a palette of 16.7 million, 2Mbyte of memory, hardware pan and zoom, on-board firmware and HD64180 processor. Currently the board only interfaces to IBM PCs, but at around £3000 this probably isn't a worry for rigid frame users.

CI landed in West Germany last week. Replicated boards for the Amiga. Replicated CI is available now and offers a one megabyte frame buffer, non-rendered 800 by 600 resolution (1024 by 768 when used) and 256 colours on screen



■ Researchers employ computer images to enter sub-microscopic realms. In scenes of laboratories around the world computer monitors display microscopical models of molecules. The models are clusters of hundreds of tiny balls, each of a particular size and colour to represent certain atoms. Researchers sometimes wear stereoscopic lenses to enhance the illusion of three dimensions.



from a palette of 256,000. No design software exists for the system, but libraries are provided if you are interested in developing your own software. Cost: around \$800 (Deutschmarks) (\$100).

Cretech Age 7036 - ready real soon - is an A2000-only board with graphics acceleration running at 20Mega, range of video RAM and the same colour capabilities as the Amiga. So what makes the thing so special? 1024 by 768 interlaced mode and the possibility of spending as little as \$2000 on the system. Price for the model is expected to be between \$300 and \$500 US. For more info you can visit the Cretech web site with extra memory and better resolution. CCI can be contacted at: Mailbox No. 18, 4739 Schenbeck, West Germany D-51 491 285 540000.

And, of course, there's the oft-mentioned Parlec board. An 02F version is due out first with an Amiga model following fast before on the board elsewhere.

Graphic techniques

There are two fundamentals for creating computer graphics: modelling and rendering. Modelling (wire-frame drawing) requires the artist or designer to enter structural information which lines join to particular points, where a sphere attaches to a cube,

what radius is given to a circle. Rendering (filling) forces the computer to display the model complete with colours, textures and shading.

Many wire-frame drawing packages use the schoolchild technique of creating cubes. Two squares are overlapped, the corners joined with parallel lines and the edges normally hidden by the front surface removed. A better method can be found in solid modelling systems which are essentially wire-frame drawing programs with surface recognition and automatic hidden-surface removal. The another method of producing models, constructive solid geometry (CSG), works by having a set of basic objects. The user can build new shapes by adding several primitives together. The final step is to add colour and emphasize the object's three-dimensionality.

Imitating the random quality of nature is probably the most difficult task for computers to undertake. Flames, irregular fractures of trees, flowers in meadows and twisting fields of corn are among the many items that solid-modelling programs haven't a hope of handling. Drawing each line of an oak tree or every crack in a wall would consume far too much processor time - not to mention artist's time. Programs are available for chasing trees and flames; these have pre-programmed shapes and simply copy them onto the screen according to the designer's directions. Rainfall is simulated by the program's built randomness.

PIXEL BOOM FOR THE ST

Siemens Research's Parlec board (first announced four months ago) has had its specifications changed and is now the David (ST) board of Siemens is "available only there in four months away".

A 20-bit, 40MHz 180 04000 (plus DSP - the Digital System Processor) running at 5.125 MHz (plus instruction per second) is the heart of the machine. Based around Texas Instruments' 588 (Software Development Board), the Parlec will be offered in three versions: Colour, three and four. Colour will provide 1024 by 1024 resolution, 4096 colour palette, 16 colours per line and 768k of DRAM cache RAM. There will be an optional board for colour, which boasts resolution in 1024 by 1024, provides a 18,711,200 colour palette, offers 756 colours per line and maintains 1.8Mbytes of DRAM. There won't be capable of colour processing as it is intended for professional end processing and 02F use. Software will be fitted internally on ROM.

The unit will be housed in an extruded aluminium case, strong enough to support a monitor, with analogue front and rear panels. A multi-volt monitor is necessary to display the high resolutions on offer (max 2000). The highest resolution will require an 81 Mhz processor costing a cool \$2000.

Several software packages are being written for Parlec including a CAD system, air and flight simulation, and a Quantum Paint-like program. The graphics package is claimed to offer better facilities than the Quantum system, including alpha, oil and water colour simulation, background frame image filling and animation.

Parlec will come with a 5075 interface and will have graphics for expansion boards. Proposed expansion units include sound generation, a Gamma, a video digitiser and a frame buffer. There's no definite price for the board, yet, but it's likely to be around the \$6000 mark. An Amiga model is planned.



► **Yuppie 'There on a Ridge'** TV commercial, designed by Harry Derrington at the **BBC** and animated by Digital Pictures, demonstrates the ease with which computer animation and live action can be mixed to produce a convincing vignette.



▲ **BBC 'Year 9'** film. Year title, Design: Harry Derrington, Computer Animation: Digital Pictures. ► **Compos** quality graphics are possible with Silicon Graphics' 40 series RSP-based machines.

Credible computer-created landscapes are possible thanks to the multi-million-pound Mandelbrot fractal geometry - as his work is now called - is a technique for mathematically building landscapes, and other fantastical forms. Of course, semi-regular shapes that don't resemble anything on Earth are just as easily produced. Captain Blood, the navigation game for ST and Amiga more, uses fractal mathematics to generate realistic planet landscapes.

Ray tracing, a rendering procedure which evolved from software designed to determine how nuclear-reaction paths through subatomic objects, actually does most for a person's reaction than any other process. Ray tracing programs simulate the intricate play of light on a scene by calculating how countless individual rays are reflected from shiny surfaces, absorbed by dull ones, blocked by opaque objects and transmitted only transparent and translucent ones. Generating a ray-traced picture can take hours, even days, so even the most powerful workstation, but the results can be so realistic they are often mistaken for photographs.

Pixels at work

No matter what your 'trimming hair', you're guaranteed to have seen some form of computer-created art. From the Death Director of *Wid* (Bastard) to the smooth sequences of *Wind* to the smooth swirling titles of *It's a Wonderful Year*, from the mixed computer graphics and live action of the *Footie* advertisement to the totally computer-generated *Sunday* after-noon, from the simple skills in *Calvin Pinard* to the extravagant animations found in the latest *Access* adverts.

Even the Amiga is used for counting titles and other interesting effects for television programmes - like *Network 7* and the *Over 25*.

Big screen films also use computer graphics. They, for instance, was the first film to include over 75 minutes of computer animation and a further 25 minutes of combined computer graphics and live action. Due to the huge amount of time needed to make the graphics sequences, the film went over budget, it's poor plot and weak characters ensured it wasn't a box-office smash. The *Lord of the Rings*, which came later and consequently avoided many of the pitfalls of *Tron*,

has 38,000 frames entirely generated by computer. A *Tron* XSP (which costs around \$10-million) - with painting software featuring a 70-bit colour palette, multi-point light-source ray tracing, and rendering functions capable of introducing transparency into objects - was used to achieve the realism. It still took it 2.5 minutes per frame though.

CAD is a fast-growing area that makes extensive use of silicon-created graphics. One particular group of architects in Chicago can stroll down Michigan Avenue without leaving their seats.

These computers generate a complete 3D model of Chicago by drawing from a massive database that includes the outline dimensions of every structure. CAD isn't just restricted to wire-frame creations; computers can generate a model finished in wood, brick, stone or marble - the correct colour and texture of the material will be displayed by the computer.

Other areas where computer graphics play an important role include CAD (Computer-Aided Engineering), CAM (Computer-Aided Manufacturing), DTP, simulators, satellite data enhancing (weather maps, terrain, maps and deep-sea images), analysing digitised images of athletes, brain-scanning, equipment and sub-microscopic research. ■

LOADS OF COLOURS

A computer's palette is determined by the size of the monitor's colour register.

Register size is measured in binary bits. Almost a computer with an 8-bit colour register will have a palette of 256 colours (256 is the largest value that can be held in eight binary bits). The ST palette is 512 colours and the original is 4096 colours. Many workstations now offer a palette of 16.7 million colours; that's the largest number that will fit into colour.

Usually only a fraction of the total number of colours offered by the palette can be displayed on screen. Memory and resolution are the governing factors. The total number of colours that can be represented on a screen depends on the number of 50 pixels (and a fairly wide of varying bits depend on a particular pixel). For instance, if a computer has four 50 pixels, it can display 16 colours on a screen of size 4, for instance, you have a 640 by 400 screen with 256 colours then you could need 1,000K of colour memory to support it (that's 100K - remember there are four bytes in 32 bits).

AMIGA ENHANCED CHIP SET

Connectivity are in the throes of producing an Enhanced Chip Set (ECS) for existing 68000 and 68000 Amigas. The new chips will replace old families like Agnus (or relations) and Denise. All current video modes will be supported - meaning the resolutions and colours offered by existing Amiga will still be available. The new version of Denise will offer a high resolution (440) by 512 pixel resolution mode (capable of four or eight colours). The exact number of colours isn't known yet, but will probably be four. The new Agnus, meanwhile, will be able to access one megabyte of chip memory rather than 512K.

Agnus takes care of animation and memory while Denise looks after resolution modes. At 6000 drivers are going to benefit from the turbo, though, as the first Agnus chip was long and thin, while the turboed up Agnus (and the Agnus found in 6800 and 68000 models) is square in shape. It's a fair bet that some third party manufacturer will produce a converter, though, which will allow the 68000 to enjoy the new chips.

A multi-processor monitor, which Connectivity are also developing, will be needed to display the new mode. Although nothing from the book confirmed by Connectivity, it is likely that the ECS and multi-processor monitor will become part of their planned DTP Pack. Connectivity are keen to keep the price of the ECS upgrade as low as possible. While no price has officially been set, industry commentators expect it to be well under \$300.





SPRITE FACTORY



Creating convincing animated graphics is one of the hardest tasks games programmers face. Richard Monteiro looks at a package designed to take the drudgery out of sprite creation, animation and implementation.

£49.95 ■ Colour STs only ■ Future Software Systems, CRL, 7 Kingsford, Carpenter's Road, London, E15 2HQ (01-465 2262)

Using the ranks of Pro Sprite Designer and the sprite creator bundled with SIOS, Sprite Factory comes in a rag folder; the manual is stapled-down. Somebody somewhere screwed us. The package also includes two disks, containing the sprite generator, Character file conversion utility, demo programs and a folder full of compressed files. These depend to fit three, single-sided disks.

The minimum configuration necessary to run Sprite Factory is a 520 with colour monitor or television.



■ Walking, shrinking, flapping, sliding and other wacky-distorting features are readily performed on the large grid area.

Only the 1600x400 low resolution mode is supported.

There are plenty of design options, which are all accessible from a menu box on the main design screen. Fill into you load or save sprite data, palette information and animation sequences. Opting to load a file produces a prompt asking you to place the data in the data buffers FILE1 or FILE2. FILE1 is the active buffer in which all operations are carried out. FILE2 is used for copying or inserting frames into the active buffer.

CLEAR does the obvious. FILL produces another menu: 4-Way fill an area until it hits another colour without crossing a diagonal boundary. 8-Way fill, in all directions. Fill All changes every pixel of a specific colour. Several options exist for changing lines, boxes and circles. There are MIRROR, ROTATE and 2-4096 functions, but only to expand feature width.

Single sprites are stored in frames. The maximum size of a frame is 32 by 32 pixels — a limitation considering that the trend in games is to have huge, detailed sprites. Having a standard frame size means that an-

■ The largest sprite you can create is 32 pixels by 32. Creating sprites is simply a matter of selecting a colour from the multi-coloured bar just above the large grid, and clicking the mouse pointer somewhere in the grid. A small grid displays the sprite at actual size.



imation is very easy. The animation section allows you to select up to 1000 frames in any sequence and then replay them. The software permits panning, panning and altering of display rate.

Sprite factory contains everything necessary for putting working sprites into your programs. Animation and collision detection are well provided for with tutorials and example programs on the disks. Sprite factory scores highly in most departments, but only works in low resolution, only allows sprites over up to 32 by 32 pixels and isn't cheap.

COLLISION DETECTION

The simplest way to detect the collision of two objects is to define a rectangle surrounding each object. Although the method is first, it ignores the detail or comes in as an object. An alternate better boundary-detection method is to use a program with an increasing number of sides. Ultimately this technique allows a pixel-by-pixel outline of an object.

OTHER GOODIES

A picture file conversion utility called Character comes bundled with Sprite Factory which lets you put graphics from Degas, Neo/Fonts, BP or Sprite Factory pictures and incorporate them into your own programs.

Your archived files also come with the system. These must be un-archived with a program supplied before you can load. You'll need a compiler of your choice to store all the un-archived files. The extra files are MAP-EDITOR, JITTERBOX, SCROLL and GRAPHIC.

Mapeditor can be used for creating large screens and maps using sprites as primitives. With FONTMAKER you can create a font consisting of 100 options per level. This level is printable — that's 500 screens of custom size area packed into 100.

The JITTERBOX program allows you to check your sprites under joystick control. You can define the sequence for eight directions. When using this program look for smoothness of motion, speed of movement in all directions, rotation and clarity.

Small simple demonstration smooth scrolling under joystick control, by disk, and GRAPHIC is a demo that runs under DPA BASIC V2.

for

- Subroutines on animation and collision detection
- Good sprite editing features
- Game map generator included
- Animations can have 1000 frames

against

- Limited sprite size
- Low resolutions only
- Blister and manual don't fit together

Features

1 2 3 4 5

performance

1 2 3 4 5

ease of use

1 2 3 4 5

comments

1 2 3 4 5

format value

1 2 3 4 5



FLIPPER

You've got plenty of time to create award-winning animations for next year's Amiga Animation Competition, but Hash Enterprises would still like to speed up the process for you. Richard Monteiro looks at their budget animation utility.

£42 ■ Amiga only, 1MB, two drives recommended ■ Hash Enterprises, Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh, Scotland, EH1 3BN (031 9574242)

The Amiga Animation Competition sponsored by the Amiga Centre Scotland has been and gone. The event sparked off great interest in moving graphics and a repeat event is promised for next year. Commissioners might be involved next time round and have been keen to enable "TV coverage" - Museum, Zoos, towns and the attraction of an A2800 first prize.

So what do you need to create animations good enough to win big prizes? If you're not into sleepless nights and incoherent coffee, Flipper could be a good bet. Flipper is another in Hash Enterprises' Animation series, and follows on from Stand, Multiple, Effects and Apprentice. Essentially, Flipper lets you create vignettes (short animation sequences). As you need it as a collection of pictures created by an app, Flipper does the rest. All pictures in a sequence must be of the same resolution - this can't mix high with low resolution, low colour with 32-colour

images, or compressed with run-compressed.

Starting a script

The first stage in creating an animation - ensuring you have a database of pictures - is to create a script by selecting image files in the order you wish them to appear in the animation. The same picture can appear several times.

Once you've decided which pictures are to appear in the animation, you can determine how many times a frame is to repeat. Frames are displayed on screen for a 1/26th of a second and, not surprisingly, can be forced to repeat in 1/26th of a second increments.

The next operation involves packing the files obtained in the script. Two packing options exist: RSM and HASH. RSM is the standard used by other packages; it squashes frames more tightly and plays them back faster than the latter technique. The

only reason you might want to use HASH packing is to maintain compatibility with other Hash products. Make sure you have a blank disk with plenty of free space for the compressed animation. Errors occasionally occur during packing, but no message appears informing you of the problem. This can be extremely frustrating as it can be a good few minutes before you realise something is wrong.

Animated action

A separate program on the disk plays back the completed screens. And that's all it does, although certain key presses allow you to increase or decrease the playback rate.

It's a shame there isn't an option for creating stand-alone animations. Having an extra program to load and display the packed pictures is a hindrance. Admittedly Flipper is not the piece of most animation software, but even so it has a few features.



ANIMATION SPEEDS

Some Flipper animations also look better than others. This difference is due to the amount of compression used. The compressor has to only save the differences of between pictures. Consequently, pictures that differ greatly from frame to frame look up more memory and result in greater times to decompress. Compression is a trade-off between video compression and what you can afford. Flipper is a collection of RSM or HASH files only, the latter gives more control.

Features

1 2 3 4

Performance

2 1 3 4

Ease of use

1 2 3 4

1 2 3 4

Format value

1 2 3 4

for

- Reasonably cheap for an animation package
- Intuitive to use

against

- Errors in compacting not always displayed
- Can't create stand-alone animations
- Few features when compared with similarly-priced competitors



■ A sequence of picture files can be compressed and then displayed quickly giving the impression of animation. Complex pictures (those with lots of colours and lots of movement) don't compress well and take time to animate properly.



HARDWARE

BOOST YOUR ST

Two methods for speeding up your ST. One involves a solder sucker, blitter chip and chainsaw. The other boots from disk. Richard Monteiro, with stop watch in hand, puts both to the test.

CAUTION

If you manage to get hold of a blitter chip, you'll fit it at your own risk. As soon as you open up your ST your guarantee is invalidated. Please successfully obtained our offer Mega ST, but we won't be responsible for your installation.

For every of those who don't want to fit a blitter chip to their Mega ST, we can also offer you a blitter chip. Carry out the work near water pipes or other other objects that you're sure is provided. Before you start heating away at your machine from the pipes. This will remove any noise electricity that happens to be attached to you. Take care when handling the blitter. Do not to touch any of the pins.

ST BLITTER CHIP

Anybody who has bought a Mega ST knows that they are supposed to have a blitter chip inside to boost their graphics; however, because of initial shortages Atari did not install them. Now that supplies are fast about flowing, you can fit your own blitter and turbocharge your ST.

Your local dealer could probably fit the silicon slices, for a fee. If you've got a Mega ST2 or Mega ST4 then ST probably worth doing the operation yourself. After all, it only involves placing the blitter in a socket and removing two sets of cables.

Carefully follow the captions to pictures 1 to 4, which show you the installation process. You will see a pair of pliers, a soldering iron, a solder-iron, if you haven't got one of these, by your local electrical repair shop - They may lend you one. Alternatively, take your ST down to the repair shop with this article - it's a two minute affair so it won't cost much, if anything.

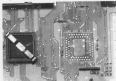
Once everything's back together and working, a new term, 'Blitter', in the 'Options' menu tells you that the blitter is functioning correctly. You can click on this item to switch the blitter on or off, a tick to the side of the option tells you that the chip is operative. Some programs will work with the blitter - that's why the switch function is present.

QDR automatically makes use of

FITTING BLITTERS IN 520S AND 1040S

Early 520s and 1040s can't easily accept a blitter chip - there's no blitter socket and the firmware wouldn't recognise the chip anyway. The problem is this screen will later ST models. You can tell if your ST contains one of the memory variants in the years 1986-87 will appear in the heading table for (available from the Data House).

Unfortunately even our 520s and 1040s don't have a blitter socket - there's room on the motherboard for a socket though. The socket costs £4 and is available from most component suppliers. Don't, however, expect any information on fitting the socket; it's easy enough if you're experienced with a soldering iron and have access of steel; otherwise it's definitely a job for your local computer repairman.



Take this to your dealer. There are 68 holes to desolder before you can fit the blitter socket. And a further two (83) and (84) after that but you've got the protective shielding to contend with.



1 - Disconnect your Mega from the mains and unplug the keyboard and any other items attached. Remove all the screws securing the two halves of the case, and gently remove the top half. A wire between the motherboard/shield and top half of the case will prevent you from separating the two pieces immediately. Towards the left of the back of the case you will find the wire attachments. Using the connector board, with a pair of pliers, disconnect all the clips that hold the shielding to the motherboard. Remove the shielding to expose the circuit board - being good your guarantee.



2 - You'll find the empty blitter socket to the right of the cartridge port and above the 68000 processor. Look for two relatively large solder joints. One can be found above a resistor pack (802) while the other is left of the internal hard disk socket. Hope you've brought a solder sucker with you.



BLITTER VERSUS TURBO ST

The Blitter chip and the Turbo ST program do different jobs. The blitter is designed to move blocks of data, preferably large blocks, at high speed. It does this very well. Turbo ST also moves blocks - but only character-sized blocks. The blitter is more versatile as it speeds up BIOS (basic) operations of any size, vertical and horizontal line drawing, and other BIOS block graphics functions. Turbo ST speeds up screen printing and message files.

IBM's blitter included you will notice that window -drawing is faster than always. Turbo ST speeds up window updating (the speed at which text or icons fill the window).

We carried out some simple timing tests with the standard system, bit-allocated system and Turbo ST-enhanced system. The tests measure the system under the least possible conditions; hence these are the greatest speed increases you're likely to get. In practice the gain will be less. Character printing to the screen with blitter installed results in a speed increase of 20% on the standard system. Turbo ST beats up character printing by 33%.

Line drawing is faster by 23% when the blitter is activated. Turbo ST does nothing to improve performance; the drawing is increased by 62% with the blitter. For very large boxes, that is. Again Turbo ST does nothing.

Software performance is marginally improved by both blitter and Turbo ST. ST BASIC is perhaps most noticeably improved when Turbo ST is installed - it almost makes ST BASIC usable. Most packages that manipulate text benefit from Turbo ST: Word Writer, STX BASIC, Final Word, Base Manager. Most all software that uses BIOS will benefit marginally from the blitter. There is need to nothing that really shows off the true power of the chip - CyberStrike is one exception.

the blitter, so window operations will be much faster. All software that uses BIOS block graphics calls will reap

the blitter's benefits. Games software will not usually, unless the routines access the blitter directly.



1. Remove the blitter socket with a solder sucker. Try not to suck near the circuit board at the same time. Remove the metal bar lying across the blitter socket. Use a clean烙铁.



2. Now fit the chip. The blitter socket has a tiny hole forced into one of its edges. The blitter has a similar-shaped indentation along one of its sides. This indicates which way the chip fits into the socket. Put the bar back when you've fitted the blitter. And now put the rest of the ST back together. Pray that the blitter functions correctly.

TURBO ST
£29.95 ST only ■ £39.95
■ Softtek, HiSoft, The Old
School, Greenfield,
Bedford, MK45 5DE (0425
718181)

The blitter chip is very good at moving large amounts of data around the screen quickly, but when it comes to shifting character-size blocks, it's hopeless. The reason is that the blitter takes a long time to set up numerous operations must be sent to the chip telling it what it has to move and what operation it must perform on the data it moves. The one cycle is slow and must be carried out for every single operation.

As the ST has to test each character as they are displayed on screen in graphics mode, any operation that involves placing characters on screen will use the blitter if it's there. Usually characters are held in an 8x8 matrix - not very large which means the blitter's power is poorly used.

Turbo ST has been designed to speed up most ST programs that aren't fast to your screen - word processors, spreadsheets, DTP packages, certain features of the Desktop and so on.

The software that does the speeding up is an Assembly, so all you need do is place the program in the root directory of your hard disk. Pressing the computer causes the necessary to load automatically. From the Disk menu you can click on the Turbo ST option which causes a dialog box to appear. Options let you install or remove Turbo ST. That's all there is to it.

Does it work? Yes, but it's unlikely you'll notice the difference - not unless you switch Turbo on and off regularly and watch closely, that is. Most programs that manipulate text will benefit from being turbocharged (see the box for more detail). Commercial games won't, neither will graphics-intensive packages.

TURBO ST for

- Very simple set up procedure.
- Faster than the blitter for certain operations.
- Works with the majority of IBM-based programs.

against

- Won't increase printing or CD-ROM rates.
- Only speeds up text and rectangular fill routines.

BUYING THE BLITTER

That's easy on the surface, but there's a certain shortage of the chips. You have a stock, but those are being sent to dealers and customers who have requested the replacement of all your machines. It's unlikely that the blitter will appear until early next year. Your local dealer might be able to supply you with a chip under the counter... but at what cost? Around £20.

IBM might, blitters are already included in the price and your dealer should be able to get you a few for you. Contact IBM Direct, the main IBM dealer, after a free catalogue service for all things bought from them.



Features

1 2 3 4 5 6

performance

1 2 3 4 5 6

ease of use

1 2 3 4 5 6

reliability

1 2 3 4 5 6

format value

1 2 3 4 5 6



ST PD

Public domain libraries just grow and grow. And the quality gets better and better — Richard Monteiro peruses the best of the latest ST PD utilities.

There's more to PD software than games, demos and digitized tapes. Forget them all and take a look at some of the exciting quality software that is beginning to emerge.

Lots of good software exists, really outstanding programs are being or to come by. Quality, originality and competence usually means a PD Platinum accolade — files give these awards ready shouldn't be missing from your collection.



SUPPLIERS

for the latest ST PD to any of the following: Software CD-ROM Magazine, Piquette ST CD-ROM (no disk), Page 4 (no disk), DISKOL, Star UK CD-ROM MAGAZINE, or the PD-magazine.com web-site (see supplied by Piquette ST — disks, tapes, the disk in their catalog system to take out for a year; you are interested in ordering, see US, UK and ST, 28.

If you run a business to try and maximize profit mentioned on this ad, or if you have discovered other copies of a feature on these pages, please let us know. Write to PD/Starline, ST/Starline Format 4 Queen Street, Salford, M6 4JL.

FSEL

When you load or save a file from within a commercial program, it is likely you will be presented with a file selector box. This allows you to type in a file name, log in another disk or open a folder. The magnificently named FSEL customizes the standard QEM selector making it much faster and more powerful.

FSEL sits in an auto folder and automatically loads at start-up. It uses up around 20% of memory which is negligible when used with the majority of software. You won't be aware of the patch (unless you load or save a file from within a commercial package: ST BASIC, THE WORKS, SYMPC, ST, DRAGON ULTRA, and so on.

Unfortunately no documentation comes with FSEL, but it doesn't take

long to work out what it does.

Along with the standard file selector options, FSEL displays extra file information, like the creation date and size. Files may also be sorted alphabetically, by extension, by date or by size. The directory can also be printed at any time and any drive can be selected as long as it is present.

An icon with a question mark also sits in the customized file selector; clicking on it appears to have no effect. Can anyone help?

FORMAT 11

Available in accessory form, this disk formatting program will stretch your ST's drive capabilities to the limit. Needless to say, it's a formatting utility, but this one beats the lot. Even things owners will change when they know how much data can be saved on a double-sided disk — 925K

lets you create any type of writer layout with custom ID fields, any gap lengths, control (CRCL) and many other options; the analyzer copes with abnormal formats and displays track information, data between sectors and ID fields.

The copier is pretty fast too; suffice to say that it comes with a full range of backup options that extend to cover copy-protected disks.



SUPER BOOT 2.0

An all-in-one boot program that does just about everything you could ever want. It allows you to display any picture in TMY format, choose which accessories to load, choose from any number of DESKTOP files (thus allowing you to change resolution,



■ The customised file selector offered by FSEL, offers immediate drive status, disk protection of directories, file sorting and extra drive information. But what does the question mark icon do?

OTHER NOTE WORTHY TITLES

Look out for these items of PD software also worth a place in your collection:

PC COMPASS — a command-line interpreter with batch file support. It provides an interactive interface to DOS. Commanders are similar to PC-DOS. Remote leader access to FSEL features from the WWW browser. Remote commands can be entered on a single line for better efficiency.

