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See page 116

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The Format crew take to the skies without leaving their seats. The answer to this apparent riddle is the flight simulator. From £30 games to multi-million pound professional training simulators, Format flies the lot.



ALL CHANGE

Over the last few months you'll have noticed a startling change in IT: *Aviary Format* - it's so big! You may also have noticed other alterations: meanwhile Editor Ben Taylor has been promoted to Systems Manager (which means he gets to fiddle with Mac Playmate all day) and I have moved into his hot seat; Stuart Anderson has joined the Format crew as Production Editor (as well as being a wala with words and FTP systems, he's an experienced philobotomist); the layout has been given an overhaul by an supreme Gordon Bruce. Flick through the issue - I'm sure you'll agree, it's a changer!

R. Montrose

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All that's happening in the world of CAD/CAM.

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ST

Archipelagos - playable demo of Legend's Farad (GEM-4500 game); Reply 2 - sampling software for ST; project; Coder - crash game with music; Playmate 2 - latest release of the file compression utility; Fasthouse - speeds up mouse operation;

AMIGA

Blood Money - fast and furious playable demo of Progress's shoot-em-up; Diskit - disk utility; Disktop - program editor for customising keyboard layout; Four - monochrome version of Carmen 8 game; File Reporter - disk reporter for programs.



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ST AMIGA FORMAT (TALK A BIT TO US) ARC LINE UP TO DECEMBER 1988

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FLY THE WORLD WITH THE AMIGA — PLAY THE ATARI GAME



MONTEIRO'S MONTH

Finds us who tried to play the playable demo of *Liz McTrackson* last month. Don't get very far, did you? That's 'cos it ain't playable. Yes, I know it said 'playable' on the cover, on the disk label, in the contents, and in the disk pages several times! We, the sordid lot.

Well, it wasn't actually our fault. Former *Liz McTrackson* is being distributed in the country by US Gold, the designers and programmers, formerly, are Lucasfilm in the States. US Gold agreed to run a demo on our disk; they had to contact Lucasfilm and tell them exactly what we wanted and when we wanted it — a 200K playable demo of *Liz* as soon as possible. Somewhere along the way, the communication line was severed, it wasn't until all our colour pages had been sent to the printer that the demo arrived by Federal Express. And, as you know, what an awful mess what we wanted.

We did fail on our last page that things might go wrong, the last thing we heard before receiving the demo was that Lucasfilm were going to attempt to send it to US Gold down the telephone line.

Anyway, it's sure you'd be more than satisfied with the program on the disk this month. *Playable* demos of both our former Gold games. On the ST side there's two levels of the immensely addictive *Archipelago* while on the Amiga side there's 20 screens of *Blind Memory*. You can't complain about that!

R. Monteiro

BUNDLING DEALS TAKE OFF

Both Atari and Commodore have launched their new bundling deals on the latest and greatest machines available.

Buy an Amiga and see the world. Commodore's bundling deal on the 4000 is more than the usual lot of games; it includes 500 Air Miles. The Air Miles deal allows you free passage on flights of over the planet if you collect enough — and 500 will comfortably get you to European cities like Paris or Amsterdam. Or you could collect more — many high street stores offer them like Green Shield stamps — and take an international journey.

The rest of the 4000 package is a TV modulator, the Sprint card program and three games: *King's Rites*, *Arborea* and *Starfly*.

Atari are refusing to elaborate on their plans for a revamp of the 4000 50000000 games bundle, but their toppers like *Out Run*, *Clawed it*, *Amberstar*, *Prostar*, *Space Harrier*, *Eliminator* and *StarGazer* are considered likely to be included.

Games editors are also being cagey about their involvement in the deal, which Atari's Bob Gieseler said would produce a pack which "will be so strong it will still be attractive next Christmas."



High tech this high — visit Peter's Computer Centre with your Amiga's free Air Miles



Seasonal news for *Dragon's Lair* fans: it's coming out on the ST. ReadySoft in the States are currently working on the ST version; this comes as a surprise as it was claimed by Entertainment International — UK distributors of the Amiga version — that there would be no ST translation.

We will early days and ReadySoft aren't committing themselves to a release date or to a UK supplier. The Amiga version comes on six disks; how many will the ST's come on? Remember that Amiga disks store 800K and single sided ST disks manage around 360K. Surely the ST version won't come on 12 disks? ReadySoft aren't saying anything at this stage. It's certainly going to be interesting to see what appears.

Dragon's Lair has already appeared on the ST in video disc format. Early last year Microdeal arranged a scheme whereby owners of a special video disc player could buy the *Dragon's Lair* disc and control the game from the ST. The laser disc player required its own television while the ST needed to be connected to the ST's monitor. At all stages points in the action, motion would stop and your ST's screen would request you to press a key to go left or right, draw your sword or go on. Microdeal have dropped the product.

DRAGON'S LAIR ON THE WAY FOR ST

QUICKIES

- An improved version of *Egypte* *Montez* for the ST has been released by Soft City 010 030 23 28. It comes with a faster and has improved control routines. Existing users can upgrade to version 1.3 by returning their original disk with a stamp to cover postage.
- Amiga-Care is a comprehensive support package which has just been launched by Barracord Graphic Design of Harrow 018 907 3836.
- It works on the principle of buying units which can be exchanged for services — one unit for a technical repair, 10 units for help for simple call out and so on. You can also use units to buy insurance.
- Language specialist HGold 02075 718181 is importing Data Pacific's Spectre 128 Apple Mac emulator. The advantage the emulator has over others is that Mac files can be read and written by the ST.

MORE QUICKIES

- **Intelligent Music's Realtime** responder for the ST is now available from ROMMaster 801-174-4134. It can handle 256 tracks and you edit in real time - hence the name. It costs \$299. Also for the ST from ROM is **Dr T Orchestra**, a sound database which allows you to sort through thousands of sounds. You can also merge and merge sounds.
- A collection of fancy borders for graphics and BMP applications is on sale from Electric Distribution (0800 494654). **Border Packs** contains 43 patterns in QEM Macintosh format on ST format disk for £29.95.
- You can transfer your favourite 32mm sides and points to Amiga disks. **Jonathan Blackmore** has the expertise on 0902 115325.

- You would have thought Australians were the best people who would want to trace their ancestors but it would appear not - a new program for the Amiga called **GENP** is designed to help them discover which one they were descended on. It is a genealogical database with facilities to display "pedigree charts", GENP costs 170 Australian dollars plus post and packing from Genealogical Programming, 87 Charing Market, Cheltenham, Victoria 3192, Australia.

- Database's latest piece of educational software, **Fun School 2**, is now available on the ST and Amiga. The program has three different versions for under ones, six to eight-year olds and over eight. Database is on 9623 676660.

- **Budge 1.0** are a small band of unpaid games programmers who put their work into the public domain. They have 25 ST games on offer from the usual PD distributors. Contact Simon Bush of Budge at 41 Park Road, Reading, Essex SS8 888.

- **Trilogic** 0274 891315 have brought out a stereo digitiser for the Amiga. It plugs into the head phone socket of your PC and is fully compatible with Audiomaster, Perfect Sound, and ProSound. The digitiser costs £37.95, and you can buy it with ProSound for

MORE QUICKIES

A HARD DISK FOR UNDER £300

Tempest Computers are offering to make up hard disks to order for the ST and Amiga. They reckon to supply disks of any capacity and speed! Prices to start at under £300. That's an impressive goal considering the cheapest facilities on the market is Third Coast's 20Mg ST drive - even that costs £395.

Gary Duke, Tempest's technical sales manager, said: "There is no reason for hard disks for the ST and Amiga to cost so much. I can supply PC compatible 20 or 20Mbyte disks for under a third of the price of ST or Amiga drives. Manufacturers know ours will pay inflated prices, we hope to put an end to that and release drives of variable prices."

- **Tempest**, 803 Moss, 140 Maple Hill Road, Walsparan, Shropshire, ST19 5AG, 08770 574666.

UPGRADE FOR HACKER'S SIDEKICK

Less than two weeks after the announcement of the ST Multiface 1.4, Roberts (Robot) have started shipping version 2. The latest Multiface 2 is claimed, will stop all software. Once stopped, memory can be viewed or edited and a snapshot of RAM saved to disk. Most unregistered software can then be stored and continued from the point at which it was halted. Not all can be restored though.

What makes the Multiface different from other copying/tracking devices is that the hardware chipset must be attached for memory snapshots to record and exclude corruption.

Along with an improved success rate, the version 2 Disk Debugger (an optional £20 disk

utility program on ROM that sits beside the Multiface ROM software) can be called from anywhere with the Multiface menu, has a better printout option and can cope with wildcards.

A bug which prevented the Multiface working with Mega ST4s has also been fixed. The mouse the device didn't work, it hasn't yet, is the same mouse that much software falls down on the beyond Mega machine; the software tried to read or write beyond the 8Mbyte limit.

A disassembler ROM, which will let you disassemble logically enough halted programs, is nearing completion. This will let you back £19.95 when it's finished.

The Amiga version of the Multiface isn't expected for several months.

- **Benjamin Robot**, 84 Beaumont Ave, London, W9P 6RN (01-290 8430).

GET GAMES TAPED

For that Entertainment Weekly cover up with a new line of checking out the latest games releases - a video tape. Every other month they will publish a tape with around half an hour of highlights from games currently under development and expected to be released in the coming few weeks.

The videos - which will cost £5.99 each - will feature a presenter in time-lapsed TV fashion. The presenter will commentate on the games as they are played.

The 16th annual tapes will feature *Man 20*, *Amiga*, *DM64*, *Spectrum* and *Atari* CPC games. The first tape goes on sale on April 28 and will be available from all good software retailers.

FLAIR DEAL



■ **AND** well-received ST painting package **Flair Paint** has been taken over by Database Software, who will distribute it for £10.99 under their own label. Meanwhile we'll still be at £24.99 under their own label. Meanwhile we'll still be at £24.99 under their own label. Meanwhile we'll still be at £24.99 under their own label. Meanwhile we'll still be at £24.99 under their own label.

ATARI MAKE BRITISH DEAL ON CALAMUS DTP

BUT GREY IMPORTERS ARE SET TO MAKE A KILLING

Contrary to news stories in several magazines, BMC Germany are not at odds with Atari UK over the handling of the monster DTP package Calamus. Rumours erupted after Signa Publishing announced that they were to take over the distribution of Calamus in this country. This revelation strengthened industry pundits' assumption that BMC are unhappy with Atari because of the delay in the package's launch in the UK.

Les Froyer, Atari's technical manager, put the record straight: "Yes, Atari UK are sitting on Calamus, but that's because the original version is so badly buggy that we feel it isn't right to release it in that condition. Consequently it is being rewritten for the UK market. Atari are publishing Calamus which means it will have an Atari label. Signa will be distributing the product - and hopefully providing excellent support - for us."

The official launch date for Calamus is the end of



"It's good at making headlines"

April, but they're about all that is concrete. Proposed price is £295 plus £130 for every extra font required - although

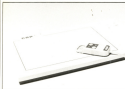
neither Signa or Atari were willing to confirm this.

It is possible to get hold of a grey import of

Calamus from Gaiotta. The price is £290 which compares favourably to the Atari-quoted tag of £295. However, don't get too excited because it transpires that the American version won't work on UK STs and, claim Atari, the US version is badly bugged. The reason for the US version not working on UK machines, it seems, is not because of poorly written code that accesses the ROM, but a protection mechanism that checks to see if the machine is of US origin. If the computer isn't from the States then the software refuses to work. Gaiotta are currently working on the problem and promise to have a solution by the time you read this.

■ Signa Publishing (official UK distributor): Tyneside House, 10/11-13 Hill Lane, Colchester, Essex, CO1 2 5BA (0207 613400).

■ Gaiotta (grey imports): Use Box, 4/5 of 7 Wellington Road, Sandhurst, Surrey, GU12 5AP (0252 671633).



AMIGA KEEPS TAKING THE TABLETS

A graphics tablet designed specifically for the Amiga is being imported from Germany by Rembrandt Graphics Design 001-907 9000. The SMP tablet comes in two versions: one 84, the other twice the size (160). Rembrandt claim the tablet to be compatible with all leading Amiga DTP, paint and layout software. The tough surface of the tablet is extremely resistant and now you allow the horizontal and vertical aspects. SMP comes with a range of available as an optional extra. The 84 version costs £495, with the 160 model weighing in at £295. The price is an extra £95.

HOW STRANGE IS MY SOFTWARE?

OK, so you use your Amiga for playing games, but what else?

The odd letter or two maybe? Come on now, you're not lying, there must be something unusual you do when you switch on your machine, and we want to know about it.

Commodore are offering equipment to the value of £500 to the reader who has the weirdest, strangest, most innovative use of an Amiga in the home.

The competition will be tough - for instance we know of one Amiga owner who uses his

machine to work out the menu for his pet rabbits.

The winner will be chosen at the Commodore show in London in June. The best ideas will be asked to demonstrate their innovations at the show in the Festival in Rembrandt.

To enter, write a brief description of your own peculiar use of a computer - 500 words or so - and send it with any support materials on 84 to Commodore Competition, ST Amiga Annex, 4 Queen Street, Bath BA2 1JJ.

WIN £500-WORTH OF GEAR FOR THE MOST ORIGINAL USE OF AN AMIGA.



COMPUTIN' USA



Aid Amiga amigos assembled at the Marriott Marquis, New York, to wander around and witness the recent AmiEXPO show. It was a record attendance as TONY THOMPSON reports.

There were more than 60 exhibitors at the New York show. Saturday's event was so crowded it was difficult to move around the small exhibition hall. The big turnout (over 12,000) was an interesting contrast to the 7000 or so visitors at the October 1988 show in Los Angeles. Naturally there were enough new products available to satisfy the curiosity of the crowd in New York.

Surprisingly Commodore wasn't at the show. However, one visitor was spotted with a Commodore badge. He had an Amigaette for sale!

ASOC of 825 Buxton Street, Madison WI 53703-2795MFA, called a press conference to announce a 20-bit colour separation utility for use with Professional Scanlab and Professional Page. The importance of this utility is that it enables publishers to produce professional quality colour separations on the Amiga at a fraction the cost of usual methods. ASOC-825EP was developed in cooperation with Gold Disk and is a conversion utility that can be used with Professional Page, Professional Scanlab, an Amiga 3000, and either a 24-000 or 24-450 colour scanner from Sharp. A similar utility was used in an AmigaTimes page description that showed some of the amazing info created with computer art.

With AEGIF, an image is saved as both a HAM image and a 24-million colour image. The HAM image is used in Professional Page for composition and proofing purposes. When layout is complete, the Professional Page file is colour-separated and saved as a PostScript file. ASOC-825EP is then used to replace the HAM images in the PostScript file with the 24-bit colour separation performed in Scanlab. The final file

can be taken to companies which produce the colour film separations used in the printing process. ASOC-825EP costs \$399.95 while ScanLab weighs in at \$999.

ASOC also announced its \$299 Dual Serial Board, a hardware/software combination that provides multiple RS232 serial ports on the A2000. It allows running of three or more serial devices at a time and comes with a disk containing a high speed driver and handler.

The device is a dedicated

board made up of two A3 computer expansion connectors. It occupies a single expansion slot on the 2000 and doesn't get in the way of the original serial port.

Dr Dooz and his wild bunch at CompuSave, after having been banned from earlier EXPOs, were readmitted. There were no rubber chickens feathering the booth. In the past, the humor of the CompuSave group - poking fun at customers' home loans and such - did not go down well with many visitors.

New from Gamma is Flag Plus 3.0 at \$99. There's also the spreadsheet file 393 which uses store phone numbers which can then be sorted with a one-click search-and-kill function. Richard Stocker, author of Flag built up to now has been star-struck. He looks at great length about the problems associated with the payment for shareware programs. In all the years he has been writing, he has never received a single penny from any users in the UK. Not very encouraging. Gamma Software are on 011 208 383417.

A portable Amiga is made by The Journeyman, a prototype was shown which consisted mostly of an A2000 mounted in a suitcase with a small monochrome monitor.

It's not a laptop; it weighs 28 pounds and has no internal power source. It plugs in when you arrive where you're going.

Amic Publishing Inc showed the premiere issue of their Amiga Plus magazine. It comes with an optional disk and costs an inflated \$15 an issue. Unfortunately there were not many takers!

Amic Publishing, 544 2nd St, San Francisco, CA 94107 050 1 415 7570880.

A QUICK TOUR OF THE SHOW...

■ **Orin's PC Scan** has been converted to run on the Amiga by C Ltd. It costs about \$1700 and lets you load in a sheet of 800 material which is then changed to suit in your system. C Ltd, 723 E. Sunway, Wichita, KS 67211 010 1 316 2578807

■ **CompuSave** offers Speculation demonstrated a **Hyper-MS** removable graphics system. Details from 68A Cabot Ct, Haysavage, PA 17109 030 1 717 2734746

■ **New from Contour Software**, 34040 Tule Hill, Ste 526, Marina del Rey, CA 90292 030 1 213 6227995 is **MyPaint**, a fully functional paint program for children. There are some nice animated option boxes, a 28 picture coloring book and sample sounds related to the paint box.

■ **Dr. T's Music Software Inc**, 270 Reynolds Street, Ste 200, Cleveland OH, MO 02167 030 1 407 2444954. Or show over **Dr. T KCS V1.0a, MMS** and the **Coopier**.

The **Coopier** is a score-editing, transcription and printing program for music. It will transcribe tape-to-tape files into tracks, bass, alto and percussion parts. Comes in Professional and DTP versions.

■ **Intelstat** at \$100 allows instant capture, processing and display of video images. Coupled with the Laser Frame grabber from A2Equipped, the Intestat system lets you assign effects to keys so you can

play effects into a moving video. Some of the effects mirror, rotate, mosaic, dither, colorize, promote, invert and superimpose. Elan Design Inc, P.O. 37726, San Francisco, CA 94111 030 1 415 6218673.

■ **Impulse** have entered the 3D market with their exclusive of the Turbo Silver software to produce stereo vision using 3D structured glasses.

Renderings can now be made for 3D images, and the product has been named **Turbo Silver 3D**. The software is \$300, or \$200 plus software, or \$100 with the interface and 3D glasses. Impulse, 5875 Simple Creek Pkwy, Ste 112, Minneapolis, MN 55430 030 1 612 9460020

■ **Hammy** is for people who can't play a musical instrument, but the included microphone, you can hum or sing and the result can be edited and even adapted to instruments. Price a \$200. Intertec Development Systems, 28 Bruce St, Scotchdale, NY 11720 030 1 516 9815493.

■ **MicroEye** International introduced **PageEye** which allows MIDI events and computer animation to be synchronized. It works with computer graphic events and digitized sound samples.

PageEye costs \$300 and will work with two other Multimedia products: Page Ripper Plus V.2 and PagePrinter 3D. A beta version of the latter will run 10/89 and is scheduled to be released soon.



Spring Fever



The un-seasonably warm weather must have affected our senses! Just take a look at the very special deals we are offering ST/Amiga Format readers - all these special prices are exclusive to

ST/Amiga Format magazine and are strictly limited. These offers end on 31 May 1989, are subject to availability and you must use the coupon below when ordering.