TRACER 200 — reports on RAM searching (by at least two times), number of allocations over read and files the 30-floppy flag.

PERVAZ 1.0 — an accessory that displays everything there is to know about your ST: drives attached, memory, CPU LOAD, RAM, etc.

in total, formatting.

The formatter works by processing 11 sectors onto each track, and formatting 83 tracks. Yes, your drive needs to be in laptop condition. That said, we found disks formatted in this manner to be reliable. If next month's issue of Format is late, you'll know they didn't fail!

DISKMECH

A superb disk analyzer, analyzer and editor. And look what it can do: the sector editor can read and edit any sector regardless of size, track number, or side number. The format editor

analyzes layout and so on, decide which programs in the AUTO folder to run, save Write Verify on or off, set the date and time, and a whole load more.

Super Boot works on any Atari SE, from any boot drive, and in any colour or monochrome.

A configuration program allows you to tailor Super Boot to your preferences. This alters the chain program which resides in an AUTO folder. Options are turned on or off by pointing and clicking — very handy for less software. Even the documentation is good — too good to be true!



MIDI ON THE AMIGA

Judging from the replies to issue 1's questionnaire, a good number of you want to dabble in hardware projects. Never say we don't deliver. Robert Penfold explains how to build a price-busting MIDI interface for your Amiga and gives a few useful applications.

The range of MIDI software for the Amiga is not yet what could really be called vast, but there is a steady flow of new MIDI titles, and the Amiga has good potential in this area. Unlike the Atari ST,

the Amiga has no built-in MIDI ports. The standard form of commercially available add-on MIDI interface for the Amiga is a simple adapter for the serial port.

A MIDI interface for the Amiga

does not need to be particularly complex, and it makes an ideal project for Amiga do-it-yourself addicts. The unit featured here plugs into the serial port of the Am500, 5000, or 50200 and provides MIDI IN, TRIG, and three OUT ports.

Serial crows

Essentially, a MIDI interface is no more than a high-speed RS232C serial interface. However, there are differences between MIDI and standard RS232C interfaces, and these must be taken care of by software and the computer's hardware.

The standard MIDI word format is one start bit, eight data bits, one stop bit, and so on. This is probably the most common RS232C word format, and it is one that any RS232C interface should be able to handle without any difficulty. The original MIDI specification had the baud rate at 19200 baud, which is the highest standard rate for RS232C interfaces. This was deemed too slow, and was raised to 31250 baud when MIDI was finally launched. This high and nonstandard baud rate is the main obstacle when trying to use an ordinary serial port for MIDI purposes.

Construction details

Construction of the unit is made as easy as possible by having everything including the four sockets mounted on the printed-circuit board. Details of the printed circuit and component positions are provided in Fig. 1.

There are a few minor points to note when building the board, one of which is to make sure that D1 is flipped round the right way. The U-shaped indentation on the body is not always present, but if not there should be a dot at the end of the component and



■ The completed unit in all its glory.

To pin 9 of the Am500/Am5000, or pin 20 of the Am5020 serial interface:

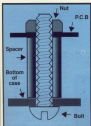


■ Figure 1 - The component layout. In blue are the conductive copper tracks on the board. What you have to do is insert each component into its correct hole from the unpopulated side of the board, so that the wires stick out of the opposite side. Then solder the leads to the tracks. Refer to the parts list to make sure you put the right ones in the right places.

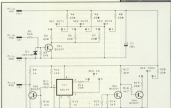
This isn't printed at full size, so you can't cut your own board. A set of parts is available - see later in the article.



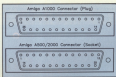
■ A top view of the completed board.



■ Use to mount the board in the box using spacers. Drill out the three mounting holes marked on the board if you need to start by a hammer and nail or you'll split it.



■ For the technically minded, the circuit diagram of the Amiga MIDI interface.



■ Figure 2—Connections to the serial interface 25-pin D connectors. These are shown from the back, the side you see when soldering. The 12 volt power line is pin 8 on the A500/A2000, pin 23 on the A1000. The other pins used—2, 5, and 7—don't change.

offset to the left it indicates which pin is pin 1 of the device. You should order the IC socket into the board first if at all doesn't matter which way round the goes, then slot in the chip tail the right way round.

You must also be careful to fit D1 and C1 round the right way. A '+' and/or a '-' sign on the leads of C1 will show which lead is which, match it with the + on the board layout diagram. The four transistors have their lead wires arranged so that they dip nicely into place on the board, but make sure there are no crossed wires. The transistors can be fitted either way round, but be careful not to get any of them swapped over. Two diodes are needed, and these can be made from pieces of wire trimmed from resistor leads and lead to clips.

If you are new to electronic project construction, it's essential to practice soldering a few wires together before starting on the circuit board. Often that's by two sets of components—one to practice with and one to build a circuit.

You'll need a soldering iron with

a rating of about 15 to 25 Watts fitted with a bit of around 2 millimetres in diameter. The best solder for the type of work is a 60/40, 50/50 tin/lead lead multi-core flux type, the plenty of solder when mounting the DIP sockets on the circuit board as they need to be well and truly fed in it. Make sure all the components are fully pushed down onto the board before soldering them. It helps to splay the leadout wires of resistors and transistors slightly.

Good joints

Excess length on the component lead-out wires should be trimmed about 2 millimetres proud of the board before they are soldered in place. When making the soldered joints place the iron on each joint first and then feed in the solder. A good joint will have a sort of mountain shape, a globular appearance usually indicates a connection of dubious quality. Where the connections are crowded together be careful to avoid bridging adjacent pads with too much solder. Carefully check the board for any accidental short circuits of this type and remove any that are

found.

The board is connected to the Amiga via a lead about 1 metre long terminated in a 25 way D connector. A plug is needed for the A1000, but the serial port on the A500 and A2000 was changed to give IBM compatibility. A socket is therefore needed for these versions of the Amiga. The MIDI unit draws its power from the 12 volt pin of the M232 port—this is pin 9 for the A500/A2000 but pin 23 for the A1000. Pins 2, 3 and 7 are the same for all Amigas, as shown in the wiring diagram for the different types of connector in Fig. 2.

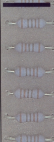
Any three cable should be suitable for the connecting lead. The multi-coloured 'rainbow' type is best as this largely avoids the risk of misidentifying leads and getting crossed wires. Slip some solder into the bare ends of the leads, and the appropriate hole tags of the connector, before soldering the lead to the plug. There should then be no difficulty in making reliable joints. Fit the connector with a cover assembly. At the board end the lead can be soldered dead to the board, but it is easier if

DOESN'T WORK?

If all's really below the surface of your MIDI interface won't work first try, particularly if you own an expensive one.

Check the connections, and are everything the right way, and are also offering a 5V supply (500mA 200mA). If you really can't make your plug work, solder the board with a 1.5 ohm resistor to connect service lead pins to MIDI Unit Receiver, Magma Technology, 135 North Street, London E16 3JH, 0204 0204.

Make sure it is adequately protected from the power supply, and please show a receipt of work for safety.



single-sided printed circuit pins are fit to the board, and the cable is then connected to these.

It is not essential to fit the unit in a case, but it is advisable to do so in order to keep the dust off and to protect the components from knocks. The circuit board is fixed to the base panel of the case using three 666 screws with 10 millimetre spacers and fixing nuts. The lead to the D connector passes through a hole drilled in the rear panel of the case. Fit the hole with a grommet to protect the cable and remember to thread the cable through the hole before connecting it to the board and the connector.

In use

Give the wiring a thorough check for errors before trying out the interface. With the unit connected to the Amiga, the computer and keyboard software should bootup and run normally. If not, switch off at once and recheck the MIDI interface unit. If all is well, the unit can be tried out with a suitable program, such as Deluxe Music Constructor Set, or any other pro-

THE MIDI BAUD RATE

The MIDI unit plugs into the Amiga's serial interface, so how does the system know to use the higher than normal baud rate required?

The Amiga controls its baud rate by having a divide-by-N circuit between a clock generator and the driver which provides the serial encoding/decoding. Values for N are stored in the Amiga's Parallel Control Register. It is a 16-bit register written to a hardware register, and changing any baud rate within reason can be achieved with a fair degree of accuracy.

The Amiga's divide-by-N register is called SERPR, and is at address 00070002. Most all computer languages, including AmigaBASIC, will accept 16-bit hexadecimal numbers, so you need to use the decimal equivalent, 14473818.

Bits 0 to 14 of SERPR supply the number for the divide-by-N operation. To be precise, the divider is one more than the number written in the register. Bit 15 of SERPR controls the byte length, which is either 8 or 9 bits; it reads normally to 0 for eight bit operation.

With the aid of a calculator it is not too difficult to work out the correct value to write to SERPR. Each clock cycle lasts 0.07944 μ s, and the duration of each MIDI bit is 33 μ s. Dividing 33 by 0.07944 and subtracting one gives the correct divider, which is 414.51. Values of 143 or 144 give a baud rate accurate to 0.2%, which is perfectly acceptable.

In the AmigaBASIC tutorial given elsewhere in the article, you will see the line `PRINT SERPR=144`, etc. You should now be able to deduce why this sets the serial interface up for MIDI baud rate.

and individually addressable outputs. This may seem a bit pointless, but the idea is to enable the MIDI "bar" method of connection to be used

and is normally important, and letting large amounts of data build up in a buffer will not give acceptable results. Although the MIDI baud rate of 11250 can be set using Markbush's preferences, note that this does not necessarily set the required baud rate when running a programming language.

Here follow three simple examples using AmigaBASIC for controlling MIDI instruments.

Program change pedal

Listing 1 is for a program that enables the Amiga to function as a program change pedal. The word "program" is being used here in its MIDI sense of a set of sound data for a synthesiser, or a set of parameters for any MIDI controllable device. A program change pedal permits the sounds of the instruments in a system to be altered using the "bank-to-bank" approach. Although this is an invaluable feature for live performance, arranging live instruments is acceptable.

In the first part of the program the user enters the MIDI channel number (0 to 16) on which the program change messages must be transmitted. (Remember you must click the mouse on the input window before you can enter anything into an INPUT instruction.) Each program change message consists of two bytes, and the first of these is the one which carries the program change code (most significant nibble) and the channel number (least significant nibble). The program change code is 1100 binary, which is 182 in decimal. The channel number must be added to this to give the total value of the first byte. MIDI channels are conventionally numbered from 1 to 16, but the values used in MIDI messages are actually from 0 to 15. Adding 182 to the channel number entered by the user therefore



Figure 3 - The pins you need to wire up if you are making a footswitch for the Pedal setting. This is shown from the back, the side you use when soldering.

gram which uses the serial port instead of MIDI interfacing. The interface connects to the other MIDI equipment on standard 25-way DIN MIDI Leads.

Although there are three outputs, they all transmit the same data. You do not have access to these separate

without having to buy a special TRBU box (unless you want to drive more than three instruments from the unit that is).

If you like to write your own software it is not too difficult to access the MIDI interface, although it does not seem to be entirely straightforward from Amiga BASIC. Writing your own top-flight sequencer or music notation programs is probably where do-it-yourself programmers can use their machine-code talents to the best effect.

When writing programs in a language that provides support for the serial interface it is probably better to take the route rather less directly controlling the serial port hardware. One point that you must bear in mind is that MIDI does not use handshaking, and so data may well be lost if the computer tries to halt the flow of output data by setting a handshake line to the holdoff state. Any processing of MIDI data must be done at high speed anyway, since the timing of

LISTING 1 - PROGRAM CHANGE

```

REM ***** "Program Change Pedal" Program
DEFNOC "Enter channel number (0 to 16) ", channel
channel=channel+174
END
PROGRAM
channel=0
DEFNOC "Enter 1,200,0,0,0,1" OF 0
FORNOC 160740180,114
WHILE END
OF 074018111-1,1800 00740 1400000
REM
END
PROGRAM
DEFNOC "Enter channel number (0 to 16) ", channel
channel=channel+174
DEFNOC "Enter 1,200,0,0,0,1" OF 0
FORNOC 160740180,114
WHILE END
OF 074018111-1,1800 00740 1400000
END

```




LIGHTS! CAMERA! ACTION!

Wipes, fades, cuts, flips... they're not Olympic high diving styles, they're features offered by Aggro's new 'desktop presentation' software. Ben Taylor admires the show.

Lights! Camera! Action!

457 98 ■ Aggro only, requires 386 ■ Aggro-10 Marketing, Brooklyn House, 22 The Green, West Droyton, Essex SS7 7P ■ (0865 444433)

Computer users long proclaimed, slightly prematurely some might say, that Desktop Publishing is only a small part of the greater world of Desktop Presentation. The theme is that the design is the ultimate tool for converting your imagination into a contained audiovisual experience. Whether you're a graphics designer looking to take up a stunning demo of your work, or a businesswoman making a sales pitch, *Lights! Camera! Action!* aims to give you that ability.

LCA offers you to define a 'scene' of still pictures, sounds and animation clips. It sequences might be (1) start some background clip music; (2) display the logo of the 'Le Bateau restaurant'; (3) fade into a picture of a shimmering party; (4) cut to animation of a waiter approaching with the bill; (5) fade with a diamond pattern effect to a picture of the waiting up to the bar.

In short, LCA is a tool for creating slide shows from still pictures, and more. It isn't a full animation package in the sense of defining two pictures generating all the intermediate frames automatically.

Still crazy

LCA takes still images from any standard image picture file (or resolution, high resolution, HAM mode, the little-known 'Extra-Half-rate' mode, and any interlaced version of these).

The standard LCA by 296 for 640 by 256 in medium-high end good display doesn't normally fill the entire image screen, but because the end result is supposed to be a 16:9 aspect presentation, possibly for recording to videotape, LCA uses a technique called 'letterbox' to allow you to display images up to 768 by 600 pixels such that they blend smoothly on the edge of the screen as a normal TV picture does. If for you create these zoomed pictures it your problem -

most joint packages will only save in the standard size. However, Photo Paint, the Lighten 3-D digitiser and Deluxe Paint II can all work at the large (or size) different sizes of pictures are loaded well, you can mix resolution and ordinary size images. PNG, CPA/512 text and HVIC (3200/1600 level screens, all in the same script, and they will be properly centred in the screen. You can even interact with video pictures if you have Genlock hardware.

Still can be delayed for any time that you choose - the bar of it all comes in how it gets to the screen. You can fade it in, 'wipe' it over an existing picture in any of 8 directions. You can gradually convert one picture into another with a 'dissolve' interface if via a pattern of diamonds or triangles which gradually merge together, or create a window within one picture and reveal a second one up it. When one picture flips to another the transition is almost instantaneous, but the wipe effects are a bit jumpy as they slide across the screen.

You can put the display into two 'multiple viewport' screens so that two pictures are scrolled together, each with their own colour palette and/or colour spring effects active.

Sounds good

The range of sounds that LCA can play are geared mostly toward sound tracks created with the Aggro *Sound Package*, though any 'SMB' format picture file can be included. Unfortunately, this format tends not to compressed notes played through the sound chips, it cannot deal with digital sounds. There is no direct way of including, for example, an explosion more at suitable points.

The music you can include in your presentations is basically determined by what music package you own. Some being preferred you can play the same either as a one-off, or

repeating in the background until the video signal ends.

Although you can't alter the instruments with which a sound score is played, you can change its pitch, volume and timing.

Animations

Powered with LCA is a utility called Grabber, a 'grabber' tool to allow you to put an animation together in a format that can be played smoothly. You really need a joystick to use it with Grabber running in the background, you press the Fire button to grab a screen, which is then added to the current stored set.

In conjunction with a paint package, this can give you a quick way of doing simple animations - just grab each frame as you move it to its new position. Grabber stores the data in a compressed format, so you don't take up a whole screen's worth of disk space if there are only minor changes between frames. You can use this created with text to good effect, if you add one letter to a screen on line for each animation frame you play. But the animation makes the message appear as if it is being typed in real-time.

With a simple image, LCA will

GENLOCKS

A Genlock, constantly referred to as graphics card, is a piece of hardware which gives your computer the ability to grabber with a TV or video recorder's picture, creating the video effect you see on the Channel 5 and Network 2 Genlocks and around LCA for the Aggro, and here are some we know of for the 22.



■ The main control window for *Lights! Camera! Action!* You can control the 'wipes' from here - the special effects for how the pictures are faded in and out.



GETTING GOING

When you start to put together complex presentations, particularly if you want to flip from one slide to the next quite rapidly, you are going to start being frustrated by the fact that the Amiga's disk drives are slower than the speed of light. To load a picture from disk can take three or four seconds, which is therefore effectively the shortest possible display time.

To help minimise this, LCOM has the idea of 'buffer'. You can have up to 64 buffers, each holding a picture, animation or sound scene in memory. While one picture is being displayed, you load another into a buffer so that when the time comes to display it, the results are pretty much instantaneous. The drawback is, of course, that you need lots of memory to hold one picture in reserve while another is being displayed. Even with 2MB you'll be pushed to buffer many pictures.

Once your demo is all finished, there is a stand-alone 'player' program so that you can distribute the show to people without LCOM.

GO FASTER STRIPES

When you start to put together complex presentations, particularly if you want to flip from one slide to the next quite rapidly, you are going to start being frustrated by the fact that the Amiga's disk drives are slower than the speed of light. To load a picture from disk can take three or four seconds, which is therefore effectively the shortest possible display time.

To help minimise this, LCOM has the idea of 'buffer'. You can have up to 64 buffers, each holding a picture, animation or sound scene in memory. While one picture is being displayed, you load another into a buffer so that when the time comes to display it, the results are pretty much instantaneous. The drawback is, of course, that you need lots of memory to hold one picture in reserve while another is being displayed. Even with 2MB you'll be pushed to buffer many pictures.

Once your demo is all finished, there is a stand-alone 'player' program so that you can distribute the show to people without LCOM.

Deluxe Video base issue 21 is a more sophisticated tool in these areas, and can run on an unexpanded A500, but is much harder to use.

However, any would-be artist will find it a matter of minutes to knock up an impressive demo, and simplicity is something to be highly noted.

features

1 2 3 4 5

performance

1 2 3 4 5

ease of use

1 2 3 4 5

memory

1 2 3 4 5

format value

1 2 3 4 5

display around half a dozen frames per second from Eyedreamed files.

The verdict

The major problem with LCOM is test handling. If you want to make up test screens to introduce a picture, or even add captions to pictures, there is just no way you can do it. You have to use an art package to save the test screens as a picture, or edit the captions into the images, by hand. Obviously this takes up more disk space than test alone really deserves, and is a major omission in an otherwise extremely well-developed package. The other annoyance, as has been pointed out, is not being able to include digitised sounds in a demo.

Overall, LCOM is a package that is superbly simple to use and can create impressive selling demos of any graphic screens. It just lacks the flexibility, especially in its poor test handling, to be a vital business tool, and it doesn't really try to be a top-flight animation program. Electronic Arts

■ No way to add text within LCOM.

■ No way to include digitised sounds.

■ Needs 1 Megabyte of RAM.

for

- Simple to use
- Displays TV-size 'overscan' pictures
- Wide range of fade/wipe etc effects
- Animation creator utility included
- Plays with 2 different colour palettes displayed

against



■ If it's Tuesday it must be Eyedreamed... a World tour courtesy of Light Commercial Action. Starting in China, a planned fade cuts to Manhattan's towers. A horizontal wipe takes you into Jay Pardo - this shows off the multiple viewport features, as the palette of the New York picture has been moved up by the next picture's palette. The next fade, into Holland, does use multiple viewports as the windmill's palette is correct as it wipes from the centre over the old picture.

CHRONO QUEST



A CLASSIC ADVENTURE GAME FROM PSYGNOSIS

- FULL ICON CONTROL
- BRILLIANT GRAPHICS
- FENESH PLOTS
- A RACE AGAINST TIME
- 4 DISKS ATARI, 3 DISKS-AMIGA
- IBM VERSION - COMING SOON

CHRONO-QUEST

This is the first of a new generation of adventure games from Psygnosis. An adventure game in the classic sense.

Your quest begins in your father's chateau since 1890. There you find (or should find) your father's latest invention, a fantastic time machine. Your father is dead, murdered, you are the prime suspect. A letter left by your father leads you to think the real culprit was Rinzler, his not so faithful servant. But he has escaped to the future using the time machine... who will believe your fantastic story? ... do you believe it?

You will be presented with many objectives, ultimately you will have to travel through time to collect the fragments of magnetic card to drive the Time Machine into the future. There you will have to... Mearphie, the immediate objective is to find the time machine... Gary, a more immediate objective is to find the room with the time machine in it... But its dark... very sorry, an even more immediate objective is to be able to see where you are going... 3 hours and 350 minutes and most more immediate objectives later, you are standing in the hallway thinking... helppppppppp!

ATARI ST/AMIGA/IBM - £29.99

Screen Shots are from the ST version.



Psygnosis
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United Kingdom
Tel. No: 051-557 6625





MUSIC

APRES MIDI

So you've got a headful of great tunes and a MIDI system — what happens next? Chris Jenkins explains a few tips of the trade for recording your inspiration, and how to make money from your compositions.

Over the last few issues we've looked in detail at the marvelous things you can achieve with a computer-based music system, using MIDI and electronic instruments. We've explained the theories behind the software and hardware, and shown you how to set up a studio system.

So there you are, sitting in front of your computer and your synthesizer, trying to make a start. What on earth do you do next? As you go deeper into the practice of recording and mixing, you'll have to keep remembering that this is a computer magazine! And here is how that your ST or Amiga can help you along with almost every aspect of creating music, from creating the original sounds to taping the labels for the cassettes.

Master tapes

If you create a wonderful picture on your computer, it remains fairly quiet

less unless you incorporate it into a game or a demo of some sort. In the same way, a piece of computerized music is pretty useless until you turn it into a form where it can be enjoyed by other people, usually, an audio cassette, vinyl record or compact disc. Incidentally, this is also a popular way to make money out of the whole business!

You can always book time in a professional studio to make your recordings, but with plugging equipment costs it's now possible to build up a pretty good recording system in your own home.

Good quality recording equipment won't cost thousands of pounds, although the 24 and 48-track recorders used in large studios will remain outside the budgets of most of us. 16-trackers such as the Portastudio 16S, though, are becoming pretty affordable, and remember that the classic Beatles album *Let It Be* was recorded on just two 4-trackers if

you simply want to tape what you play live. Any good-quality 1/4" cassette deck (especially using metal formula tapes and Dolby noise reduction) will do the job. However, if you want to record complex pieces, you'll need to multi-track.

Multi-tracking

Multi-track tape machines allow you to make several synchronized recordings on one tape, listening each time to the previous tracks so that you can build up a complete piece working on your own. As we've remarked in the past, it's often best to buy second-hand, if you can find well-serviced equipment. Multi-track recorders come in many forms (cassette, cassettes, such as the TASC 1240/1440, and quarter-inch open-reel tape, and wire intended to play 'audiographic' music — a fact which never caught on). Instead, multi-trackers started to use them to multi-track, and you can still pick up these excellent 4-track



■ Borganon Pepper's Lonely Hearts Club Band was recorded on a 4-track master — state of the art in 1967! *Spinaltap* of the same year is relatively cheap nowadays, so there's no reason you can't make your own concept album!

machines at around £300.

You'll probably also need an audio mixer, which will allow you to connect all your instruments into the recorder, then combine the results onto a stereo master tape. Mixers can be shockingly expensive, though there are cheap models from Genie, Ikon and Boss. Look out too for 'family mixers' which are designed for use in schools, but which can be adapted for recording uses. A popular alternative is the Portastudio type combined



■ Yamaha's idea of a simple little 8-track home studio, as featured in the 1988 PC show. Does your bedroom look like this?



■ Yamaha SY100 4-track cassette mixer/recorder, at around £170. This is a good entry level combination console for the home producer.

multi-track recorder. Tascam introduced the concept, and priced low (at around £215, including the Portastudio 242), Tascam Portastudio and later 2424. Most of these units feature four to six input channels, so if you want you can plug in an entire band. Each input channel has two

controls for bass, treble, and sometimes mid-range.

Some portastudios also feature effects sends. These allow you to wire in a digital reverb or delay unit to "sweeten" the instrument sounds. Fortunately, there are now 8-track cassette portastudios on the market,

produced by the old Tascam. They both cost around £1200, which sounds like a lot, but is probably the cheapest way to get into 8-track recording. For comparison, a full-size tape 8-track recorder such as the Tascam 242 would cost you around £1500, and a suitable mixer around £450.

Your computer can help you at the mixing stage, too. Systems such as Megamax and Tascam can allow you 24 track using the Analog to digital and record mixer settings for each channel, allowing you to get a perfect mix every time. These systems, though, only work with pretty sophisticated decks incorporating "sweet post" features.

Synchronisation

Another major problem when computers meet tape recorders is in track synchronisation. If you have only one synth, but want to record a piece of music with several distinct sequences, how do you synchronise them on subsequent takes? Counting yourself in and hitting the PLAY button at the right time rarely works!

The solution lies in boxes, such as theilog 8800-32 (approx-£60) synchroniser. This £120 and counts,

SYNC OR SWIM

Several Times software sequencers - such as Microsoft's SuperTracker and Future's 8 Model - can track multi-channel MIDI track up to 16. So you can use the sync/chronometer method described in the main text with them. Always investigate thoroughly before buying software.

COMPOSITION TECHNIQUE

Without going into too much superfluous detail about compositional theory, let's assume that you have your own ideas about the style and character of your music. Normally, recordings are built up from the bottom drums first, then bass, then chords, melodies, and finally the vocal (if any) and accompaniment. Ideally, you should record with no more effects than are needed to get the sounds on tape with good level and tone control. The effects should be added in the final mix.

In practice, unless you have stacks of equipment, you will have to add some effects as you record; maybe a lot of reverb on the drums, digital or tape delay on your solo, a touch of bass on the vocal. Remember that many effects units, such as the Akai 6000ms, can be controlled by your sequencer, changing effect type as and when needed in the piece. By mixing and recording the multi-track (or editing and re-writing your raw sequences) you can change the entire sound of your music. Study the sounds and techniques used on other records, then add your own ideas.

PING-PONG RECORDING

You can build up complete recordings on a small multi-track by "ping-ponging". Start by recording on track 1, then, and then, whenever these only track four, and your first three tracks are free again. Record on tracks one and two, and re-record these to track three (then fill up track two, then track one). If you also add one bit of main line on each take, you can end up with at least ten tracks on your 8-track machine.

You can apply the same sort of principle to track bouncing from one simple stereo cassette deck to another, but the recording quality soon becomes unacceptable.



■ Moog 6-Track's 20-B-2 mixer, ideal for the 8-track studio.



BLOW YOUR MIND

Whichever recording system you end up with, you'll need loads of accessories, such as, four- and six-track tape, two-track 1/4" tape, tape, headphones, headphones, stands, and, of course, an amplifier and speakers to hear what you're doing. It doesn't get any better and speakers will do to start off with, but you can blow-up your speakers from your two-track box top, or make an exciting in-the-ear speaker such as Yamaha's BT-20 headset.

MSI clock pulses into an audio signal, and whenever it's your first track of music is recorded, the MS-30 reads clock pulses from your software sequencer, and cuts out a series of high-speed beeps which are recorded on a tape track. If the tempo of the sequence changes, the beeps will speed up or slow down in result. On subsequent takes, the MS-30 reads the audio pulses from your left-channel track, and transforms them into MIDI clock pulses which your sequencer can respond to.

A large benefit is that the MS-30 can also generate a 24/96 sub-quarter-note signal, allowing you to synchronize older Roland and King equipment such as the TR-808 or 909M 1/8/320 drum machines. Yamaha, MS and several other make comparable boxes. A similar technique can be used to synchronize other, programmed into MIDI drum machines. Although some synth modules, such as the Roland MT-32 and D110, may come with built-in drum sequencers which you can play with your sequencer, there are plenty of great sounding, beat boxes like the Roland TR-707/806, and Yamaha EX25/17, which allow you to create complex rhythmic patterns and songs in their internal memory.

Still on the subject of tape synchronization, you'll also hear talk of SMPTE (Society of Motion Picture and Television Engineers) synchronization. This is a complex digital time-code system designed to sync music to video, and although SMPTE/MIDI units such as the XR 8000 are becoming less expensive and straightforward, they're a bit beyond our scope here.

Getting it taped

When recording music, the best advice is to plan out a minute detail what you're going to do, before you do it. Many software sequencers allow you to enter lyrics, patch numbers, track names, and even in some

cases title memos. If you don't have these facilities, make a back sheet and fill in all the instrument names and sound patches, the order in which you mean to do the takes, the 'mixing/panning' instructions (and the separate lead and up parts). That way, you'll avoid recording on the wrong track and ending up too busy with MS's sequencer you've recorded your parts, added all the necessary effects, and mixed it down into a stereo-master tape. Unless you can afford a quarter-inch mastering machine such as the Reiss E07 or Tascam 52, you will probably have mixed up with a standard audio cassette. This is fine, because everyone has a cassette player, and not everyone has a quarter-inch stereo tape machine! So now what are you going to do with your music? Maybe you will get it in for your own entertainment. Far enough, but most of you will want your performances heard. There are loads of possibilities, but, as with any other venture, it pays to do a little research in advance.

Marketing

If you are interested in the production side of music, rather than performance, you can advertise your services as a studio facility. Why not make back some of the money you've spent on your equipment? Advertise in local papers, or publications such as *Monthly Music* or *Music Mart*.

If your clients have access to a computer, check the convenience of using the programming at home, then downloading studio time and taking in the data disks to finish the recordings. The going rate for a direct studio is about £2 per hour, 8 hours £8, and 16 tracks £18, depending on the amount of gear you have to offer, the size, and the amount of time a band want to spend working.

If you want to promote your own music, work out the most promising market. Let's say your interests are in pop music, and your ambition is to

have a hit single, appear on Top of the Pops, and be mobbed by school girls. (And why not?) The traditional method of getting ahead is to make a demo tape, send it to a record company, and wait for the contract offer, to come calling in.

Some everyone else this, you will probably have to go one better if you don't want your musical efforts to end up in the 'trash bin'. Some have tried; select three (maybe number) of your best pieces. Don't do any cover versions, and don't vary the style too much, record companies look for a strong sense of identity in an artist. Make sure your cassette is well presented, with neat labeling, and is accompanied by a good photo of yourself and/or your band. Don't give away to the temptation to include a 24-page artistic manifesto with your tape - it'll end up in the bin.

Name dropping

There are several invaluable sources of record company contacts. The best is the *Music Week Directory*, published by Spotlight 01-881-841 to which is an annual publication listing record companies, recording studios, manufacturers and other industry services. It costs £15 from bookshops, or your local library should be able to get it. For more direct information on record companies, try the *Making Music AMR List*, available from *Making Music* magazine 01-251-10901 for the price of a big 50p. This lists record companies large and minor, their listed agencies, what sort of music they're looking for at the moment, and addresses and phone numbers. AMR letters and departmental personnel change often, with inaccurate listings so don't expect the list to stay up to date too long.

If you're genuinely interested in a new music career, consider pressing your own single. It can work out fairly cheaply - around £400 for 1000 12" max singles, with white labels and plain sleeves. Sleeve artwork, coloured labels and so forth all start to bring up the costs, but that isn't necessary if your results are going to be sent out to music magazines, radio stations, TV stations, and independent local radio in the hope of a reply letter to *Music Week Directory* agents.

The two great advantages are (a) record companies will take you more seriously, and definitely listen to your single, and (b) you may get radio airplay, which you will never, ever, get with a cassette demo.

If you are interested in less obviously commercial music - say New Age or folk - make sure to approach record companies specializing in those fields. There's not much point sending a demo of a folk, lyrical, ambient piece to a Thrash Metal label.

JINGLE BELLS

It's possible, of course, that you're happy to stay out of the spotlight, and would like to make music for film, TV and other commercial outlets. This can be staggeringly remunerative; one of the directors of film *Mad Max* uses 17 special accounts of making £25,000 for four days' work on a 140-company commercial. Sounds good, but of course this sort of work demands the highest standards of professionalism and recording quality. It's no good sending 'demo' cassettes in to ad agencies. Again, the *Music Week Directory* is a good source of contacts; dozens of jingle companies are listed, and if you want more advice on this area you can contact the Musicians Union on 01-581-0068.

In the meantime, listen very carefully to film soundtracks, ad jingles, TV theme tunes, and so on. Approach organizations such as dance groups, hospital radio stations and 'talking magazines', and use as often as you can their own musical services. With a few connections under your belt, you'll have a better idea of how the market works.

Many musicians enjoy an excellent living out of 'library music'. Companies such as KPM and Bruhn make albums of instrumental music available for hire to all sections of the media. If they like your music, you can set back and rate in the royalties as your music is used in everything from color paper commercials to hearing files.



FUNNY BUSINESS

Cartoon drawing is no laughing matter. Ian Bennett explains the ten steps to becoming an electronic Bill Tidy. All you need is a paint package, a computer, and a little inside knowledge.

Have you ever wished you could draw your own colour cartoons, or even more exciting, come viny adventures complete with a 0115, superpowers of your choice? Armed with your supercomputer 16 bit paint package of your choice, and a bit perhaps a lot of time, you can do just that. All the pictures in these pages were hand drawn using a palette of 16 colours. In fact, the software was an Amiga 500 with Deluxe Paint 2, although they are all fairly simple and basic, and almost any paint package on either ST or Amiga would do.

So just how do you go about drawing your own cartoon? Let's look at the stages involved in drawing the first frame incorporating our somewhat silly but ever so dynamic hero, Virus Destroyer, or VD to his friends.

(1) Preliminaries

Unless you are already a cartoonist or comic artist, begin by



studying lots of comics noting the use of bold colours.

when shading and all other elements that combine to create a single frame.

Study our hero for create your character as you wish for copy another and then make a basic pencil sketch noting your main colours, shadow areas, action lines and speech areas. If a series of frames is involved then concentrate at the whole page comes into play... but that's another story!

(2) Switch on

Before loading your art package ensure that you have a supply of ready formatted disks to save your work. It is all too easy to get carried away with the creative urge and forget the essentials, ending up with masters to save your labour!

For your first attempt, you will probably find it useful to draw the basic outlines for the cartoon on a piece of paper. This will give you a nice guide for positioning the different elements of the picture at the right place on the screen. After a while you'll be able to draw the picture directly on the screen.

Have a few reference books, colour charts, pop-up style sheets and inspirational work books. Clear away the full empty coffee cups, get out the cat, the wife, husband, write down and switch on.

(3) Palette

Setting up a definitive palette at the start is not vital, since you can always change it, but preparing major colours like the red, yellow and blue of VD's uniform is advisable. Set the screen background colour to a fairly neutral, neutral shade to avoid eye strain... you could be in front of the screen for some hours, sugar days. Don't have a black background because black is needed for drawing lines, and white for speech balloons and highlights. If your character has body parts showing, then a flesh colour (human, alien or otherwise) will be needed. Always try to have seven colours for the various shades of the main areas that will



■ 1 - The first sketch for our superhero, Virus Destroyer, or VD to his friends.

come up as a drawing progresses. Be prepared to concentrate mostly and ignore shades as you proceed. It is one of the joys of computer art!

(4) - Box it

Usually your cartoon or illustration will be inside a box. Using a fairly wide square brush and the letter rectangle command, set up your drawing area to whatever shape is required. It is important to remember that if you



WHICH ST SOFTWARE?

The major ones are:

- Art Studio (Amiga), £29.95
- Degas (Amiga), £16
- Degas (Amiga), £16
- Degas (Amiga), £16
- Degas (Amiga), £16
- Degas (Amiga), £16

• Degas (Amiga), £16

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• Degas (Amiga), £16

• Degas (Amiga), £16

• Degas (Amiga), £16

• Degas (Amiga), £16

• Degas (Amiga), £16

TIPS OF THE TRADE

1. Bold black outlines and dark shadows play an important part in most comic pictures. Look at the way simple black lines are used to define muscles, the texture on the sleeves or thighs. Look for areas of shadow particularly under the neck, arms, hip caps and also the way that thick black lines and shadow combine to create that superhero's chest. VD's muscles in the examples shown on these pages, shadow is strongly evident in body parts behind the main action, as in the VD that frame with the bear arms and bear riding by.

The use of solid black lines attracts the need for complete colour shading and if you have only 16 colours as with the Amiga, medium resolution or ST line resolution, they soon get used up. In the VD that frame there is only one shade each of blue, yellow and red used. Black shadow and lines combine to create the 3D effect.



AARGH!?

stand to have explosive action, body parts or speech bursting out of the box boundaries, then you must have sufficient space (and on the screen to accommodate it. You can see the need for that preliminary COOL sketch.

(5) Let's draw

It isn't if you are keen on art, you are presumably already have some knowledge of perspective, composition, figure work etc. If you haven't, then you would be wise to obtain some from a decent drawing or sketch book. *Sketch cards* and *Cartoon work* can sometimes find the general lines of drawing, it is easier to learn to draw fast and then to learn to draw 'correct'. Getting a 90 effect is easy when you know how, impossible when you don't.

Having set up the drawing box select a fine brush, colour black and pick your starting point. Proceed to 'sketch' with the mouse. Keeping your eyes on the screen and with fairly rapid movements, outline the main features as you would with a pencil on paper. If drawing an action figure as our 'V.I.' is, start with a 'sketch' mark which captures the main lines of movement. Basic background lines can be put in to complete the rough sketch, using the fine drawing command when you can, but otherwise with hand-drawn sketching.

Don't waste time at this stage removing all unnecessary or incorrect lines. Sketching with the mouse takes practice, so do test your!

'Finishing off' is the next step, in putting a body and revealing clothing, uniform, gauntlets, weapons etc. It isn't fairly rugged into the black trial. If you feel it is a mechanical type, there will be lots of curves to draw for hugging leathers or so on. You could try to use the curve drawing commands of your art package, but many people prefer to draw these free hand instead since they will probably be redrawn when the detail stage is reached later. But feel free to experiment for yourself.

In drawing a face, you may wish to insert a centre guideline through the nose and also an eye line passing through the centre of the eyes. These lines can easily be removed by 'overdrawing' with the relevant flesh or other colour once the mouth, nose and eyes are finished.

Weapons will usually be based on straight lines, and a simple set of line and box commands can be used to create the weapon's outline.

Now before you do anything else, SAVE IT!

(6) Now undraw

At the end of the last stage, you will have a mass of lines on screen (especially if there is a background scene) - the some of which is only



account to you. Hidden amongst the spaghetti will be your best candidate to reveal himself (Shylying) And this is fairly magical - I'd.

So now an outline (black background colour, the legend brush) and you need and 'do an over' of the obviously unnecessary lines. When removing the major ones, eg. the styling from your stock man, use the magnify command and zoom in to remove other lines. Keep removing lines and doing minor reworking until you are left with a figure that's rough around the edges but a pretty reasonable outline sketch. Save it again and take a break!

(7) A bit of colour

Adding some colour at this stage will let you feel that you are getting

packages with Undo command

Do not add too much colour at this stage. Start with the main areas like the head, chest and arms. You can also insert the main areas of shadow such as eye area, raised ear and leg and ribs.

(8) Magnify and detail

This is the stage at which the real drawing takes place. For the figure, add detail from the feet down. Use the magnify command, a small brush and first correct and establish the foot shape for the feet. Add the feet, main head shadow and shoulder areas.

Working at increased magnification allows detailed work on the facial

WHICH AMIGA SOFTWARE?

The most Amiga art packages are:

- *Deluxe Paint II* (Electronic Arts) £39.95
- *Deluxe Paint II* (Electronic Arts) £39.95
- *Deluxe Paint II* (Electronic Arts) £39.95

Also look for the following:

Commodore
Commodore Paintbrush
Amiga Software Center



1 - Start by drawing the main lines of your figure in about 10 minutes



2 - Add the outlines for the limbs around the main lines

sometimes fast. The final fill command can, if needed, change a mass of lines into a mass of coloured blobs. But at least, you will know what the blobs are. Check that all lines join up where necessary and use the magnify command to examine all obvious bits. A slightly misplaced pixel, especially after free-hand drawing, is extremely difficult to spot. You will soon know if there are any gaps that you were unaware of when the whole screen fills with the wrong colour. Thank heavens paint

and other features. The amount of detail depends greatly on the final purpose for the picture and its ultimate use. One of the arts is cartooning, it is only just in software details to create the impression required. Many top cartoonists use very few lines to create their figures with, and few detail is laid anyway if the results are printed visual.

Detailed work ultimately comes down to using the magnify command and small brush to work pixel by pixel. Good art packages display the



3 - It's time, Dr. Frankenstein... colouring in the head brings friendly V.I. to a semblance of life. The mouse and palette reveal this as a Deluxe Paint II production, but you could use any art package on any machine.





■ 9 - Add in a background colour and some black raster lines.

mapped and unmapped portions on screens at once - always keep an eye on the unmapped image to see the effect of your actions. Repeat this detailed work for the rest of the picture, using the preliminary sketch as a basis and redrawing, correcting and finishing as necessary.

At the risk of becoming repetitive, SWEETEN NOW.

(9) Backgrounds

Having previously established any background details with the initial sketch, everything now comes down to the mapping and detail procedure. Don't be afraid to reduce detail; your preliminary sketch was only a sketch. Highlighting at this stage is also necessary to remove unwanted pixels left from the outline sketch.

The amount of detail which goes into the background will depend upon

the final purpose for the artwork. In the 'lively street' scene very little background detail was necessary despite the fact that the illustration shows a landscape scene. The foreground detail is the main focal point of the picture.

If you wish to know how much detail to put in, again look at various comic strips especially the standard Superman and Batman types. The way one uses quite often that background details like buildings are represented simply by outlines with various colours used for obtaining depth, but detail itself is strictly limited.

(10) Speech and lettering

Before going any further, make sure that you have traced the letter as far as you are almost finished... it's only to

WASTE NOT WANT NOT

Look for short cuts that allow you to reuse things you've already done. All game packages have a copy command! If you spend some time performing a task you copy it to a blank area of the screen, then reflect it for use as a right eye.

Arrange all packages, and also drag among others on the SX, have a particularly powerful copy and move function called 'brush'. You can pick up any area of the screen and use that as a brush to draw with. The brush can be flipped, resized or rotated without you needing to find a blank area of screen to use as a workspace.

Looking at the completed strip of the end, the computer and telephone boys were all done with a 'key' brush, and the second command area used to draw underneath and out from Arthur's arm with the brush.

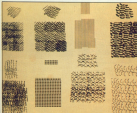
If Leonardo had wanted an Archer perhaps the Mouse Line window's 'Save And Get Up' would've helped.

Take notes now

After drawing, consider the location of any lettering and speech balloons required. If you are uncertain where to locate the balloons then draw it separately. Save it as a brush, and move it around the frame until it looks good, then click the mouse to fix it in position. The balloon shapes can be whatever you wish depending upon the desired effect. Footpad drawing will often give a better cartoon effect than using just shape commands, but boxes and ovals can be useful.

As for lettering, will play around with whatever fonts you have available. Experiment with bold, italic and any other features. The P.D. strip has a variety of fonts and spacings.

If the words are not large enough then you can use the art package's stretch, rotate, reflect and other tools to get the effect you want. Always fill the speech balloon with the background colour before entering any lettering. Otherwise, you are left with all the centres of the letters to fill in individually.



■ A collection of halftone patterns you might like to recreate and use to give texture and depth effects to areas of your cartoon. Select a pattern, modify the background colour to match the destination area, and use your paint package's copy commands to splash it over the parts you want.

SHADY BUSINESS

To break up a solid block of colour, some form of patterned 'halftone' can be used. Before colours don't always go far! This is where point packages with pattern brush commands can really come into their own. Matching cross-hatching, stippling and all the usual print and ink effects can be reproduced on screen using the brush. In the P.D. strip you will see a lot of simple shading created just this way. It also helps to maintain the standard 'screen' raster look, as opposed to a precise computerised image. You can see an example of this by the doorway of the street scene in the finished P.D. strip.

Even so the background colour in the same as the area to be shaded or drawn onto the main background colour. This is important, if necessary, hatch a small area of colour by hand-drawing with the style of shading required, in the P.D. strip, the main areas are fairly rough effects, but you could use this near lines. Cut out the centre portion only as your brush, which prevents any edges appearing. Work with the brush over the area required building heavily on overlapping where necessary for depth or effect. To remove the squared step effect at the edges of your shading, switch to a standard circular brush with the right background colour and proceed to shape the edges as required (as in the finished frame). By stretching, twisting, stretching or rotating the halftone brush as needed a wide range of different effects can be produced. Experiment!

Finally, bear in mind also the location of any lettering and speech balloons when you will get in later. It is a waste of time spending hours creating a finely detailed corner of the frame only to cover it up with a large white speech balloon.

THURSDAY

NIS the
GN
TO PICAL

HAM... THIS IS
BOBING.



■ 5 - Drawing in the frame outline with a black brush, leaving room for text to the bottom.

Finally, if you have not already done so, add the background colour for the box. You should have left yourself at least one shade on the palette.

frame as necessary, you will be amazed at the effect that different colours in the box can have on the final impact of the banner.

Up, up and away

So there you are, your own drawing tool. All that remains now is to pre-

pare your creation for posterity. If you don't have a colour printer you can photograph the screen, using an exposure time of about 1/30 a second which smooths out the scanning lines on the monitor display.

Have fun... it's what comics and cartoons are all about!



■ Pictorial language... a variety of speech bubbles. First you want to create the one you can put in one of the more realistic shapes.

VIRUS DESTROYER

VIRUS DESTROYER
by [unreadable]

THE VIRUS DESTROYER IS A POWERFUL TOOL WHICH DESTROYS ALL VIRUSES AND BACTERIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES AIDS. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES CANCER. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES ALZHEIMER'S DISEASE. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES PARKINSON'S DISEASE. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES HUNTINGTON'S CHOREA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES PHENYLKETONURIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES TAYLOR-PHILLIPS SYNDROME. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES NIEMANN-PICK DISEASE. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES FENYLSERINE CARBAMYLASE DEFICIENCY. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES MUCOPOLYSACCHARIDURIOSIS. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES HEMOPHILIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES SICKLE CELL ANEMIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES THALASSEMIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES PHENYLKETONURIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES MUCOPOLYSACCHARIDURIOSIS. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES HEMOPHILIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES SICKLE CELL ANEMIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES THALASSEMIA.

KABOOM!

THE VIRUS DESTROYER
IS A POWERFUL TOOL WHICH DESTROYS ALL VIRUSES AND BACTERIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES AIDS. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES CANCER. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES ALZHEIMER'S DISEASE. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES PARKINSON'S DISEASE. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES HUNTINGTON'S CHOREA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES PHENYLKETONURIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES TAYLOR-PHILLIPS SYNDROME. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES NIEMANN-PICK DISEASE. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES FENYLSERINE CARBAMYLASE DEFICIENCY. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES MUCOPOLYSACCHARIDURIOSIS. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES HEMOPHILIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES SICKLE CELL ANEMIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES THALASSEMIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES PHENYLKETONURIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES MUCOPOLYSACCHARIDURIOSIS. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES HEMOPHILIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES SICKLE CELL ANEMIA. IT IS THE ONLY TOOL WHICH CAN DESTROY THE VIRUS WHICH CAUSES THALASSEMIA.

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Out of the Windows world comes a new kind of wallpaper, from initial sketch to final coloured screens.

NEW FROM

ROMANTIC ROBOT

MULTIFACE ONE, the MULTipurpose InterFACE, was a sensation when originally released for the ZX Spectrum four years ago. MULTIFACE TWO, for the Amstrad CPC range, followed 2 years later — same pattern, same success. Now the time has come for the MULTIFACE ST — the BIG brother to the MULTIFACE family. Same pattern! Yes, and with even more facilities! So, what can MULTIFACE ST do to make an ATARI ST owner's life so much easier?

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The MULTI TOOLKIT lets you inspect and change bits in hex, decimal and ASCII; absolutely everything — including the protected RAM and ROM registers! You can FORCE infinite lives, overtake programs, fill RAM, find, replace strings, even insert instructions, etc.

Being a hardware device, 'a magic bear' MULTIFACE can back-up wherever you wish, as many times as you wish. However, to prevent any piracy, which is illegal, the MULTIFACE MUST be attached to run programs it saved! MULTIFACE will be available from November 1988, making it an ideal Christmas present for any Atari ST owner!

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Brite's No 1 (3) User Group and finalist in the 1987 Desktop Publishing Awards offer 1000 more. Annual membership of 50 includes a FREE DISK and gives you access to the largest collection of Public Domain software in the UK with prices starting from \$2.99 some day despatch and orders GUARANTEE to quote Dale Hughes, "The newsletter is a quality publication" and "behind the type and printing is a damned good user group and PC hobby". (IT World April 1988). Send a large 346 to the above address and find out about Brite's fantastic User Group or Phone Dave on 0224 691824.

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Above prices are fully inclusive and come with free User Group membership (Private and Public) - make 20004 to Floppyshop ST to the above address or phone for full price list.



DTP UPDATE

Since our mega-survey of ST and Amiga desktop publishing software in issue 2, there have been a couple of new developments. Ben Taylor examines Shakespeare 1.1 for the Amiga, and Simon Williams checks out the new version of Timeworks DTP on the ST.

AMIGA

SHAKESPEARE 1.1

£148.95 ■ Amiga only, all models ■
Cloudfall Ltd, Boreas House, 40 Hazelwood Road,
Northampton NN1 1LN (0604 231211)

Shakespeare is a relatively new Amiga DTP package, which missed out on our grand survey in issue two. The newly-released version 1.1 seems much more robust than the original 1.0, and certainly merits a closer look. Usually labelling itself 'Shakespeare - the Page Integrator', the program claims to be particularly strong in the area of colour DTP. And after all, colour is the Amiga's strength - what's the point of being able to paste multicoloured pictures on art pages when you can only print them out in black and white on a DTP page?

Shakespeare will run on an unenhanced A500, which is a pleasant surprise (many of the higher-powered Amiga packages dole out money with \$120), although the manufacturers recommend 1MB for serious use. The package comprises two disks, one being the program disk and the other being a content selection of layouts and Clip Art covering computers, road signs etc. and holidays.

Flowing prose

There's a certain mix of the conventional and the unconventional throughout the package: as you expect, before you can place any items on a page you first have to define your page size, and then create some empty 'boxes' to put the text or graphics in. There is no distinction between the two types - you've only got one text-inserter tool, and either text or graphics can go into them, although the two can't be mixed.

You have to 'preview' all the text and graphics files before you place them in boxes. On a menu commonly named 'Chart', you click on all the text and graphic filenames, load them into

memory, and then place them one at a time into their boxes. At least this way you know when you are going to run out of memory for your page before you start to lay it all out.

Text flows into the boxes quite readily, and you can tell your font before or after. You are restricted to the font sizes supplied on the disk, which range from 8 point to 36 point in various typofaces. There are 12 points to the inch, by the way, so 36 points is about half an inch high. This isn't very large for a headline, so you'd have to insert larger sizes as graphics.

One amusing feature is that imported text loads all its bold and other emphasis commands, no matter what word processor it was prepared with. You can use the editing facilities with Shakespeare to re-format whatever you want, and you can mix any number of different styles, fonts and sizes in a text box. Text can be edited directly onscreen within a box, unlike Page Setter and Clip Artist where you have to go into a separate text editor.

Graphics

To import graphics, they should have been used as a 'brush' from an art package. This format allows you to resize and crop the graphics after importing it. There is no graphics editor within Shakespeare for knocking up quick graphics, nor any graphic-drawing tools at all. You can't draw circles, a rectangle has to be an empty text box with a border; a few

POSTSCRIPT POSTSCRIPT

When you've got your text, you can use the PostScript printer to print it out. The PostScript printer is a very powerful printer, and it can print out anything you want. It can print out anything you want, and it can print out anything you want. It can print out anything you want, and it can print out anything you want. It can print out anything you want, and it can print out anything you want.

- An overview of the full page - you can't edit the page on this screen



- Shakespeare's editing screen

- The colour rule is actually a very long thin bar

Seare

Integrator

SHAKESPEARE 1.00
IN REMOVAL

SHAKESPEARE 1.00

■ A final page printed, done on a High Speed (black and white) printer. The device to check your printer's colours carefully - have the picture of Shakespeare that you can see in the screen shot has printed out white on white - hence the black gap in the main picture!

There is no colour of a full or half paragraph subset in Shakespeare. When you justify text in a column, as on this page, each space is adjusted to put the line out, so it is very hard to get regular size subsets of paragraph starts.

has to be a one just wide text box with a border.

Text won't auto-fit text around graphics. You need to carefully check user text boxes as they don't interfere with the graphic items on the page. This is a bit hard for a high priced GTP system.

One of Shakespeare's strong points is its handling of colour graphics. The screen can only display four colours at a time, but the graphic information is in fact stored to 32 colours. Furthermore, if two or three graphics were created with different palettes, up to 48 different colours in total, they can still be printed out with their correct colours even though the screen display will look a bit strange the screen palette changes around

ing to which graphic is currently active.

Shakespeare is poor in allowing to work on the page at different sizes. They've basically got no choice, work at full size but in the sample screen dump shown in this review where you can't see the whole width of the page at once, or inspect with a fullpage overview, a minuscule size at which you can't edit.