TWIST

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Amiga Software

Atari C Professional	£79.95
Atari C Developer	£79.95
Atari C Source Code Debugger	£79.95

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HiSoft WERCS mouse editor	£29.95
FTL Module 2 Developer	£29.95
Atari C Professional	£79.95
Atari C Developer	£79.95
Atari C Source Code Debugger	£79.95
SMART 3 user	£29.95

New Releases - Atari ST

Specialist Microsoft Translator	£19.95
Math-C Interpreter (also for learning C)	£29.95

Name:
Address:

A photograph of a blue and white commercial airplane, likely a Boeing 747, flying through a cloudy sky. The plane is viewed from a low angle, showing its wings and engines. The sky is filled with soft, white clouds against a pale blue background. The overall mood is serene and majestic.

Question: how can you take off, climb, cruise, descend and land without ever leaving the ground? Answer: with a flight simulator. You've probably seen and played simulators on the ST or Amiga, but there's much more to the flight simulator. Out in the 'real' world British Airways and RAF pilots train for hours in multi-million pound machines to blow the daylight's out of fictitious enemies or shuttle imaginary passengers around the world. RICHARD MONTEIRO takes to the skies and leaves his head in the clouds.

FLIGHT FEVER



■ Do you think the custom video circuitry inside the ST and design is good? More than ample for the capabilities of a flight simulator app? Most say no, capable machines, but a little lacking when compared to RealFlight's SP-2 500 hardware. The picture below is typical of the system's capabilities. Note the staggering illusion of depth and perspective.

■ Inside a professional F-16 Fighting Falcon cockpit simulator (right) and (left) the Spectrum HobbySystems-based version on the ST. While pilots don't purchase micro-based flight simulators, they realize there's a big difference between micro flight simulators and dedicated simulators. The biggest difference is the method of control. Keys and joysticks are a poor substitute for real aircraft controls. Also real-world feedback like hysteresis, lag and noise aren't properly implemented on the home simulators. On the plus side, home micro simulators allow you to read the instruments which - say the professional one - is imperative for control.





You don't play professional flight simulators. Especially not when they weigh in at around \$1,000 for. Civil and military pilots in the world do not log many flight hours inside simulators before attempting the real thing. Naturally, these simulators must mimic the look of a cockpit, atmospheric conditions and the plane's characteristics as closely as possible. That's no easy task. It's something that requires the avoidance of areas of super-stops.

Those undergoing training sit in an actual flight deck, or flighter cockpit, which comes complete with every last dial and knob. Some simulators are con-

tinued made an enormous, box standing on sturdy hydraulic legs. These legs extend and retract depending on the conditions inside the cockpit. But we're taking "realist" Aviate games like Afterburner and Thunderbolt have a long, long way to go before they even get close.

From the outside these professional simulators look like something out of a sci-fi adventure. Inside, the realism defies belief. Can that unbelievable aircraft smell (a there, it's) uncanny, so much so that many pilots claim that it's all too easy to forget that you're anchored to the ground.

The military doesn't stop there: There's the sound of the engines, the feeling of acceleration and the slight bumps on typical air runways. It all adds up to one hell of an *Avatar*. (Someday, David Caruso's) would be proud of.

Billions show

Many top-end professional simulators enhance the illusion of reality by making use of sophisticated computer-generated scenes that are constantly updated as the flight proceeds. These top-rated panel manipulators are either generated beforehand, and then projected onto an aircraft window-shaped screen when



It's not only British Airways that use the Hercules SP-8 80000, but the military too. The computer hardware involved is phenomenal. Imagine a system that can generate 300 polygons every frame of a second. It typically means it must output a stream of 300 polygons an 'instant' of projecting onto a 1024x1024 screen. Each stream is capable of an 800 to 1000 pixel resolution. In over 24 million colors, although the programmer can only specify 256 colors at once, shading (which breaks all the other colors) is done automatically. The large picture which shows a US Navy F-100 approaching the USS Intrepid (CG-12) is a 3D model - demonstrates what the C-17 (SP-8's big brother) can do is capable of. The shot above shows what a 3D effect coming to a level of 80000 at night might see on an SP-8. Great simulation.

▲ **Rate 40**, January 1988, location 1200 miles over the Mediterranean. Sea-View system (used in US Navy F-14 Tomcat). The picture shows a computer enhanced image taken from the cockpit view (viewer of the level 3.5) Tomcat. Overlays show that the MDG was covered with

both open and closed airframe missiles. The photograph occurred northwest of Al Bahari Military Airfield on the coast of Libya. The flight occurred because the aircraft (an US Navy F-14 Tomcat) was operating in international waters in the Mediterranean. It was approached by two MDGs in a "hostile manner". The rest is history.



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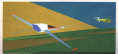


TRANSPUTERS TAKE OFF

This is what the **BRNO** Flight Simulator looks like. Imagine it running at 20 frames a second (fastest processing power is 60) that — a flash of reality will do. The simulator is the brainchild of Steve Giese who was inspired by the Lockheed/Boeing plan in the States. Together with former associates (two are responsible for the 3D display and shading routines), Giese managed to put together a working version after only two weeks.

The game can be played by up to four people simultaneously, each player has a pilot's view of the game. The winner is the last player left flying. It's not really a flight simulator in the sense of Flight Simulator II; you can't take off or land — just fly and shoot. The system runs on an Intel 386 computer development board and was programmed in the parallel processing language Occam.

That's fancy graphics work has already been used to show off the ATR and it's very possible you'll be seeing a lot more of it.



Although not quite on a par with **SP-2000**, the experience released **Thunder** from **Lighter** looks most impressive.

needed, or in equities. Millions of people make up the cockpit picture which can be anything from a runway to sky and cloud. There is an outside view to cover almost every eventuality — including emergency landings and crashes!

British Airways have a dozen or so simulators at their training base in Cranbrook (on the outskirts of Heathrow airport) the total simulator investment amounts to some 200 million. The latest addition — a Boeing 747-400 system — cost a cool £2.5 million.

The machine that every commercial pilot dreams of flying, though, is Concorde. Brno is one of the first players of Concorde (the other being Lockheed in France) and consequently it's there — at 1800 — that the **BRNO** Concorde simulator exists. Recently the simulator has had a £2.2 million facelift. Most of the money went into the installation of a new C32 computer designed image system. It needed it. The original Concorde system, built in 1975, had a video camera coming over a model projected onto the screen. As the control column of the flight deck was

moved, so the camera would move, giving the impression of motion. An area of about 1.7 miles by four miles was covered. That's not a lot of room for a high speed plane to manoeuvre in. The main drawback of the old system was that the unlimited view was ahead only — glance out of the side windows and you'd be sitting.

In its place is Rediffusion Simulators' Novovision SP4500HT which generates images suitable for its SuperVHS screen. The screen covers an area of 190 degrees horizontally by 40 degrees vertically. Not only does the screen show realistic images, but all around ones.

View from above

So much for what's going on in the real world at present. The future of flight simulators is uncertain, not only for the home user, but for the professional as well. Work in the States has long been going on on visual display systems where the pilot wears an occluding helmet which prevents him from seeing the real world. A computer image of the outside — along with the plane's status — is projected on the inside of the helmet. This is done so that the pilot can be placed in a comfortable position to maximize the chances of a blooded during high-G turns. Of course, this only applies to military aircraft at the moment.

And the next stage? Fully computer-controlled planes. Make the pilot redundant and there won't be a need for arms. Then software houses would have to find something else to simulate! ■

LOOKING AT THE FUTURE

Because modern fighter aircraft subject pilots to such great physical stress caused by extreme gravitational forces of high speed manoeuvring, the cockpit of the future will be smaller and feature resulting seats restricting the pilot's view of the outside world.

Next visual display systems are currently being researched. In 2000-05, helmets would give the pilot a computer image of the external world and the aircraft's control system.

In the picture, the foreground shows control consoles and control stations on the aircraft (and in the background) other instruments show the aircraft status. The projected flight path of the aircraft is shown as a glowing road in the middle. Red designates friendly forces, a red enemy aircraft is surrounded by a yellow haze; two friendly aircraft are seen to the left as enemy aircraft. A parachute or glider is seen towards the projected flight path and is indicated by a large red shape designating its area of terminal. Round gliders show relative air speed.

The gravitational stress placed on fighter pilots at the moment is alleviated by the new visual display systems. In one case, when more stress will have to be endured, there will be a seat. One theory currently being the means to pilotless planes.



MIXING

Business

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Commodore computer show

Britain's brightest event for Commodore computer users is back! And there's more to see than ever before.

This show has three main themes: proving some of the major uses to which Commodore machines are put. There are over 15 key companies who will be exhibiting their latest products, which means that just about everything that's new in the Commodore world will be on show!

Business

Many companies will be demonstrating their latest software and hardware, specially designed to release the full business potential of Commodore computers.

As well as products for the CBM and Amiga series, you'll be able to try our applications for the price-leading Commodore PC compatible micros.

Business Users are able to attend seminars covering all aspects of using Commodore micros in your business.

Leisure

The CBM and Amiga computers are the most powerful 8 and 16 bit micros for producing fast action arcade style games. The range of new software on show

**Novotel Exhibition Complex,
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Non-open Friday & Saturday: Non-open Sunday

will demonstrate how these machines' power is currently being stretched, producing faster and even more addictive games with superb graphics.

If you're a keen game player, you'll find there's so much on offer at the show you're guaranteed a real treat!

Education

Commodore micros are now used as educational tools all over the country. With the development of BBC Basic on the Amiga, and the advent of Desktop 16000 combining TV pictures with text and graphics, the range of educational applications is endless.

At the show you'll see how the latest software

packages are making real breakthroughs in the educational sector, and be able to try them out for yourself!

Special Events

As well as special events and presentations, you'll also be able to meet some of your favourite celebrities, and maybe get a chance to talk with them about how they use micros in their work.

So for a great day out, whether you want to see what the future holds for Commodore computers, to buy the latest software or to get advice on specific applications, the Commodore show is the place to go. And if you want to be the chosen today, we'll knock £1 off the price of each ticket!

For the first time we are offering a family ticket for just £11 allowing entry for two adults and two children - saving up to £7 off the usual entry price!

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Two months marks a major milestone in Amiga history in the US. It means that sales numbers of the Amiga outpacing the Atari ST are true. As of March...

Commodore has announced that it had 1,000 times stocking Amiga computers and associated hardware — far more than those stocking the ST.

The situation contrasts with that of March 1988, when Commodore had a mere 800 stores in the US, and a large number of disgruntled retailers threatening to stop selling the Amiga.

The reason was simple — disappointing, which is now becoming a problem for Commodore in the UK, was prevalent in the US in 1987/88. Amiga buyers, often seen for a discount, were naturally heading for the discount merchants to buy their hardware. Unfortunately, when they hit problems, those same users headed for the specialty stores that offered free advice.

The trouble was, the specialty store owners couldn't afford to offer free advice to customers and hadn't bought their hardware from their shop. The result was that discount merchants offered little or no support, and unhappy specialty stores were burdened with frustrated buyers.

Commodore's US management undertook to resolve the problem by increasing the number of factory outlets, and taking a closer look at the mail order outlet and how much support they were to offer. Users were left giving Amiga users.

ST Amiga Format readers may note, when skimming through one of the this magazine's US counts, how few mail orderחנו were discount sales there and compared to a year ago. When the end result has been slightly higher prices for the computers, the long term benefits to Amigans in the US are far greater.

The past year's growth in Amiga hardware has brought some positive benefits for Amiga users in the UK. Several non-warehouse operations have opened up for business in the US, almost all of their offering users's measure packages for a few dollars a day.

On the communications software front, an increasing number of online services and BBSs are now supporting the 286/8086 file transfer protocol. 286/8086 allows data to be transmitted as quickly as possible over a modem link and, if any errors are detected, the corrected packets of data are sent separately, so as not to interrupt the data flow.

The result is that 286/8086 is



GOLD DUST

This month's letter from America from Format's own STEVE GOLD contains a bit more fuel for the raging 'My ST's better than your Amiga so there' debate. The letters editor is holding his breath...

the fastest and most efficient to transfer protocol around at the moment, and the system is supported in an increasing number of Amiga communications packages.

Any Today, the popular Amiga electronic communications newsletter, ran an interesting comparison between four major Amiga communications packages in its March issue. The packages were ALTComm, Amc, Mail file and Drive.

The results that Amc Today found were quite surprising, with ALTComm, the public domain communications package for the Amiga, outperforming the competition in 286/8086 tests.

The moral here — buying more for a package does not necessarily mean the software is better. It can mean quite the reverse, in fact.

In the ST camp this month, there are some unconfirmed rumors that Alan will press out the 104007 later this year in favor of a new 386 Mega ST machine.

The reason for the change? From Alan's point of view, it will enable the price on the 104007 to be cut without damaging its 386 ST market share. From the user's point of view it will allow the Mega ST expansion bus system to be used.

The word is that Alan sees the Mega ST chassis as a way of beating Commodore with its 486 and — assuming it ever sees the light of day — an official IBM

Amiga in the 486/030's case.

For existing standard ST users (1020s and 1040s), the rd, one of the major plus points of the Mega ST series is the 'im' feel of the Mega's keyboard. Regent Systems, 00021 218428-8640 reckon it has the answer with its Megatouch ST keyboard underlay system.

The Megatouch retails for \$11.95 plus postage and first reports indicate that the keypad chatter is going down a storm in the US, especially amongst those ST owners who can't afford an upgrade to the Mega ST or owners of the keyboard alone.

If your budget can stretch a little further, however, a new US company — Navarre Industries — has released a range of three hardware add-ons for the ST at really budget prices. All of the goods plug into any 80486 ST via the cartridge port, and do all sorts of interesting things.

The three new products from Navarre are: Terapeaker, 1000Digger, and the Audio Digger.

The Terapeaker cartridge costs \$29.95 and is a battery-operated clock/calendar unit that keeps track of the time and date, unlike other units of this type (and in common with of Navarre's cartridge add-on, the Terapeaker cartridge is a 'single-through' unit allowing further cartridge port add-ons to be plugged in).

The Audio Digger, meanwhile, is a \$79.95 reactive digi-

ter that allows almost any video source to be linked up to the ST and feed digitized images to disk and/or screen. Several grey scales are available as well as animation facilities.

The Sound Digger is similar in concept to the video unit and operates with sound samples instead. The sounds can be viewed through an oscilloscope-type screen on ST and/or played back through the cartridge outputs for an external speaker system.

Sounds played into the sound digger system can be manipulated at will, using compress, stretch, bend, and reverse playback techniques. At \$99.95, this has to be an interesting occasion for those fans of the ST.

If these add-ons sound exciting, Navarre are planning a second wave of ST add-ons for release in the third quarter of this year. Navarre Industries, 454 North Avenue, Campbell, CA 95008, tel: 0011 408 8788171.

Finally this month, just room to report that Alan has contracted with DIP in the UK for the production of at least one more version of its Pocket File computer, the 80086-based version of which was unveiled at the Amiga Computer Show earlier this year.

First reports indicate that an 80086-based version of the Pocket File is planned, with an 80086-based version on the horizon. It's a pity they aren't working on a pocket ST...

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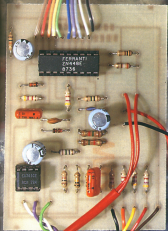
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DIY SOUND SAMPLER



It's all very well using the computer's sound chip for producing music, but, frankly, the results are flat. More and more games come with digitised, almost true-to-life, sound. PETER SPRAGG shows how you can build a sampler for under £25 and sound off on your ST or Amiga.



DON'T PANIC!

If you find your sampler is being uncooperatively in other words it doesn't work...you'll be relieved to know that kit suppliers Magenta are offering to get you going again. You need your completed unit back to them with a 60 day returner's card. Make sure it is properly packed and address it to Sound Sampler Repair, Magenta Electronics, 135 Water Street, Boston-021, Mass, 02142. When enough orders are return.

A lot of you can grab sounds and get your computer to play back the results. However, you might say "You can already do that so there are countless sampling devices on the market. True, but you won't be able to capture sounds as cheaply. And you'll have the restriction of having built the original source."

The added sound sampler for the ST and Amiga - or indeed almost any more that can use the printer port as a means of receiving data - will let you digitize everyday sounds and relay the results through the computer's monitor or television. The effects are spectacular. If you're only used to sound chips, then you'll be in for a nice surprise. There's nothing to beat the thrill

of making sound sampling. This is a u i machine's must-have.

The sampler is a large chip which mixes both the left and right channels of a stereo signal before converting it to a digital signal for the computer to read.

The Format sound sampler is a box which plugs into the parallel (printer) port of the ST or Amiga. Software on the Atari side of the disk will let you grab and replay samples while a disk supplied with the parts from Magenta will let Amiga enthusiasts do the same. More of the software later though.

Power is supplied to the sampler by a nice fat battery. As the ST doesn't

have a power line it was decided that a battery would be the best bet. An optional socket can be fitted to the board which allows the sampler to get power from a suitable mains transformer.

Details of the printed circuit board are shown in figure 2 - assuming you've bought the kit from Magenta Electronics (use the parts list elsewhere if all you have to do is identify the components, sand their leads to fit into the corresponding holes on the board and solder them into place. The circuit is made up of a high precision analogue to digital converter (ADC) and the minimum of components - this is to keep the costs as low as possible. The chip is operated to operate at 1MHz which is way above the maximum sampling rate of any available software. It is connected in 'Toggle' mode which simply allows it to sample all types of audio input.

A pre-amplifier has been built into the circuit to provide a high level input for the ADC. Effectively this means low level outputs like tape players and ampli-

GET KITTED OUT!

Ordering parts from a catalogue is a hassle, and if you're not done it before you'll rapidly get lost. But don't worry, Magenta in conjunction with Magenta Electronics is offering a complete kit of parts for sale.

There are several details on offer so make sure you state clearly which kit you want and include the correct payment.

- Kit with elegant case as seen above £25
- Amiga disk with Perfect Sound V2 + sampling software £10
- Build and tested sound sampler £20
- 1 volt power supply suitable for use with sampler £3.00

If you lodge things up, Magenta are offering a repair service. Simply send back the complete kit and they will get it working. The price for this is £5.

Send your orders for Format Sound Sampler, Magenta Electronics, 135 Water Street, Boston-021, Mass, 02142 or phone 0202 584283 with your credit card details. Please allow 28 days for delivery.

Figure 1

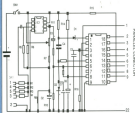


Figure 3, the circuit diagram. IC1 is the pre-amplifier for stepping up the incoming signal around 100dB to the point where it can be digitized by the ADC. The ADC takes successive samples and converts it into a digital equivalent, numbers that the computer understands.

Figure 2

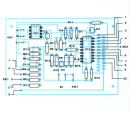


Figure 2 is the component layout diagram. This shows how the components fit onto the printed circuit board together with the kit. Read the component lists through the holes so that the wire goes through to the reverse side of the board. Solder and trim any excess wire.



STEREO SAMPLING

Four springs for desktop a stereo adapter for the 8088 sampler. This will only work on an Amiga running the Protopower software. The module, which fits neatly into the complex, is available from Peter at 11 Somerset Rd, Singapore. Tel: 336-8762. Cost: S\$28.

fers can be used to drive the sampler. You shouldn't connect the unit to the speaker outputs of an amplifier, as this will blow your sampler. The headphone socket could be used as a sound source, but the results aren't that impressive.

The circuit is connected to the parallel port by a 25-way connector. A male connector is used on the 8088, A2000 and STX, a female version is required for the 80386.

Building the sampler is straight forward. The only tools you'll need are a soldering iron and small wire cutters. Don't forget the solder.

It is better to start soldering the smaller components into place first, it helps to keep the board flat. Take the resistors and identify them (their colours have been printed alongside the parts list to help you identify them). Bend their legs by 90 degrees to save bother; they should now slot into the correct places on the board. All components are placed onto the board from the plain side and

soldered to the tracks on the other side. Solder the resistors into place, making sure you have them in the correct place, and snip off any excess wire.