Driven dotty

Printer resolution is one aspect of Shakespeare which makes it extremely cumbersome to set up. You have to know how many dots per inch your printer supports, and the screen is then set up to match. On a 9 pin printer, which may be 320 by 72 dots per inch, the page takes up less space on screen than a 24 pin printer which works at up to 180 by 180 dots. Because the page aspect ratio

UP AGAINST THE REST

So how does Shakespeare compare with the other major GTPs, Page Maker, City Desk and Professional Page?

Shakespeare falls between the two others. It is not expensive to use City Desk at the home user's expense, and it doesn't compete with Professional Page as a power user's workstation.

On the other side, Shakespeare has excellent handling of colour graphics. Owners of colour printers will really appreciate being able to print out any number of colours on a page regardless of the fact that only four can be displayed at once at a time.

Text handling is adequate, but not being able to automatically flow text around graphics seems to be a bit of a flaw. The dot matrix printer is a good representation of what is like when the font comes out well formatted in Professional Page, where if you don't have a Postscript compatible laser printer the output is very poor!

Overall, once you've taken the trouble to set Shakespeare up for your printer the quality of text output can be quite good. Because of text styles are lost when text is imported, it isn't suitable for long text documents, as a PageMaker printer prepares. Shakespeare is fun to use, but as a fully featured GTP system it falls to impress.

is customised for your printer, you've got to tell your Printer Preferences up left first, and if you have two printers loaded one for drafts and one for final copies you can't print the same document out to both if they have different pin densities.

The advantage of this system is that the correspondence between screen display and printed output is very good when you tell it as opposed to graphics which are mixed very well, and still print out without jagged. Printout is quite fast, mainly due to the Shakespeare 1.0 printer drivers supplied with the kit.

Features

1 2 3 4

performance

1 2 3 4

ease of use

1 2 3 4

manuals

1 2 3 4

format value

1 2 3 4

for

- Runs on unexpanded 8000
- Can include colour graphics with different palettes in same page
- Can edit text directly on page

against

- Needs to be closely tied in to a specific printer
- Lacks styles of imported text
- No page commands
- No auto reflow
- No graphics editor

SHAKESPEARE UPDATES

If you have a copy of Shakespeare 1.0, the early version, you'll want to know what's changed. Apart from fixing a few bugs and making the program more robust, the main additions are:

- The Apple's **lockup** command is now properly recognised, so you can get the DR character set on screen.
- When you import text from an **ASCII file**, which usually has a hard return at the end of each line, Shakespeare intelligently strips the returns out to give you a continuous paragraph.
- Alignment guides are shown on screen as you move boxes around. These are extensions the edges of the box right across the screen, so you can line it up with other on-screen items.
- You can now **slide a page into equal columns** for text (with rules between) with a single command, rather than driving each column manually.
- You can scroll the page by dragging it with the mouse! **bat**

ST

TIMEWORKS DTP **£99.95 ■ ST only, all mod-** **els ■ Electric/GSE, 8 Green** **Street, Wellingham,** **Cambridge CB4 5JA (0954** **61254)**

Timeworks DTP was designed to be an inexpensive Desktop Publishing program to rival more costly offerings like Ventura Publisher on the PC. It was released in issue 2 of Format, but since then two subsequent special supplements to raise its version number from 1.05 to 1.12. The price remains a very modest £99.95 (ST).

The improvements range from more accurate line-art rendering, to the ability to print a PostScript file to disk. This last feature is not something you might expect, though, as you can only print to disk if your ST is equipped with a hard disk. This might be frustrating on the lower memory 520 and 1040 STs, but there seems little reason why the file conversion routine should be adequately handled in memory on the Mega. The main advantage of printing to disk is that you can produce top quality DTP pages without the necessity of expensive hardware such as PostScript laser printers... and hard disks!

Extra file compatibility

For problems experienced with loading of text in the earlier version users to have been alerted to, and you can now specify a leading smaller than the point size of the text. Most of the other additions to the program are to increase the level of compatibility between the DTP and text and graphics programs. Word Perfect has been



TIMEWORKS DTP V1.2

The sample page shows content of the first magazine of the magazine series of the first issue of the publication. The image is a high resolution scan of the original page. The image is a high resolution scan of the original page. The image is a high resolution scan of the original page.

— The image was imported from GEM Pages on a 520 ST.

This image comes from Pages 3 file which also includes images, see page 219

Image is from GEM files, and is an example of a high resolution image imported to GEM.



■ A page, containing graphics from a variety of different packages, all printed out under PostScript.

added to the list of supported word processors, so GEM was possible to take in text in the file format. On the graphics side, the screen font format has been replaced with that used by Core Draw 2 to make import of these pictures easier. Both these two additions seemed to be geared towards the American market... since there are more STs in the US than there are in the USA, it might have been better

for GEM to work with Amos or Protext-compatible, for instance.

The other interesting addition to Timeworks DTP is the ability to print in landscape mode. This means printing along the length of the page rather than across its width and is particularly useful if you want to print a Double Page Spread (DPS) which will eventually be folded to produce the finished document. Since the paper will move through the printer in the same direction, this means printing characters sideways down the page.

On appeal

The original verdict on Timeworks DTP was very good, with particular praise for its handling of long documents. This verdict still stands, with the improved features adding to its value for money. There are still areas, such as printing to disk on nonhard disk STs, which still benefit from further work, but with a policy of continuous improvement, no doubt Electric and GEM are looking at these.

features	4.0
performance	4.0
ease of use	4.0
documentation	3.0
format value	4.0

ALREADY THERE

The original product already has many of the features you should expect from a serious Desktop Publisher. It uses GEM to provide a WYSIWYG display of a portion of your finished page, but can also show reduced size displays to give an impression of the the layout of the entire page, or a DPS. Text can be imported from a number of leading ST word processors, maintaining formatting commands and some text effects, like bold text and underlining. Similarly graphics can be imported from most of the popular drawing packages, including PageMaker and MacDraw. Timeworks can work in monochrome or four colour medium resolution displays, and the screen graphics of MacDraw are automatically converted on import.

The main advantage of Timeworks over most of its rivals is its ability to handle multi-page documents with ease. It does this through a system of 'placeholders' which let you define a particular part of text characteristics and assign them a name for a particular part of your text (like headlines, images or body copy). You can then flag text within a document with a given style, and it will take on the complete set of attributes in one go.

The program is designed to print on any printer from a 8 pin dot matrix through 24 pinners, the latest and best being up to a PostScript laser which can use the time as much as an ST. You can only install a single printer driver at any one time, which means you can't run a draft dot matrix as well as a final copy laser.

The manual runs to 120 pages, but has no index, and the original program came on two disks which require a fairly deep-winded, but easy to follow installation routine.



ON THE UPGRADE

If you've owned a 105 of Timeworks DTP you can upgrade to the new version for next to nothing. Return your current disks with a cheque to Electric Distribution at 8 Green Street, Wellingham, Cambridge CB4 5JA. If you have registered with Electric's Software Service, with £4.95 on the cheque, Electric make it £0.95. That's not all offered for a copy of the disks and a short documenting the new features.



SCREENPLAY

Despite the best efforts of September's post-strike, the games just kept on coming. Andy Storer, narrowly passed over for the Olympic modern pentathlon, shoots, swims, stears and schemes his way through the month's finest before riding off into the sunset of *New Computer Express*.



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"What planet are you from, Moby?" Seriously though, it's great to see it updated and we will with bated breath for the language versions.

FUSION might replace adventure with puzzle-solving but you'd be hard pressed to find any game with more **SYFLER ANYMORE**. Never taking **SERIOUS DEFINITION** here with colorful abstract backgrounds that should be screen-dumped to the Sun forthwith.

The **REBEL RAMPAGE** is **320K00000** is pretty grossy too. There's no way Logicon's **HAL BEEP SCROLLER** could be called **HAMMY** but there again we prefer our beef a little more sensible. Nevertheless, it's definitely worth a gander if only to catch a glimpse of the **TRULY PSYCHEDELIC** but not sequent.



It is, if only U.S. Action had sent us the **LIGHT PHASER GUN** that goes with it we could have all signed up for **RAMBO IV**.

Which isn't exactly a million miles away from **HETTER** - a topological import featuring complex battlefield sounds, an **EXCRAVATABLE REAL**, our art department have taken to wearing Conbat /logans whenever we test it. On the grounds they carry no object to test it.

So many days we wear our boots for fiction and engage in a spot of **SUB-AQUATIC COMBAT** or **OPERATION NEPTUNE**. All the graphics may take place under the surface but then it's riding the **FRENCH NEW WAVE** along with all the other topographic releases. Let's not forget **Concave** while we're at it.

Finally, we drifted back on **SUPER HANCOIN** and wandered our way around the world, then just cleared the **JUNGLES OF NORTH AMERICA** in record time when we hit a way and found ourselves in **HETHERWORLD**, a cartoonland of their own was one. This dimension can get pretty strange but **Hetherworld** makes even the **Format** office look normal. And that's saying something - how many offices do you know that have posters of **NARXIS ARNOLD**, **LOE** on the walls?

Only 14 games made it to the position in September and no prizes for guessing who that should be. Thanks, Royal Mail.

After the last issue, legal letters, and deep dinners that we journalists refer to as 'The PC Show', even more copy got delayed. To make amends, and generally **SOBER UP**, we decided to come out fighting for this one, and so there's 30 reviews awaiting you.

Only one **FORMAT GOLD** qualifies this time though **MANAGE** has hardly been off our screens since it arrived in the office. As our friends on **ACE** are only too quick to point out - Prologos should bring it out as a remake. There's **NO REAL DIFFERENCE**, it'd steal up faster than you can say **SECRETARYONHAMBAPCOMALEOSM**.

ELITE would have easily qualified too if we didn't believe there's **NO LIFETIME IN THE EXTREME (UN)VERSE** that doesn't already know it inside out. Maybe they can't train for all of you - in which case we ask that you get it updated and we will with bated breath.



LATE CHANGES

It is with deep regret that we announce the passing of Andy Stone, games writer extraordinaire. We shall miss his, not only contributions to the coverage.

Andy left us **POWER DECK** for our new baby cover magazine, the weekly **NEW COMPUTER EXPRESS**. Our next November, the **TRIP** event, the **PROG** cover, the **PROG** event. That's enough for advertising - **EL**. Which we arrange why games review items.

In the meantime, Steve Nigham joins the **Format** team on the new games covers. Our new reviews get **DEEP BETTER** - of course they can't watch this space.

Given completing the review of **Operation Neptune** it has come to our attention that the version reviewed is a development copy not intended for assessment, and is likely to show significant improvements when the final production version is released.

As with our monthly magazine, we agree to be the first to bring new products to the attention of our readers. To be fair to our readers, though we will update our review to reflect the final history of the game as soon as we receive a production copy. This will not be before the product is finally launched.



MENACE



PSYGNOSIS

Amiga - £24.95, Mouse or joystick

ST - £24.95, One October

The first release from Psygnosis's new label Psygnapse is a scorching shoot 'em up which betrays the unmistakable influence of popular arcade games like *Nemesis* and *Salamander*. *Menace*, originally known as *Draconia* but since renamed, provides some of the best arcade action yet seen on the Amiga. Past releases of this game have been lacking in gameplay but *Menace* points the way to a rozier future for Amiga gamers with its arcade quality graphics, sound and above all, exceptional gameplay.



AIM

Far into the future, six feared tyrants have come together to mark vengeance on the 'cleansing' living matter collected from other planets they have destroyed, the planet Draconia has been visited. All the other inhabitants of the universe are lost, their fate sealed. Scorching has to be done to save the people of the Universe and after much deliberation, guess who has to go in alone in a single seat fighter, against impossible odds and destroy Draconia before it is too late. Oh, you are clever...

STRATEGY

The gameplay is fairly straightforward, using either a mouse or a joystick to guide a vital fighter through six levels of increasingly difficult weapon. As usual your presence doesn't go unnoticed, and the inhabitants of Draconia shoot everything they have at you in one from and attack after another.

Each of the six levels moves the battle into a different area of Draconia, from the exotic landscapes of the Sea of Kamagah and the beauty of the Inlets of Black, to Carnegie Hill, which looks more like a scene from *The Evil Dead* than a planet's surface.

Menace features over sixty different types of alien, all of which are foilproof on your destruction. Most can be dispersed with fairly easy with a few quick blasts from your ship's heavy, but others are more stubborn.

To increase your chances, extra weapons can be collected and recharged on route, by shooting the bonus score icons at the end of each stage. Weapons include high power lasers, rapid fire cannons and turbo-cooled subtrons. Add both lasers and cannons to your ship and alien-wasting moves into top gear.

End of level guardians are the last challenge on each level and fire multiple lasers in your direction. A mixture of directional flying, turbo boost banking and a lot of luck should get you past the guardian and onto the next level. Ticking up for these monsters is the name of the game in *Menace*, though, as going up against a guardian with a single gun laser is bad news. Before you reach the end of a level, aim yourself to the left with cannons, counters and lasers, and recharge your shields to the maximum level.



▲ Waiting this alien shouldn't be much of a problem...



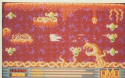
▲ Oh! What's going on here then!...



▲ As time spinning rapidly, these aliens are no push over!



▲ This pair (they haven't eaten for days - and) you're on the menu!



▲ Carnage 800 - a pleasant place to spend your holiday



▲ Attack of the Blobster Turtles!



▲ Cosmos and Lovers are built not as you come up against more opposition



▲ At the end of level confrontations it's you or him...



▲ The confrontation ends in explosion via through the planet's superstructure

CONCLUSION

Monaco will have you hooked for hours on end. The addictive (and one more game) feeling hits you every time. The mixture of arcade quality graphics, sound and gameplay make this one hot shoot 'em up. While Monaco does nothing to promote intergalactic peace, the sheer satisfaction of watching aliens blow up is just too good to miss. It all a recommended dose of pure arcade violence - just what the doctor ordered.

Jason Hoffman

GRAPHICS AND SOUND

As you would expect from Progress, Wynace seems light in the graphics department. The background and foreground graphics in all six levels are some of the best seen in the Amiga, with the decapitated bodies, rotting flesh and mangled alien skulls of Carnage 800 being beautifully stomach churning.

The graphics and animation of both your ship and all the Dinosaur aliens are all up to the same high standard, making Monaco one of the best presented games available. Even the introduction is impressive as a huge alien ship, moves smoothly across the screen filling almost the entire play area; a truly impressive demonstration of the Amiga's

graphic capabilities. Loading time is exceptionally smooth, with not a glitch in sight.

The soundtrack is equally brilliant, with a heavy rock sound track reminiscent of both Kansas and Scarsdale. It's rare to find a game soundtrack that suits the mood of the game, something which game designers too often overlook. Playing a job title dirty while spitting out a hail of stars doesn't compare to the right atmosphere. The overall feel of the game is enhanced still further with some excellent sampled speech and sound effects. Feed the sound output into a hi-fi system, turn the volume up and the lights down and the atmosphere is electric.

with graphics

0 1 2 3 4 5

moving graphics

0 1 2 3 4 5

soundtrack

0 1 2 3 4 5

looking inherent

0 1 2 3 4 5

overall 90%

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ST
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ENTERTAINMENT



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DALEY IS BACK Enter the 1984 Olympic Challenge with Daley Thompson as you 'work out' in the gym, where your efforts will directly affect your performance in the competition itself - another first from Ocean.

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This isn't just another sports simulation, this is a Daley Thompson 'event' where all his talent and humour burst through to make a thrilling and enter-taining game play for all the family. Go for the Olympic Challenge!



OF THE ART

FUSION

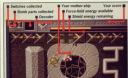
BULLFROG PRODUCTIONS/ELECTRONIC ARTS

Average - \$24.95. Joystick only.

BT - Due early 1999.

Although Powerchrome was supposed to precede it, recent delays have meant that Fusion surfaces as EA's first release developed entirely by U.K. artists. And the team that brought you *Snighthead*

meant - *Druid II* have brought with them much of the look of that game. However there's not a magister in sight here - we're talking serious annihilation as you try and construct and then detonate a bomb.



■ Spend every hour to find the basis of the bomb.

GRAPHICS AND SOUND

Despite an action window only a little over half the height of the screen, and uneven parallel scrolling, Fusion's graphics are unquestionably finely crafted and feature probably the best contoured landscapes we'll see. Each level is a mix of elevations and plains through which you can glimpse uneven scrolling pools of latticed colour threads. These is the subtly animated

enemy entities and you have a rich variety of terrain composed with great care and attention to detail that might say movement completes a very pretty picture.

Sound is confined to an ever-present background score, which tends to detract from the graphics at hand, and the usual kind of spot effects of lasers and explosions.



■ Some of the fabulous scenery you may encounter

GAMEPLAY

You begin Fusion in an *Assault Cruiser*, a slow moving ground vehicle which you direct along the contours of a subtly textured landscape on a search for your mother ship, which is concealed by a cloaking device. This brings you face to face with the five types of enemy hiding beneath sites and bunkers, like rotating plasma spheres, grey double missiles, stangerooped mine mines, purple expansion disruptors and blue edged hovering saucers emerge to work in unison against you.

Once you're in its immediate vicinity your mother ship materialises and you're able to board it. The aim is locate the nine disparate parts of a bomb distributed among the three site levels, collect and return them to the first level for construction.

Finding the parts is one thing - actually collecting them is quite another. There are a number of different coloured switches, which when activated allow access to grid areas and other levels otherwise protected by force-fields and nightmarts. To collect a key you must land your ship near it on a patch of open flat ground - a feature hard to find near anything useful - and leave the ship as your crawler to pick the key up. To make matters worse, some keys are located in areas protected by other switches so the puzzle element of the game involves determining the correct sequence of switches to activate.

To help you out in the face of prolonged physical assault are special feature icons which will provide you with bonuses such as extra shield energy, increased firepower and offensive force-field. There are also 'Save Game' icons to be found, usually near to interlevel exits where you may resume a game at a later date.



■ You find your way to a another level requires the key to this switch

CONCLUSION

Inevitably addictive, Fusion delivers a finely weighted mix of arcade and strategy elements combining to present a series of logical puzzles. Add this, to the great graphics on show and you have a game deserving to be bought. Let's hope it doesn't bomb.

edit graphics	0 1 2 3 4 5
scrolling graphics	0 1 2 3 4 5
soundtracks	0 1 2 3 4 5
loading interest	0 1 2 3 4 5
overall 82%	

POW

ACTIONWARE'S ACTION

Amiga - \$29.95, Mouse, Optional Light Gun

ST - \$29.95, version Incomplete

Every red blooded American is sickened by our enemy's injustice toward our men who gave their lives for their country. Many of our boys are still over there and you're going in to get them out. Three games where POW was originally developed? You got it. Thankfully, hiding under the propaganda is one of the best Operation Wolf-type games yet to appear on either the Amiga or ST.

This is the first of a set of Actionware games which lets you use a special light gun instead of the mouse, for added realism in combat.



■ 20 miles? Through this jungle? Count me out, tiger - leveling through the enemy lines you've got a few problems.

HISTORY CORNER

Officially the last American combat soldiers pulled out of Vietnam in 1975 when the Laotia, Saigon, finally fell to the overwhelming Communist forces.

Contrary to the official story, many Americans still believe that some soldiers are being held captive in Vietnam. This sets the scene for POW, and of course Rambo, where Sylvester Stallone proved that you don't need to be able to act to make a lot of money.



GAMEPLAY

You, the hero, are part of a pacifist team landing in the darkest jungle, from where you set about saving war-torn the entire army of Vietnam all for peace, Laotia and the American way.

Each mission takes you through a variety of different backdrops ranging from the jungle to the enemy encampment. In rescue your captives, and finally into the beach to make your escape. It isn't going to be easy, as Charlie thins everything at you in an attempt to bring about your rapid demise. As tactical help is from the side of the screen, you have to get them in the mouse-controlled windows for rapid dispatch.

First hit and you spare ammo crates fall to the ground at various times - shoot them to collect their benefits. If you run out of bullets, it's mission over.

For an extra \$49.95, a light gun is available for use with POW. This replaces the mouse and would definitely add to the realism - unfortunately we don't get one with the rescue disc, so can't say how reliable it is.



■ In the village and not a single person to shelter. Rambo eat your heart out.

GRAPHICS AND SOUND

It's not only in the gameplay that the similarities between POW and Operation Wolf are apparent. In the graphics department too, the parallels are unmistakable. Each backdrop is beautifully drawn and very detailed, with many repeats - watch out for the busy-playing twins! Beware!

The enemy has a definite South American look, rather than Vietnamese, which in the light of recent U.S. foreign policy makes you feel as though you're holidaying in Nicaragua.

Animation within POW is well designed and fast - almost too fast at all too often you find yourself overwhelmed by an ever increasing number of enemy soldiers and tanks.

POW has a rather dull music score that does not utilize whatever goes to the rest of the game's sound. The rattle of enemy machine guns and the loud screams of a dying soldier are of high quality digital sound effects.

■ You're still a long way to go before you reach the beaches and eventual safety.



■ Talk about sitting targets - it's a good thing you're there to cover your disengaged comrade as he slowly crawls up the communication tower.



■ They don't give up easy, these guys. Empty the contents frantically to the very end.

CONCLUSION

Several Operation Wolf clones already exist, but none as well put together and as playable as POW. It looks like Activision are going to have to produce something very special indeed with the official rescue conversions if they are to get POW in the shade.

edit graphics

0 1 2 3 4 5

moving graphics

0 1 2 3 4 5

sound effects

0 1 2 3 4 5

loading inherent

0 1 2 3 4 5

overall 84%



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GAME BUSTERS

When the heat's right on and your life looks a mess; when your face turns blue and you can't take the stress; where ya gonna go? Gamebusters! More insider dealings than the board of Guinness.

STREET FIGHTER

■ Amiga

Tips for duffing up opponents:
Joan - Watch baby taking her in

the arse.

Joan - Get jump high to avoid starts and kick low in the arse when possible.

USA - Joe: keep kicking low in the arse.

USA - Max: kick low in the arse until he screams down to punch you. Jump high before he punches you and then kick him in the face.
England - Birds and Eagle: stay low and wait for them to approach. Kick them in the arse to dispose of them.
Drew - Lee and Gen: arse-high kicks for these guys.

England - Adam: arse job once again.
England - Sagat: watch out for fireballs and the opponent's long reach. Jump high, kick and retreat. Repeat procedure.

Paul Ng
Sunder, Wiltshire



SLAP FIGHT

■ ST

Get into the second section with out being a shot and you will be given 250,000 points. You will also be positioned just after the first brain cell and awarded two extra shots. The more, however, accomplish this with your first life. (No name supplied)

VIRUS

■ ST

Hover close to the ground or sea and wait until you see shots from the ship above. Move out of the way at the last instant by making a 180 degree turn. The ship above will either plunge into the sea or fall a short 180 degree turn; if it gets out of the shot, you will be about it and be able to fill it all of holes.

Senders have good drops. Shooting a sender causes a drop to rotate (usually). To avoid getting more than four angry drops,

two senders and then take out the mutants. Stick to these tactics and you'll live longer.

REAR DOOR
Sometimes these boats will either come at the first occasion or give a hint of a hint of a hint and shoot.

Pods fly in figure of eight. Good to a full when approaching them and you'll be able to predict their flightpath making it easy to knock them out of the sky.

Jason Pollock
Carlton, Nottingham



Hold down the [Enter] key (or just while pressing F1) - you will enter the pause mode. Still holding [Enter], press the [D] key this gets you out of the pause mode. You will now see a red bar underneath your altitude meter. This tells you you've entered cheat mode, where the following keys might help you:

- C Turns special effects on/off
- F Adds one missile and one hoverplane
- F Removes fuel to full
- D Turns camera pivot
- S Turns cheat mode off

Bathory Cantley
Margate, Kent

IKARI WARRIORS

■ ST

Task Tactics - enter the tank as soon as possible and crash into the first building you come across. Press F1 and admire the "Game Over" message. Restart the game; tanks are invincible from now on.

David Woods
Camber, Devon

Pressing the space bar during the game lets you character move into the foliage on either side of the screen. This feature is particularly useful when you're faced with hordes of stampeding hovers. The space bar also locks the tank barrel into a set position until the key is pressed again.

W Stanley
Stalybridge, Cheshire





WARHAWK

■ ST

Press F3 once the game has loaded. Then shoot the blue blob during the game. Infinite power is yours!

Neil Grogan
Stockport, Cheshire

BACKLASH

■ ST

To get a high score move the enemy parts close together and keep your guns blazing in the direction of the part holes. Anything that comes out will be blasted. There are two parts; these can be launched together by approaching one of them from the side and pushing it until both are side by side.

Neil Grogan
Stockport, Cheshire

TRAILBLAZER

■ ST

While the game loads, press the keys (held 1 1 > Shift) a letter (with a digit on) in a circle and then type in correct. Doing the game you can press F3 to remove gravity, F5 to change the shape of the ball, F6 to change player level ball and F8 to hold to four

the digit on. **Paul Warner**
Elliott, London

WIZBALL

■ Amiga

Press the game space bar and type WIZBALL. Restart the game and press the space key again. Now hit 0 to fill the pot with the current colour.

Mark Bowles
Aldford, Wiltshire

WIZBALL



PANDORA

■ ST and Amiga

To complete the game follow these instructions. Use 01 Commander's 0 to visit Commander's room. When in Commander's room pick up blue code, scarlet code and

THIS MONTH'S WINNERS:

Edward Pinner for his fantastic ST Dungeon Master cheat routine. He gets a special prize of £50.

Paul Featherstone gets a couple of glorious Amiga games for his superb hit Palace and Sun Warriors books.

Anthony Condon wins some super ST software for his excellent Virus 100.



Commander's 0 and 01 Commander's 0 to leave room. Use Commander's 0 to open Captain's room. Pick up 500 disk and use Commander's 0 to leave room. Go to Engineer's room and pick up microphone and Engineer's 0.

Get a weapon and kill space player. Pick up electroboost. Right for Lead with microphone and then follow gender above him. Hold Engineer's 0 and enter passage hallway as the corridor. Dodge the shield and get to the APR, officer's body. Pick up his 0 and put it in your pocket. Get electro-boost to robotmechanic and he will give you the extra code.

Find main computer and

insert 500 disk and then the code is the following order: scarlet, scarlet, blue. When self destruct is initiated use Engineer's 0 to leave control room. When you are back in the corridor hold APR, officer's 0. Go to the escape pod located close to the place where you were boarded (ground) and walk through the force field. **Victor van**
Jonathan Mills
Sheffield

GIANA SISTERS

■ Amiga

Pressing all the keys that make up the word AMIGA during the game will allow you to skip levels.

Mark Bowles

THE GREATEST GAMES WAITING TO BE GRABBED

Tips, jokes and game-loading pages. Yes, we read the list. If you've discovered a secret password, written a joke, mapped a game, composed an adventure, found ways of getting high scores or done up any unclassified material that lets you in, then send us details. Doing so could win you a collection of the best new games for your machine. ST or Amiga.

Interested? Well stop gazing. Get your game buttons lit up. Send them to Constructive, ST/Amiga Forum, 4 Queen Street, Bath, BA2 0BJ. Please state whether tips are for ST or Amiga. Try and make the story and mystery - we want to know how to complete the game, not a catalogue of all known Cappeland's stuff of Frogg. Pages can be any length as they will be included on the cover disk unless otherwise printed. If a joke is very long, please send it on a 3.5" disk. Include a jiffy bag and return postage if you want it back.

We have had so much good stuff that we've had to hold a lot of it back. Don't worry, it will appear eventually. Keep sending in those materials.

AMIGA POKES ON DISK

Paul Featherstone, publisher explains on the 51st CPE scene, has devoted his talents towards loading Amiga games. And, boy, has he chosen a couple of goodies to demonstrate his skills.

The two files shown, Sun Warriors and Beyond the Ice Palace, have been given a thorough loading. Unlike files, amigs, packages and just old fashioned game files, the eggs in Sun Warriors, while the software files provided for Ice Palace should make the game easier to complete.

Double click on the driver (called Constructive), inside you will find three files: CHEAT.DOC, NAME.CHEAT, SPECIAL.CHEAT. Double click on CHEAT.DOC to read the documentation file. After that double click on either of the game-files. You don't need your own magazine with computer coding you to insert one of the original game files. Follow the prompts from there.

We need to make a backup of other files as the police don't write down on disk.

ST DUNGEON MASTER CHEAT ON DISK

The ultimate Dungeon Master cheat routine! Guaranteed you have never seen a cheat like this disk before. Edward Pinner has stored over a scolding keyboard to bring you over 500 of program that will hack Dungeon Master beyond your wildest dreams. Just look when it offers:

- After the map is all to create short cuts, new passages and so on.
- Fix the game so that doors will open without the need for keys.
- Remove doors.
- Open up places of all fourteen levels in the Dungeon.
- Insert the Cover Disk into drive A, double click on the drive A icon, double click on the POKED button when the main directory window appears and finally double click on the 00000007.DOC icon. Once you've read the documentation (by clicking on 00000007.DOC) double click on CHEAT.PRG.

Ed's program will run in any resolution, although the higher the better. It works by altering a saved game file so it doesn't affect the original Dungeon Master disk. However, read the help file present on the disk before attempting to alter a saved game file - you may not be saved quite and lose your position.

The cheat file loader can be loaded in your text. Maps of each level can be portrayed on screen and altered. Parts of the map can be turned into either corridors or walls, or even blocked out completely (this last method is a little drastic and can cause problems). It is almost worth buying Dungeon Master just to use Ed's routine.

Football management games, both Soccer and American Football, have the potential to produce excellent strategy games of some considerable sophistication. QUALSOFT produced League/Division One in 1983, and Manager 98 in 1995, but otherwise the implementation has been infantile. When Coda sent me HEADCOACH v3 for the BBC Micro, 3 years ago, I saw an American Football computer game for the first time that measured up to the same standards. QUALSOFT is pleased to offer Atari ST users "World of Soccer" and "Head Coach v3", two games I honestly believe will fill a yawning gap for those looking for realistic simulations of the real games.

Malcolm Howard, QUALSOFT

WORLD OF SOCCER

International management is the ultimate challenge in soccer. To build a squad of players to defeat the full-playing skills of Brazil, the full-play of Holland, the organization of West Germany, the counter-attacking of Italy, and the many varied styles of many others, demands an insight into the game (as amongst managers let alone fans. Do you exploit a team's weaknesses, or play to your own strengths? Do you attack down the flank with wingers, or pass to the centre with powerful midfield running? Do you play a flat back four, or use a sweeper or libero?

In "World of Soccer", players are not just attackers/defenders/midfield but goal keepers, play makers, ball winners, wingers, left, right and centre backs, sweepers (18 types of player in all). The results of matches are determined by simulated soccer matches controlled by the skills of the opposing players. Strategy is determined by the skills you build into your squad, and tactics by the particular skills you use to defeat particular teams. Substitutions and tactical moves can be made during the match to change or reinforce your plans.

For four years, through the Qualifying and Final stages of the European Championship and the World Cup, you will guide the European team of your choice. You can prepare for the competitions with friendly matches of your choosing, developing your strategy to match the in-form players at your disposal. Success is there for the taking, but it will need winning.

Choose from 33 European squads. The 4 UK home countries have 16 man squads which can be increased to 36 with players of your own. A customization program will allow squads for any of the 33 countries to be created.

HEAD COACH v3

On the field 220lb blocks of concrete on-tape collide, while a small man in a suit paces the touchline stroking his chin. He's the Head Coach. He has more tactical skill in his little finger than the BBC can muster in the entire club. Tired down and 8, he signals to his quarterback. The quarterback takes the snap back into the pocket, determines to let star running back, wheels to the right skirting two defenders, motions to throw to his tightside-wide receiver and then swings his pass back over the pack to his open Tight End. He catches and makes another five yards before being grounded. An eleven yard gain and another first down, thanks to 2 hours of rehearsal the previous Thursday afternoon. The crowd cheer the quarterback but the head coach knows that his Right Guard really deserves the credit. This is American Football, Class with mobile human pieces.

It's your first season as a Head Coach in the NFL, and you face two pre-season games. You must give as many of your 45 players a run out to see how they've come through the close season. Through these matches and the time spent at training camp you must devise your game plan to face your first NFL game. Over the next 16 games you will meet the likes of the Chicago Bears, the Washington Redskins, the Dallas Cowboys, the LA Raiders (haha). Each game will need a new plan to exploit the weaknesses and nullify the strengths of such teams, and in the game you will probe their defense and try to stifle their offense. Success over these 16 matches will put you into the playoffs and in sight of the Superbowl. Failure will give you the best of the college draft, which will allow you to make up for the deficiencies you must fix now have discovered in your side. Providing of course that the club keeps you on.

Let us be straight... Head coach v3 is NOT an arcade game. It's a sophisticated game based on American Football. For those who already understand something about the game, it's a chance to find out just how much they really know. For those to whom the game appears but is something of a mystery, then Head Coach v3 is the ideal way to find out what the game is all about. In the match itself, you have a choice of 37 offensive plays and 21 defensive plays, and so you can bias your plays to suit the skills of your squad and negate those of the opposition. The training camp will give you an insight into the current performance of your players, even checking their speed in 40 yard sprints. There's only one thing that can prevent your team from eventually achieving a Superbowl place, YOU! But we warn you, the game is ADDICTIVE.

"World of Soccer" and "Head Coach v3" are available from QUALSOFT at £17.50 and £19.95 respectively.

Dept. STAM
18 Haldemere Road
Beverage SG2 5BX

Tel: 0438
721936



Please supply:

World of Soccer £17.50

Head Coach v3 £19.95

Name _____

Address _____

Access No. (if applicable) _____



POWERPLAY

ARCANA

Amiga - \$29.95, Joystick, mouse

BT - \$19.95, under development

Powerplay is a version of the traditional pub quiz machine, with more than a passing reference to Role Playing Games. Up to four players choose teams from Greek mythology with which to engage in a contest of knowledgery. Play is based on a chessboard of colored squares, which we are reliably informed, is a charleybald in the temple of Apollo.

Each square represents an area of knowledge - general, leisure, science or historiogeography. Correctly answering a question allows you to move a selected character to an adjacent square; the objective being to eliminate your opponents' pieces from the charleybald by landing on three squares and engaging in a challenge.

A challenge, since you ask, consists of the two players competing against each other to answer questions; the first player to gain a three question advantage wins and the loser's piece is removed. As a strength factor is added to a character each time a



question is correctly answered it becomes a question of maneuvering your strongest piece to take on challenges.

When playing the computer, the reaction time you are allowed as the game progresses gets shorter and shorter. Things become almost painfully difficult when you barely have time to read the question before you are lined 'out'.

Graphically, Powerplay doesn't make anything like an interesting use of the Amiga's capabilities. Despite animated



■ Your Personal view over the tin...

movement throughout, the sprites aren't really well designed or defined. With Dons Gods keeping up and down it looks more like a scene from the local nightclub. Sound-wise, the game features spot effects providing atmosphere for the animated challenge sequences.

Although not delivering either graphical power or competitive gameplay, Powerplay is certainly a novel approach to the current Total Power/Quiz genre. If

scores were to bring out new data sets from time to time they might be on to a winner.

still graphics	2.0
moving graphics	2.0
soundtrack	2.5
lasting interest	4.0
overall	55%

LUXOR

PARADOX/SOFTWARE HORIZONS

BT - \$14.95, Joystick only, Reviewed.

Amiga - \$14.95, Due end October.

Luxor might sound like the name of an entry for the Eurovision Song Contest and with the stated objective being to rescue the beautiful Dons it could just be a romantic game. In fact, it is a good old shoot-em-up, acquiring an empowering feel-good on your first session.

The aliens range from flying saucers to miniature ROBOs and there's even an ugly leering creature with a face like an armadillo thrown in for good measure. Luxor has three levels, and a great end sequence. It begins with a spaceship which looks like some creation out of Blue Peter's hatching you onto the plans of the

evil Dons Empire. From here on in you shoot everything in sight except the evil Dons P's and W's. When you collect a full tank you can take a trip into the next level or Planet and get even nearer to your beloved Dons.

An unusual feature of the game is the appearance of a fairy. Fairies are supposed to gently catch her attention she will grant you one wish, but with it gone, leaving you usually end up wishing her to fall. She's an ugly looking creature so the probably originated from there in the first place. Chasing fairies in a shoot-em-up certainly makes a change from the usual destroy-the-universe sci-



ence. Will it catch on?

The graphics routines look aimed 80, but your alienhood seems to be leaping around in a 2D plane. Luxor's digitised sound track resembles the old 8-bit games - with the volume turned up and your ear next to the speaker you can just about make out the words 'Get Ready!' if Dons looks anything like the fairy then you probably won't want to

■ Watch the Dons enemies slung pear in a puff of orange smoke and wait for the fairy to appear.

still graphics	4.0
moving graphics	3.0
soundtrack	5.0
lasting interest	5.0
overall	60%

Mark Higney

STARGOOSE

LOGOTRON

ST - £29.95, Mouse, joystick.

Amiga - £19.95, Version 1.00/1.01.

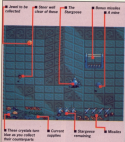
A vertical scroller in the 'Goldminer' genre will always attract serious attention from the confined shoot-em-uppers amongst you, and when the black-and features the addition of contoured

landscapes from messrs Cain and Everett, the Boys who brought you Black Lamp, you'll be tempted to buy with only a passing glance at reviews. But guess in space? Whatever next?

GRAPHICS AND SOUND

Logotron describe Stargoose as featuring 'Full-Blot Scrol' - a unique little term denoting a full use of screen width and height with superimposed status information. The look they're after is colour-on-ASCII - no fancy screen surround to make up for a reduced play area - just full-on scroll with variable speed, full-on scroll, good!

But it's the relief surfaces which make the game unique. Each level has trapped canyons of increasing complexity accompanied by cycling colour shifts. Although at slower speeds the surfaces are solid enough to scroll smoothly they do tend to begin to shake as speed increases in later levels. It's a pity also that whilst the mapping of surfaces changes from level to level the design doesn't jig noticeably after so, say in the later levels Logotron release, Stargoose. Along with a repetitive music track and compression (good sound effects that detracts from what could have been a game you'd return to again and again.



Now a garden of these rocky surfaces. You take out a couple of mines and make your way to the next portal.



Life as an intergalactic goose can get quite hairy!



I've learnt your way through a tunnel to collect as many eggs as possible.

GAMEPLAY

The task ahead of you as commander of a Stargoose hovership is quite straightforward - you have to negotiate eight (signed) levels of heavily defended surfaces, and find and collect six crystals in each. Control is best achieved with the joystick - the mouse option is decidedly unresponsive - and movement consists solely of side-to-side movement. Missiles are of more use than level-light lasers in tight situations as they clear the contoured surface like cruise missiles rather than just taking a roundabout cut. Loading and firing the missiles is a little awkward, however, requiring presses of the (Alt and Caps) keys.

The operator consists of fixed fuel/bomb level readouts and moving attack vectors whose shots gradually deplete your shield levels. As the levels progress you find yourself having to go faster and faster, but the more experienced among you won't find the challenge too daunting.

Arms, fuel and missiles will all need replenishing and this is achieved by manoeuvring your craft through the open mouths of canals. You then find yourself in a wire-frame tunnel full of large blue eyes after you must steer into to top up your supplies. Curious eh?

Although there is no save game option, Stargoose will restart at the level you last achieved. Restarting on, say, level 4 will take you back to the speed of level 1 so you can take it at a more manageable pace.

CONCLUSION

Stargoose scores in its use of relief-mapped surfaces and an original method of replenishing supplies but fails to deliver enough variety in gameplay to qualify as a classic. If it's well executed imitation you're after then Stargoose delivers, otherwise there's been no golden eggs fetched here.

still graphics

0 1 2 3 4 5

moving graphics

0 1 2 3 4 5

sound/effects

0 1 2 3 4 5

loading/interest

0 1 2 3 4 5

overall 68%

ELITE

MR. MICRO/FIREBIRD

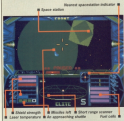
ST - £24.95. Joystick, mouse.

Average - £24.95. Unique development.

Is there anyone out there who hasn't played Elite? David Braben and Ian Bell's classic finally makes it to the ST and picks up solid 3D colour graphics on the way. Five years ago this game revolutionised the concept of computer gain-

ing in so far as it provided scale, depth and open-endedness in a competitive mix of intergalactic trade and combat guaranteed to totally absorb. And all that in 128. So how well has it converted?

■ You're about to dock at the orbiting space station...



■ Can't get you out of my cockpit... your enemy launches a desperate last salvo (upper right)

GRAPHICS AND SOUND

ST Elite has access to 15 colours which, for the old hands amongst you (and 'twinkl', might be akin to colourising an old Chaplin film, whilst the mainly mono versions provided a certain atmosphere. It's no surprise the addition of colour comes over so a touch gaudy, but then the solid 3D graphics more than make up for this. There's now a station which no amount of wireframes

could provide. Movement is smooth enough but we're not talking state of the art solid velocities here - we're talking about a game which is five years old, and in this business may as well be five decades. What you've got is a faithful rendition of a classic with solid colour and a few extra missions - no radical overhauls here - the sound department is distinctly on the 'twinkl side of right bit.

GAMEPLAY

Blargade Fowlard's science-fiction Frontier and Gemini's Federation of Free Traders proved last month, Elite's 2,000 planetary systems (strung across 8 galaxies) might seem a little confined - but how much space do you need? Elite offers two styles of gameplay which should satisfy aficionados of both arcade and strategy games.

You start off with your ship docked just off the planet Lave, an arsenal of three missiles and a pulse laser, fuel for a hyperspace jump of 7 lightyears, 100 credits and a rating as Farmer. At this point you can choose to stock up on various commodities for future trading. By playing the intergalactic stock market you can score sufficient credits to stock up on 14 types of hardware and armaments - galactic hyperdrives, military lasers, fuel scoops and missile launchers among them. Docking computers might be your best bet though as attempting to dock with a revolving disorientational space station involves manual dexterity that wouldn't go amiss at NASA. Then you trundle down to some raw aggression and commence the long climb through the ranks of Rotten Farmer, Poor Average, Move Average, Competent, Dangerous, Deadly and, ultimately, Elite.

If this isn't enough, there's a number of different types of aggressive strategy you can adopt as an alternative to the rather mundane laser bit trading. You can go bounty hunting for pirates, or become a megacorp pirate yourself, go asteroid mining or merely engage in illegal trading of firearms, narcotics and slaves. For years if you do wish, Randomness in gameplay means no two games will be the same. Good job there's a save option then, isn't it?

CONCLUSION

You can't help feeling a sense of nostalgia as Elite looks up and you hear the galaxy for the best deal to be had. If you've never played it before then it's worth buying just to find out what you've been missing all these years. Otherwise it's time to move on. Watch out for Elite 2 though - any beta it appears on the Archonews list?



■ Getting the low down on the planet you're about to pillage



■ At the above: play the intergalactic stockmarket, trading in any of the items pictured.

3D graphics

0 1 2 3 4 5

moving graphics

0 1 2 3 4 5

soundtrack

0 1 2 3 4 5

cutting interest

0 1 2 3 4 5

0 1 2 3 4 5

overall 75%

VETERAN

SOFTWARE HORIZONS

ST - £14.95. Mouse.

Amiga - £14.95. Under development.

Find off the line for Software Horizons' superbly produced, Vietnam is an Operation that does what attempts to catch the deadly realism of a campaign going about its everyday business. Given the country of origin, at least your feet aren't the only beleaguered corners this time.

The three levels of battle feature enemy soldiers, personnel carriers, tanks, choppers and gun emplacements, all lying their best to kill you down. It's up to

you to level them and pick up the extra ammo and rocket launchers they leave behind. You start the game by choosing between four automatic rifles - a M16, M14, M1 and M2. It's then a simple task of moving the mouse to target the victim with cross hairs and fire or launch a rocket. The game ends when you take out the enemy's HQ or level three.

Animation and sound is rea-



sonable, though men and machines do tend to sink their way into the battlefield under a cover of digitised fire and explosions - but the highlight is undoubtedly the chunky cleavage of a soldier in his death throes. Hardly for the squeamish, but then if you buy this you're probably a veteran of more sanitised armed combat than your average GI and won't find constant carnage a problem.

Hats off to Horizons for com-

■ If it moves kill it. If it's gold, pick it up for extra ammo and rockets

ing in at under £15 but then at a higher price Veterans wouldn't be worth an outing. Even now it's pricing it's lack a bit - it needs more levels, more varied action and a much later lead time between levels.

still graphics 3.5
moving graphics 3.0
sound/music 4.0
lasting interest 3.0
overall 60%



■ Choose your hardware - whether it's the deadly Ingram or the equally lethal Kalashnikov, you can be sure that you're in store for some seriously accessible behaviour.

OPERATION NEPTUNE

INFOGRAVES

Amiga - £24.95. Joystick only. Reviewed

ST - £24.95. Joystick only. Unreviewed

InfoGames' second game, after Hostages, couldn't be more different from the first. Set at something approaching twenty thousand fathoms under the Pacific, Operation Neptune is a sub-sea tank-and-destroyer showdown involving four distinct missions. You begin by being dropped off your jet lander to the ocean floor where you have to fend off enemy riders with your feet before your sub warheads and takes you on board. Once aboard, a small screen shows you the ocean floor and you can scroll a map showing the local environs. Here you will find the location of your sales' bases which you can use to refuel oxygen and power and identify enemy positions. By clicking on a chosen destination

you are transported through the remarkably clear and weighty depths, taking care to dodge or blind your way past various obstacles. Most are one of the hidden dangers here.

On your way you may also be alerted to two other kinds of combat. An inert screen showing your dispatch to an attack. Once on screen about you either find yourself in floored difficulty with enemy frigates, destroyers, ships and submarines dodging high-speed underwater jet-like firing charges your way. In both instances, aggressive use of the joystick, usually compasses all assistants to Davey Jones' Locker. By the time you make it to an enemy base you'll have to composition about feeding those guys to the fish.



■ What do you call a draft of Frenchmen among fishes?

Operation Neptune is a little disappointing in the graphics department. The submarine view screen is pretty small, the underwater scenery pretty repetitive and the exterior shot pretty wacky. Conversely, sound is more than okay when it comes to atmosphere but the background music is a bit over-melodramatic.

Being underwater rather than in outer space makes Neptune an interestingly designed game, but it's let down by a lack of breaks.

There's simply not enough here to engross you time after time. 50%, sorry, more fish in the sea...

still graphics 4.0
moving graphics 4.0
sound/music 3.5
lasting interest 3.5
overall 70%



SUPER HANG-ON

ELECTRIC DREAMS/MEDIAGENIC

Start ST - £19.99, joystick review

Amiga - due January '89

It's quite a change to do a spot of road racing without a huge arsenal of weapons on the end of the fire button - overtaking the gas in front is an awful lot harder if you can't blast him off the back. Super Hang-On compensates by putting a mini charger at your finger tips. If you're doing over 200km/h, you can cut in the charger, bump up the speeds to around 325 and hold on for dear life as you burn off everything in sight, whether you'll make it around the next bend is a different question entirely, but thankfully there are 28 stages of difficulty rated from 1 to 28. If two-wheeled terror is your kind of rock then this should be on your list. It's more exciting than Outrun, but is that really saying anything?

Super Hang-On is a race

against time set on four continents, each featuring colourful backdrops of deserts, fields and cities. Finish a stage in the allotted time and its onto the next stretch of speedway. You won't have much time to admire the scenery though as there are rocks, trees and lamp posts before the roadside and a bunch of other leathery looking to dive your path. Indeed, collisions with other bikes are the fastest way to get a face full of gravel so your reactions are more likely to be concerned with their cornering abilities than your own. You'll need to keep pumping that nitro through all some of those stages are very tight at times. Mouse control is quite responsive than joystick for those moments that really matter.

Acceleration is fast and solid



and collisions depicted by the kind of acrobatics that would leave you racing in a wheelchair 1845m over! - 28 for the rest of your day. There's a choice of four accompanying sound tracks which are best consigned to the background favour by hitting SPACE.

Super Hang-On is a great conversion of the Sega classic and proves yet again that the gap between coin-op and 16-bit is narrowing at the time.

Full back the throttle for a 200 m.p.h. charge across four continents.

still graphics 3.5
moving graphics 4.5
soundtrack 4.0
testing interest 3.5
overall 65%

NETHERWORLD

HEWSON

Amiga - £19.95, joystick, reviewed.

ST - £19.95, joystick, also available.

The programmer of this 31st number delight is the name Jukka Tapponen. Great name Jukka, good game too.

So you're in another time, another dimension locked in the eternal fight between good and evil, being hellish 'death-raiding' alien, or every imaginable description etc etc. You face the evil takes the form of acid bubbles,

devil-dragons, goat's heads and various nemes, as you guide your ship through level after level of mayhem in a search for diamonds. You're up against the clock and searching for a teleport to the next dimension (sounds like working for Format - 16) as you pump a million tons of lead into dragons' heads. Such noble endeavour will give you extra lives, extra points, stinking bonuses and special features like inserting all control-movements.

The graphics and sound display from 31st leaves design on gas, but shooting is obviously improved. Certain 'trigger' items flash you across three screens' worth of scintillating approaching light speed when you run into them.

Possibly Hewson's strongest 16-bit release in terms of sheer durability, Netherworld really sits in the freeware department



You carefully ponder how to get at those gems while gently blasting the living daylight out of the poor beast!

despite a rather standard scenario. It's good value for Hewson on the 16-bit format - now when

are they going to get beyond 8-bit conversions?



It's quick sales of pure laser power is all this guy understands!

still graphics 3.5
moving graphics 3.5
soundtrack 3.5
testing interest 3.5
overall 64%

AMIGA vs ST

The Amiga version of Netherworld is significantly better than the ST. The graphics are the same, but shooting is faster and smoother, the sound is more varied, and some clever programming allows more colours to be used on screen. Overall, we'd only rate the ST version at 60%.



THOSE WERE THE DAYS!

Let's go to those early Space Invaders and Pac Man when the games had not touched the arcade circuit in the UK. The game that started it all was Atari's Pong which was a rather naive effort, founder of Atari took it to the public with a version in the UK and the subsequent year he had the first effort for today's generation on the country. Space Invaders entered the arena in 1978 and exactly mirrored Pong's form due to the fact that the creator, Tomii, didn't know any better. All the game Pac Man came from was a cartoon and the original sound more sophisticated than original management, including the first main level he believed was worth a try, and was only thought of by the Atari.

ST

First, copy and load the disk as described at the end of the Disk Extra section.

SPOOKS

Public Domain
All Colour STs
FILENAME: SPOOKS.PRG,
PACMAN.DOC

Do you remember the excitement that surrounded the industry a few years back? The arcades were full of games like Space Invaders, Asteroids and Pac Man. Although the graphics and



■ Spooks (ST) - the game that gives a whole new meaning to the phrase 'Parrot Land'. Pac Man first again.

sound produced by those early machines weren't a patch on what the ST and Amiga can now produce, the sheer addictiveness of the gameplay kept gamers coming back for more. Of all those early games, Space Invaders and Pac Man proved to be the most popular among gamers. We give you Space Invaders with issue 1, and now you can complete your collection with Spooks, a Pac Man clone.

You can load Spooks either from our cover disk menu program, CLICK.ME, or by clicking on the game's icon on the Desktop. You need a joystick to control part two to play. Spooks tends to play better with the ST's internal and it is therefore advised that you turn off your ST after playing Spooks before attempting to use any other programs. Full playing instructions are included in the Spooks book.

AMIGA

First, copy and load the disk as described at the end of the Disk Extra section. These programs run on all three Amiga models. We have been unable to test them on the early version of the Amiga 1000.

AMEOBA INVADERS

Public Domain
All Amigas
FILENAME:
Amoeba_Invaders.
Amoeba_Invaders.DOC

Who hasn't at one time or another played Space Invaders? Very few. A few years back, Space Invaders was THE game to be seen playing. Some people avoid space games in front of the computer loading away at invading spaces and jumping 10 penny pieces



into the coin slots. Even in the days of more sophisticated arcade machines like Asteroids and Space Harrier, Space Invaders still continues to entertain the most hardened of arcade junkies. The top cat experience the arcade classic with Amoeba Invaders.

The workings of Space Invaders need surely be known to almost everyone, but if you genuinely haven't ever played Space Invaders (Where have you been? then at your next visit and we'll begin). You are the sole guardian of a planet being planet that has for many years resisted the aggressive alien race that is hell bent on adding your sweet little planet to its list of alien found attractions. You combat with a short, sharp 'No, Go away' as an answer, the alien take it on themselves to capture your home planet by force. With your middle laser turret, you are the final obstacle in their path. Fight back, Space Invaders, or your planet will be subjected to a heinous fate... integrated to tourists and alien soap commercials.

You can load Amoeba Invaders by clicking on its icon on the Workbench or by inserting the cover disk at the 'Load Workbench' screen. Full instructions are included in the Amoeba Invaders book.



■ Amoeba Invaders (Amiga). It's so good you'll want to have more. There are good of red, blue and green alien ships across your screen, in five-armed style.

LIGHT FANTASIA

by N. Antonson

All Colour STs

FILENAMES:

FANTASIA.PRO, FANTA-
SIA.DOC

Light Fantasia is an interactive light synthesizer similar to those made famous by the same man, Jeff Mabe. While not as sophisticated as Jeff's masterpiece, Trip-a-Loo, Light Fantasia will provide an insight into the world of light synthesis.

When left to its own devices, Fantasia runs through a preset light show. If you're feeling in the mood, though, and are geared up mentally, then it's time to take over the action and create your own landscape of spectacular, swirling colour.