The two diodes have to be inserted the correct way round. There is usually a coloured band at one end which sets out the positive end. The diodes should be soldered onto the board with the band towards the plus sign on the board.

Next take the 0.1µF (used in lead sockets) and solder them into three correct holes. These can go in any way round. Don't put the 0.1µF in yet as the heat from the soldering iron may damage them.

The electrolytic capacitors also have to be inserted the correct way round. These are marked with a minus (-) sign on one side of their body. The other side is marked with a plus; this side should be soldered into place towards the plus side on the board. Solder the remaining capacitors next. These can be inserted any way round.

Place the connecting cable for inter-

facing to the computer next. This is made using a 100cm length of 10-way ribbon cable. Any length can be used, but the shorter the cable the less chance there is of picking up noise during sampling. Separate the strands at both ends by about 20mm. Strip each of the strands by roughly 5mm and gently bend each of them to prevent them from fraying. Heat a little solder onto each strand to make doubly sure that the cores don't come apart. Snip off any lumps of solder that collect at the ends of the strands. Carry out this procedure at both ends. Take the 25-way connector and apply a little solder to the 10 pins indicated in figure 3. Thread the ribbon cable through the grommet on the connector of the wire, and then solder each of the cores to the fixed pins on the connector. Take the other end of the connector and thread it through the grommet in the case. Solder the cores into the board as shown in figure 2. Using a multi-coloured ribbon cable makes it easy to connect the correct core to the right holes of the board.

Five pieces of cable should be clipped back and soldered into the input holes at their bottom left hand side of the board. The wire should be about 10mm long, and soldered to the back of the input socket as shown. The ground pin (2) should be connected to the case of the 5-pin DIN connector it is being used. If a metal case is used to house the sampler then make sure it also has a ground cable attached.

Any type of test socket can be used - see figure 4, and be careful to hook the ground wire to the ground pin.

A length of three-core cable (approx 130mm long) is used to connect the volume control to the board. The wiring

SAMPLING SOFTWARE FOR THE AMIGA

If you're dying to use your sampler, that, you need software. The best value software is the public domain offering called *Protopower Sound*. This program uses green text on the screen to control the program. See it out and get some idea of what instructions are using the program. See the issue six and seven pages.

If you don't have *Protopower Sound* that you will be pleased to know that *Amiga* (0800 664696) can supply you with *Protopower Sound* version 1.0 for the reasonable sum of \$4. The price includes a disk and packing and postage.

You've got the software, what now? *Protopower Sound* can be loaded either from the Workbench or from the CLI. The software is operated through the use of touch-sensitive hardware products, such as the ability to combine two separate samples into one stereo sample. All the usual facilities such as cutting, copying and pasting chunks of sound samples are there. It's an easy package to use - the help key is highlighted (press with it) to get stuck to.

Figure 3

1 10P0808D
2 10P17A
3 10P17A
4 10P17A
5 10P17A
6 10P17A
7 10P17A
8 10P17A
9 10P17A
10 10P17A
11 10P17A
12 10P17A



VIEW LOOKING AT CONNECTOR

Figure 3 provides pinout information for wires by the plus/minus signs. Also note that the diodes should be inserted the correct way round when building the connector.

Figure 4



Figure 4 provides pinout information. This shows where the leads from the board (figure 3) need to be connected to the volume controller. Ensure you connect the correct leads to the correct places on the board.

Figure 5



Figure 6

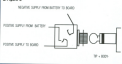


Figure 5 provides pinout information. Almost any type of input socket can be used. Here's a selection of four. Do take care that the ground wire is attached to the appropriate ground pin.



connections are shown in Figure 5. Connect the output switch with a length of two-core wire approximately 70mm long. Attach one core to the center pin and the other to any of the outer pins.

The battery connector is soldered into place next. Make sure that the red (positive) lead goes to the hole marked with a plus sign on the board. An external power supply can be used. The supply can be bought in any popular high street electrical store. Do make sure that the supply is nine volts DC. The wiring connections are shown in figure

6. This is an extra optional piece of kit and doesn't need to be included. The internal battery is disconnected automatically if an external power source is used.

With all the connections made, it's time to insert the two ICs into their appropriate sockets. A small indentation tells you which way round the chip should go.

Both should face the top of the board. IC1 on the left and IC2 on the right.

Mount the circuit board in the box

and ensure nothing shorts out the circuit tracks.

Switch off your computer and the sampler when everything is assembled. Plug the sampler into the parallel port. Switch everything on and check your settings. Load the sampling software and see if it works.

If there are problems with the unit you'll have to open up the sampler and follow every connection and solder blob to ensure that everything goes to the correct destination and there are no shorts.

DONT FORGET

Magnetics Electronics are still selling the Sports Synthesizer kit (£29.95) mentioned in Issue 8 and the Ampex MS88 interface (£19.95) from Issue 5. Magnetics are on 0800 6445. If you're interested, you can get the back issues which explain how to get the hardware packages together. Please use mail order orders in *Computer* on 0492 1801 for details.

PARTS LIST

RESISTORS		
R1, R2, R3, R4, R11, R12	4.7K	yellow, violet, red, gold
R5	200K	brown, black, yellow, gold
R6, R8	10K	brown, black, orange, gold
R7	1K	brown, black, red, gold
R9	1/4 Ohm	brown, green, black, gold
R10, R13	1.5K	brown, green, red, gold
R14	300 Ohm	orange, white, brown, gold
R15	200 Ohm	red, black, brown, gold
R16	1K	brown, black, green, gold

POTENTIOMETER		
P1	10k	linear carbon track

CAPACITORS		
C1, C4	0.1uF	polyester
C2, C3, C6	100uF	10% radial electrolytic
C7	2000uF	polystyrene
	0.01uF	ceramic

SEMICONDUCTORS		
IC1	741	op-amp
IC2	204482	8 bit A/D converter

MISC	
SW1	DPDT slide-switch, one trigger
SW2	5-pin DMS switch
SA1	25-way (male) D-sub connector for printed circuit board
	case
	control knob
	05, 10kOhm, 50k and 100k
	M3 nuts, 4mm and 6mm for PCB
	100mm ² 10-way ribbon cable
	50mm ² 10-conductor
	short lengths of cable
	optional 1.5Amp power input

NOT PROVIDED
Battery (9V PP3)

REPLAY 3 FOR THE ST

Now that you've built the sampler you'll need some software to grab sounds. On this month's cover disk you'll find a near-complete version of the Display 3 sampling software from MicroMed. You can thank Tony Barwick of 2 Bit Systems for putting the software together. He's done a superb job as you'll find out when you start using it. It will save without us using Display 3 in the disk pages (page 66). MicroMed, via P.O. 6826, will Display 3 for the ST. We reviewed it last issue.

the circuit
and the
sounded.
old part.
is your
fingers and

to use
finger and
other tools
to the
to are on

FRIGHT NIGHT

THE ARCADE GAME

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ARCADE GAME



microdeal



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ARCADE GAME

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Summagraphics®

Does your mouse bore you? Do you find it's ball getting all clogged up? Is bank account in a healthy condition? If so, then perhaps you should consider a graphics tablet. GARY BARRETT takes a look at an Amiga tablet and finds out what Moses saw in them.

SUMMA SKETCH

£458.95 ■ All Amigas ■ HB Marketing, Brooklyn House, 22 The Green, West Drayton, Middx, UB7 7PQ (0895-444433)



PUCK AND PEN

Before you criticise the tablet you have to realise whether you need to use the stylus or cursor. The puck is a mouse-like object with four buttons and a cross hair to help line up your target. The puck's buttons replace the left and right mouse buttons. The stylus has one button on the side and another at the tip.

Since the days of stone man has written on slabs of stone, tablets they're called. Even God has been known to scratch a few words on such things. People eventually got sick of taking out a hammer and chisel every time they wanted to write a shopping list, but paper was invented. Thousands of years later the tablet has returned, only now it's a piece of electronic gadgetry that plugs into your Amiga.

What do you get for your money you ask? What do you mean you DON'T ask? You're gonna be sad anyway! You

get a square graphics tablet, a power supply, a cursor and a stylus, pen and pen if you like. You also get a disk for your ever faithful Amiga and an instruction manual.

My mouse for a stylus
Switching over to a stylus or cursor is a simple matter: double click on the AmigaDraw program on the disk and in matter of seconds you're switched to the tablet. The mouse no longer functions; instead the pointer is positioned according to where the stylus is with respect to the tablet. Reversing the process is just as simple, only this time you double click on the file AmigaDraw.

Also on the disk are two other programs: WFO_Scale and WFO_Config. WFO_Scale allows you to adjust the scaling of the tablet. If you increase or decrease the size of something on the tablet, convert a paragraph to points, a record sleeve to a beer mat or an Amiga to a Pocket PC, Amiga_Config is used to set up AmigaDraw according to the hardware you own.

Any use?

Before you fall out to get SummaSketch perhaps you should consider some uses for it. One obvious use is with art packages: it's so much easier to use a stylus for tracing a picture than it is to use a mouse. The cursor allows for even more accurate drawing.

Tablets can be used in computer aided design or CAD (see page 53 to MS), transferring technical drawing and the like to computer and then using the CAD software. Some games can even be controlled with the puck or pen (but you'd be mad to buy the graphics tablet for that sort of use). You can of course use it instead of a mouse on the workstation.



Features

1 2 3 4 5

performance

1 2 3 4 5

ease of use

1 2 3 4 5

prospects

1 2 3 4 5

format

1 2 3 4 5

value

1 2 3 4 5

for

- Makes transferring line drawings to computer much easier
- Compatible with most application programs
- Puck and stylus mimic mouse movement perfectly

against

- Expensive
- Best used in conjunction with a paint package

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SPEAKING THE LANGUAGE

A music composition language allows programmers to write a piece of music by combining a series of special-level commands and instructions, or you could write a program in another language such as BASIC or Fortran. Because programming languages work with strings, keys and references, it's possible to use an MIDI controller, simply phoned, without actually having to play a note on a keyboard. For greater music, this is not very easy to create files, read random phoned.



SOUND ADVICE

Feel you're got a symphony inside you but can't play a note? A music composition language together with a MIDI synthesiser could be the answer, as CHRIS JENKINS finds out

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

Opus-1 MCL

for

- Unique and challenging programs
- Ideal for good programmers with no advanced playing experience

against

- Requires you to learn a complex language
- Requires a co-processor, and probably requires a more conventional music package

Opus-1 MCL
£99.95 ■ All Aregas (but see text) ■ Arleside Software, London W1D 5DB (01-960 0204)

Opus-1 MCL is the first music composition language for the Amiga. MCL's had a long and checkered history: in the early days of computer music synthesis, budding academics used them to generate semiautonomous bebop jazz, which put many people off the idea of computer music for life. In more recent times, the best-known example has been the Fairlight MCL, and, on the domestic scene, the Hybrid Technology Music 5000 system for the BBC micro, which

uses digital synthesiser hardware combined with a sophisticated software package.

Opus-1 accepts music written in its form of text, and compiles it into standard Amiga format (IFF-AMIGA) files, which can be read by other programs like Deluxe Music Construction Set or Arges Suite. It supports Amiga PF sound cartridges and external MIDI instruments, so it's suitable for all levels of hardware investment.

The package comes with an unprotected language disk which can be run from the GUI or Workbench, an interactive disk, and a public domain music demo. The 20-page manual is full of jokes about using your footnotes, and Chopin's mathematics tutor, but fortunately it's pretty straightforward in explaining the complexities of the language.

Opus-1 requires more than 512K to run, which is bad news for Amiga 500 owners; but there is a cut-down version, Opus 512, in the package. This is functionally identical, but uses fewer memory straps, has no Play routine (you use a separate MIDI Player program), has no Help functions, and doesn't allow you to compile as much data.

Opus and Structure

Opus-1 computers are written along a co-processor. It doesn't matter which co-processor — although fancy ones with alternative fonts and pretty colours will probably lead to confusion — and there are specific instructions for using MicroVinc, Mimaco, and Ed included on the disk. Opus-1 then takes your text file, compiles it into machine code and plays your PF samples or MIDI synthesis. The language uses reverse Polish notation, which is nothing to be frightened of — it just means that numerical amounts come before the function to which they refer, for instance to set the tempo 120.0, enter

100 TEMPO

The main display consists of three panels: an information section showing input and output channels, memory space free and so on; a work area where your text is compiled; and a lower section of command boxes. These allow you, among other things, to select your text editor's name, save and play files, switch the text display on and off, pitch the staff on and off to display of your compiled music in standard music notation (using a help display), switch on and off the High Frequency Mixer on the sound output of Amiga 500s, and enter the Interactive mode, in which MIDI commands can be entered directly into the system.

Even then it's a structured language rather like Pascal; it doesn't use GOTOs or line numbers, but a dictionary of words which you can add to yourself, and a number of familiar commands like WHILE and REPEAT to control loops. Help screens are represented by their normal musical letters, lengths by numbers, and



MAKING SENSE OF OPUS-1 MCL

To define a simple sequence in the Opus language you would have to write:
(Musical) (C C C C G G G G A A B B G A G G E E)
Having defined the string, *Sequence*, you can use it in the *Scale* for other definitions, using loops and management statements for instance:

(Structure 18 (playing))
would create a track which plays the *Scale* phrase sixteen times. Because the maximum number of notes is 50,000 and loops and section calls can be nested up to 64 deep, you can create compositions lasting long.

Events of up to 64 notes can control mixing levels, fade-in, the volume (C C C G G), up to 64 simultaneous tracks can be created, but remember that if your final composition is to be played back using *Scale* or another existing music package, you may well be limited by the number of simultaneous voices it can handle.

events by different punctuation marks. Instruments are defined by *Musical* in MIDI channel, and you can define your own time signatures, test notes, volume changes, random elements and effects. You can also use MIDI commands for pitch bend, channel pressure and so on. There's a straightforward file player routine on the disk, and a MIDI library for conversion programs included on the kit you can also import and edit lanes created with other packages.

Opus1 MCL is a fascinating program, but, at a tag of almost \$1000, I can't imagine anyone other than being French academics actually wanting to use it to create music. Music, after all, meant to be an art rather than a science - isn't it?

Ladbrooke MIDIStudio

£99.00 ■ All STs ■ Ladbrooke Computing, 33 Ormskirk Road, Preston, Lancs, PR1 2QP (0772 203866)

It's always nice to see a British company taking on the American and German software titans at their own game, but usually the lack of R&D investment shows through in the final quality of the product. This certainly isn't the case with MIDIStudio, which is packed with good ideas and which is very polished and professional throughout.

You may have heard of Ladbrooke Computing through their hardware products such as image scanners; this is their first venture into music software, and it's well-paced to capture the high end of the amateur market.

The first thing you'll notice about MIDIStudio, which operates in mono or stereo, is that it doesn't use GEM or such. The main screen display uses a

vertical key-coded style which wouldn't fit out of place in a space flight cockpit. Still, it's not gimmicky and it manages to cram a huge amount of information onto the screen at once. There are several different screens for the various functions which are controlled by a menu bar at the top of the screen.

The program is a very powerful text-friendly sequencer which offers most of the facilities of packages costing up to four times the price.

MIDIStudio comes with a cartridge port dongle and a touch-screen, 20 page manual. The 20 separate track labels appear across the top of the screen, the main feature of which is a mouse real-time mixing "slider" display. By loading one of the demo tunes - or to enhance the impressive version of 'John Williams' Star Wars theme - and hooking the ST to your MIDI synth, you can then change the volume of each separate track in real time, by pulling the sliders up and down with the mouse. Tracks can also be in Play, Record, Mute or Solo mode. This is an intuitive form of mixing which would be difficult to emulate on many other sequencer packages.

Each of the 20 tracks can hold up to 120 phrases, recorded in real time or step time, each of which can include a full range of control information such as velocity, pitchbend, and patch changes. If you want to filter out any of this information to save memory, you can call up a dialogue box in the middle of the screen by clicking on a command icon. In the same way you can set different note quantise levels (only up to 24ppq), which isn't very exact in comparison to more professional packages), track transpositions, MIDI data displays and so on. It's also possible to view pages of text notes with each song - removing, for instance, about effects settings or lyrics/pitching.

The most familiar part of the program is the transportation section at the bottom, where you'll find the usual Play, Record, Fastforward and Pause controls, as well as displays of the system tempo options, time signatures, tempo

MIDIStudio

for

- Expanded and powerful sequencer
- Good graphic display

against

- Not yet compatible with other sequencers
- Complex - a pain!

and so on. You can, of course, use MIDIStudio as your master clock for drum machines, or have it drive from an external MIDI clock (including Song Position Pointer), tape-to-MIDI sync system or 24ppq pulse.

MIDIStudio certainly deserves consideration if you haven't yet chosen a MIDI sequencer package. It may well do everything you want without the cost or complexity of better known packages.

A NEAT TURN OF PHRASE

MIDIStudio uses the increasing popular "gesture-based" arranging system, which operates much like older hardware sequencers than like newer software packages such as Steinberg's Pro-16. After defining a number of short phrases, you use the graphic arrange window to check and drag phrases, forming the tracks you want. The time event-drag phrases from one track to another if you wish, then use transpose and edit functions to build up songs.

MIDIStudio can also function as a system exclusive data file allowing you to record notes and sequencer data from other MIDI-compatible devices.



■ MIDIStudio's screen display looks complex but is surprisingly easy to get to grips with.

Features

1 2 3 4 5 6 7 8 9 10

performance

1 2 3 4 5 6 7 8 9 10

ease of use

1 2 3 4 5 6 7 8 9 10

reliability

1 2 3 4 5 6 7 8 9 10

format value

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

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ON-LINE HELP

Registered MIDIStudio users have access to telephone helpdesk, and can even have customized versions of the program installed for a small fee.

Updates to the popular, highly-rated MIDI standard may be transfer to other sequencers, a scary notion, unless you've made the right choices. Create through it may then be able to use an incompatible.

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ST Amiga Format's unique dual format disk gives you the best of both ST and Amiga worlds! Whether you're a joystick jockey or a machine code maverick, JASON HOLBORN takes you through the month's goodies.



DISK EXTRA

ST

New to the ST? See page 40 for full loading details

ARCHIPELAGOS.....35
Experience the ultimate in three dimensional gameplay. One of the most fun graphics and gals at the absolute gameplay. With Archipelagos, you've never had it so good!

REPLAY 3.....36
Do you really take the plunge and treated yourself to our BY sound sample kit but what software are you going to use with it? Look no further, as we've got the fabulous Replay 3 for you to play with.

CHORDS.....34
Another musical treat this month comes in the form of Chords, a program that aims to teach you all you ever wanted to know about chords. Connect up a MIDI device and it'll even play them for you!

PICTURE IT.....34
We've already published Pictwin in a good cover disk (back in Format's youth) but this is a surely improved version. It's broader and comes packed with more features than I have time... er, than days left get on with it - Ed

FAST MOUSE.....38
Can you mouse pointer often get left behind? Fast Mouse is a small but very useful desktop accessory that will have your mouse pointer dashing around the screen as if it were wearing roller skates!

AMIGA

New to the Amiga? See page 40 for full loading details

BLOOD MONEY.....34
Experience Progressor's latest and greatest release from ace programmer Dave Jones, author of the highly successful Menace. This one's so hot that you'll have to wear an air-brake suit to play it!

FILE REQUESTER.....35
Do your Amiga programming misadventures lack that certain something? Could it be a decent file requester? If you program in a language such as C or Assembly, then you can easily add that professional touch in a matter of seconds.

DISK2.....38
The Amiga disk operating system is renowned for its talent for chewing up disks, but with this handy little program you can sleep easy in the knowledge that your data is safe from malicious disk drives.

SETKEY.....36
Setkey is a true example of the quality of ST and Amiga audio stream software. This program costs less than our £25, now it's yours for free! Setkey lets you set up your keyboard exactly as you require it.

FOUR.....36
Two games in one disk? Yes, it's true. We are so good to you! Four is an implementation of the classic board game, Connect 4 which is sure to keep the most ardent gamers busy during your hours for hours.

ARCHIPELAGOS



Experience the ultimate in 3 dimensional graphics. Archipelagos will interest to generations of all ages.

REPLAY 3



Who needs a Fastlight when you've got an ST or Amiga? Sample the exciting world of sampling with Replay.

BLOOD MONEY



Enjoy the hottest arcade action this side of the business with Progressor's latest mega game.

WIN WIN WIN...



SEE PAGE 40

Get a full issue for a program that I written and read it to see how you could win a share of the cash.



▶ Ego is Regan Eagle's new name for this!



▶ You've got yourself the hardware. Now it's time to get down to some serious coin-wasting.



AMIGA

BLOOD MONEY

PROGRAM: By Psygnosis
MACHINE: All Amigas
FILES: BLOODMONEY

What could be your idea of the ultimate holiday?

Spending too much with the rest of Neighbours perhaps? How about a real exciting seminar in the Twin Alps? Be honest, whatever you choose, it's going to be lame compared to what the people of the planet Yarns get up to in their spare time.

The name of the game is also rather, for just a few credits, you get the chance to fly into any one of four alien infested planets and destroy as many of the suckers as your joystick finger will allow. Whenever you destroy an alien, you will be rewarded with a bounty, the more aliens you kill, the more credits you earn. Once you've earned enough credits, you can quickly pop into any of the multicolored planets scattered on the planet and equip your self with some groovy alien-wasting hardware.

However, there's only one snag. These aliens are not going to sit back and let you waste their lives. Why they object to having white hot plasma energy from a laser cannon melting their brains, is hard to understand. The fact remains, you'd better be careful or you'll end up more charred and fried than a steak kabob.

Getting going

You can load your trip on an alien safari by either double clicking on Blood Money's icon on the Workbench, or alternatively, by inserting our cover disk at the 'Insert' Workbench prompt when you first boot on your Amiga. You'll need to take along some about walking boots, a packed lunch and some waterproofs... oh yes, you'll also need a joystick plugged into joystick port two.



▶ Need some extra weaponry? You'll need the cash first.

ST

CHORDEX

PROGRAM: By G. Franklin
MACHINE: All Colour STs
FILES: CHORDEX.PRG,
CHORDEX.000

Anyone who has tried to learn to play either a keyboard or a guitar will tell you that it most certainly isn't an easy task. With all these chords, your fingers can often end up tied in a knot that about all the string names that musicians give chords? Could you play 'It Must Be Love' if it wasn't for me, then Chordex is for you.

Chordex is a very simple, but very useful, program that aims to teach you all the different chords on both a music keyboard and a guitar fretboard. All you have to do is point at the particular note in question - select whether it is major, minor or diminished - and the chord will be displayed on screen on both a keyboard and guitar fret board. If you have a MIDI keyboard or sound module plugged into your ST, Chordex plays the chord through MIDI.

Getting going

You can load the program by double clicking on the appropriately named icon from Desktop. If you

wish to hear the chord, you must plug a MIDI device into the MIDI port of the ST. Full instructions are available within the Chordex folder.

ST

PICSWITCH 7

PROGRAM: Public domain
MACHINE: All STs
FILES: PICSW7.PRG,
PICSW7.000

One very convenient feature of the Amiga is its standard file format, IFI. When you produce a picture on the Amiga, chances are you'll be able to load it into any other paint package without any modification whatsoever. Unfortunately, the ST is not blessed with such a standardised file format, the machine has over 18 different types of the last count that do you also therefore if you want to convert a Targa picture into Ego's file format or a Ego's text picture into low-res Neochrome? Use Pictswitch 7 of course!

Pictswitch 7 is the latest release of the popular screen conversion program that we first published in issue one's cover disk. This latest release has several very powerful features that merit its re-appearance.

The original Pictswitch only handled two file formats,



▶ Chordex in action. Learning chords has never been so easy!



▶ Pictswitch's impressive resolution switching capabilities in action.

ARCHIPELAGOS

PROGRAM: By Logotron
MACHINE: All colour STs
FILE: ARCHIPELAGOS
TITLE: .PI1, ARCHIPE1

are moving while birds sing
 British harmonies, the Vikings
 show the Ancients and have
 taken their roles in eternal out-
 facing.

The death of the
 Ancients had a catastrophic
 effect on the many worlds that
 made up the Archipelagos.
 Where flowers once bloomed,
 eggs filled with poison lie wait-
 ing for a spark of elemental
 energy to free their deadly
 contents. Where birds once
 sang, evil ravens now hiss and
 make the very fabric of the
 Archipelagos. The Vikings
 have long gone, but result of
 their work still remains.

You must visit all the
 Archipelagos of the evil power
 that destroyed the Vikings.
 Each Archipelago has several
 stones scattered around it, and
 somewhere there is the special
 obelisk. To remove the power,
 you must destroy the obelisk.
 To destroy the obelisk, you
 must first destroy all the
 stones that supply it with its
 energy. To do this you must
 join each stone to the obelisk.
 Once all are destroyed, you
 have 90 seconds to finish off
 the obelisk. Simple, easy?
 Don't be too sure!

The game is played
 using both the keyboard and
 the mouse. It builds up the
 square of land currently under
 the cursor. It displays the
 game map and 13 islands you
 fly 180 degrees. Pressing the
 left mouse button on a green
 square will move you about.
 How fast you can only travel
 on the green squares.

Getting going
 You can load Archipelagos by
 double clicking on the ARCHI-
 PELAGO.PRG icon.



■ Once you've loaded your picture, just press F to save it in any resolution and any file format that you desire.

Open and Macintosh. This latest release features the compressed Tiff file format. Another very handy feature of PicSketch 7 is its ability to match the resolution of any picture. If you have a high resolution picture you can have it converted to low resolution in a jiffy. Also, if the resolution of the picture you are trying to load is different from the resolution your ST is in, PicSketch will automatically convert it to your current resolution. Very handy indeed!

Getting going

You can load PicSketch 7 by double clicking on the PICSK7.PRG icon on the Desktop. Full instructions, including details of all the different files needed to complete the program, are included within the PicSketch folder.

LIBRICA

PROGRAM: Public domain
MACHINE: All Amigas
FILE: LIBRICO, GFORM-
 BRIC, GETFILE

Talking of C and Assembler programmers! As you already know, the Amiga has no standard file requester built into ROM (but look out for Publisher 1.4). This means that unless you're an experienced programmer, your programs will end up having to use the old and truly 'Pitiful' type of Requester.



■ You could have this lovely file requester within your program using macrofiles.

prompt. This is free for simple CLI based programs, but for more complicated programs it can cause any number of weird problems.

Take a look around at any programs available within either the public domain libraries or even commercial products and you'll notice that although the Amiga doesn't have a standard file requester, most programs seem to use the same file requester. This file requester is actually a public domain editor module written by Bruce Miller (now chief of Macintosh in the States). The Macintosh file requester provides a very easy way of incorporating a requester into your own programs with a minimal amount of fuss.

Getting going

Incorporating the Macintosh file requester into your own programs is simplicity itself. All you have to do is write your source code so to call a function called `open()` and pass it the appropriate parameters. Once you've written your program, compiled it as usual and then passed it through the Amiga linker, you'll have to create a linker header file and include the file `open.h` as one of the modules to be linked in. Once everything has compiled/ assembled and linked successfully, your program is now ready to use. Full instructions on using the file requester, including demo source, are included within the file `librica.c`.

Along time ago the universe was ruled by the powers of the mind. The centre of this energy radiated from the Ancients, a race of immortal humans who controlled and regulated the universe. Together, the power of their minds created a thousand worlds, each an island in space where the ancients met, talked and drank tea.

Then, one day, the Ancients turned their minds to one planet in particular and they imagined oceans, continents and finally life. From these early beginnings, civilisations grew.

The night that met their eyes was of a thousand parallel planets, each an island in space. The Vikings liked the Archipelagos so much that they claimed claim to them by placing an obelisk of power on



■ Aest back at those green squares placed, each being a candidate of their power.

The Ancients used to 'de-imagined' the Vikings, but it was too late, the Obelisks taught the powerful minds of the ancients and won. The thought of being 'de-imagined' made the Vikings mad and so,



■ To see the main Document Archipelagos created by the minds of the Ancients.



AMIGA

SETKEY

PROGRAM: Public domain
MACHINE: All Amigas
FILES: SETKEY.
SETKEY.DOC

One of the most confusing aspects of AmigaDOS is that of key maps. How many times have you guessed a key on the keyboard only to see the Amiga give something entirely different? The reason for this is that the Amiga keyboard is configurable to suit the needs of the particular country it is used in. For example, if you tried giving a command sign on a US keyboard, you'd probably end up with a dollar symbol being printed.

The Amiga reads those keyboard definitions from what are known as 'keymap files'. A keymap file contains information on what the Amiga has to print whenever you press a key. By using Setkey, it is possible to completely customize your Amiga

keyboard: just think, you can have the Amiga print an A for every key pressed. Now that would be useful!

Setkey, as you've probably already guessed, is a program that allows you to create your own keymaps or modify existing ones. The program was originally written for the 81000, but it works without problems on AMIGAs and 80000s. The only difference between the 81000 keyboard and the 8000/8000 keyboard is the extra keys on the numeric keypad.

To create a keymap from scratch, click on the key you wish to redefine. A window will pop up containing the current values assigned to that key. Edit the current definition to your requirements and then select 'modify keymap'.

Once you've successfully finished redefining the keyboard, save it off to disk and exit the program. To use your new keymap, enter the CU and enter *System/Keyboard*. *By Lawrence*



■ Just select the key you want and then type in the definition. Customized keymap here we come.

where *Mouse* is the name of the file holding your new definitions.

Getting going

You can load the utility by double clicking on the Setkey icon from

Workbench. If you have expanded memory (1 Mbyte or more), you may have to switch it off to use the program correctly. Full instructions are available within the Setkey drawer.



you've loaded the program, you'll see the screen shown above. The version of Replay 3 on our cover disk is the most complete version. It is almost complete in that the maximum sampling rate has been restricted to 150KHz and our samples cannot be larger than 250K. The manufacturer error correction in the tape is left out. Finally, features chosen by the designer are:

- **Variable sample rates** - you can sample from 10KHz up to 150KHz. The higher the sample rate, the higher the sound quality. Higher quality also means memory is consumed faster.
- **Reverse Sample** - just press the R key and the samples will be inverted. S4 to give stereo.
- **Full cut and paste facilities** - a whole host of facilities for editing your samples is provided.

Getting going

You can load Replay 3 by double clicking on the REPLAY3.PRG icon from the Desktop. Complete instructions on using the software will be included in a sample and include with the Replay 3 folder GIG-GIG for it.

Replay 3 is a complete sound sampling system and is one of the most powerful available for the Amiga.



■ **Ability to bypass** - a sample can be bypassed completely. This is done by switching off the output of the circuit of the current. Pressing F10 plays the sample.

Are we changing you for the manufacturer of programming? The former says, over the top, people inflated price of cars

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AMIGA

FOUR

PROGRAM: Public domain
MACHINE: All Amigas
FILES: FOUR, FOUR.DOC

All this ain't winding around for good for the real. What is needed is some really passive, thought-provoking games to keep the old brain in shape. With this in mind, the No. 100 format presents Four.

Four is a very nicely presented computer version of the classic Connect 4 board game. The object of the game is very simple, but the strategy needed to conquer it can be very complex indeed.

Your aim is to get four of your counters in a row — either horizontally, vertically or diagonally. Your opponent, the computer, also tries to do the same. You must thank the computer's efforts if you are to be successful.

One of the recent things about Four is that it is small enough to have running while you have other programs multitasking. Just think, if you're waiting for your spreadsheet to perform a complex operation like calculating just how overbank you are, you could bring the Four screen to the front and you have a quick game while the machine continues working with the spreadsheet. With real multitasking hasn't got a wa!

Getting going

You can load the game by double clicking on the Four icon from Workbench. After a few seconds of disk access, the game should load up.

All the game control functions are accessed from pull-down menus. These can be accessed by holding the right mouse button down. Full instructions are also available within the Four screen.



■ Who needs multi-column, parallel windows when you've got a game as absorbing as Four?

ST

Is your mouse pointer starting to feel the strain of hours of Desktop tracking? While you stay by looking around the desktop at break-neck speeds, the poor old mouse pointer still seems to trundle slowly across the screen. However, with Fast Mouse your mouse pointer need never feel left behind again.

Fast Mouse, as the name suggests, is a very handy little program that aims to make your desktop sessions more productive by speeding up the on-screen mouse pointer.

Getting going

Fast Mouse is a desktop accessory and consequently cannot be loaded with the normal post-double click procedure. To use Fast Mouse, you will have to first install it on your hard disk. Do this by copying the file FMOUSE.LOC to the top directory of your boot disk. (Once the file has successfully copied, reset your ST with your boot disk in the internal drive. After a few seconds, the Desktop screen should appear. Now just move the mouse pointer up to the Desk item and a menu will drop down containing Fast Mouse. Select it, and you're away.)



FAST MOUSE

PROGRAM: By S. Higgins
MACHINE: All STs

FILES: FMOUSE.LOC, FMOUSE.DOC

AMIGA

DISKX

PROGRAM: Public domain
MACHINE: All Amigas
FILES: DISKX, DISKX.DOC

The Amiga disk operating system is not exactly renowned for its tenderness to floppy disks. In fact, if you've got a disk full of valuable data that mustn't be erased at any cost, File Doctor's Disk Doctor or later AmigaDOS will corrupt it. When the unfortunate data happens what do you do? You could start by running the disk through DiskDoctor, but if that fails you've



■ DiskX in action. Here, DiskX is protecting the very depths of our mouse disk. DiskX is a very handy tool so be very careful when using it so you don't do irreparable damage to your precious disks.

got problems. That was until DiskX arrived.

DiskX is a powerful multi-purpose disk editor/analyzer that provides you with all the tools you could possibly need to make you to rescue files from corrupt disks.

Getting going

Double click on the DiskX icon from the Workbench to load the disk editor. The version on our cover disk needs access to a blank file within the DiskX drive and so, during loading, several arrangements have to be made which may require you to press disks. Follow the on-screen

instructions and everything should load fine. Full instructions on getting the most from the excellent program are available within the folder.

Format warning

DiskX is most definitely a handy program and should only be used if you really know what you're doing. Do not accidentally play around with a sector locate disk or any disks containing valuable data; one changed byte on a disk could have a disastrous effect on the rest of the disk. Don't say we didn't warn you!



HOW TO USE THIS DISK

The ST Amiga Format cover disk is a special format disk which both the ST and the Amiga can read. Even if you are a seasoned computer user, please 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 as 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 Diskard contents window.

3. Now drag the disk for drive **B:** into the open window of disk **A**. This will copy all the files one by one off the master disk to your new disk. Make sure that the master ST Amiga Format disk is write-protected the whole time and put it in the disk drive when asked for disk **B**.

4. You will now be prompted at various times to insert disk **B** and disk **B** while copying takes place. There

will be a lot of swapping to do on a single drive ST Disk **B** should be the master disk, disk **A** your newly formatted copy.

If you want to cut down on disk swaps, you can use the Internal RAM disk program provided on our own 5 $\frac{1}{4}$ disk as an alternate drive drive.

Note that our special cover disk contains about 300 more files than will fit on a standard single-sided ST disk. If you own an old 5.25, you'll have to be selective and copy only the files you want.

ON THE AMIGA (assuming a single drive A300)

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 all fit in the RAM drive at once on an A300 - do whatever you fit, then stop

also - delete them from the RAM disk by clicking once on each one, 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 disk in the drive, you will see a window opened with the contents of the disk displayed.

Each program will have a number of files on the disk. A program called DOUGAL, for instance, will either have an icon named DOUGAL.PRG or there will be a folder called DOUGAL. If there is a folder, double-click the left mouse button on it to open it up, and you should see DOUGAL.PRG inside it. Just double-click on a program's PRG file to run it.

Each program should have a corresponding DOC file - double-click on this and then choose "Show" from the list that appears to read the detailed info from the author. Always read the documentation before running the program.

Programs described as "one-accessed" don't have PRG icons to be clicked on - in this case special running instructions are given with the program descriptions.

ON THE AMIGA

The main program will automatically run when you turn on your Amiga.

and insert the cover disk. To get the rest of the items, you will need to run up NorBench first off from your normal startup disk. Once at the Workbench, put the ST Amiga Format disk in the drive and double-click on its icon to open it.

Most programs on this disk's cover disk have icons assigned to them. To run any of the programs, just double-click on the programs icon and after a few moments disk access, the program should load up. In the case of DRISK, when you try to load the program the Amiga will prompt you to insert your Workbench disk. A cascade of lines, letters, or program responses and DRISK should load fine. For better instructions on using the Workbench, refer to the introduction to the Amiga manual that came with your machine.

When you click on a documentator file, a new window is opened and the text is displayed a screenfull at a time. Press any key to move from one screenful to the next, or click on the close gadget in the top left-hand corner of the window to cancel the display.

Jason Wilson

WE WANT TO GIVE YOU MONEY!

Name _____

Address _____

Phone: _____

(Daytime) _____

(Evening) _____

My program name is _____

For ST Amiga

Approximate total size of files in kilobytes: _____ K

I do not use programs longer than 300K, shorter submissions, under 100K, stand the best chance of publication!

Is a

Game Technical tool

Business utility Art program

Music program Educational

Novelty Other _____

BRIEF DESCRIPTION

Checklist (please tick)

- Stamped addressed envelope for return
- README DOC explanation file on disk
- Printout of README DOC file (if possible)
- Name, address, machine type written on label
- Disk certified virus free

IMPORTANT - Please sign this declaration:

This program is submitted for publication by ST Amiga Format magazine. It is my own work and has not been submitted for publication elsewhere. I claim my national fame and glory.

Signed _____

Date _____

If you're not sure you've got it right, call 071 328 1999 for an Amiga which you think other readers would find useful, interesting or amusing, we'd like to hear from you.

1. Make sure your program is formatted to ST.

2. Create a file called README.DOC on the disk which explains exactly how to use your program.

3. Fill a file form, sign it, and send it to the address below.

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CAD

Computer Aided Design has proved to become one of the most important uses for modern computers. With a CAD system you can design houses, cars and electronic circuits - in a fraction of the time it would take you with pen and paper.

With the high speed and powerful graphics of Atari systems it's hardly surprising that bigger and better CAD programs are pushing back the frontiers of the time.

And only at the Atari Computer Show can you see all the latest systems under one roof.

BUSINESS

Many companies will be demonstrating their latest software and hardware, especially designed to show the full business potential of Atari computers.

As well as products for the Atari and ST, you'll be able to try out applications for the powerful IBM compatible series.

And you'll also be able to get expert advice from professionals.

DTP

The art of combining text and pictures is big business nowadays because, with a low-cost DTP program, you can create anything from a club newsletter to a monthly magazine or book.