Playing the keyboard of your ST can produce the best death throes of an exploding galaxy, the swirling bill



■ Light Fantasia in action. Caution - don't run this program if you're in an illegal state of mind!

lance of the fountain of light as the hypnotic power of flying light (is this figure or what?) - Ed.

Experience Light Fantasia by selecting it from the QUICK MENU menu or by clicking on its icon on the Desktop. After a few seconds Fantasia loads and displays a title screen. Press the space bar and the main program is loaded into memory.

The graphic elements employed in Fantasia are complex and require a lot of time of setting up. This is carried out automatically when the program first loads, but you'll just have to sit back and wait a couple of minutes while it happens.

Full instructions and a lot of all Light Fantasia's controls are available within the Fantasia folder.



ICON MAKER

By Richard Stevens

All Amigas

FILENAMES: IconMaker,
IconMaker.DOC

Icons on the Amiga have always been the source of much confusion. Only a select few have mastered the art of making icons (is exactly what is required. With Icon Maker, though, the process of constructing icons suddenly becomes a whole lot easier.

Icon Maker lets you construct icons of any size from standard IFF format level files as produced by programs such as, Deluxe Paint and Agni Images. In fact, any paint package that produces IFF format pictures should provide for the saving of brushes. If you don't own an Amiga paint package, the Post public domain disks are as always a good source of IFF pictures.

Not content with converting IFF brush files to icons, Icon Maker lets you reverse the process, converting icons to IFF brush files. With a little imagination and artistic flair, your Workbench can take on a whole new appearance.

Icon Maker is a fairly 'technic' program, but is designed to be as simple as possible to use. Just a point and a click is all that's required. Full instructions, including a comprehensive tutorial, are included in the Icon Maker disk. This file is definitely recommended reading if you want to get the most from Icon-Maker.

You can load Icon Maker either from our cover disk menu program Click_Me, or by clicking on its icon on the Workbench. If Icon Maker fails to work, check that you have the file ICONLIBRARY in the IRR directory of

the disk with which you start your Amiga. All AmigaDisk disks have this file as standard so it is best to load your Amiga with Workbench before using Icon-Maker.

NEED-SEEK

Public Domain

All Amigas

FILENAME: Horowitz

This is a real little demo submitted by American Mark Rigg to last year's 'Wudge Kicker' contest - a competition to find the best Amiga graphics and sound demonstration. It takes up a mere 10K on disk, which is peanuts for a graphics pro-

gram, and works in the resolution mode. Apart from being a most relaxing, soothing experience as you swing round planets and through asteroid belts on a journey through the solar system, it is a fine example of fine effective simple effects that can be used. Such fine colour cycling, shadows and angle axes of light are used to create your very own demo and send it to bed!

LEGALLY SPEAKING...

For those of you who wish to purchase a copy of Click Me, and who are looking for more information on the original source, contact me at the address given below. I will be glad to provide you with a copy of the article on how to legally obtain the source code of the program.

■ Icon Maker lets you convert designs created in art packages into clickable icons for your programs.





GIVING IT AWAY

Any program from our list will deliver "Public Domain" (or be freely copied). Through your own idea (please forward an address), these programs are now available to desktop authors - and brought to desktop pages. They are not PC. If you want to load copies of these programs, remember all you'll need is the software.

ST

ST SWITCH

Public Domain

All STs

FILENAMES: SWITCHER.PRG, SWITCHER.DOC

At every Amiga center will tell you, being able to run more than one program at once can be a real time saver. While the Amiga offers true multi-tasking, the ST's operating system is of a more conventional nature, although its wheel can be reprogrammed.

running in one half and the ST's Desktop in the other. Its simple swapping partitions, you can have full access to the Desktop without ever having to leave your wife, a real time saver.

Sounds great doesn't it? Well, there is a snag. ST Switch is not the most stable of programs and can sometimes crash when memory gets short. The rule with this one is "Don't trust any valuable data to ST Switch". Always remember, if you have been on many programs running, you could lose track so much data when the machine goes down.

ST Switch won't run from our menu program (although our menu program will run from ST Switch) as it requires a certain amount of setting up. First, copy the file SWITCHER.PRG into your work disk's AUTO folder. Now insert your ST and SWITCHER will be executed. SWITCHER is executable and asks you whether you want to split RAM, type 'Y' or 'N' and press RETURN. If you enter 'Y', your ST will reset itself and reload with two partitions, under the control of ST SWITCH. To switch between the two, press CTRL and both (SHIFT) keys. ST SWITCH works best on well balanced programs, such as word processors. For optimum efficiency, use a mouse monitor. ST SWITCH was designed as a 'fun' program and shouldn't be taken too seriously.

DESK_PIC

Program: PD

Picture: Michael Pease

Colour STs only

FILENAMES: DESK_PIC.EXE, DESK_PIC.PRG, FORMAT.SAS

Let's face it, the ST's Desktop can get a little monotonous after a while. Wouldn't it be nice if you could add a little variety to it once in a while? Well DESK_PIC and a Degas format pro-

gram can.

DESK_PIC loads a Degas format picture into the backdrop screen of the ST's Desktop. We've provided a nice picture sent to us with the program to give you an idea of what is possible, if you're the owner of a part package that supports the Degas file format or if you have any Degas pictures. This is simply replacing the file FORMAT.SAS with your Degas picture, you can a picture of your choice guiding the Desktop.

You'll find DESK_PIC in the AUTO folder of this month's cover disk. To use DESK_PIC, the program and its accompanying file, DESK_PIC.EXE, must be copied into the AUTO folder of your workdisk and your picture file, FORMAT.SAS, must be present in the root directory.

ETERNAL RAMDISK

Public Domain

All STs

FILENAMES: ETERNAL.PRG, CONFIGRAM.TOS, ETERNAL.DOC

RAM drives are wonderful things. They operate at a speed that not even a hard drive can match, and never need a low level format! But if you start your machine or if something happens to it crash, you can say goodbye to your RAM drive. Well now that's it. Eternal is a free example of a reconfigurable RAM drive, much like those already available to Amiga owners.

Eternal will run from our cover disk menu program, CLICK.ME, as it has to be run at start up. To use it, copy the file ETERNAL.PRG into your work disk's AUTO folder. Make sure it is the first thing you put into the folder, as Eternal must be the first program executed on start up. Next, copy CONFIGRAM.TOS into the same AUTO folder. To configure the RAM disk but it save data, run CONFIGRAM and access the on screen prompts.

The next step is to install the RAM drive on the Desktop. Click on the A: drive icon and select 'Install Disk Drive' from the Options menu. Enter the same drive letter (you entered in CONFIGRAM) then press (RETURN) and then click on the Install prompt. A disk drive icon now appears. Select 'Save Desktop' from the options menu and the set up is complete. Reload your ST and your Eternal RAM drive will appear.

When your ST crashes or you reset it, you must boot with the disk that holds the RAM drive program, otherwise your Eternal RAM drive will be destroyed. For more information on copying files and installing disk drives, refer to your ST owner manual and the 'How to use this disk' page at the end of this section. Full instructions can be found in Eternal's folder.



■ Desk Pic (ST) can drop a picture of your choice behind your GEM desktop screen.

called as true multi-tasking, it is possible to access multi-tasking, using the ST's machine-code interrupts.

ST Switch lets you run two programs simultaneously by partitioning the ST's memory into two independent halves. These two sections of memory both act as a normal ST RAM environment and you can therefore run two programs, at the same time, memory-wise permitting. For example, you could have a word pro-

cessing directly on its list on the desktop. Full instructions are included within the Dungeon Master folder under the file name of DMCHEAT.DOC.

DMCHEAT, the program uses a modified 'save game' file with your save designs in it, so if you have a well-honed game using the original Dungeon layout and want to retain your progress, save and load the cheatfile to it and from a disk other than your Dungeon Master disk.

DUNGEON MASTER CHEAT

By Edward Penman

All STs

FILENAMES: DMCHEAT.PRG, DMCHEAT.DOC

If you fancy yourself as a bit of a Dungeon Master, with a fair bit of dungeon architecture, then Edward Penman's Dungeon Master Cheat should prove a great help. DM's great little program allows you to change the layout of the first three levels of Morrowind's best seller.

The Dungeon Master cheat lets you completely redesign the floor plan of a dungeon, move doors around and generally have a good time playing god with the inhabitants of the dungeons.

Load the Dungeon Master cheat program from our cover disk menu program, CLICK_ME, or by



B BOOT

by I. Mitchell and Richard Montalvo

All STs

FILENAMES: B_BOOT.PRG, B_BOOT.DOC

You may remember that issue ST's Desktop section featured a tip to let your ST boot from drive B. This unfortunately involved subjecting your ST to surgery with a blunt screwing iron - understandably too much for most people's stomachs. If you're one of those people who just can't face the agony of a hardware modification, then help is at hand in the form of B BOOT.

B BOOT is a software solution to the problem. There's no soldering involved. In fact, you don't have to open your ST, so your machine's warranty will not be affected. Just run the program once and your ST will boot from drive B until you decide enough is enough and switch the machine off. There's no need for a catch you're thinking. Not to put too fine a point on that, it's all the more fun to try!

B BOOT is designed to sit in the AUTO folder of a disk. When you boot with this disk in drive A, as soon as B BOOT has been executed the boot process is transferred to drive B. The one thing about B BOOT is that it will survive all system crashes and even if you reset the machine, B BOOT will continue doing its job.

For details on how to copy B BOOT, refer to the How to use the disk section on page 80 of this month's Format. Full program instructions can be found in the B_BOOT.DOC file.

AMIGA

MIDI UTILITY

Public Domain

All Amigas

FILENAMES: MIDI.UL, MIDI.UL.DOC

Over the past couple of years the computer has become as important to the musician as his synthesizer. Many top musicians, such as Vince



■ MIDI Utility (Amiga) doing its stuff with our intimitative format made ST Amiga Format and Amiga MIDI interfaces.

Clarke of Dreamer who uses a BBC micro and the Pat Sharp Boy who uses the less famous Fairlight CMI, rely heavily on computers in one form or another. With MIDI Utility and a suitable MIDI interface, your Amiga can also get in on the act.

MIDI Utility is a comprehensive collection of useful MIDI utilities all contained in one program. Using a MIDI keyboard and MIDI Utility, you can record sequences and have your Amiga play them back. If you're lucky enough to own a Casio CT121 synth, then MIDI Utility could prove to be a great asset. The program allows you to upload and download both sound patch data and the CT121's internal voice data to and from the Amiga via a MIDI interface.

To start your journey to international stardom, you can load MIDI Utility from both our cover disk menu program, Click.Me, and from the Workbench. Full instructions can be found in the MIDI Utility drawer.

DX VOICE FILER

Public Domain

All Amigas

FILENAMES: VoiceFiler, VoiceFiler.DOC

The Yamaha DX series of synthesizers have probably become the most popular keyboards available on the market. The range spans a wide variety of sounds, varying, complexly, from the low cost DX100 right up to the latest addition to the range, the DX7-2S. One of the main selling points of the DX synth has been the versatility and ease of use of their voice editing facilities. Once a voice has been programmed, it is now to be able to keep it for future use and this is where DX Voice Filer comes in.

DX Voice Filer lets you download your Yamaha voice files through a MIDI interface and as if 'Aspen' Gen, Format have got the nice little DR MIDI interface as often the month. Turn to page 17 for further details.

Another useful function offered by Voice Filer is a random voice generator that can be used to produce some interesting sounds on your synthesizer. This feature alone makes Voice Filer instantly useful.

Due to the number of Synths with in the Yamaha DX range, it would be practically impossible to give full instructions on how to use Voice Filer on the very end of the MDI file. For full details of setting up your synth to transmit voice data, refer to your DX owners manual or alternatively, have a friendly chat with your local Yamaha DX dealer who should be able to help.

You can load Voice Filer directly from the Workbench by clicking on its icon or from our cover disk menu program, Click.Me. Full instructions are included within the voice filer drawer.

CHEATS

by Peter Featherstone

All Amigas

FILENAMES: Cheat, Cheat.DOC

Welcome to this month's underfunded gamingpage corner. If you're one of the many who are stuck on either Ken Williams or Beyond the Ice Palace from Dns, then Peter's gaming cheat routine is for you.

The cheat routine cannot be loaded from either the Workbench or our cover disk menu program but has to be loaded directly from the CLI. Don't worry, this isn't too difficult! Firstly, boot your Amiga with a standard Workbench disk and once loaded, enter the system drawer and click on the CLI icon. A small CLI window will appear. If everything has gone OK so far, remove your Workbench disk and mount the contents in your internal drive (DPO). Now type `ctrl-c` (press `ctrl-c` on the keyboard) and press [Return]. The cheat program will now load.

GOMF

GOMF's rather strange name is an acronym for 'Get Outta My Face!'. The rather strange expression, more relevant to future Mail files, is especially apt as written by American programmer's when the Amiga's disk storage capacity first decreased!

GOMF 1.0

Public Domain

All Amigas

FILENAMES: GOMF.D, Err.L, GOMF.DOC

The Amiga's multitasking operating system is among the most sophisticated available on any micro. Through the use of an advanced message passing system controlled by the multi-tasking scheduler, the Amiga was one of the first micros to offer a true multi-programming environment. True to its name, the Amiga has proved over a reputation for being rather unstable. The infamous 'Gone Mad' has become the Amiga owner's constant evil nemesis.

If you've ever experienced a software failure then you'll know how frustrating it can be. Hours of work can be lost in seconds due to some runaway program that decides it would be best to completely trash everything wrapped. If you're a victim of such, then help is at hand in the form of GOMF.



■ Wouldn't you rather have this info readily given than a deal of slow 'Wasteland' messages?

From this date you can choose to kill the offending task in its tracks, thereby avoiding another lock in the Gurus. GOMF won't stop all software failures but it does manage to trap a large percentage of them.

You can load GOMF from our CLICK.ME menu program by selecting it from this month's list of programs or alternatively, it can be installed directly from the Workbench by clicking on its icon. Full instructions are included in the same drawer as the main program.

Living happily with the GOMF-drawer is another program, called INFO. This program can be used in conjunction with GOMF to demonstrate how wonderful it is. INFO's sole role is to do a crash your Amiga in as many ways as possible and so therefore be very useful with it. Always install GOMF before turning INFO on your Amiga will have a total attack of the Gurus every time.



HOW TO USE THIS DISK

DISK DOCUMENTATION

Many of the programs on ST Amiga Format disks are Public Domain, in which means you may simply photocopy them. Standard Documentation has been changed, some required by the FIC code of practice. Some of the phrasing is "obscure", shall we say, so please don't blame us for misquoting!

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 read these instructions (carefully or you could permanently damage your copy of it).

The first thing you must do is make a backup copy of the disk. Because of the special format, the normal disk-to-disk copying methods, as recommended in the Amiga and ST manuals, won't work. Instead you will need to format a blank disk and copy the files individually. Don't panic, this isn't all that 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: drive icon to open up the blank contents window.
3. Now drag the icon for disk D 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 the hole is open) and put it in the disk drive when asked for disk D.
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 disk.

If you want to cut down on disk swaps, you can use the External RAM disk program provided on this month's disk as an intermediate step.

ON THE AMIGA (assuming a single drive machine)

1. Start your Amiga up with your normal Workbench boot disk.
2. Take a blank disk and initialize it in the usual way.
3. 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.
4. When the disk activity light has gone out, put your newly formatted copy disk in the drive instead. Double-click on the RAM drive icon to open its window, and drag program icons from that onto the new disk icon. This copies the files one by one.

The programs may not fit in the RAM drive at once on an A500 - do whatever fits it, then after step 3 come from the RAM disk by clicking once on each, and holding the right mouse button down, selecting discard from the Workbench menu. Repeat steps 2 and 3 for the rest of the icons.

USING THE PROGRAMS

ON THE ST

When you turn the ST on and put your working copy of the disk in the drive, you will see a window opened with the contents of the disk 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. As an alternative to using **CLICK_ME.PRG**, if you know enough about **CLICK** you can click directly on the icons for individual programs. These normally and **PRG** with their documentation files having the same names but with **DOC** filepages. Always read the documentation before running the program.

ON THE AMIGA

Most of the programs on the cover disk are run from the Workbench, which must be loaded first from your normal startup disk, as described in the Amiga manual. Once at the Workbench, put the ST Amiga Format disk in the drive and double-click on its icon to open it.

You should find on the disk at least for a program called **CLICK_ME**, so exactly what it says and offer a few seconds for cover disk menu program will have loaded. If you own a single drive Amiga then your machine will prompt you to read disks a couple of times before the menu is loaded. Just follow the on-screen prompts and everything should load fine.

Most of the programs on the disk can be executed from **CLICK_ME** by selecting them from the menu and choosing either to view the program's documentation or to run the program. If a program fails to load from this menu this sometimes happens through shortage of memory or unexpanded system RAM, you can load it from the Workbench instead, by clicking on its icon.

To load a program from the



Workbench, you should first Click open the drawer which contains it. For detailed comments from the program's author click on the **DOC** file icon in the same folder. To run the program click on the main icon.

When you click on a document icon file, a new window is opened and the text is displayed in a scrollable at a time. Press any key to move from one scrollable to the next, or click in the close gadget in the top left-hand corner of the window to cancel the display. The **CLICK_ME** icon gives you a brief summary of the disk's contents and how to use it.

HAVING TROUBLE WITH THE DISK?

We have done our best to ensure that the programs supplied on this month's disk are simple to use, error free and have no known viruses. However, we cannot accept responsibility 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 copies are unfortunately bound to be - you should send it back for a free replacement to:

ST Amiga Format November Disk, DeCoope Labs, 20 South Clove, Brockville, Northampton NN4 8DY.

AMIGA CERTIFIC If your Amiga refuses to accept the disk, try using the **DISKPROCTOR** utility on your Commodore Workbench disk to rescue it before sending off for a replacement. See covered **DISKPROCTOR** fully on page 82 of issue 1. Don't worry if every track gives you a 'hard error', this is the Amiga being unable to read the ST software on the disk.

WE WANT TO GIVE YOU MONEY!

If you're got any programs for either ST or Amiga which you think other readers would find useful, interesting or amusing, we'd like to know. Here's how to go about getting international fame for yourself:

1. Only send in programs on 5.25" disks, no cannot accept printed listings.
2. Make sure your disk is clearly labelled with your name and address and the program name(s), and is marked 'ST' or 'Amiga'.
3. Make sure there's 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 portrait of any creative development files. Show your address and telephone number. Include a stamped return envelope for the disk if you want it back.
5. This is **IMPORTANT!** there must be an agreed 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(s) (with the title here) have/have been submitted for publication by ST Amiga Format magazine. It is my own work and has not been submitted for publication elsewhere.

Yours,

If we accept your program, we will get in touch with you before publication to agree terms and payment rates. We will include an acknowledgment in a back issue if possible, so please allow up to 40 days for return of your disks. We will only send back disks with adequate return postage and packing.

If you send us a disk with a virus on it, we reserve the right to send round the heavy mail in the small boxes and do unacceptable things to your pet hedgehog. Similarly, there never already existed the author's program on issue 11, do check your disks very carefully.



ROBOKIT ST

PRL's PROSE software has been controlling industrial robots for some time — now it's available on the ST. You won't be able to make R2D2 fetch the tea for you, but with a good Lego set you'll discover robotics isn't just for people with three brains. Richard Monteiro, with no brain, tries it out.

WE KNOW THAT!

The robot build mentioned in our first issue, while interesting, is only an introductory model for all things robotic. Numerous details of many robot projects that can be built from Lego and Personal-Link, PRL's exciting hardware range. ST 199 is our quarterly and is £1.75 in hard back. ISBN 0-7122-0614-6.

£79.95 ■ ST only ■
Atari, Atari House, Railway Terrace, Slough, Berkshire, SL2 5BZ (0753 33044)

Unlike many projects featured under Atari's wing, Robokit is ready just six months after being announced. It may have something to do with the fact that Personal Robots Ltd (PRL) of Henley, the chaps responsible for the development and design of Robokit ST, have had an industrial version of Robokit on the go

for some years. The board and software are ready. Now it's up to Atari to deliver the goods: they are responsible for production. Will it be available next month, next year or will the sky fall on our heads first? Who knows?

Bricks and walls

Robokit consists of interface, software and manual. While you can learn the theory simply by typing with the software, you will need a Lego Technic set of parts to enjoy the practical side of robotics. Unfortunately the sets you require are expensive, since optical sensors, motors and other specialised gear go for a good £1. To make matters worse, the kits are available only from certain educational retailers, check out the guide for more on this.

The first stage is to build yourself a credible model from Lego. If you're stuck for ideas, the first part of the manual describes over 40 steps to construction projects. The projects are detailed: motor arm, lift operator, card reader, printer, mail arm. Whichever project you decide to undertake, the step-by-step instructions ensure you won't go wrong.

The manual was written at a time

when Lego didn't have any kits containing microswitches. Hence the Blue Peter-style guide to making your own. The guide isn't absolute as only the most expensive kits now contain such switches.

Along with construction details, the manual provides data for wiring the motors, sensors and switches to the Robokit interface. Once you've got a kit connected to the interface, you're ready to roll with PROSE — the Personal Robot Operating System and Environment.

Backdrop to the future

You will be prompted to load an RSL file first off. RSL files are like DOS COMMAND files; they contain information on PROSE's screen layout. Unsurprisingly there aren't any RSL files with the Lego system; you must create them.

And you'll want to display an image (called a backdrop) of PRL's Lego device you are driving on screen. All projects listed in the manual have accompanying image files in the disk, and very clearly they are big. If you create a model after that those listed in the manual, you'll need to design your own backdrop. Any of Segga, Eris, MacCharacter or GEM Paint can be used to create the backdrop.

The reason for having a stylised picture of the device plugged into the interface is solely to aid communication between you and the device. Items can be added to the backdrop. These range from arrows for representing movement in particular planes, perhaps to bands for halting all movement, say. None of the items mean anything specific, until you attach control power to them, and then they can be given any meaning you feel fit. Twenty icons exist with the



ABSOLUTE MOVEMENT

Instructions to the main arm, or whatever kit is attached, can be bundled together to form sequences. Unless special instructions are sent, all movement is relative: execution of a sequence proceeds from whatever position the previous command left the model in. Sometimes this is unimportant and action can take place regardless of the robot's position. However, there are times when knowing the exact position of the robot in parts of its pathway can be of the utmost importance. Similarly, you may want movement to start from a known position. Several Robokit commands cater for absolute positioning.

These commands rely on position reports from

the robot; shaft encoders on the motors take care of this.

Before you can use encoders, you must 'initialize' them. They then need calibrating, which means attaching some unit of measurement to the clicks of the encoder switches. One possible way of doing this is to place the arm in either object in the most extreme position and return the computer of this.

You can attach what otherwise you want a click of the encoder to represent. When the main arm performs a complete circle about the vertical axis, for example, the encoder ticks 36 times; you might choose 36 clicks to represent 360 (the number of degrees in a turn).

KITS SUITABLE FOR CONTROL

Models built from Lego, Fischertechnik, Meccano, plastic, metal or brass wood may all be controlled by Robotek. Lego is preferable as many of the kits comprise motors, solenoids and microswitches that are ideal for producing robots. You can even rig up your robot to a remote controlled car and control them via Robotek.

Several Lego projects are included with the Robotek package - those are all based around Lego components. Lego suggests some good designs with their 1990 and 1992 Technic Control Sets (which contain everything you need from basic building blocks to motors and shaft assemblies). Unfortunately these kits form part of the school range and aren't available in shops.

Committee of 292 Green Street, Dulwich, SE20 7DQ (01-889 2081) can supply you with 1990 (£75-95) and 1992 (£29-95) packages along with other Lego parts. You can also approach Lego stores at Bletchley Rd, Watlington, Oxon, OX11 7JG (0849 296000).



Many thanks to Committee and Lego for their help - particularly to Lego who supplied a 1992 kit for use with Robotek.

provision for adding others or even editing existing ones - a plus.

Be warned, the software only works in high or medium resolution. Medium resolution lookalikes suffer from being stretched horizontally and consequently are cropped top and bottom. In other words, a 640x480 monitor is recommended. PS, purchase that a scaling utility for medium res-

monitors will be included with the package Atari version.

Captain's log

Next stage is to add commands to the code. For instance you can initiate a motor, make a motor rotate for a given amount of time in a given direction at a given speed, stop a

motor and so on. Motor number, of which there can be eight, and output port number must also be supplied. Once the information has been supplied to the system, double clicking on the appropriate slot will cause part of the Lego kit to move.

You may find that the wrong motor moves, or a motor moves in the wrong direction, or for the wrong time. But it doesn't take long before you're in full control.

Robotek is at about writing some device get an well repetitive tasks. Essentially these tasks are pre-programmed sequences of instructions - something PROSE is quite capable of. Sequences of messages are stored as by Robotek as you issue them; they can be replayed at any time, and may be attached to slots if you refer to other sequences.

There remains one last noteworthy technique offered by PROSE, Input Watching. This enables Robotek to watch for certain events - a switch closing because a leggy hit something - and then act accordingly. This can be done to BASIC's IF...THEN statement, but it more powerful: the system looks for an event every few seconds in parallel with whatever else is going on and performs the consequent action immediately.

And for you?

Technical Lego is widely available - although specialised components might be harder to track down - and is a relatively cheap medium for building visible models. The control software is very easy to use and is based in a proven industrial version. The manual is excellent with numerous pages spent on the control kit, building models and hooking the finished models to the interface.

For educational establishments and anyone interested in understanding the basics of robotics, Robotek is a treat. You won't be able to control a robotic lawn mower, but you'll certainly gain an insight into how these machines work.



LOSING CONTROL

The Robotek interface is great for robots, and very simple - if about that a case. There are advantages in the treatment for adding custom priority and strongly step based for better multi-control. Steps from skills to low following through when you want to write instructions until the external high risk point is, the idea is ultimately to control your own robots are often able also to interact with any part of the system.



■ The 28 icons that can be added to the lookbook. Icons can have commands attached to them which tell motors and other components to perform certain jobs. For instance, a motor can rotate in a given direction at a given speed.



■ When you click on one of these icons a message is sent to the robot. These messages can be string together in sequences and executed in one go, hence the robot can perform numerous tasks automatically.

for

- Excellent manual
- Control software is comprehensive without being difficult to use
- Features like event sensing allow good simulations

against

- Lego kits to control are expensive
- Doesn't work properly yet with colour monitors

features	_____
performance	_____
ease of use	_____
manuals	_____
format	_____
value	_____



AMIGA AMIGOS

If you're an Amiga programmer, then these two utilities should make your life a lot easier.

CYGNUS ED

£75.00 ■ Amiga only ■ Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh EH1 3BH (031-557 4242)

What is a programmer's editor? It's not someone who leans over a machine coder's shoulder and says things like, "That splits reader's sub-bit - write it again". Rather, it's a sort of word processor especially for programming.