At the show you'll be able to try out the latest versions, digitisers and specialist programs, and get a first-hand glimpse of the way DTP is set to develop in the future.

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The Atari Computer Show is back - with many new products and developments. Atari has proved to be one of the major players in the computer world, supported by an incredible wealth of top-quality applications, games and utilities - all on view at this show.



Business

DTP

GAMES

GAMES

Atari computers are renowned for their ability to run fast-action arcade-quality games.

The range of home software on show will demonstrate how the power of these machines is continually being stretched, producing faster and more more addictive games with superb graphics.

The winning entry in the STARS Gamecenter of the Year Award will be awarded, and several new exciting STARS accessories will be shown for the first time.

If you're a keen game player, you'll find there's so much to offer at the show - you're guaranteed a real treat!

DON'T MISS IT

So for a great day out - whether you want to see what the future holds for Atari computer users, take advantage of the bargains on offer or get advice on specific applications - the Atari Computer Show is the place to go.

And if you aren't in the computer mood, you'll save it off the price of a single ticket!

SPECIAL OFFER

For the first time we are now offering a family ticket for just £11, allowing entry for two adults and two children. So you can save up to 30 off the usual entry price!

How To Get There

Alexandra Palace is an easy to get to by car, rail, underground or bus. It has its own British Rail station, just nine minutes away from King's Cross, and there's a free bus service shuttling between station and show every 10 minutes.

If you're travelling by road, the show is only 15 minutes away from Junction 21 on the M25. Car parking is free.

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Nothing can beat a high resolution monitor when it comes to detailed graphic work, DTP or serious games playing. While the official Atari and Commodore offerings are good, there are better alternatives as SIMON WILLIAMS discovers.



SCREEN DUMP



If you use your ST or Amiga regularly, or want the added convenience of being able to use all ST modes on the same display, there are various options open to you. They all cost money, but then you expected that, didn't you?

For ST owners, who are blessed with decent colour and mono monitors, the spend can be quite high before any significant improvement is noted. If you're buying for the first time, though, your best bet is to buy a machine with out a monitor and consider the extra facilities of a multiync. You can then add the monitor of your choice for a comparatively small extra outlay.

On the Amiga the need is rather more pressing as the supplied monitor is not so sharp, or of similar resolution, to the ST's. The advantages of a better monitor are less eye fatigue, a brighter and better looking display and confidence that there's little Age or Commodore can throw at you that you won't be able to display - except internal noise. This won't be fixed by a multiync, unless you also buy the Silverface board, for a better £350. This is probably only worth it if your main interest is in video applications.

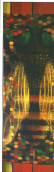
Alongside normal monitors, there's a breed called multiyncs. The principle of multiync monitors is that they can sense the vertical and horizontal scan rates of the incoming signal and adjust themselves accordingly. This feature was originally developed in cope with the multiplicity of different graphics standards on the IBM PC. It has open-off benefits for both ST and Amiga users, though.

An ST running into a multiync monitor can display all three display modes, including the monochrome hires output. Once again, though, you'll need a special lead with a switch mounted in it to flick from colour to mono modes. Besides, too, that your ST will crash when you flick the switch, so you can't maintain programs or data.

Current Amiga users get no special benefits, though of course the screen resolution and clarity is of a very high order. When the new Amiga enhanced chip set comes out of Commodore, though, it will support extra hires modes which will only run adequately on a multiync monitor. If you're looking for a good investment in the future, a multiync monitor will keep your ST or Amiga happy for years.

If you like the idea of a multiync monitor, but can't see in the £600 of the Quabon, you could consider the more MEC Multiync (2 board £150) A811 and Amiga Display mode super-resolution boards.

There are a lot of monitors available for ST and Amiga, but it's a selection we feel are appropriate. Note that the prices quoted are manufacturer's suggested retail prices. You can undercut them considerably by shopping around. Check that your supplier can provide the right leads for your machine, though.



SUPERSCREENS

You may have seen some of the large A4 and A3 paper-wide monitors on the PC or Which Computer shows, normally attached to Mac or PCs. Video Map (01 509 1831) are in the process of putting together an A3 MegaScreen for the ST or the moment. If DTP's your bag, this kind of monitor could make life a lot easier for you - at a price!



1 The SilverFace is a multiync display board for the Amiga 500. The board accommodates the three gold module slots from the computer's display. You board plugs into the video out of the Amiga and has a control for turning on a monochrome or RGB-composite monitor. Inquiries to U.K. Tech Direct, Wokingham, Hampshire, Surrey, BT1 1LJ, (01-341 9490) can identify you with one for £280.



Philips PRO 90M852
£299 ■ Philips City House,
420-430 London Road,
Croydon, Surrey CR9 3QR
(01-889 2156)

This is a large size monitor with a lot to like. The Philips PRO 90M852 has a 19.5-inch screen and an aspect ratio of 1.33. It has a built-in stand, a 15-pin D-sub connector for the monitor, and a 15-pin D-sub connector for the PC. The monitor also has a built-in speaker and a built-in microphone.

back to the original Amiga of 512 to 1024 pixels of work, with the 890. Once connected, the monitor gives a somewhat sharper image than the 1084, but still shows some vertical banding from the ST processor. This is not a fault of the monitor itself, but a slight conflict with the colour output of the ST. You have to look closely to see it, anyway.

On the Amiga, the display shows a better background on standard text screens, which gives better contrast when working with word pro-

cessors and may offer similar benefits. The screen is tilted about 15 degrees, but the 1084 has a 20-degree tilt. The 1084, and the great resolution, are not immune from external light sources. There is a degree of curvature to the screen, and the monitor appears sensitive to the position of the Amiga circuit board in this respect.

The PRO 90M852 is a good alternative to the 1084 monitor and costs a little more if you buy it at retail prices.

Quadram MS-1420
Multiscan

£399 ■ Silica Shop, 1-4 The
Mews, Hatherley Road,
Slough, Kent DA14 4DX
(09-309 1111)

This Multiscan monitor, built by well-known peripheral manufacturer in the IBM PC world, comes at a very attractive price. It is a large unit, occupying a Mega ST for instance, and has controls hidden under a panel on the side and the switches for colour selection on the back. It's mounted on a tilt and swivel base and has an attached screen for maximum glare.

With a suitable switching box (like the MVSJ211 from Lightspan) and a gender changer (the Quadram comes with a hard, male, flying lead), you can display both colour and monochrome screens from the ST on this monitor. Although it is supposed to switch between the two automatically, we had to adjust the vertical hold on the monitor each time we changed over. The colour display was very good, with increased

clarity and very little cut-off at the corners of the screen. The high resolution, 30 dot pitch, later gave a (post-hoc) display, much clearer than the Aten units.

On the Amiga the display was of good quality with high contrast, but horizontal and vertical position controls had to be set against their stops in test screens. The screen shape was still distorted, with ballooning about a third of the way down the screen. It seems a pity that the potential benefits of the Multiscan screen were diminished by these shortcomings. On graphics screens, the effect was not so marked, and for games playing the screen gave a superb, arcade quality result - though with some background colours very faint.

Kaga Taxam
Multivision 770 Plus
£745 ■ Taxam UK, Taxam
House, Cookham Road,
Bracknell, Berks RG12 1RB
(0344 484668)

The Kaga and is a top of the range monitor with all the features you'd expect

from its £700 RRP. It has an etched screen, numerous controls and a high resolution 0.31mm dot pitch. It will accept analogue and digital input from ST and Amiga, though we had trouble getting a stable picture out of an ST. The lack of a horizontal hold control was largely responsible for this, so the Amiga was obviously there, though scrolling too rapidly to use.

The Amiga ran the monitor more sensibly, giving a sharp clear picture but with some sag in the top centre. Both games and text were displayed clearly, and the background colours were visible too. All in all a strong contender for your money. If you have a lot of it.

As you've probably noticed from the monitors in this survey, compatibility with Amiga and ST is a hot issue. Nearly all high-quality monitors are based on the IBM PC. The standard means the simple tasking of changing monitors to be made sure you get the monitor with your machine, and with a variety of different software. There's no doubt you can do better than the standard Atari and Commodore monitors, but it takes some effort to get all the compatibility problems sorted out.

LEADING OFF

One of the major problems with using standard monitors is making the right connection between them and your machine. Lightspan Leisure (093 448 0885) specialises in providing leads for monitors and printers to allow any type of monitor, and their catalogue lists plenty for STs and Amigas.

If you can't wait for the official UK release of DMC's monster DTP package, here's what the American grey import version offers. You might not get the user support you're after, but at barely half the official price can you complain? *ST DTP* will never be the same again as *MARK HIGHAM* discovers.

£250.00 ■ Mono 576 with 1Mb, 4Mb and hard drive recommended ■ Gaimstar.

Unit 1, Floor of 7 Wellington Road, Sandhurst, Surrey GU17 1AW.

Tel: 0252 877431.

After discovering that the UK version of *Calamus* wouldn't be due for months, and noting that the American release had been out for some time, Gaimstar decided enough was enough and imported the American version. Alan is in the process of trying out so-called bugs in the original *Calamus* and making it suitable for the UK market. This review is based solely on the US release – however it is expected that the UK version will be very similar (albeit nearly twice the price).

Calamus has been pushed as the most versatile and professional DTP package yet produced for the ST. As such, it comes in at a comparatively high price and makes heavy demands on the hardware. At the very least you

will need 1Mb of memory, a double-sided drive and a decent printer. If you intend using the package seriously, a hard disk, the Atari laser printer, a giant 43 monitor and a massive 4Mb of memory are recommended. If you go for a setup that's this comprehensive, then you'll have a system which compares favourably with anything PC or Mac based. And it will cost you half the price.

The basic *Calamus* menu is made up of drop-down menus which call up additional menus, in turn these sub-menus call up further menus. As a result of these extensive menu features, *Calamus* can prove overly complex – particularly for the novice user. This is compensated somewhat by a very handy help facility. A help message appears at the top right of the menu bar which corresponds to the mouse point or its position. This feature means that you know exactly what the icon or menu selection will do before you click on it.

Unfortunately *Calamus* provides only a very limited number of keyboard shortcuts (for instance, *Alt-A* to select the entire contents of a window which save time and mouse movements when you have learnt them. This means exper-

A File App Text View Extras



■ *Calamus* in action. The front screen is filled with menus and with very few simple shortcuts implemented you'll need access to all the icons most of the time. This complexity can make it difficult to use but with all sorts of graphics options and text on offer it can become a powerful package when you know what you're doing. There's even an option to take direct input from a scanner and import it into a picture box, although graphics are not supported.



■ The fonts are mathematically created so that as the paper size they are still perfectly shaped.

most users will be restricted to the main case of the menu items. Along with the help messages, a special area of the main display is set aside for displaying keyboard shortcuts (assuming they exist).

Getting it down

Laying out a page with all the various text sizes and page links is what makes DTP such fun. Calamus' treatment of this is therefore very important. The normal page size must be picked first - 8.5 x 11 or letter size, for instance. The effect from the lines of fixed-line editor which allows you to create a new page and then enter all pertinent information regarding number of columns and guides. Calamus operates in a totally different. The create-page feature lets you set page size, orientation and number of pages. Column guides must then be selected from another menu. This sort of operation reinforces the argument that Calamus is unnecessarily just for the sake of it.

Guidelines may be added as a specific number of columns and rows; simply guide can be laid down on top of the other options let you snap the line to the various guides, allowing precise layout.

The next step is to position page boxes or individual text boxes. From different types of box exist - from plain to really necessary. The box types are: arbitrary text frames, rotated text, text with leaders and leaders, plus a selection of graphics boxes. Mouse clicking from the frame mode alternates between the mouse and use box option, and the draw new box feature. Text can be made to run around these boxes using another menu option. Fully text doesn't automatically flow around boxes.

A simple ring of frames allow you to decide whether to run text around the right or left sides of a box, run it over the top or under a foot of page, use tabs to run the text out of one box and into another. By selecting where the text should run around in this way, you can easily decide the look. Structure of your text before inserting text.

Where's the body?

As with the majority of DTP systems, the intention is to write your text in a word processing package and then import it later. First Word protocols are supported here as well as standard ASCII. However, the real bonus is a special text editor which can be used to examine all text and perform a small selection of editing features. It's not really intended to be used as a primary method of data entry, but simple find and replace options as well as style changes are possible from here. The text appears in one standard font with the control codes - such as style and text size - enclosed in square brackets. It is an extremely fast way of making corrections to data without waiting for the screen to be redrawn with each character - a particular help painful problem associated with both First Step and Timespeak DTP.

A range of font styles are included on the Calamus disk and these may be loaded separately as and when you need them. Style and size are adjusted by selecting the correct frame and then highlighting the text using either the mouse or block start and end markers. The new style is selected and the changes implemented. This method can be used to set up your text as justified, centered, ragged right or ragged left. Additionally, you can add a ruler to individual boxes so that tabs can be adjusted in these boxes without affecting the rest of the text. Letter and line spacing can be adjusted in steps of 1/1000th of a centimeter.

Text may be imported into five separate clipboards where it can be altered, copied elsewhere or printed altogether. Unfortunately, without any undo option, it's important that you make no mistakes.

Although text is set to run around boxes, the slightest change in the size of a box necessitates reselecting the reworded option. This is a serious problem because it means that the text will report as if the box were of its original shape. When dealing with imported layouts where pictures or text boxes are regularly required to accom-

modate changes in the layout, this can be a terrible waste of time.

Apart from all the standard DTP features, Calamus incorporates several extras. Boxes can be set to a specific size and then labelled as proportionally accurate; further alterations will make only proportional changes to the frame size. Text can be adjusted so that it sits at absolutely any angle - this has to occur within a separate box though. Picture boxes too can be set to function at a size proportional to the actual picture being imported. Pictures may be imported in a multitude of formats including the Degas and EPS standards.

Once you've formatted your page into a printable form, it may be sent to the printer by first selecting a driver. Timespeak DTP is phenomenally slow in this area but there are no such problems within Calamus - it prints away without making any major demands on the disk drive.

On to paper

No matter what the DTP package, ultimately it's the output which matters. Calamus is not really aimed at the Type III matrix printer market even though it is possible to use these printers. Calamus is really in a league of its own when used with a 24 pin printer or the Atari laser printer. With 24 pin models, three passes for each line of 24 points are made. This is the same as that method as that employed by Timespeak DTP; it has proved to give the best quality output for dot-matrix printers. Unfortunately it's extremely slow, often taking in the region of 10 minutes to produce a complex page. The Atari laser printer is supported, as is the revolutionary Hewlett Packard LaserJet, but the lack of the much more flexible PostScript language renders it out an Apple LaserWriter. PostScript is a bad omission as it precludes the use of professional typesetting bureaux and laser printing agencies which are a boon to non-laser printer owners.

UK AND THEM

The original version of Calamus was designed for use in the US, but programmers (MS) are working on a special UK version. To get the UK version has taken six months. Because of this wait Calamus has imported the American version for distribution in this country. The imported version doesn't benefit from the new changes implemented by (MS) and there is a question mark over the extent of software support on offer. Gamble claim they will answer any queries that they can and will certainly America should address any problems arise. This is hardly the ideal environment for software support, but it may well be outweighed by the huge difference in prices - the UK version of Calamus weighs in at a massive £200.

The bugs known to exist in the US version are fairly extensive when it comes to a new UK version is being worked on. Atari claim that they include problems with importing (MS) files and CPM block data (not during continuous use the only serious problem are remembered since this is hardly the ideal environment for software support, but it may well be outweighed by the huge difference in prices - the UK version of Calamus weighs in at a massive £200.

VERSUS EXPRESS

More on Future Publishing, we see Quest Express today, not our page. It features all the Calamus extras plus one very major feature that is unavailable in the Future pages. By drawing a picture in a point package and importing it into Express, text may be made to run around the image. In Calamus, text will only run around boxes and not individual pictures.





VORSPRUNG DURCH TECHNIK

Two versions exist: besides the one I'll use currently under development, it exists simultaneously entirely free for sale in Germany and this version translated to English for sale in America. Unfortunately a vast majority of the error messages were in German which did little to help sales.



■ Menus within menus. Layout can be very complex, giving least two and two and a half and counting it around means it's close to four bars.

At the end of the day

Despite the legion of features on offer, there's the feeling that Calamus is being complex when there's no need and complexity doesn't always equal quality. It's doubtful whether the convoluted array of menus is really essential, a less complicated method of page layout would have been a benefit. Because of all the icons that must be accessed during page layout and the lack of keyboard alternatives, it's impossible to use Calamus across the full screen area. Calamus can be made to run on an 485 monitor and this sort of screen is a good investment if your budget can stretch that far.

Calamus is exceptionally slow at times, especially when you run text around different lines. Only one document may reside in memory at any one time which is restrictive and prevents you cutting and pasting from document to document.

Although Calamus had a massive range of features, a better-considered screen display and a wider range of keyboard shortcuts would have been worth while.

At the end of the day, Calamus is an extremely expensive package (especially when combined with all the hardware it requires). And, as such, there's the feeling that it should provide

a further push for DTP by being simple to use, being high-quality output, and last, a bit of fun. These just aren't delivered. There's hope for the new UK version currently in progress although the basic system is unlikely to change. Without a doubt Calamus is superior to current DTP packages – but, considering it's five times as expensive, it's far from three times as good.



■ With the basic layout complete, the next step is to input text. The Calamus text editor is a unique idea and makes text alterations a real treat. Operations may be entered without the screen being redrawn each time.

TA VERY MUCH

Thanks to Turbo Theory for his assistance in this review.

<p>features</p> <ul style="list-style-type: none"> ▢ ▢ ▢ ▢ ▢ <p>format</p> <ul style="list-style-type: none"> ▢ ▢ ▢ ▢ ▢ 	<p>for</p> <ul style="list-style-type: none"> ■ Extensive layout features ■ Good text editor ■ First Word and Beggs protocols supported ■ Wide range of printer drivers <p>against</p> <ul style="list-style-type: none"> ■ Poor manual ■ Not run-around but substantial ■ Lots of hardware expenses required for successful use
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■ With a depth of matters printed Calamus can afford some very impressive results.

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Computer-aided design gets everywhere these days. Gone are the days when you needed a mega-expensive computer to run the infinitely complex software and a degree in engineering to use it. CAD is even finding its way into games software lately. MARK HIGHAM peers into this elite subject to give you the low down on what CAD's all about and how you can coax your machine into handling it.



GOING MAD WITH CAD

In the beginning life was populated with simple, square, rectangular blocks. Rooms were very happy with this — the cars gave a basic roll with open wheels — and soon designers were at work trying to make things more complicated. Eventually pencil, paper and the back of envelope just wouldn't do anymore — and CAD was born.

And then there was life

CAD first came into the daylight when IBM introduced a SAC console with a brief to revolutionise the world of design. Before that solid models had to be made up to

represent a scaled-down version of the engineering design required. This was not only a costly approach but any fault in the design had to be spotted and then a new model commissioned. As a direct result, the time it took to complete this kind of project could often be unreasonable.

When computers were programmed to hold a three-dimensional image in memory, with modifications made possible via keyboard entries, it seemed that engineering design had changed forever. It was at this point that the terms CAD — computer-aided design — and CAM — computer-aided manufacturing named their heads.

The benefits of this type of

▲ Even Hollywood recognises the potential of CAD: the Last Temptation is proof of what's possible.

approach are phenomenal. The smallest modification can be made on screen and then the new design tested to examine its feasibility. Initially models were still commissioned but at a much later stage in the process. As time passed however, sophisticated programs made it possible for the computer to simulate certain conditions such as weather effects and stress problems so that the CAD image did not need to be turned into a model until the very last minute. The vast majority of car manufacturers now operate like this — no longer producing a model until the computer has simulated the effect of all possible stress points and wind resistance on the design, thus drastically reducing costs.

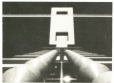
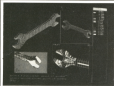
Getting it all in

All the years have reeled by CAD has found its way into many of the smaller microcomputers and even the more expensive minis, such as the ST and Arpa machines.

A variety of data entry methods have been explored from the traditional joystick and data tablet inputs, to the more lightning, faster and more voice entry modules. Most of the ST and Arpa packages are traditionally regarded as backward systems and, as such,

SHOW-OFF

CAD/AM has become such a major field in the computer industry that an annual CAD/AM show is held. This year the show was at the NEC in Birmingham where representatives from over 100 exhibitors including vehicle, plastics and even of the most powerful computers are around, though for designers.



■ 3D animation is being used to provide an over-reality as a result as possible. The result is that 3D animation has already found its way into most game software but the real potential lies in creating a walk-through environment where situations and conditions can be imposed on a model and the results viewed even before the design leaves the computer screen to be transferred into a model.

utilize the mouse and keyboard input routines that Commodore's E&A for the Amiga supplies letters in offering approach aimed at the highest market. A graphics tablet can be used as the input device, with the opportunity to define all your own tablet moves.

Colourful CAD

The vast majority of CAD applications still work very much in 2D to produce the kind of image found in technical drawings. These give views from all sorts of angles but, at the end of the day, are still in a 2D format, where the conversion to 3D solids takes place in the trip from the architect's machine to the client. 2D designs are all very well but 3D pictures are essential for the experienced plan reader to get a true idea of the actual design. By using a solid modeller the wire-framed images can be filled in to give a much clearer idea of what's going on.

Where these really come into their own is when you're testing a design for use in certain applications. For example, you could design a crane as a 2D sketch, drawing it from the typical architect's orthographic viewpoint. This could then be put through a solid modeller which would create and fill in the 3D image. You could then test to see if the crane would actually fall over if it was put into use. Rendering is similar to this, on the bar and at the market. Packages such as Auto's CAD-3D for the ST allow you to colour images and view them as 3D solids from all sorts of angles, but this is not true solid modelling because you cannot examine it as if it were a true solid and apply conditions to the model. Specialist packages already exist which create such a perfect 3D environment that you can even 'walk through' a computer generated image such as a building in real time.

The animation bug

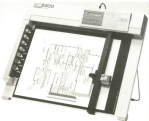
A new range of colour CAD systems are appearing at the highest of the market which present a kind of Americanized graphical representation of the solid with colour employed across the entire design. This approach provides as realistic a model as possible so that the solid style radiative green wireframe images become a thing of the past. The parsimonious of realism has led to sophisticated shading routines as well as the emergence of colour. The next step in animation was a logical one.

Great screens and specifically designed software have been created to take CAD into the realm of animation and some truly astonishing visual extravaganzas have been made possible. In the recent CADCAM show at Birmingham's NEC, a Cinema score link of a monitor was used to demonstrate the kind of 3D animation being used in the CAD industry. Certain television adverts, specifically car ads, have used the same software for their own purposes.

In the games industry

Some of the finest computer games to emerge over the last few years have made the most of CAD principles to support their gameplay. Some have only used them in their scoring sequences but others such as (Dragon) Lair, Powerline and particularly horizontal Powerline range of titles have introduced them into the actual game, offering three-dimensional objects which move and act exactly as if they're composed of all three planes.

A small selection of professional CAD packages has recently appeared on the 16-bit scene to provide you with a way of creating 3D pictures, and even introduce them into your own animation routines. These can create short car-



■ Plotters work by drawing an image directly onto paper as the output produced is sharper and can be taken to a higher degree of accuracy but professional CAD is no cheap industry.

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look animations almost as impressive as some Hollywood films, particularly on the Amiga where a wider range of colours can be employed.

On the ST side one of the most admired CAD packages is Cyber Studio which incorporates the remarkably versatile STRED CAD-3D and Cyber Math. It's been around for some time now but far from being a disadvantage, it's actually a major plus. CAD started life in the engineering world so it's hardly surprising that it's a hard subject to master. Amiga have retained this by releasing a whole host of supporting packages designed to make the absolute most out of their CAD programs. Animation no less allow you to take your 3D image, render it, play with it as you wish and even reuse a variety of different lenses if they're regarded as separate images.

CAD has taken a long time finding its place on the home micro scene. It began as a business application which allowed the home user something to play with but it was never intended to be taken seriously. As the well-framed images began to be filled in the idea of 3D animation evolved and hence the appearance of supporting animation packages for CAD programs.

The way forward?

The future for CAD seems to be very much in creating real world images. Already robots are being linked to a computer so that as soon as the 3D image has been satisfactorily designed on screen it can be transferred to another package and outputted directly to a robot. The advantage of this is that 3D models may be created at the end of each step and maybe one day it could even be possible for a substrate design



▲ The ultimate in visualisation. The large screens are virtually a necessity for many of today's CAD applications. The graphics tablet offers the perfect inputting device with output being sent to a printer later.

to be sculpted. Robots will, of course, offer the ultimate output because they can create the solid image previously only seen on screen. This is an expensive way of producing output and is likely to stay as the final step in a design but with clients and managers already demanding so-realistic a picture as possible, this seems set to satisfy their interests. A vast range of printers and

plotters are already being used to show an architect's plans without the need for a designer to ever take pen to paper, and as a cheap method of subcontracting this it remains the leader.

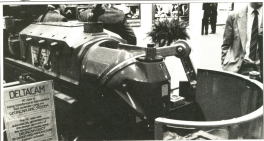
Increasingly developments are being made into the time-saving field of computer animation so that one day even Donald Duck may make his way into the CAD concert. ■

HEY DUCK, IS ALREADY JIFFY?



NEXT MONTH

In next month's ST Amiga Personal Math Highlight continues his look at computer-aided design by surveying some of the more popular packages available on the ST and Amiga, including Taurus' new 3-CAD and the hugely popular ST package, Cyber-CAD.



▲ The robot certainly provides the ultimate output device, turning a 3D computer image to reality. At the moment it's still used very much in a visual sense but the future looks set to see a greater commitment to robotic devices.

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A standard Ego or Neochrome format picture can be rescaled around any 3D shape. The result can be imported into CAD-3D. The colours of your original picture are maintained and lighting sources are selected all. Since the result is in the perfect CAD-3D format, it can be treated in the same way as any normal 3D picture.

You must load your Ego or Neochrome file (uncompressed Ego files are also supported) and select an area of your picture using the rubber band. A limited amount of editing can be performed at this stage. Because of the way that Texture works, any black in a picture is assumed to be a background and is ignored in the wrapping process.

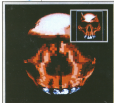
There is a set of 18 shapes provided to wrap your pictures around as well as an option to design your own simple 3D forms. Unfortunately only small areas of a picture can be used. This increases for larger memory machines, but can be particularly restrictive on a 512 K1. Obviously the less detail included in a picture, the less memory used.

Wrapping takes a while, and unfortunately there's no way of viewing your design from Cyber Texture, so the file must be saved and then loaded into CAD-3D later. The whole operation takes a while, making the result from within CAD is a lengthy process particularly when dealing with complex drawings.

CYBER VIDEO TITLING DISK

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This is another recent addition to the busy Cyber stable. Made up of a collection of different files, you can arrange to



■ Cyber Texture in action. Heavy, isn't it?

MICROBOT & CARTOON DESIGN DISK (C29-95)



The first to wander up the CAD path are don't's new design disks, - the Microbot and Cartoon disks. These feature a range of images which can be manipulated within CAD-3D. They come in sections - for instance head, arms, feet and torso - of a whole picture which may be brought together to make up one image or used separately to create something almost as odd as Mrs Gribble - but not quite.

Options are restricted within each file - so you don't need to reconfigure those ones loaded into CAD - although light sources should be set to create perfect conditions. There's no way of viewing the disk contents without loading them into CAD-3D but a set of photographs for each file are provided.

CYBER SCENE

Recently Electric introduced Cyber Sculpt, a sophisticated program to generate CAD-3D compatible images. Now a range of packages are drifting onto the market, all priced under £50, giving users the chance to graze in the tasty field of computer-aided design. MARK HIGHAM investigates.

Use your videos with animated scenes particularly useful when used with a Genlock device. 3D forms can be used within Cyber's CAD-3D and then re-coloured, pulled, or stretched. You can create a pen to draw your lettering, and even arrange for the Starburst Extension to zoom into view if you want. Where it falls down is in the complex design

methods. Although you're provided with a complete alphabet of 3D lettering, allowing you to make up any words you want, handling them is not only tricky but can take hours of work since you need to distort each letter within the CAD package. Luckily for this reason it's not intended to be used as a method of adding credits onto videos.

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Back in 1985 Electronic Arts released the art package *Deluxe Paint* to critical acclaim. A year later *Deluxe Paint II* appeared. It did everything that *Deluxe Paint* could offer and then some. Version three is ready now and it's moved out of the realm of traditional art packages and entered into the



■ **Superb results are possible when using the perspective fill routine.**

WHAT'S HALFBRITE?

Extra Halfbits made it a little on the Amiga that allows it to have 40 colours in low resolution rather than the usual 16. It only works in one 64AA (half) and mostly mode. What you have is two sets of 32 colours, the second set of colours being half the brightness of the first.

DELUXE PAINT III

The long awaited paint package has finally arrived. No longer is it just an art program, however, as you can animate with it too. GARY BARRETT goes in search of Halfbrite Hill with the help of an Amiga, a mouse and the latest drawing tool.

world of animation. This puts it in competition with other animation software like Gold Disk's *Moviemaker* and Anzu's *Zentrop*.

There are three ways that animation can be accomplished: painting

each frame in turn, painting the last through three dimensional space and moving it, and Animapainting.

Painting frame by frame is the tedious method which involves drawing each screen in its entirety and then





ycling through the frames, using the second method you can also the brush on screen and then flip to the next one, depending on the last method and the extent to use. All you do is start the animator off and then put the brush down in the screen flip. Once you've finished all the frames, you can sit back and watch it go.

I'll have a fluff

Extra halftone display mode is supported with associated fill and paint modes, to help add some extra colour to your work of art. Shading is much easier to apply in extra halftone and as a result, 3D objects look startlingly convincing.

No longer are you restricted to a standard size screen; you can use one of 216 banks to cover your mode. You don't have to put up with borders around your pictures, unless you really want to. In previous versions of Deluxe Paint, the only way to flip the screen either horizontally or vertically was to change the screen into a brush and then flip the brush. There's no need for this colour in DP III as a screen flip facility has been added.

The perspective mode has been expanded to include an extra dimension - the third. Brushes can be warped, bent and twisted to your heart's content.



If the image that'll appear is a standard screen, this first step in creating an animation script.

Screen perspective can also be used to adjust the shape and size of the brush according to its position on screen. When in perspective mode, the brush changes size as it moves in and out of the screen.

Watch your brush

New brushes can be done with brushes. First, you can switch on auto transparency which makes drawing easier. The background colour is considered transparent and the brush is the shape of the graphic rather than being rectangular. It's nice realising when you drop a brush in an area of screen.

The brushes can be defined with a single line of pixels if you want to separate them from the background. The handle on the brush can be moved



■ **Wrapping a circle with wrap off (left) ... and doing it with wrap on (right). Wrapping is another useful addition to Deluxe Paint III. It enables you to fill a shape with a brush in such a way that the final image looks solid. The actual shape and size of the brush are modified according to where they are in the object.**

to any corner of the brush, the centre or offset it from the brush in any direction. Being able to move the handle helps in positioning brushes when you're working at the edges of the screen.

Perspective files are also possible. These objects seem solid due to the reduction in size of brushes as the object gets further away from the plane of the screen.



■ The image is now 3D and taller.

Anti-aliasing techniques can be messy, but they do look effective when applied correctly. The problem is that you can often anti-alias over something unintentionally and ruin a picture. DP III has a stencil mode which can be used to protect some of the colours. What the stencil is only allow you to draw onto non-locked colours. Locked colours aren't picked up when you select a brush on screen, but the stencil can be switched on and off easily.

You pay ya money

Although DP III's animation facilities are not as extensive as a pure animation package, the results can look much better because of the very powerful drawing facilities. 3D objects in particular are much easier to draw thanks to brush wrapping.

If you already own Deluxe Paint I and don't want the animation facilities



■ A brush of extra halftone stationary brightness up the Mark.

from the upgrade price might seem high, but otherwise it's an excellent all package that looks set to sell well. Activation will have to come up with something really spectacular if they want Proton Paint II to last too.

■ Turn over to read about DP's author.

for

- Excellent brush wrapping facilities
- Easy to do impressive animations
- Full animation screen to paint on

against

- Needs 1MByte minimum
- HMM still not supported

UPGRADES

If you already have DP or DP II and want to upgrade to DP III, then all you have to do is detach the front cover of the DP or DP II package and send it to Electronic Arts. The work sheet that you have received came money too (DP with DP or DP with DP II and another 10 to cover cartage). Send over money and stamped cover to: Customer Service, Electronic Arts, Langley Business Centre, 11-17 Station Road, Langley, Wiltshire, Berkshire SL3 6JN.

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Dan Silva was born in 1942 in Van Nuys, Southern California. He later moved to Albuquerque, New Mexico, where he was educated at the local high school. After graduating from high school, Dan went on to study mechanical engineering at Stanford University in California where he gained both a Bachelor's and Masters degree in mechanical engineering.

Dan's interest in computers dated back to the time he spent at Stanford. He used a computer to synthesize kinetic linkages such as robot arms. Like most programmers at that time, he used the computer only as a mathematical tool to take the drudgery out of calculations.

He began to realize the computer's potential for creative applications during his four years at a company called Informatics. During his spare time, Dan wrote an interactive language for displaying mathematical equations in a graphic form.

It was in 1978, when Dan started to work for Xerox, that he learned one of the most important lessons for him personally as a programmer - that of user interface design. Dan feels that many potentially powerful programs are let down by various design flaws in their user interface and that many programmers would benefit from taking some form of training in user interface design.

By the time Dan joined Electronic Arts in 1985, he had a clear idea of how his ideal paint package should behave. With this in mind, he started working on Proton (an in-house software development tool for graphics artists at EA). Proton originally ran on an IBM workstation, and it wasn't until the release of the Amiga in 1985 that EA realized the potential of Proton as a commercial product. Proton was eventually launched in November of 1985 as Deluxe Paint.

Dan's first impressions of the Amiga was that for the first time a machine was available that really was a multi-media computer, one little box could produce both music, graphics and animation that - although not full on and true - was most importantly real-time.

Surprisingly, Dan has no formal training in either animation or artistic techniques. More surprising is that he feels that any training wouldn't have helped him as the more traditional artistic techniques just do not work on a pixel based computer screen. When an artist moves from canvas to computer, they have to completely adapt themselves to the new way of working. In respect to animation, Dan feels that his strong background in the mathematical side of mechanical engineering helped with the complex computations and algorithms involved in 3D animation.

Dan's other interest is in computer based music systems. He uses a Macintosh II computer to control a bank of MIDI keyboards. The more you speak to Dan, the more you realize that synthesizing both music and video is where he wants to direct his talents. He's fascinated by the almost limitless possibilities offered by desktop video. His next program could well be along these lines. Only time will tell what his next project will be written for, but the Amiga's strength in the American desktop video market makes it a strong contender. Dan hopes to treat himself to an Amiga 4850C and video monitor to explore DTV.

Like nearly all EA's products, DP was not actually written on an Amiga, but an IBM based software development system. The main bulk of the program was written in C with various sections written in assembler to provide the extra turbo charging. The code is both compiled and linked on the IBM and is then ported across to the Amiga where it can be run.

What about Deluxe Paint IV? Although Dan felt sure that there would be another version, he could not accurately be the one to program it. Dan admitted that he had grown bored of the Deluxe Paint series, and would like to tackle an entirely new project.

JASON HOLBORN fought his way through the London rush hour traffic while avoiding the obvious temptation of nearby Soho to witness the launch and, most importantly, to meet the man responsible for the astounding Deluxe Paint III, Daniel Silva.



DAN AND THE ART OF DPAIN'T

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You've seen animated cartoons in which a character - let's say Bugs Bunny - runs around and interacts with other animated objects. How would you go about doing this? It's not that difficult as long as you plan things out in some detail. And no, you can't use any more bouncing balls. Do you recall the story board you laid out? If you do, then you'll have an idea as to the course of action involved in creating character animations.

Before you embark on your *Anim* saga of *Bambi*, here is how to overcome some of the more frequently encountered animation obstacles.

Walk cycles

Mastering an effective walk is a great feat. Although difficult to learn with, one trick that is a technique which you will never forget. The trick was to start with a walk in to break it down into its component elements. Walking has ten "key" which are usually not as simple as one and one.

Last month dealt with things, walking is easy and not a straight line. The walk is no exception. The head and body move through a flattened arc form, in the starting position the body is raised up. Stand in front of the

mirror and look at what happens when you walk. Your entire body moves up and down. Most animated characters in computer games must have telescopic legs; their bodies follow straight paths. Another point to watch for is the fact that the head and upper body are always forward of the center of balance. This creates a continuous state of imbalance which is converted at the start of a walk into forward motion by your legs. If it wasn't, you would fall over.

The legs are a major part of the walk - and are usually drawn first - but the upper body must also move properly if the animation is to look correct. The arm positions are critical; they must swing in the opposite direction to the legs as they act as a counterbalance. For instance, left leg forward, right arm forward. The arms do not rotate independently either; they are pivoted around the shoulders. When walking, almost every part of the body moves in some direction or other. Even the head bobs in sympathy with the same motion of the walk. A distinguished animator - mentioned in one of the reports - once said that he sketched the head and body first and then outlined the legs and arms as imaginary ribbons. You can interpret this as meaning things that move in act,

should be drawn in curved line.

Now, time for you to try your hand. Like last month you need to use some graphics and animation software. Cyberquest (ST) is now available as *Zoomer* for the Amiga and *Spout II* has animation added to its comprehensive features. There are more than suit able for your needs.

Thorn grasping

On with the animation. Figure 1 shows a standard walk with a stick-man version beneath the detailed one. Copy each frame to your animation package. Overlay the position on the screen so that when animated it walks on the spot. Then copy it again - this time edit the design to produce the other half of the walk. It's much easier to do simple line drawings, rather than detailed plots, and feel the animation. If you are quite happy with the animation then render (print) your character. The detailed version is still basic. The character has no features or clothes. This reflects the rigidity of conventional animation in which the characters are animated as a whole and the features added later. You can fully render your animation, but you may spend a long time on a short sequence and find that you have succeeded in stopping a good looking motion with a poor graphic style.

By changing the animation to reflect a certain type of character. The walk shown is very general and a little mechanical, so what is needed is personality. This is where your powers of observation start to come into play. When you go shopping next, pay attention to the walking action of people of different



One of the great experts of character animation is Bob Godfrey, an Animated Film Academy member that into 1981, is in one of the masters of the British animation scene. His most famous creation include *Walt Disney's* *Captain America*, *Mr. Potato*, *Chicken* and just more recently *Disney's* *Fat*.

WHO SHRUNK MICKEY'S EARS?

Part two of MARK PICKAVANCE's series on animation. Designing and animating living things this month. Also inside info on Grandam's recently released *Running Man*. ST and Amiga owners, this is the place to let your imagination run riot.