A lot of users will be lulled by that, because if you only program in Amiga BASIC, you won't need a separate editor - Amiga BASIC has its own.

In all interpreted languages, the editor is an integral part of the package (in compiled languages, like C and Pascal, the difference is much more obvious because the writing and executing of the program are distinctly separate).

But virtually all languages are supplied with an editor of some description, so why consider buying an editor like Cygnus ED that doesn't come with a language?

One, two, three

There are, in fact, three good reasons. First, many standard editors are not particularly good. Second, if you program in more than one language, chances are you're using a different editor for each. By using something like Cygnus ED you can use the same editor, and the same commands, regardless of the language you're using. Third, Cygnus ED is powerful enough for most word processing applications, so you may not need to spend extra money on a dedicated WP package.

TALKING ED

"What about ED," some Amiga reviewers will say. ED is the Amiga's favorite text editor for writing C/C++ routines and the like. But those who have used it will be generally familiar with the limitations of "wordier" text editors. Memory constraints and single line editing are among the biggest problems. ED just doesn't cut it for anything but the most basic editing. But if ED is poor for programming, it's an absolute write-off for word processing. The only thing you can say in ED's favor is that the price is right.

Cygnus ED, or CED as it's known, is a full-blown screen editor, and even a text document viewer. Some very powerful features, for example, you can have ten document windows open simultaneously, with a variety of uses for each.

So, you could have ten different documents open, or you could have several versions of the same document, or ten views of the same document. The difference between the last two parts is that with different windows at the same document, changes to one do not affect the others, while with different views of one document, any change is universal (unless, but significant).

Other key features include some powerful word processing facilities, such as a lightning fast search & replace (including the unusual option of using wildcards), block cutting and pasting, lots of text formatting options and the ability to display text in columns for newspaper-style layouts.

But perhaps the most significant aspect of Cygnus ED is the extent to which it allows you to set things up the way you want. Apart from choosing screen colours, there's a complete "keyboard macro" facility. This feature allows you to have CED emulate virtually any text editor or word processor you wish. The package comes with a complete set of macros to allow CED to emulate Microsoft, or you could set it up to work like Wordstar if that's what you really want.

Finally, no review of the product should pass without mention of the features that make CED one of the most interesting programs to work with. There is an automatic option which saves your work at regular intervals, should the worst happen (there's further security with a file-recovery utility). If your Amiga crashes while you're editing, you can do a warm start, run bootromchk.exe, and CED will retrieve files instantly any files that were being worked on at the time of the crash.



■ Cygnus ED working over a C program... the black bar in the middle shows the two current editing windows. In this case, we're editing two different parts of the same file at once.

for

- Highly "customisable" and friendly
- Lightning fast - even with multiple windows open
- Fully compatible with multi-tasking AmigaOS/OS

against

- Weak for advanced word processing and document design
- Although clearly written, manuals could be improved by use of example screens

features



format value





Obviously, success depends upon the relevant memory areas not being overwritten during the test, but during testing CD managed a 100-per-cent recovery record.

Too good to be true?

But despite all this power, CognosEd is not only easy to use but easy to learn. Every major function is available from well-labelled drop-down menus, and there are copious keyboard shortcuts for those who prefer to keep their hands on the keyboard during the writing process. Everything is simply explained in the manual,

although some simple screen would have made things even clearer.

For word processing applications, CD is not perfect. For example, there's no built-in spelling checker, although you could use one of the many add-on packages available. Nor will it handle certain common WP functions like headers and footers or mail-merge, nor allow you to incorporate graphics into your documents.

However, for the basics of getting words onto paper, and for programming applications of all kinds, it's fast, friendly and powerful. In fact, CognosEd is closer to perfect.

Peter Warwick



ARPI EXCUSE ME

The ARP AmigaDOS Replacement Project (and contained) by a group of five Armitas an intended development as an attempt to rid the Amiga of its frustratingly proprietary BCP-based operating system by rewriting the OS library and most of AmigaDOS's components in pure-MOS assembly. The ARP/OS commands not only are much faster but tend to be far more friendly with extensive add-on support.

Contributors have been offered ARP and if they accept, ARP could well go on ROM in future hardware releases.

WSHELL

**£32.00 ■ Amiga only, all models ■
Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh
EH1 3BN (031-557 4242)**

When the Amiga was first released onto an unsuspecting public, while much of its design was then unique for a micro, the basic workhorse of the system, its disk operating system was based on a rather dated OS called TRMOS from Cambridge University.

AmigaDOS unfortunately inherited many annoying traits such as lack of command line history and line editing. Programmers often find AmigaDOS's quirky BCP-based system structure more of a hindrance than a help and it is with all these points in mind that WShell was developed.

If you have used the famous public domain console handler, ConMan, the name of William S. Hayes will already be familiar to you. WShell continues where ConMan leaves off.

For those not in the know, ConMan is an enhancement of the standard AmigaDOS CLI handler which allows you to cycle through the history of previous command lines typed by pressing the space key, and to then edit a chosen line with the cursor keys and action it by pressing

[Enter]. Available when AmigaDOS command lines can run to 99 characters - and also writing key means copying the lot.

Alias Smith and Jones

WShell includes the latest release of ConMan, version 1.3, and offers an extensive list of new features that greatly enhance it. For example:

- **Command Aliases:** these allow you to define synonyms for regularly used commands. If you type `LS` or

game, if you don't have any, don't worry.

■ **Convert piping:** the output of one task can be channelled to the input of another, even if the are being parallel. This is like a concurrent version of the CLI's `>>>` operator.

Many of WShell's features are inspired by the Unix environment, an increasingly popular operating system in America.

Getting up and running with WShell requires a certain amount of setting up, but thankfully all the hard work is handled by an AmigaDOS batch file that simply needs to be set in motion with the OS's command `DOORW`.

The WShell manual is generally well written and fully indexed which



■ If you are determined to WShell allow you to modify your entire CLI command using system with its Alias feature. There are to begin with a clear booklet where you type `LS` instead of `DIR`.

MAN-4.1.0 is hot, you could set up the shorter `LS` to do it for you.

■ **Resident Commands:** you can permanently install any command in memory so that the Amiga won't put up a disk change requester when you try and hit it.

■ **Built-in commands:** the AmigaDOS commands `CD`, `DIR`, `P`, `USE`, `LS`, `PAUSE`, `PROMPT` and a few other exotic directory swapping commands are permanently built into memory without you even needing to ask for them to be resident; unfortunately `CD` function is built-in.

■ There's a REXX language handler, for compatibility with other REXX pro-

grammers. Many software companies tend to rush program documentation which can have the effect of making a program completely unusable to the average user.

Although Workbench 1.3 features an enhanced console handler called AmigaSHELL, WShell should still be considered a must for all serious CLI users. WShell also includes the public domain ARP AmigaDOS Replacement Project files. The powerful features of WShell coupled with ARP make the WShell package a recommended purchase.

Jason Roberts

Features

1 2 3 4 5

performance

1 2 3 4 5

ease of use

1 2 3 4 5

manuals

1 2 3 4 5

format value

1 2 3 4 5

for

- Command line history
- Some commands built-in, most can be made resident
- Comes with ARP, the "improved" CLI.
- Clear manual

against

- Once Workbench 1.3 arrives, the main benefits are gone
- Some important commands missing from "built-in" list



LEARN BASIC

We haf Arrays of making you talk. This month it's data structures and the different types of variables that BASIC supports. Simon Williams puts numbers in them, sticks words up them and pulls them all back out (sounds horrid!)

BIG NUMBERS

To give you some idea of the size of numbers BASIC can express, the estimate for the total number of subatomic particles in the universe is 10^{77} , which is a lot less than the size of the largest double-precision number.

In the first part of this series we looked at variables, the boxes where numbers or letters are stored within a BASIC program. There are two main types of variable: numeric for numbers and string for everything else. There's rather more to it than this, though, as numeric variables themselves can be divided into two sub-types: integer and real.

An integer variable is one which has no fractional or decimal part. The numbers 1, 287, 3088213 and -78 are all integers, but 1.5, 287.35, 3088213.1234567, -82.9 and 0 1/3 are not.

A lot of the numbers you use in programming don't need any decimal part and should therefore be defined as integers. There are three reasons for this: integer arithmetic is performed much faster than floating point; it's much easier for a machine to calculate 1.7×3 than 13.0×3.0 ; integers remove the possibility of rounding errors as they take no fractional part, and integers take much less space than equivalent reals.

Integers take a maximum of four bytes.

For reals, a lot of forward planning can mean the difference between running a program and having one which is too large to fit in memory. The variables and arrays used by a program can often take a lot more space than the program itself.

This isn't the end of it, though, as integers and reals can be subdivided again. If you don't tell BASIC otherwise, integers are 36 bit (that's 32768 to 32767). If you try and assign a number larger than this to a single integer variable you'll get an error message. Power BASIC (though not Amiga BASIC) allows a second type of integer, the long integer, which takes four bytes and can represent any number from -2147483648 to 2147483647. Real numbers, in both BASICs, can have less precisions, which determine the size and accuracy of the number that can be represented. Single precision, which is the norm, can handle numbers up to 10^{37} (1E+37 in Amiga BASIC) with a resolution of about 7 digits. Double precision numbers can be up to 1.8×10^{308} (1.8E+308) but are accurate to around 34 digits.

Marking up

You may be wondering how BASIC can distinguish between all these different types of variable? Wonder no longer, it's all done with suffixes. You've already come across one suffix used in BASIC to define string variables. The dollar sign (\$) added to the end of a variable name tells BASIC that its contents are a string of characters. Similarly all the numeric types have suffixes. Integers use a percent sign (%), long integers an ampersand (&), single precision reals an exclamation mark (!) - sometimes known as 'single' and double precision a hash (#). For practice, name the following variable types:

```
Word
Count
Name_of_the_
Time_of_year_of_
Total_income
```

The last variable would be a single precision real, as this is what BASIC assumes if left to work it out for itself.

As an alternative, you can use BASIC's DEFINT statements to specify a range of initial letters which automatically define a type of variable. For example, the statements:

```
DEFINT A-C
DEFINT F
DEFINT I-C
DEFINT S-R
DEFINT Z
```

would define all variables beginning with A, B or C as integers, variables beginning with F as long integers, those from D to J as single precision reals and so on. You can use any single letter, range or ranges of letters to define a particular variable type.

Know what I mean, Array?

As you know, variables can be thought of as boxes in which you store words or numbers. For a lot of purposes this is all you'll need. There are a lot of other purposes, though, when you need a coordinated set of data which is difficult to create with independent variables. An array solves this problem by providing a structured set of variables which can be treated as a whole or through its component parts.

Picture an array as a set of lockers, say 10 across by five high is total of 50 lockers. Into each of these lockers you can place data, and you can refer to any locker by its co-ordinates within the whole block, for example third locker along, or the fourth row up.

An array can be virtually any

POWER BASIC
The most powerful BASIC for Amiga
Alert BT Computers

soft

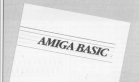
DOING IT FOR THE FIRST TIME

Using BASIC for the first time? Here's how to get the programs up and running.

Amiga BASIC first shows the computer and inserts your Workbench disk into a drive. When the Workbench appears, replace the disk with the Amiga Extras/Amiga BASIC disk. An Extras disk icon will appear. Double click on the icon and wait for the contents of the disk to appear. Double click on the AmigaBASIC icon when you spot it. Amiga BASIC is now ready to use.

On the 10 screen either insert it's cover disk or insert the Power BASIC disk and press the reset button. If you're using the cover disk, double click on the CLICK_ME.PRG icon when it appears and then select the appropriate item from the menu. For the full version double click on the POWER.PRG file icon (or AMIGAC.PRG if using the \$79.95 Retail BASIC package). You're ready to roll.

Now read the rest of the article to find out how you can create BASIC programs.



see, BASIC demands that you set them up explicitly with the DIM command. You take the form:

FOR N1 TO N2 STEP N3

where "N1" equals 1 is the name of the array governed by the same rules used in setting a "regular" variable, and "N2" determines the number of locations in a row. You're not limited to a single row of boxes, though, and could set up a block of them as in the example with a constant like:

FOR I=1 TO 10, 5

Note that the array name has a dollar suffix, indicating that it's a string array. Names like the same suffix as ordinary variables, and all elements (columns) in the array must contain the same type of data. The numbers specify a size of 10 by 5 elements. You can continue adding dimensions to the array by putting in extra constants and numbers of elements. For example, you could define a three-dimensional array by making a table of lookouts with the command:

FOR I=1 TO 10, 5, 4

When you get above three dimensions, though, it gets a bit hard to visualize, unless you're into temporal distortion.

If you want the array to be available to subprograms as well as the main program, you must add the word SHARED to the DIM statement. For instance:

FOR I=1 TO 10, 5, 4

A good READ

The advantage of using arrays is that you can perform repeated calculations on numbers or strings in the boxes of the array. This is most easily done with a loop, such as a FOR...NEXT loop (covered in issue 8) and is particularly useful when loading in or printing a lot of information. The program TELEPHONE.BAS on the disk uses WHILE...WEND and FOR...NEXT loops to input up to ten names and telephone numbers into two arrays and then retrieves any number when given the name to search for.

LISTINGS ON DISK

To complement this month's installment on data structures we have two short programs that give you an opportunity to improve or adapt them.

To use the program array.AMIGAC first you'll need to insert a Workbench disk, then the BASIC Extras disk, double click on the AmigaBASIC icon when it shows on the screen disk icon. AmigaBASIC will load. Go to the Program menu and select Open. Click on the browser separator and select TELEPHONE.BAS on the filename separator. Insert the format cover disk containing the BASIC files, type in TELEPHONE.BAS and press Return. The file will load. You may run it by clicking inside the BASIC window and typing RUN (not forgetting to press Return) (alternately use the filename PROGRAM.BAS instead of TELEPHONE.BAS for the second program).

Loading listings into POWERBASIC often require working with issue 2 (and) need your ST and place the issue 2 cover disk in the drive. Double click on the CLICK_ME.PRG file icon when it appears. Choose Power BASIC (F1) from the menu. Power BASIC will load. The BASIC listings are loaded into Power BASIC by inserting the current cover disk and selecting Load from the File menu. Double click on the TELEPHONE.BAS or PROGRAM.BAS file that appears in the file selector box. The chosen file will load ready for viewing. Screenviews listings of these programs are also on the disk with this listing. These can be loaded into any format version of Power BASIC, but can be read with either the full version of Power BASIC or, with some modifications, any other ST BASIC.

There are two more commands which are very useful when reading into an array: READ and DATA. You can load information into your program by including it in lists after the word DATA, and read it into the location of an array with the READ statement. Have a look at the program segment to see how it's done:

```
FOR COUNT=1 TO 10
FOR COUNT=10 TO 1 STEP -1
NEXT COUNT
FOR COUNT=10 TO 1 STEP -1
NEXT COUNT
FOR COUNT=10 TO 1 STEP -1
NEXT COUNT
DATA 1,2,3,4,5,6,7,8,9,10
DATA 10,9,8,7,6,5,4,3,2,1
DATA 1,2,3,4,5,6,7,8,9,10
DATA 10,9,8,7,6,5,4,3,2,1
DATA 1,2,3,4,5,6,7,8,9,10
DATA 10,9,8,7,6,5,4,3,2,1
```

This program defines an array, sets it to 1, and reads 10 arrays' names into it with the READ statement. Each time a READ is performed the count variable is incremented so that the next READ file another location. The whole process of loading the data is carried out in just three lines of BASIC, as is the second part of the program, which prints out the array's names in reverse order. When BASIC comes across a DATA statement in normal program execution, it ignores the line and goes off right on to the following one. You can therefore put DATA statements anywhere within a program. BASIC remembers which DATA items have already been read, though, and will always go to the next item with each new READ.

The second program, PROGRAM.BAS on the disk shows how TELEPHONE can be adapted to load names and numbers from DATA statements. PROGRAM.BAS also uses a few dimensional array rather than the less simple dimension ones in the first program.

MARGINAL FACTS

- Southwest - a South American continent
- Mythology - a pretentious pronunciation
- Amiable - a friendly (Synonym)
- Blank - almost meaning more than in the word
- Anterior - anterior which sets out
- Exquisite - spiky antler
- Franchise - sticky antler
- Tepee - large mound, related to the alphabet
- Opposite - world's largest island
- Copper - large rodent, important for fuel, now sold in East Africa

RESTORE

If you need to restore the data pointer back to the start of the DATA statements in a program, you can restore the \$D\$DRL command to do so and then RESTORE can then be used to move to a label and before any DATA statements.



DESKTOP

Dodges, Enhancements, Secrets, Kludges, Tricks, and Oodles of Prices — That's Desktop. All the facts you need to further your understanding of the ST. Roland Given of Brentwood wins £30 for sorting out printing problems from First Word.

More Desktop

Further to the tips on backing up with **DESKTOP.BK** published in issue two, Rikke the MSF file you will find a file similar to `00 00 00 00 0000`. By altering **PRG** to something else — **DIR**, say, if you want the computer and try to create any **PRG** files, you will find that you won't be able to. It's a great way of playing jokes on fellow STers, allowing file extensions from **PRG** to **DIR** will enable you to exclude the files in the usual way.

R Henderson

Liverpool, Merseyside

Bright lights

Once the password or pencil facility within **Neochrome** and press the right mouse button while the pointer is in the drawing area, you'll find that any lines you draw will appear multicoloured. (Select colour cycling for a really interesting effect.)

Micky Ogawa

Hampstead, London

B for drive

The method of allowing software to boot from drive B as described by **St Mason** in September's desktop is neither safe nor easy. A far simpler method is to load in a software patch from drive A which alters one of the ST's system variables. This then forces drive B to boot whenever a reset occurs. The assembly program below, written as **Fast BASIC**, forces drive B to boot when the reset button is hit.

```
FORWARD 00000, $100
PAPER->74, 007000
ON ERROR CLOSE #1;CALL 000
11474=99999999 "BOOT_B.BAS"
FOR Repeat TO 74
```

```
OFF Repeat, 70400->71, 11200
END 00000
P&A boot, 0, 0, 0
```

```
MOVE $00, 0-0071
TRAP #04
boot_0
MOVE #1, 0000
MOVE #0, 0000-0071
P&A
1
BOOT Repeat
CLOSE #1;CALL
```

Save the code into an **AUTO** folder on drive A. When the machine is reset, the code will not forcing drive B to boot. Provided the machine is not switched off, all subsequent resets will cause drive B to boot.

On the cover disk is a folder called **LSBOOT** you will find an **AUTO** folder containing **LSBOOT.PRG**. Copy the auto folder and its contents to another disk, insert the disk with the **AUTO** folder in the drive and press the reset button. Drive B will boot from now on.

I Mitchell

Canbury, Surrey

File selectors

The standard **ST** file selector isn't mentioned at all in the **ST** owner's manual, so here are some notes concerning its use.

A file can be selected by either double clicking on the appropriate filename or by typing in the name of the file selector prompt and pressing **Return**.

A list of all available files is shown in the box headed by the file bar. Only nine filenames can be displayed in the box at once; the others can be viewed by clicking on the arrows at top and bottom of the box. Alternatively the scroll bar can be dragged in an upward or downward direction. Any items with a diamond icon to the left of them are folders, not files. These can be opened by clicking on them once and usually contain more files.

If you click on a folder the new pathnames (the previous path

with the new folder name added) is shown under the 'Directory' heading. This can be glossed manually. Get to it using the up arrow key or by passing the mouse pointer on the Directory bar and clicking. The left and right arrow keys move you through the directory pathnames. You can enter characters or remove them (**Backspace**). **Esc** clears the pathnames completely; clicking on the file bar restores the pathnames to **Acta 0**.

To register any to the pathnames, either click on the file bar or anywhere underneath it. To set a folder click on the 'folder bar' icon on the left of the file bar.

Incidentally, as well as using the wild card character ***** — which is used to replace either the name or the extension (**PROG*.***) or ***.PRG** — is pathnames, the question mark **?** can also be used. This replaces a single letter in the name or extension. For instance, ***ST?** or **DESKTOP?**.

I Mitchell

Canbury, Surrey

Scart races

Medium resolution displayed on a television leaves a lot to be desired. The way round this is to buy a **\$400** colour monitor — fine if you've got the sort of desk to house around. However, there is an alternative if your television is fitted with a scart socket. It will look something like:

This socket offers a much improved picture. Unfortunately there is more than one scart standard. When you purchase an Alan Fowler level you will find that it's wired to **CMA 1** specification; this may work fine on some televisions. If not, then by the following alternatives, connect Alan monitor pin 8 (12 volt) plus to scart pin 8 and place a +1 to +3 volt dc level on scart pin 35 (this can be derived from the 12 volt Alan

monitor pin 8 via a resistor). Switch the television to **All PCB** mode and all should work.

Here's a pin connector table for scart sockets:



pin	RGB standard	CMA 1 standard
1	sound out R	r/c
2	sound in	sound in r/c
3	sound out B	r/c
4	ground	ground
5	ground	ground
6	sound in B	sound in b/c
7	line	line
8	12V supply	r/c
9	ground	ground
10	r/c/r/c	
11	green	green
12	r/c/r/c	
13	ground	ground
14	r/c/r/c	
15	red/red	
16	RGB status	r/c
17	ground	r/c
18	ground	ground
19	r/c/r/c	
20	r/c/r/c	r/c
21	ground	ground

Note that the sync signal is derived by connecting line 4 (RGB monitors) to Alan monitor pins 9 and 11, and then combining the two monitors at scart pin 20. Only one ground connection needs to be made.

Format health warning: In wiring appears some oddities. Don't attempt the project if you are unsure what a resistor is or have never used a soldering iron. Remember, most ST repair shops will be able to make use of their ST trouble simulators for you. Of course, it will cost more than having it yourself, though.

Mark Dobby

Falsworth, Manchester

Perverted characters

When you're using ST BASIC by pressing **Control** while hitting keys on the keyboard, you'll discover an abundance of extra characters.

Phil Schoen
Wichita, Kansas

Last word on First Word

Having trouble printing all the ST's symbols from First Word? Here's a solution, but first a paragraph of explanation.

Most printers have different character sets from the ST; some Brother 805, for instance, can't even cope with printing the font 88 and pound 82 on the same document. The problem is, as far as the printer is concerned, that both symbols occupy the same ASCII number. Your printer will print 'f' for the font symbol with the printer switched to US character set, but 'f' for font with the UK character set installed. Some printers allow you to switch character sets from software, others don't.

The solution is to edit using First Word: the printer driver for your printer and re-install it. For the 805 it is best to start on the file ASCIIHEX which can be found in the PRINTER folder. In the part marked "Translation table" find the line

82 = no pound sterling

and replace it with

82, 88, 89, 90, 91, 92,
 93, 94, 95, 96, 99

• Pound sterling

What the hex numbers mean:
 82 - Aster code for pound sign.
 88, 89 - puts the printer into standard graphics mode.
 90, 91 - tells the printer to expect no columns of graphic data.

92, 93, 94, 95, 96, 99 - data linking up pound sign

Save the modified file and run the fontal program to create a new version of 100.FONTLOAD. Move this file into the same directory as First Word. Also make sure that the printer is set to USA character mode.

If you don't have an 805, consult your printer's manual - the principles are the same. You will also have to determine how large characters are so that the graphics symbol set fit in exactly one character space. Using a similar method it should be possible to print any of the ST's peculiar characters. However, as the characters end up as graphic data,

BEGINNER'S CORNER

VIEW MENU

The third option in the menu bar is View; this lets you control the display. For instance, files can be displayed as icons or text and may be sorted in a number of ways.

Make sure you have a window with several files in it displayed on screen. Move the pointer pointer to the View option; a menu falls down. You should see a number of items - two of which have ticks on the left of them. These ticks tell you which options are currently selected. For arguments sake assume "Show as Icons" and "Sort by Name" are ticked like this. These options mean that files will be represented by icons and displayed in alphabetical order.

SHOW AS TEXT

When Show as Icons is selected, all files are represented as icons with their filenames beneath. Sheets of paper with a corner folded over represent data or text files and those with a solid bar at the top are programs. The third type of icon is the folder icon which looks like a folder.

To display files as text simply click on "Show as Text" from the View menu. When a file is displayed as text, the window shows the filename and size as well as the date and time the file was last modified. A small diamond icon next to a filename indicates that the file is a folder, not an application or text file.

SORT BY NAME, DATE, SIZE OR TYPE

Opening a window causes files to be ordered according to the sort option from the View menu:

- Name - displays files in alphabetical order.
- Date - lists files chronologically. The most recently created or revised file appearing first.
- Size - lists files according to the number of bytes they occupy - largest first.
- Type - shows files alphabetically according to their extension.



■ The View menu allows you to alter the way files are displayed on screen.



■ And again... this time files are ordered according to the extension.



■ This time files are shown as icons in alphabetical order.



■ The same files shown as text in Date (chronological) order.

effects such as bold and underline won't work.

Richard Green
Brentwood, Essex

STAC stuff

By altering system messages 9003 and 9034 you can change the colours on the top line of the screen. You can even add graphic characters or sound. Book of Bytes, by instance.

Certain messages and command lines on the "garbage" file are not always required. Message 9033, for example, will only be used if you are taking a two-card game. Once deleted these will save a little memory. It's extra spaces are also memory hungry. They can make messages look ugly and take up precious bytes. Locations with large pictures only need small textual descriptions.

Less priority commands,

which give general replies. ("You can see nothing special," "You fly into the air" and so on) should be added only when everything else has been tested. Try to put a general reply for as many words as possible.

JAMP - "Wheel both jumping fun?"
HELP - "You're lots of money."
DS - "You can't dig here!"
© Henderson
Liverpool, Merseyside



TIPS

WORKBENCH

Enough tips to satisfy Alex Higgins on a bad day – two pages of hither-to unknown tricks about the Amiga and its software. This month David Millard from Gloucester wins £30 for his neat method of creating animations on Deluxe Paint. Could it be you next time?

Deluxe Animator?

Here's a way to get simple (and colour) animations of up to 30 frames using the 'colour cycling' facilities of Deluxe Paint. With adaptation, the same method could be used for any art package offering colour cycling.

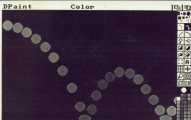
For example, try making up a bouncing ball animation. You could just be a ball dropping and stung, rebounding as it hits the ground. The colours that are open for you to use are numbers 3 to 32 on the palette. Select colour 3 and draw a filled circle at the top centre of the screen.

Now draw a sequence of balls of the same size falling to the bottom of the screen – the best way to do this is by picking up the first circle as a brush. Try to make the gaps between each ball bigger as they drop further down – in real life balls speed up as they drop under gravity.