HEY BIG EARS

The most famous cartoon character of all time is Mickey Mouse who first appeared in the movie "Ollie". He was originally designed as a rabbit, but the ears got bigger and he turned out to be a mouse. Mickey's ears are unusual in that they are never any other shape than round. Disney animators retained this inconsistency and three times were created in the late '40s with "progressive ears". The result was not pleasing and the animators returned to drawing him supportively from Mickey's Christmas Carol which was produced for the 10th anniversary of the Disney Corporation. Mickey had not been animated before then (Disney's death in 1966).

If you ask an animator which Disney feature he considers to be the most stability animated, the 1930s are that the answer will be Dumbo. In contrast to the film, the events surrounding the Dumbo production are not as heart warming.

In 1940 the Disney company expanded into a large, well organized production company in the process relationships between the animators and staff became strained. The result was a strike in which Walt even looked out of his studio by his own staff. Only the state department asking that he go to Britain for a year as American Ambassador saved the situation, in that year the animators were left to their own devices and produced Dumbo. It also led the additional effect of introducing a large number of films with Mexican subject matter when Walt returned.



Figure 1 - first steps in animation. Frames one to eight are drawn. Frame nine is a mirror image of one (arms and legs in the same position, but viewed from the other side of the body). This animation is designed to cycle over 18 frames (total of sixteen walks would obviously modify this). The series of images represent the character's position in a walk have been designed to appear naturalistic. We offered two frames made at random here - this is "Random Frame Four" is related to frame one (the "passing position"). This is often one leg in straight and the other extended.

weight, age and sex. They all move in radically different ways. Look at the direction their feet point inward or outward, the knee positions and how much they use their arms. Children generally use their arms a great deal and more expressively than adults.

The best example of a radical walk we've ever found, next to David Attenborough is being "very quiet", as not to disturb these land creatures" take a detailed look at apes. Their skeleton varies from that of Homo Sapiens in that they don't have a flexible knee joint. This means they cannot walk upright in the conventional sense, and must sway from side to side to make forward motion in a sprint position. You could spend many years experimenting just with water alone, the possibilities are endless.

The Running Man

The initial progression from a walk is into a run. The graphics in Figure 2 demonstrate this. The examples shown were created for inclusion in a sprinter in the Running Man game. Because of the game's memory limitations, the entire run is over eight frames. You may want to insert the "heavies" images to spread the run over 30 frames. By observing the sprinter, and the skeleton version underneath, you can see that running amplifies the wave motion seen in the walk. In fact, everything that applies to walking can be equally directed to run-



THE RUNNING MAN

Figure 2 - animation sprites from the Running Man. The initial responsibility was Jon O'Hanlon who works for Microsoft software in Rio. He created the graphics for the Windows Entertainment game of the film. It's a good example of a run shown by a person with animated experience.

ing - let more go.

Arm motion is modified so that the arms still rotate about the body while being kept in a bent position. During a walk the body sits forward because of imbalance. This is even more pronounced in the run to direct the driving force of the legs. One leg's point is about running it is vital for the other leg(s) to leave the ground between strides. If these advance sequences are intended to the majority of the frames, the character will become more linear and dynamic. Unfortunately nature takes a dive. Try experimenting with this motion over a series of surface textures - mud, ice, rubber and so on. ■

4 The six million pixel man. In addition to the rules of animation (except that first month, character animation has a set of guide lines which are specific to this particular type of animation. There are some basic pointers to help you character animation. Do not try to be realistic - character animation is about exaggeration and contrast. Make your character simple to produce - animation is difficult enough without making the drawing hard on itself. Try to observe yourself or another person performing the action you want to animate. Look at and record them on TV (in slow motion) if you've a video. Leave facial expression until you really know what you're doing. Construct your character from curved lines if possible. Create a storyboard a series of quick sketches detailing the action. Start animating in small, manageable sections that you can assemble later. Don't be put off by the scale of your animation.

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GILBERT

Edgen Narrations ■ ST & Amiga

Gilbert, that crazy little alien from the more progressive Gilbert's Wings and that French setting (untranslated). Then you'll be surprised to see that this is a sequel to the previous Battle for SST used by Commodore and that best, without it, you'll get back to Earth and also a new command, and the DSOS are actually in your memory for a disappearing alien (they just don't do that sort of thing for anyone).

BIO CHALLENGE

Palace ■ ST & Amiga
£18.95 ■ April

The French record company Delphine Records has recently moved into computer software under the name of Delphine Software. Outside France Palace are handling the marketing of Delphine games and Bio Challenge is their first release.

It's a multimedial scrolling shoot-em-up with over 140 colours on screen at one time as the ST and even more on the poor things. Included in the game are nine different games, all made by one of Delphine Records musicians, Jean-Baudou. Perhaps after software houses should consider linking with record companies, if they did then perhaps there'd be less games with tacky tunes playing.

MOONWALKER

Plastic man, Michael Jackson, is making his way from cinema onto computer screen, in Moonwalker. It's based on the successful movie of the same name in which Michael starred.

The story goes that a shooting star passed by and mutated Mick so that he had weird powers of transpara-

ncy. During the film Mickey-Jackson tells his variety of things including a car, a silver toilet and a spaceship (sounds like a tacky scenario for a computer game) and uses them to defeat that naughty person called Mr Big (gets around doesn't he this Mr Big). Moonwalker is due for release in the autumn.



SCREEN PLAY

PREVIEWS

BOMBER

Activision ■ ST & Amiga
£18.95 ■ April

Peter Graphics is a company that specialised in 3D graphical games, the first of which was Star Wars appearing under the Datacube label in 1986. Their next game has the working title of Bomber and is a combat flight simulator. 14 different aircraft may be chosen, each with its own handling characteristics and behaves as the plane itself would. Unlike most flight sims you're not restricted to US planes, there's also European and Soviet planes as well. For a change you can blast away at F-15 Captains from the cockpit of an Mig 27 Flagger and see Americans taste salt water.

THUNDERBIRDS

Gremlin ■ ST & Amiga
£29.95 ■ Mid April

Five, four, three, two, one... Thunderbirds are go. Those famous puppets from the telly are currently making a comeback and this time they're venturing onto the magic of the computer screen. This is Gremlin's first release starring the wooden wonders, whose jiving abilities have been known to melt those of the Commodore Street Cast - often, after games seem destined to appear over the year following the same vein.

The only thing missing from the game is, things. It's just not the same when you can't see them.



■ Bio Challenge, 140 colours at one time.



PACLAND

Grandlam ■ ST & Amiga
£19.95 ■ Available now

A while ago Grandlam released *Pacman*, featuring the ever-famous Pacman and his phlegmy foes. Well the time has come again on a mission from last year, a mission for a fairy actually, but that sounded better. Pacman's legs and arms are now for home world, avoiding obstacles and trying to feed the fairy and help her home to England.

DARK SIDE

Grandlam ■ ST & Amiga
£24.95 ■ April

Remember *Golden Axe* (recently) filled 3D graphics and a pleasant bit of plot to go with both, well and again. The sequel *Dark Side* is in the final stages now and continues the story. Although it still uses the same perspective system, there have been many changes made to it. Lots more emotion has been added and the speed has been increased. Following hot on its footsteps will be *Total Eclipse*, another game using the same tech. Now, but with an Egyptian flavour.

SHOCKS BOX

The games that hit the selling spots for this month include some sport and mindless nonsense. Beginning with the most interesting subject (for people anyway) of what there's yet to come, it's *Dark Side*. Followed by *Golden Axe*. For the first time, you can get the digital gift to give, including one who's already got it, but there's a new incredibly fancy feature... you, yes, you can come in your favourite bits for a cleanup.

In the sporting front there's *Day Golf* by Electronic Arts. It's one of those trying to save the old and there's also *Archipelagos* by Atari. *Day Golf* was only a demo, but once we get a finished game we'll tell you more.

Day Golf by Electronic Arts is reminiscent of those crazy golf courses that you find in every holiday resort in the country. Funny that they're not one in *Golden*.

And then it's *Archipelagos* from Electronic Arts. You're in the saddle of a big green dragon doing battle with a multitude of monsters over a 3D directional scrolling landscape. While we're on the fantasy theme there's *Dark Side* of *Pacman* from Grandlam Arts in which you get to do some serious triple-kicking. *Dark Side* (Grandlam) *Archipelagos* (or *SEA* *Golden* to run alongside) is a scrolling shoot-em-up in Amiga's style, but without the points to make an addictive game.

Finally this month's games that got away to Journey to the Centre of the Earth, based John Brown's classic novel. It features great bits of nice digital pictures, but someone forgot to put some game play in them. Better luck next time, *Golden* Arts.



▲ The *Mig 27* Propper, one of the 14 already included in Activision's new *Golden*. So exciting that even *Pacman* *Golden* could have a whole of a time up there.



▲ *Pac-Man* is on its way, and it looks like *Golden* could be in trouble with water rising fast and only rock above his head. Don't worry though, *Golden* is on its way.



▲ *Dark Side*, more perspective from *Golden*.



▲ *Archipelagos* back and this time he means business.

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BLOOD MONEY

PSYGNOSIS

Arriva - JoyStick, Handheld £19.95.

Whisk one barrel kid away on a building before suffering his final demise in *Venusian Anniversary*, loss in an exciting safari where you either become very rich or die and what do you get? Another game from DMA Design, they of *Monaco Demos*.

You won't be surprised to discover that *Blood Money* is a shoot-'em-up with borders, all aiming at profit for food and plenty of bullet-proof weapons to assist the blasting.



A Level boss, and a hilarious sound when he starts plummeting out of you.



A Boss he's not so floppy now.

AIM

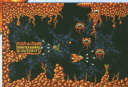
Good is the driving force behind this game, but then it's always been high on the card but in a game where the rewards of success are fortune and escape runs brings only death. There are four planets to conquer, each one boasting an entry fee from \$300 to \$400. Choosing the second planet at a cost of \$200 (you've just started safari) is possible, but you won't be left with any cash to purchase vital extra weapons.

Cash is obtained by shooting hostile planetary inhabitants and collecting the coins they drop. Miss the coins and you lose out on the money. Some aliens are worth more than others but take more shots to destroy.

STRATEGY

You'll encounter four basic types of monsters: bunnies, money munchers, stationary and landscape monsters and massive invulnerable creatures. The bunnies are in greater abundance and come in a multitude of shapes and sizes. Money munchers won't kill you but steal your money instead so should be quickly slain.

It's a bit like a safari on the level these quarters and watch out for the money. You'll be in favour of game of course, unless in *Blood Money* you're the alien's dream of adding a coin made to any future game more games, more would that?



A Looking for trouble? Here's one you're going to find! How may be an appeal time to check up on equipment from the monster building equipment store.



A Sea serpents aren't to be killed, so make sure you give them a wide berth. Apparently some of them are short-sighted though and wear glasses. Well... it's an explosion away.

GRAPHICS AND SOUND

The loading screen is a wonderful piece of artwork followed by a sequence featuring excellent digitized speech and music as you watch a ship navigate its way through an asteroid belt and then approach a planet.

The game gives you four a choice of sound effects or music - the former is the better deal. Music is ok, but the Arriva is capable of a wider repertoire. Sound effects are better, but not as good as those in *Monaco*. If you want to know why then read all about it in the programmer's profile.

Graphically it's in a class of its own with loads of sprites, all of which are beautifully animated. The great alien creatures in the watery planet of Gooon are particularly well done. Scrolling in *Blood Money* takes place across an impressive four directions proving that DMA certainly know what they're doing when it comes to quality graphics and addictive gameplay.

DMONEY

ST - Jopetick, Available May, ESRB: M.

ed. Stationary alien are at a fixed point on the screen, but usually pop around and cause instant death should you touch them.

Other monsters include the limbo-like gatt who lurk in the corners and are infamously sticky to spit. Then there are the insubstantial creatures who come out of the edges of the screen and have to be avoided if you're not a death addict.

A host of hazards range from gates that spin and vibrate, obtrusive which must be opened with the assistance of both power and locks that must be shut out of your way.

Frequently you'll encounter enemy footers whose status can be purchased to improve your firepower. First, the display changes to a selection screen where you can buy any of eight different weapons. Earth and skybound missiles increase your firing shots and cover a wider area which drastically increases your destructive powers. Bombs kill off the enemy quickly, but send gatt's spinning around like a cat on a hot tin roof, making it impossible for you to pass.

Rear firing missiles help protect your back and long range missiles let you knock enemies

out of the sky from a safe distance. Spending gives you the necessary coins to get you out of



▲ Use fire in the air your jet pack on the big world of Shrek.



▲ Missing that fire...at the end of level two, or maybe it's just one of his brethren (or cousins).



light spots, but you do lose out in situations where precise maneuverability is required. A turbo-boost purchase gives you enhanced maneuverability.

One more thing that needs mentioning is the end of level bonuses, a tradition carried over from Menace. There's one to deal with as the final enemy on each planet. Many hits are needed to eradicate them and they're armed with enough fire power to tear you apart. Get past the guardian and you get a healthy cash bonus and return to select another planet.

STRENGTH	██████████
ARMOR	██████████
MANEUVER	██████████
LATENCY	██████████
OVERALL	92%

It may not be an original concept and billed in terms it's just another shoot'em-up, but that doesn't stop it from being a highly addictive game that'll keep you looking for months. The two player option offers simultaneous play which keeps two people happy at once. This game is so visually brilliant and possesses those classic addictive qualities that once you've picked up your joystick you just want to put it back down again! This is arguably the best shoot'em-up on the Amiga to date.

Gary Barnett

CONCLUSION



It kind of looks like, what that alien is the smaller and make it orange. Once you're dead with it you'll have a number of the planet and then choose your next destination in the shoot'em-up world.



David Jones (programmer) and Terry Smith (graphics developer) from DMA Design, who have spent the last eight months writing *Blaze Runner*.

SMITH 'N' JONES

The one thing that's holding *Blaze Runner* back from being the best of the best is the fact that it's not enough money on the Amiga to date.

Don't tell anyone else, but DMA's next game promises to be a blast and may which might have an unusual twist: you can take more than one job to the graphics for *Blaze* out of a sensitive disposition.



ARCHIPELAGOS



LOGOTHRON

ST - Mouse and keyboard. \$24.95. Bantam.

Amiga - \$24.95. Imversion.

Land creation is one of those issues which would solve the problems of the world if only it could be implemented. If you could design a new planet and fill it with islands, you could teleport all the third world countries and live up there and forget about them - no more Economic Aid or Children in Need has to be a good idea.

AIM

Well, the Ancients, a group of bearded old men, have achieved just that by creating thousands of Archipelagos - smaller islands. Unfortunately a band of vicious came down and populated the place, killing the Ancients and taking over all the Archipelagos. The waters eventually left, but behind them was the kind of poisonous

wetlands that grows around Jellfishes. Gosh! have been turned into eggs - waiting a spark of thunder to spread their poison. Fungy reconnoiterers are trying to rot up the land and, worst of all, the sea supplies have all gone.

Archipelagos turns you as a spectral figure with the ability to leap across islands without touching the ground. The island is being gradually infected by advanced

tree-spreading poison all over the place as if they're an alien night's lobster armed with a spring of mercury. As areas of the island

STRATEGY

become infected they turn red and you can no longer step onto them, so the chance to make good leaps from one side to the other is a major advantage. This effort



The map gives the idea of what is to be done by advanced and provides an invaluable view of the island. It's when you start building a maze of your territories where you come across the island because things get tough when it's a maze of your own.



Another tactical advantage is the advanced which means some of the Archipelagos and others of the island it gets close.



1 Finding the stones isn't the easiest of tasks, especially since they don't appear on the main map...



2 But when they do materialise it's easy enough to destroy them. Just use the war car of their base and fire...



3 These islands eventually turn red and you can't step on them. The poison is deadly even when the island's there as an island.

task is achieved by selecting an area of the map and going there. You can't move onto watered land, or walk-around since both cause you to die.

Your task is to destroy the obstacles which stand as the visitor's claim to the island. These can only be wiped out after you've turned all the giant stones into rubble — easy enough while they're connected to the mainland. Problems arise on later levels where the stones stand on smaller islands; there you accumulate energy to bridge islands to the mainland, only then can you take the stones. When the last stone has been destroyed you have ninety seconds to find the obstacle and sink it.

Just sinking the obstacles would be easy enough if it weren't for the fact that a whole legion of creatures are controlling the landscape at the same time. Everything from whirlwinds to worms under the lip can and they all have some little trick to slow you.

The game is arranged so that each level you complete is stored on disk — the next game resumes from your last point. Every fifth island has been specially designed to look like anything from the Cardfighter's logs to an unfamiliar portrait of Gorbachev. However, the screens, in between these are designed more casually, with about 20,000 progressively difficult levels. It's not a game you'll complete easily.



GRAPHICS AND SOUND



Archie allows a fairly small area of the screen and features filled with pixelated solids which make up the landscape. The actual ground is constructed as a checker-board type of area with obstructed areas filling other squares.

The graphics certainly won't blow your mind! The obstacles are animated — with such things as flowers pods opening and closing — but there's always the feeling that more could have been effectively achieved, considering that the ST is a graphically a very capable machine.

Despite animated sequences, nothing is particularly smooth. The land masses come towards you in fairly jerky steps. This does little to evoke a sense of achievement. However, the 3D images are effective, fewer than all angles are a visual treat.

PROGRAMMERS

The programming team consists of Paul Coughlan and Ian Rowland. Paul, 27, has been responsible for the graphics and programming of both the ST and Jaguar versions. In all, the game took approximately seven months of programming using time and includes a specially designed programming algorithm to create the multitude of different land-scapes. Despite little use for the graphics,

The bridge version is a direct port from the ST so looks unlikely to utilize any of the newer hardware.



Archiepago does not strive to be a stunning visual experience. When the first really fun is in its gameplay. It's a strategy very much in the same vein as Freedom's Soldier. When the clock starts and you face a ninety second count down in search of the obstacle, the game really gets exciting. Almost ten thousand different levels have been wilyly designed to ensure that even the seasoned gamer will come back for more. The air-mapped screens add that additional spark of interest.

You learn your own ways of tackling problems, remembering where the obstacle exists and learning which areas of the map have been linked to the main land mass. It's this kind of gamosity which makes Archiepago a very original concept and worthy of a Format Gold.

Mark Higham

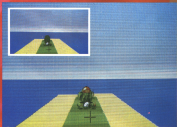
CONCLUSION



4. See, eye. Where's this then? The islands are filled with odd characters such as the non-mammalian who patrols the shores, gubbling up sandy areas as if he hasn't had a decent meal in ages...



4. He runs around changing ordinary land into quick-sand which means instant death if you're on the wrong side of the line.



4. Broad eggs, another member of Archie's usual wildlife gang, wait for the day to go back to which point they're struck by lightning. They'll then often infect the island of phosporous speeds or start eating the land which isn't good news if you're in the vicinity, dead! The more you start the baby however but when the sky changes colour you know you're in for a storm and that's always bad news.



Tlevision is one of those hallowed industries where only the pure can venture onto the silver screen. One whiff of scandal, a breath of drugs or porn saucers and wham, you've had it. Just look at Frank Ruggie. *Running Man* changes all of that by offering criminals an opportunity at superstardom; albeit the pathway can lead towards their maker.

Raced religiously around the MS, the game was hurriedly canceled brought onto TV to engage in a battle to the death against the Stakes at for the viewer's benefit in the modern-day version of Spartacus. Ben Richards is a policeman unjustly convicted of murder who now has to compete on the *Running Man* show where his death is all the viewer's want.