At the bottom of the balls path where it hits the ground, draw a flattened oval so if the ball was rebounding as if it bounced. Draw more circles to represent the ball bouncing back, making sure there are no overlaps with existing circles. You can have up to 30 objects on the screen, one of each of the last 30 colours on the palette.

For a quick preview, press the [F6] key (above [Ctrl]) and you'll see the colour cycle – but it gets better.

Go to the palette editing menu by pressing [F]. Redefine all the colours 3 to 32 as black – the best way to do this is to click on colour 32, drag its colour bar to black, click on colour 3, drag its bar to black, then you can change all the rest at once by clicking on 'Spread' (you will see the cursor change to a 'T' prompt) and then clicking on



■ The screen set up for a bouncing ball animation in Deluxe Paint (Deluxe Animator tip). All the objects are the same except for the fill patterns where the big hits the ground.

colour 32 again. This makes colours 3 to 32 an even spread of black to black in 30 discrete shades of black.

Now make colour number 32 the shade that you want your animation to be seen in – something bright to contrast with the black background is good. Check that 'C1' is highlighted in the 'Range' bar of the palette menu, click on colour 1, click on 'Range' (the cursor changes to a 'T' prompt) and click on colour 32.

If you don't use all 30 colours in your animation, just edit the defined range of colours after the last colour you do use, and make that last colour the one which is different from the background.

Save your new palette, and you'll see that only one of your balls is visible on screen now. Press [F6] and the whole lot should animate for you in a cyclic arrangement. What is happening is that the one colour which isn't black among colours 3 to 32 is

progressively assigned to each of the balls in the sequence in turn, giving the illusion of motion.

You can alter the speed of the animation with the 'Speed' slider on the palette menu. With a little experience you can get top-notch visual effects using this technique. David Millard

Gluester

■ Workbench editor adds a useful tip when trying to draw 3D objects, each the same but one palette colour on from the last, is to use Deluxe Paint's 'Cycle Draw' command. Pick up the object as a brush, from the



■ Setting up the palette for the bouncing ball. Only colours 3 to 32 are used, so the Range (marked by the white line on the palette) ends after number 26.

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This standard Filofax (®) size ring binder is an essential purchase for any self-respecting ST/Amiga owner. The 80 pages are divided into four sections – blank sheets, a filename list, a disk list/space organiser and a directory or folder list.

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GOLD DUST

Yo, Uncle Sam! What's with the brain drain from Atari US? Why is everyone resigning? And why is the Amiga A2000 a turkey to PC users? Steve Gold posts another monthly despatch on the American

Full details of Atari's new 100 for the ST series have now been released. The developer's version of 100 comes supplied on disk, but despite my enthusiastic comments in last month's column, it now looks like it'll be the beginning of 1990 before we can try the new 100 available on the side of the Atari.

The product failed to be well worth waiting for, however. Even on the same for most users it is the provision of a hard disk cache ability that should speed disk operation up at least.

The bad news is that the Mega ST equipped with 4MB seems to be causing problems with beta and versions of the new 100. This appears to be due to



the new operating system allowing programs to access system RAM slightly higher than 4MB, with the result that it's corrupted the machine crashes.

The good news is that the new 100's features are a great improvement on existing versions. Major improvements include: better compatibility with IBM PC disk formats (watch out for some new PC emulation packages for the ST); a '99' OS/2 program can now be submitted from disk, and the cloning of a single floppy system file into all available memory for buffer purposes.

Taking of PC compatibility, the new 100 allows a soft reset of the ST to be carried out using the (power) or a (Control) (Shift) key combination. Most

you, if using PC-style commands to reboot the machine is a fair taste of things to come with the new 100, some ST users might be considering it as a retrograde step.

Going, gone

Talking of retrograde steps, sources in the US suggest that the 68030 add-on card for the ST, currently still under development, it may yet see the light of day as a separate machine, it is not capable of multitasking.

Since the primary reason for using a 68030 microprocessor on other machines and workstations is due to the chip's three power and capacity for multitasking, this has to be a real disappointment.

There is another, however, it reports that Neil Harris, top technical guru with Atari for the past four years, has now left the company. Neil left a sad message on several online systems in the US during late September, telling everyone that he'd had enough of the company.

Reports suggest he had just two hours to clear his desk and vacate the building after he tendered his resignation. The good news is that Neil has joined Genie, the Washington-based online service, to act as a technical adviser for Amiga and ST online services.

Gone too is Jim Eisenberg, one of the two people who worked on the design of the ST. Details of Eisenberg's departure from the company, and his whereabouts today, have not been disclosed.

Virus news

Things are pretty quiet on the Amiga front this month, with little real development from Commodore itself. The addition and Amiga-released third parties continue to provide the Amiga user base with some interesting

products, however.

Computer magazine's reader division has just released a book called Computer Viruses. The \$14.95 book details most known viruses on the Amiga, as well as on a number of other machines like the Atari ST included.

Unlike other books on the subject, however, Computer Viruses contains technical information on how the viruses attack the Amiga's operating system, and simple steps to prevent a virus taking hold on your machine, as well as sources of virus protection packages.

Computer Viruses is written by Ralph Roberts, the author of Computer's Using Turbo Basic and Using Microsoft Sprint. Computer



Viruses should be available from major bookstores in the UK. Order using the book's ISBN number 0472454178 (5). In case of difficulty, call 0303-708254 (972) or write to Ralph Roberts, PC Box 8454, Raleigh, NC 27604 in the US.

A dodo, Actually

Back on the Amiga hardware front, sources in Computer magazine suggest that the long-awaited 68030 AT bridge board for the Amiga may be out in its final form by the end of the year. The bad news is that, according to those online Amiga users who've seen the board, it's going to vary between.

Several members of the Commodore Amiga Developer's 385 advice forum writing politely for the ST-compatible bridge board have now given up on waiting, and bought an 68030-based PC to around the 2300 mark.

Since both machines can be linked using a 20-way serial cable, this may be a cheaper option than going for the Amiga plug-in card. The attraction of the Amiga 2000 as a PC stand-in seems to be waning in the UK. I wonder how many Amiga 2000s have been sold in the UK to potential PC users - not many, I suspect.

■ 'Gold Dust' is compiled from the US online services by Steve Gold, a freelance journalist specialising in computer communications. Email, industry tips and comments are welcomed on Television Gold 737 842288 or via the US Email networks: Compuserve 7603 L, 1154, 26662 (88) & CRL and the Source on F2005.

HAMMING IT UP

For those Amiga users who are Radio Amateurs, the Amigan Hamnet Club has sprung up for business at Commodore's Amiga Development (second) annual group (288). The club has more than 210 members at the time of writing, including Amiga users from 11 countries, many of them in Europe.

In the UK, Bob Whitehead (G3RMB) of Oxford, Steve South (G3WPM) of Wiltshire, G3J3 (ST) is maintaining a UK database of information on using the Amiga in liaison with a radio transmitter. Bob has started a UK Amigan Hamnet newsletter - it's worth contacting him direct, if you're into packet radio on your Amiga.

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A pirate speaks

I thought I would write to put the definitive argument for software piracy. Firstly, the mistake many program designers make is going against the ordinary strategies. We all know the argument about destroying the software industry (yawn). There is only one word for that: "banal". Whether a company is a large or small one, the objective is the same - PROFIT. My incentive is as justifiable, I also want to profit by my activities. When things are looked at from my point of view, it can be shown that I have the more valid and ethical arguments. Once again, before the designers pitch in, I am an ethical individual, I recognise right and wrong when I see it, not when I'm told to see it.

My needs are more important than some feeble-let me siting around waiting for the profit/loss to come pouring in. So be honest, I do not give a toss how much time or effort he/she puts into their product. Do they care how little money I earn and how little I can afford their inflated prices.

You may think that this is just the selfish comment of a disingenuous ***** if so then I write that, while you are building up a righteous indignation, try to extend your indignation to cover more than the superficial arguments created by the computer media. I believe they have a vested interest in the high price of products, for do they not also gain by the increased expenditure of glossy (and unnecessary) adverts?

Frank Toddy
Hull

Despite all your rhetoric, I can't see any definitive argument. Your main point seems to be that the software companies/authors earn a lot more than you. Perhaps if you took the time to acquire the skills and just do the effort that's needed to write a piece of commercial software, you would appreciate how the 'fat cats' there are around. That is what, whether it's software, TVs or cars, and no amount of whinging is going to change that fact.



Not another day with the computer in the end but it's better than a day without it!

puter with a language disk will just a running guide.

At first I was annoyed at not getting a programming book, but soon I was forced to buy one for £12.95. It was then I discovered how slow and useless Alan BASIC is. I just couldn't do anything with it and soon gave up. My parents seeing my depression went out and brought fast BASIC for £49.95, but this just confused me more. I even joined their user's club, but it didn't help much. Now after 9 months I have about 7 games, am almost bankrupt but still don't understand any form of BASIC and to make it worse still, what do Atari go and do, they put a 1 meg drive in a new ST and I hear that Atari are going to drop their price back to £2799. I'm going to ask Atari corners like thousands of others into buying their computer, and now we have been misled in the back. I'm now considering selling my ST etc (at a big loss) to buy an Amiga but that has been saying for ages, and how can I be sure that Commodore won't do the same as Atari?

It's all for improving computers but why can't computer companies do a deal with owners of their products so to replace out dated systems or to offer discounted upgrading of existing computers. I know it is said that this is impractical or rather said to be, but why should people like myself be sold down the river by Atari like we have been. Oh, you might say that the situation isn't as bad as I make out but how long before enough new STs are sold before software firms switch to making games to take advantage of the 1.44 Mb drive. And Oh so computer companies are out to make a profit but not of those profits can't they at least play fair with existing owners.

Baron Black
Hilling
Hull

I really can't see why you're pig shit. You still have a very decent computer with a good BASIC. You can't really blame Atari and Computer Concepts for your difficulties learning its programs. Have you followed our Learn BASIC series - that's a third year for you.

It really is unreasonable to expect Atari, or any other computer company, to provide all working users with special offers when they release new versions of their hardware. You wouldn't expect to have your HW, TV or video upgraded, so what's so special about a micro? You can get a good-sized drive fitted to an ST - ask your dealer.

Software companies are also in business to make money, so it's not a long time before they abandon the single-sided format still used by the majority of STs.

The right connection

I am the proud owner of an Atari 520S/519A and am desperately trying to find out how to plug my computer into any amplifier or into a system. Please could you help me?

Wayne Harris
Gateshead

You need a product called Monitor Master, available from Saff's very own, dear Barn Computer Shack! 02025 310280 at £25. This provides separate phone outputs for connection to an amplifier, and also lets you switch between two monitors. If this is too expensive, see how it's Cheapest, which explains how to fiddle the wires out of the monitor socket and connect them straight into a speaker.

Boring questions

Totally was incredibly boring but at least this lot is intended so I decided to write to an intelligent informative incredibly good magazine. Guess what, I write to you instead.

Once to serious business now. Since I am a simple, basic person, I will ask simple basic questions.

1. Can you connect the ST straight into the telly?
2. Possible about two deals of the ST and what are do other games with it?
3. Why can't I think of another question?
4. Is a mouse that useful?
5. Does the LazerMaster 4-player extension work with just 2 joystick plugged in?

Raymond
Limerick
Ire

I, my ST model with FM after its number includes a modulator and can be plugged directly into a TV.

The £2000 is currently available in two guises - on its own for £299 or with a selection of ST games and an Organiser GEM program for £399. The games are: Marble Madness, Tetris Drive, Beyond the Ice Palace, Slippy City, Eddie Edwards Super Ski, Ken Williams Thundercats

organ's DFI drive and the Bridgwood's 5.25" drive? I've tried setting up a virtual drive on DFI, but to no avail.

Mark Goodrich
BWF Bawtowers
Suffolk

I've been trying to obtain a Bridgwood from Commodore for review for something over three months, now, so do help with or possibly be based on what we imagine to be the case. According the Bridgwood will through the hardware of the Amiga, there should be no problem in saving text files to the internal drive, though they will be saved in AmigaOS format rather

than MS-DOS. As far as an understand it, the Bridgwood can't cope with writing to the internal drive in MS-DOS format due to the multiprocessing requirements of the machine.

I can't get no satisfaction

I have an ST FM (the old job) with a half megabyte drive. I got it for Christmas last year believing that for a bargain last year of £299 I had got a fantastic computer that I would learn BASIC on without the loss of a better computer for at least a couple of years. It really I had bought £280 worth of com-



Reviews
 Zynaps
 Quachain
 Stampale
 Chopper 2
 Assaulters
 Osmar
 Arkonoid 2
 Black
 Black Lamp
 Genesis
 Thrust
 Second Star
 Summer Olympiad
 Return to Genesis
 3. I bet you can.
 4. Yes, if you ever do any drawing, painting or DTP.
 5. Yes.

Bias tracking

In your first three issues, out of 23 games reviewed, you have managed to find 3 that are Amiga only and only 2 that are ST only. This amounts to some 21%, and as you well know, is totally unrepresentative. So far, you haven't reviewed a single game of the increasing number that are now ST cleaner than the Amiga, you've misinformed as about Arkonoid 1 - it's not coming out on the Amiga and would have

been ST cleaner anyway, not £13.95 as you stated, the official about 1 was only 2 pages away from your review!

If it's your intention to promote the Amiga and belittle the ST, there's no need to be so dishonest. If you think ST owners will be happy with the misrepresentation you are surely mistaken.

I read the majority of the computer press, and at the independent sources I've seen say there are at least 125,000 ST's and about 25,000 Amigas in this country. Who's your independent source, a professional Amiga dealer?

If you continue to bend over backwards to appease Amiga owners you'll surely lose all your ST customers. By trying to hide the truth you are doing nobody any good especially yourselves.

Hi Lowline Review

Oh, come on, Don't be so petty. Every magazine makes the occasional pricing mistake, and according to my information Arkonoid 2 will come out on the Amiga. More and more games companies are releasing ST and Amiga games at the same price, which is what's reflected in the

No trials

Why is our other national game, cricket, so rarely implemented on a computer and these days not at all? I remember about three versions written for the Spectrum, all pretty dire (with the grudging exception of OGL's first Match), both in graphics and gameplay, and these days quite unobtainable. One can only imagine what 16 bits and half a megabyte could do for a cricket simulation. In fact, it might turn out to be the only way to beat the first Testers.

There must be a programmer out there who is, also a cricket fan! Where is he/she, for the love of Blenheim? I cannot believe that a decent cricket game would not be greeted with wild enthusiasm by British ST and Amiga owners. The basic rules and structure of cricket would translate easily enough to computer code. One's play compared to Center Command, surely?

Although integrating a credible game with realistic graphics might prove tricky. So please, you software houses, fill this glaring gap in the UK market-place and restore our national pride at the same time. Failing this, all readers should write to their MP or this magazine.

Hi Lowline London

Please make that your MP and NOT this magazine.



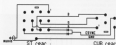
It's not just the game that's important, it's the quality of the graphics too. (The author's drawing.)



Figure 1-Digital RGB



Figure 2-Analog RGB



Join the Cub

After having read your reply to Mr. Deitch's letter in the September issue of your incredible magazine I thought that I must point out that I, like Mr. Deitch, upgraded from a BBC to an ST and, not being able to afford another monitor, decided to use my Monitors 'Cub' after much experimentation and burnt fingers, I found that it is possible to convert a standard TTL, equal Cub into an analog input.

All that is needed is to remove the back of the monitor. On the left hand side of the Cub near the back is a row of links which should look like those in Figure 1. Moving these to the positions in Figure 2 will make the monitor accept analog input. As for the cable on the Atari, I simply use the Hi-Fi that I used for my BBC's. Most 500 when given adequate output (40 watts) will drive the Atari monitor connector and also a stereo. 13 pin DIN connectors for the Atari monitor can be obtained from MORG, 25 Queensbury Station Parade, Colwyn, Merseyside, Merseyside, Merseyside.

J. Heath

Basic

Monitors say that this modification is possible with most models of their Cub range of monitors, though very early models (prior to 1982/83) may not have the links available. Look for a circuit board labelled 0005003 and for plug P1200. This is the link described by Mr. Heath.

reviews. You believe whatever sales figures you want, but your Amiga figure is very low.

Speech, speech

Could you please suggest a good (but not too expensive) accelerator for the ST, and a good (but not too expensive) fonts designer which is compatible. Also, at a point of interest, on the BBC '97 there was a very good speech synthesis program running in the machine's OS. It makes you wonder why no ST games have such a feature, using the amount of memory which is often left unused - it would make an ST version of Microsoft Word just the same as the Amiga.

James Broad Oxford

then films, among others, are great accessories at modest prices. Superior Software's Speech program for the BBC Works, which you mention, is really not in the same league as that used in Microsoft Word. You can understand the one in Microsoft for a start.

Simple soul

I do like your mag and I am forever picking it up, one thing I find a bit annoying though is you write your mag as though everyone knows what you are talking about, you haven't made much allowance for the complete beginner like myself. Even the manual which came with the Amiga was of very little help. I bought the manual of the Cub but was told enough but this was to help and seeing as the

■ MORG's Despatch ST and Hi-Line



Mail order mayhem

The reason I am writing to you is to complain about a software mail order company and the situation in which I find myself.

I have owned an Atari ST for almost a year now and have been thoroughly pleased with the computer. Like most users of 16 bit computers I feel the price of software rather high, particularly in comparison to 8 bit computers. I tend to buy software by mail order from adverts in computer magazines. I feel these stores provide an essential service as, not only do they provide software at a reduced price, but also make buying programs easy for those amongst us who may be disabled, or live in a small community and do not have access to computer stores. This made me write with my own problem.

In October 1987 I saw a review for the game *Herzogalt* by *Magazine* in a computer magazine which heavily recommended the game. Also in the magazine was an advert for Mailsoft of PO Box 589 London W13 5UL in which the Atari ST version of *Herzogalt* was on offer for £13.95. On the 20th October 1987 I sent off an order to Mailsoft, enclosing a cheque for £13.95, dated 28th October 1987 and made payable to Mailsoft. In mid November 1987 I received a bank statement showing that the above mentioned cheque had been cashed and cleared on 26 November 1987. I then sat and waited.

By March 1988 I was getting tired of waiting so I wrote to Mailsoft asking for a refund. I received my reply to that letter but decided to wait a while longer.

In early August I became aware that the Atari ST version of *Herzogalt* was in general sale, so expected to receive my copy at any moment. By 18th August I had still heard nothing, so decided to write to them asking either for a full refund, a copy of *Herzogalt* or for them to contact me and explain why they had not contacted me before.

At this time I have still heard nothing from Mailsoft, so I am writing to you for advice. I have copies of the letters written to Mailsoft and also have both the cheque bank statement and the bank statement showing when the cheque was cashed.

**John Bell
Ipswich**

■ You really have left it an awfully long time before taking any action. Mail order companies are bound by law to display a full address in magazine advertisements, not just a PO box number, or the company books suspect. As they're refused to reply to a series of letters, and presumably you have no telephone number for them, your only other recourse is an approach to the magazine concerned who may be able to furnish your details. There are many suppliers more loyal to Mail than Mailsoft, any of whom would be likely to have copies of *Herzogalt*.



A cheque made payable PO Box 589, to be sent from the bank late and then never to.

was my first disk drive on the *Amiga* I feel that I need some help. So now, here are a few questions that I need help with. I will be getting my new *Amiga* soon so I want to be ready for it.

1. If you write your own program and transfer it to a disk, if the disk is only half full, how do you record onto the disk after the first program?

2. I received the golf game *Leader Board* with my *Amiga*. The instructions in the manual led to lead my 'kickstart' and then the game. I didn't get anything called a 'kickstart' and even with the *Workbench* I still couldn't load the game. In fact, it said somewhere to initialize the game. I did as directed by the *Amiga* and blanked my master disk before I had the chance to copy it.

3. I had great trouble trying to copy my first disks, in fact, I couldn't, the computer beeped that it couldn't read it. This is because they are for ST and *Amiga*! I had no trouble just loading the disk but I had trouble trying to run *Worm* from disk 2. In fact, I couldn't run it.

4. I tried to run 'Disk Doctor' not for any particular reason, but the *Amiga* didn't know what I was talking about.

5. What do you mean when you say 'Boot Disk'?

6. There is a decent book that I could purchase that would help a fairly big amount. And a book with some sample programs that I could type in so as to give me some idea what a program looks like.

I would appreciate your help with these problems. Please confirm will your paper mag and good luck for a long and successful publication.

**Mr M Bell
Birmingham**

■ We do try and cater for all levels of experience within *Personal*. Perhaps these answers will help:

1. You're still thinking in cassette mode. Disk drives spin data all over the disk's surface. You don't have to worry about where the file is physically recorded - that's all handled by the disk operating system.

2. *Kickstart* is a program which is stored in ROM on an *Amiga*, so you needn't worry about loading it - it's already there. *Leader Board* starts without loading anything. You see it as you enter your *Workbench* disk.

3. You won't be able to copy all the files from the cover disk if you go, due to the special format, but you should have no trouble copying file by file. Follow the

instructions in the *Disk Extra* section of the magazine.

4. *Disk Doctor* is a file on the *Workbench* disk, but can only be operated from the *Disk* and the *Workbench* user screen. Unless your *Amiga* supports running *Disk Doctor* from a separate disk, it's safest not to use it.

5. The term is normally 'boot up' and simply means to start up your computer in the normal way.

6. *Amiga* specific books are fairly thin on the ground, but you could try 'The *Amiga* System' available from *Perseus Software* 61-330 7566.

PD?

At present, I am attempting to set up a Public Domain software library for the Atari ST and was wondering whether the ST part of your cover disk may be distributed as PD. Full acknowledgment of your magazine would be included on the disk. If you wish it could be offered as a Shareware disk.

Also might I suggest that you denote a page or two to reviews on Public Domain software and suppliers. This could also include listing suppliers to prepare a file of their catalogues for the cover disk.

**Tobias Van Vredenburg
London**

■ Anything marked as 'public domain' on the *Disk Extra* pages can be freely redistributed. However, inaccurately the ST part of the cover disk is mainly copyright to the readers who have written the programs and sent them in, if you have any specific requests for permission, send them to us and we will pass them on to the authors. We do register PD updates in *Format*.

1.000 and 1.1

You cannot guarantee that your free disks will run on *Amiga* 4100, you see. So perhaps I can help you by advising that there should be no problem if *Amiga* owners own 1.1 of *Kickstart* and *Workbench*. Both these are on disk with the *Amiga*, which has no *Kickstart* in ROM, so it is possible to upgrade from the previous 1.1 supplied with new *Amiga*s. And of course, it will be easier for *Amiga* owners, like myself, to upgrade soon to 1.3 version!

**Michael Kingston
Bristol**

■ They should be available from Commodore dealers as and when the new versions are finally released.



Call that a boomerang?

This is either one test of a speed, or the Aussie really are as macho and fun-loving as Paul Hogan would have us believe. And when the last 20 years of any thing have almost convinced us of the average Australian's thirst for caffeine and the finer things in life, Boomerang bounces back with all the old cocktail (and explosive) jobs that should have gone out like the Legends on Bondi beach.

The game is based around a Rockman-style update wandering round the suburbs of Sydney boomerang off the coast of the big

city with a boomerang. Sounds plausible? Well the program is actually designed to teach basic geometry, as before you swing your ring at the muzzer you have to determine the slope and intercept of the straight line that will connect the two. If this is not enough, our hero offers lines like "broadly" and "bore the cross" periodically.

The game comes complete with catalogues and order forms for boomerangs and back hats. Costs an optional extra.

Disk Virus?

Faced it would appear that some copies of ST Rings Format went out last month with a virus on the disk. No, sorry, not a virus, the Virus. A few puzzled readers, not quite knowing whether to believe their luck, rang in to report that their cover disk appeared to contain a complete version of the then-unreleased Amiga version of Pippin's Virus, the game that topped the ST charts.

If only it was elaborated it'd be a great marketing ploy - Every month we're giving away a few free complete games, but you won't know whether any copies has got one until you lay it! No, it seems that Frontier and Format share the same disk duplication, and a very fine pre-production sample of Virus got mixed up with the Format cover disk set.

If you have Virus and you'd rather have the Format cover disk (duhduhduhduh!) Of course you would, just return it to DeCruz Ltd. at the address given on the back of the month's disk card.

Show Me

The 1988 PC Show cost more light than ever to sell either last year product than usual. The Photo Organizer, instead of Marks and Spencer stock-checkers and yappers with 80c pockets, was thrown in for. The tie up with M & S obviously goes deeper than at first imagined. Judging by the stall (pictured), it seems a deal has secured many hundreds of the 1st calculators against a job lot of used machines and the routine jump suits even sold by the clothing retailer.

Not content with stores helping from every corner of their land, exhibitors chased one of their executives to a table opposite the tube station and ordered him to look busy with one of their laptops for five days. Judging by this shot, he failed fairly early on. "Hello" "Hi" jokes were not appreciated.



Superheroes, Inc. by Sarkis





ROBBERY

Banks, an aghast and clever bear that targeted a fortress 24 hours a day for his loot and most during ROBBERY. With no alarms or visible guards and fabulous treasures, yet it has been avoided like the plague by the criminal fraternity. Better some business deal?

AMIGA (19.95)



HOPPING MAD

Grand Prix driving made it essential to replace the cracked highway of speed. Overtake the racers, use the road that get in your way but the engine roar and the tyre and steering wheel. Acquisition of Super Cars and other resources depends on your strategy and timing skills.

AMIGA (19.95) (2 DISCS)



EMERALD MINE

A gem arcade adventure which has received two reviews. Each level has its own unique solution and requires ingenuity and dexterity to complete. One player or two players TEAM action for added enjoyment.

AMIGA (14.95)

COMPA PLUS 4 (17.95) (2) (3 DISCS)



SUNNY

Progress through 24 levels of this fast and furious action. Lightning missions are secondary to the strategic choices between better weapons or better defence.

AMIGA (14.95)



FACE OFF

Experiences the sheer pace and exhilaration of ICE HOCKEY. Be prepared for the body checks, fouls and rough play. League competition, 1 or 2 player action.

AMIGA (16.95) (14.95)



STEP POWER II PLUS

A budding evening with Sam & Diana

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SP-AMX (16.95) REC. 11 ELECTRON

COMPA PLUS 4 (17.95)



CASH

MICRO TEST

Ideal for home and business use. Menu driven to enable a novice to use powerful capabilities with minimal reference to the tutorial manual.

Micro Test - a powerful data base with fast SEARCH and SORT facilities includes a very flexible label printer. Sorted files can be used by the Micro Test user. Processor is used personalized letters. A boon to any Club Secretary.

AMIGA (19.95) (2 DISCS)

MICRO BAGG



BEVERLY

BEVERLY

Beverly is intensely pursued by the creature's underlings to clear the Black flag engulfing the world capitals. An electronic game requiring quick thinking and action.

AMIGA (16.95) (16.95)

COMPA PLUS 4 (17.95) (2) (3 DISCS)



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