The game is similar to watching Tommy Cooper's stage performance with Richards coming up against death and passing every now and again for a commercial break. Enemies range from a gang of braindead Stakes in

RUNNING MAN

GRANDSLAM

Amiga - Amstrad, £19.95.

SE - Amstrad, £19.95.

level one to a remarkably violent arena singer with a fetish for electrocution. Even Buzsara, a freak passionately into leather, appears astride his motorbike just to evoke a moment of terror.

Between levels there's a challenging code element where you shuffle a set of icons around one side of the screen to make up the code on the other. If you succeed you can shut down the camera's facing you. With only a minute to spare it's no easy task.



A & level only ends when you've slipped out the main Stakes game room on that level. These range from a Japanese hockey player with exploding pads to Buzsara - the latest train.

A variety of inhuman test beds makes *Running Man* a disorienting game in a different league to the rest. It's astoundingly close to the line which makes a change from the majority of its over-rated releases. Code cracking between levels adds an unusual strategy element to the game. However, graphics and speed could have been improved to give it a far more addictive feel. As opening sequences of brilliant sampled music and digitized pictures aren't enough to sustain your interest when you get into the game. Unfortunately, since the game is only five levels long, the whole thing can get robotically hard robotically quickly.

Mark Higney

CONCLUSION



The five backdrops for each level are colorful enough, but they're severely lacking in detail when you consider the capabilities of an Amiga. Only a small width of the screen is utilized so it's not

always easy to see who's attacking you or the methods used. The action doesn't move particularly quickly when scrolling is utilized, so reflexive movements won't exactly blow your mind - more like hit it to sleep.

GRAPHICS AND SOUND



A & B inputs are utilized up by touching down and pressing the fire button. Health comes in a red bar marked with a dotted red cross. Unlike from this you can also find bullets on the ground - useful for emptying the living daylight out of your foes.





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▲ Hitting a spitter sends balls arcing all over the screen in *Ballistix*'s version of British football.



Ever wondered what goes on down in the depths of hell on a Saturday afternoon? In Britain people watch football at their local ground but in hell they have *Ballistix*. At least that's the impression Psygnosis' latest offering seems to convey.

The action takes place on a large, vertically scrolling pitch with goals at either end. Players use the joystick to control an arched cursor with an objective to knock the ball into the opposing goal. The arched trail can't move the ball but by pressing fire you can shoot smaller metal balls to redirect the main one.

There are two modes of operation: one and two player. The former sees the pitch tilted towards your goal so that instead of the usual computer-controlled player

BALLISTIX

PSYGNOSIS - PSYCLAPSE

ST - Joystick only. £29.95. Revisited.

Amiga - Out now. £19.95.

as an arbitrary wild angle of the game board is what makes the challenge. With two players you battle it out against another human (or demon, depending on who your friends are) and the pitch. There are 50 levels in a one player game and 50 in two player mode.

Early levels offer little to make things too tricky but as you

progress through the game more obstacles are 'bored' in. These include acid pools, bouncers, magnets - roughly the same effect as a magnet on the tiles - troughs and spitters to name a few. Other objects regularly appear on the pitch to either boost your score or provide you with an invaluable shield which does an effective job of protecting your goal.

Ballistix is in some ways like the earlier Psygnosis games: Barbarian and Termination: it looks and sounds excellent, but loses out on gameplay in the end. The gameplay boils down to knocking a ball into a goal - not a major achievement for a 16-bit machine. Producing a game with astonishing sound effects and visuals initially makes it appear attractive but with little game play you'll soon lose interest.

Gary Barrett

CONCLUSION

GRAPHICS AND SOUND

Most of the graphics in *Ballistix* are static pictures or backgrounds (terrain) and they're of colours and resolutions well defined. The way that the title screen usually is a particularly impressive effect. As far as moving graphics go you have lots of smoothly animated balls flying around the screen and a couple of arrows.

In the sound department there's some good digitised speech although the spot effects used in the game are limited. As a general strategy the best the graphics and sound are far better on the Amiga version.



▲ The different levels use things getting so difficult that you'll have trouble stopping your eyes from spinning.



OVERALL 64%

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ROAD BLASTERS

US GOLD

57 - *Moshe Jorjish, E14.95. Reviewed.*

Arriva - Available soon. E14.95.

US Gold's new Capcom license claims to see you in the ultimate futuristic road race, but it's nowhere near as exciting as a death ride on a hill train. The game takes you across one country after another in a bid to beat your opponents, with whatever resources you can get hold of.

Special fuel pods become available after being at specific vehicles; you must direct your car towards them to pick them up and reap the rewards. All sorts of additional difficulties emerge in the shape of mines, spikes and gunners. If you're unfortunate enough to become the victim of any of these, you automatically explode and lose one of five lives.

A pitier occasionally flies over you dropping weapons which you must drive over to release. These can be attached to the top of your car and do an effective job of wiping out the enemy.

GRAPHICS AND SOUND

The movement is jerky, but as a result the game is very fast with smooth corners and the occasional roadside spike. All first games, *Road Blasters* seems a competent game - however, it lacks the level of graphical depth to sustain interest for long periods of time. There are no side views of cars and, despite one impressive spin routine, you'll never see your vehicle do any of the great feats or rolls which exist in many racing games.

Sound is limited to simple siren effects and an awful tune which plays during the frustratingly long loading time.



CONCLUSION

Whoa! Don't let it loose from your racing games. *Outrun* might have made it into the number one slot, but *Road Blasters* took it seriously. But *Road Blasters* looks set to change all that, especially since it's coming under US Gold's new CD-Rom umbrella - another huge problem - but there's an addictive gameplay there and that's got to be a good omen for the forthcoming *Street Course* release.

Mark Hughes

STYLISH 2.0
 MOVEMENT 2.0
 SOUNDTRACK 2.0
 GRAPHICS 2.0
 OVERALL 58%

This long-awaited creation by Steve Bak sees you in the role of Jerry Dundergrig from the hugely popular horror movie of the same name. You're one of the unfortunates trying to stay that way - which means a change from the usual game. Okay, so Mrs. Dundergrig's been abducted for years but she told Jerry was wrong!

AIM

Your house has been infested with dogooders who are trying to make your death a misery by tossing all sorts of objects at you to distract your

FR

progress. The idea is that you have to run around your house, shaking your teeth into the jugular vein of any dogooders you come across. These include everyone from a friendly old man to a wealthy hotel female and drawing their blood simply involves directing dear old Jerry up to them while avoiding the obstacles that they throw at you.

GRAPHICS AND SOUND

If there's one area that *Fright Night* really excels in then it's the graphics and sound. The opening screen, traditionally more impressive than the actual game, boasts a stunning, detailed picture taken from the *Fright Night* film but the image of the screen is carried through to the end of the game. Then, smoothly animated sprites make up the action. Good old Jerry has a face like a deep-fat fried hamster but that all goes to make up the atmosphere. The other characters and a set of clanking hands which strut through the foot boards have been well-rendered and boast a range of great colours.

Aside from the crystal-clear sound of sampled speech during the opening of the game, there's a selection of other sampled music to accompany the entire playing time. These include such musical extravaganzas as the death march and an eerie rendition of *There's no Place like Home* as well as the occasional tuning after a bout of blood-curling.



A good old heavy mouth or somebody's regular might even result in one of a trip to the hospital but it serves to improve your health. Another way of increasing your blood count is to return to the patient but you need to be lying around there for some time before your health reaches respectable proportions.





RIGHT NIGHT

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MICRODEAL

ST - Out soon, \$29.99.
Amiga - \$29.99, Joytek, Reviewed.



▲ The second episode with the big brother sets apace of your health with astonishing speed. In almost no time at all you can be reduced to a pitiful wreck.



▲ The backdrops of the different scenes differ for each level so that you never get to explore the same level twice.

STRATEGY

The game is one of get "walk through levels" instead where you step into a coffin and then either take a trip up the stairs or travel into the next screen. When you move from room to room the screen fades to black and then reappears with you at the next location. The effect takes place quickly through to prevent it from being distracting.

After waking, everyone in a particular room you must be quick to leave coffins for regeneration. You can return death at any point in the game if you decide to suffer; and you need to recover, but regeneration will take some time if you do it this way. The best method of regaining your health is to do a spell of blood-making which gives you 100% recovery instantly. If you thought all of this sounds a bit like being in a bar with

social elements have been added to change all that. You have to get back to your coffin before the life counter up.

Additionally, as you progress, both you need a range of additional features with the singular objective of saving your health at night-time. It's impossible to kill them as the only colour of which it is to change these unfortunate circumstances.

WALK
CLIMBING
GENERATION
REGENERATION
WALK
LASTING INFECTION
CLIMBING
OVERALL 80%

Despite the truly astounding results and a soundtrack that just leaves everything else standing, *Fright Night* lacks the sort of depth to make it addictive for any long periods of time. With the sole objective being to suck the blood of all the humans and avoid all the attention from the monster, it's not really the sort of thing likely to tax your brain too much. However it's unusual to take on the role of the bad guy, and with the sort of visual treat on offer it's certain to be a hit.

Mark Hightam

CONCLUSION



▲ Back to the coffin for some healthy regeneration.

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JUG

MICRODEAL

ST - £19.95. Mouse, joystick and keyboard.

Amiga - £19.95. Joystick.

The scrolling shoot-em-up that ever-popular brand of game with enough relatives in its dynamic class to rival even a halfhearted wrap. Microdeal's latest addition, *JUG*, takes you into the arena of a perishing planet.

Not in this land, nor in any other, will you get eyes on a creature as odd as *JUG*. It's stepped into the hot zone of Spineous - a planet invaded by a deadly virus which has an instant cure to destroy the brain which keeps Spineous alive. The rear section, these poisonous areas devoid of life, are now perishing at the hands of this virus. With four cores, each one subdivided into four sections, it's your duty to res-

cue the planet from annihilation.

By moving your status character through different sectors you come across weaponry which may be retrieved. These transform *JUG* into three states, two of which give improved firepower while the third provides a brilliant smartbomb which obliterates everything on screen.

The way *JUG* wants, however, takes moving the joystick in the direction you wish to travel. There is no downward slide because *JUG* moves down when you don't direct him otherwise. Pushing up will decrease your fuel until you run out altogether. When this happens upward movement ceases to be possible until your fuel status has been improved.



A Microdeal's *JUG* takes you through sixteen different sectors in a bid to rid the planet Spineous of a deadly virus. Fuel runs, when it has, are scattered around the maze to help keep you afloat. Your fuel levels improve slowly while you're not shooting 250 opponents but for any major upward movements you'll need to find a fuel pad. Failure to do so will see you drifting in life-like *StarDancer's* loop - all downhill and that's no fun at all.

The aliens aren't particularly impressive bunch. A family of spinning wheels is about the closest you'll get to anything impressive. The aliens look unusually similar to some of the aliens found in



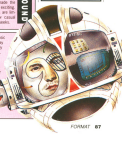
GRAPHICS AND SOUND
 BT-Type; sadly though they lack the colour and size which might have made them electrifying. Both of colour is a uniform which should be avoided at the entire *JUG* scene. Nothing has been captured to the kind of extent possible, even sound lacks three qualities which could have made the game more exciting. Sound effects are limited to a few casual beeps and squeaks.

STYLE	██████████
ANIMATION	██████████
BACKGROUND	██████████
LAYERING INTEREST	██████████
OVERALL 72%	

CONCLUSION
 Despite its impressive graphics routine, the mass style of *JUG* and its basic shoot-em-up principles certainly make it an addictive challenge. It's a fair way scrolling game so it's certainly nothing like the old-style horizontally or vertically scrolling blast everything to bits game which always makes a welcome change. Unfortunately, like Microdeal's recent *Slip Stream*, *JUG* lacks the speed which



would have given it an arcade-quality feel. However, it's still a game which keeps your finger glued to the joystick in a bid to rid the planet of the ugly virus. With alterations planned for the Amiga version, speed could be a problem of the past.





▲ On the bridge, using the fire button brings out a lethal chain which you can use against persistent characters. If you depend on it too much then it'll be clipped out of your hand.

VIGILANTE

US GOLD

Amiga - £34.95. Joystick. Reviewed.

ST - Available soon. £34.95

If you thought the only way of transforming mankind into rampant monsters was by dropping the Bomb, and making mating back into a fashion trend, then Vigilante

offers you an insight into 1994 New York where absolutely everyone wants to wrap a crozier around your neck.

It has been lovingly converted from the IBM arcade machine

which, unlike the majority of street-fighting games, has you obeying a vague plot. The idea is that in 1994 the street slane - which once made a home in the gutter - have spilled into the

turf of respectable people. Being generally offensive creatures with a penchant for the type of humor likely to make their mother think favor about going from a bottle of fluid for Christmas, they have invented a plan to take Westerns. Even though you're fighting off Sean Penn-style characters, there's no relation to the real Madonna.

In the 2 1/2-year battle you roam through a scolding back-drip warding off everything from guys with pistols to persistent green-jacketed creatures. A few character masochists are there in for good measure. At the end of each level there's a boss who must be destroyed to get onto the next stage. The level take you from the main street, through a jailyard, Brooker Bridge and the back streets to a construction - some where Madonna is arrested into the lot. You must employ a whole host of high foot-flicks to win here.

GRAPHICS AND SOUND

Graphically, Vigilante bears an astonishing resemblance to its arcade parent. The movement isn't as smooth as it should be and jumping seems clunky when the swinging starts. However, a wide variety of short gangs keep the pace going to you probably won't notice. Death is one of those inescapable traits to being a fourth panel at the top of the screen tells you how far away you are from an invite to tea with the Almighty. Instead of dropping down dead your feet tumble off the pavement as if it were a crumbling cliff top.

Vigilante has the usual range of noises accompanying each move to your torso. Here they've been sampled from the arcade game - however, they're nothing inspiring. To accompany this is some awful beeping music which is certain to have you reaching for the volume control.



▲ Mighty batons are easily made by waggling the joystick.

Swinging different characters requires you to lay into them at just the right time. The joystick is extremely responsive in this area so you can battle of your flem with relative ease by employing any of eight different movements. Real problems occur when you're confronted with more than one opponent at a time. You can find yourself gapped at the neck by one of the green-jacketed guys while another is coming off your legs.

This is one of the better street-fighting games - certainly it is superior to the likes of Louie Dragoon - despite slightly dull accessories. However, in the end it offers little more than a multitude of blood-spattered body blows obeying the aged street-fighting principle of punch everything that moves until you've been locked to dust.

Mark Hignett

CONCLUSION

STORY	★★★★
ANIMATION	★★★★
SCORETRACK	★★★★
LASTING INTEREST	★★★★
OVERALL 70%	

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GAME BUSTERS

R-TYPE

57 On the title screen — when it asks you to insert disk 2 — press the (PGUP) key (type "MC" and then press the up arrow). Now insert disk 3 as usual. Press space to begin. Start the game and press the following for various cheats: F3 — invulnerability from walls and stars; F5 — invulnerability from alien fire; F7 — infinite credits; F8 — a partner can take control of the ship by using the mouse.

Andrew Clarke
Newburgh, Essex

HEROES OF THE LANCE

57 Use the "red traps" (gold) often as falling rocks tend to severely damage your team. Always eat (F4) first, Galadriel's shield and Gery's health in your party. Doing the lady slugs the only real problem in combat should be the hating; use your Defiant (Super Break) (gold) and get him to the front. Shoot at the hating's stomach. Five or six well placed arrows will dispose of it.

V'Orbis
Bedford, Herts

When the heat's on you and you need a rest; when you're beaten blue and you've tried your best; where ya gonna go? Gamebusters! Stay tuned for the latest and greatest gameplaying tips.

GALDREGON'S DOMAIN

57 & Amiga
The secret of solving the game is to find the particular objects which allow you to kill the guardians of the five gems. You should keep your strength and stamina high and only fight if forced to do so. Keep your characters on display at all times — objects are not lying around and this is the only way to spot them.

Gem 1: this is guarded by a Lich in Robin's castle. You need to get the cross from the demon master's tower to kill her.

Gem 2: this is in the caves of obsidian and is guarded by a rock monster. Kill characters in the cave until you find a diamond. Kill rock monster.

Gem 3: in the Galadriel's tower the temple of Sol. It's guarded by a demon which can only be killed while you carry a



ceremonial dagger. Kill guards in the large room in the East of the temple to find the dagger and a key to unlock the demon's chamber.

Gem 4: at the SW corner of the map is a hidden labyrinth. Enter it and kill Woodrums until you find a key and a mirror. Find the Medusa and kill her to get the

gemstone.

Gem 5: go to the forest of the Druid in the West. Kill the 100 Lord and take his Ebon cloak. Go to the Assassin's tower in the SE. Find the leader and hit him. Get Gem. Return at five gems to the King.

Bill Wright
Blackburn

Amiga

When the screens are reversed the moves are reversed.

Dragonage: press fire to kill the tentacles, then up to climb through the hole. Poison them: keep pressing right to go through the door. **Masters:** (Mars) going left (Juno) right to jump the first jet, left to jump the second jet. **Tentacle room:** (door on right) press fire straight away to kill the first tentacle, push forward to arm up the weapons rack, right to jump to the door, back to jump to the stars, left to jump onto the table, and finally forward to go through the door.

Whirlpools and rapids: first whirlpool an eight press left to get past the first whirlpool, right to get past the second, left to get past the third and finally right to get past the last.

Rapids: press left then forward to get past the first screen, forward to get past the second, right then forward to get past the third and then forward to get past the fourth. This is then repeated.

Stone monster:

floor on the right push forward to jump to the prison, repeatedly press fire to kill the stone monster and then press right twice to run through the door.

Chaosboard: Knight's sword on left to avoid the bolts of charge press right, left, forward, left, right, left, right, and finally fire to kill the black knight.

Rolling Balls: make Oak run each time one of the coloured balls appears. Repeat this for each ball. The wall: keep pressing forward to go through the hole in the wall.

Singer's treasure room: (cup on the left) press left so Oak stabilises the cups otherwise he will be trampled by Singer, (press right) and then down to avoid Singer's breath, and finally press down to catch the column of cups and saucers.

Final encounter: (Singer's head on the left) press down to avoid Singer's hands, then left to run to the magic sword. Oak must then dodge Singer's tail three times by pressing down each time. Finally throw the magic sword at Singer by pressing the fire button. You have now completed the game.

Mark Blake
Chalfont St Giles, Bucks



DRAGON'S LAIR



ELITE

Mission

Mission 1

The enemy has stolen a government ship. It is called the COBSTRUCTOR. It's very fast and isolated with an ECM system. Your job is to destroy it, otherwise it will cause havoc in the system. If you complete it you will receive 400 bounty plus when you dock 15,000 credits.

Mission 2

The government has got hold of some documents of thumped mission ships. Your job is to take them to a planet somewhere in the galaxy. As soon as you hyperspace from a place you are both sent to thuggers after the documents. There are two ways of completing this mission, one way is hard the other is almost easy. The hard way is to fight your way across the galaxy or the easy way is to find a route by using facts, levels of it is over so you can hyperspace into a planet's system then escape capsule at the exit. There are about two planets you have to fight your way into. It's hard but can be done. If you complete it you receive a MPRL (MEGALUMI) which holds up your energy force so fast and costs down your laser too.

Mission 3

The sun has gone supernova and can blow any minute. The people in the space station want you to save them. If you do it the people give you a gift of bag of Cassian Gains Minerals which are worth about 21000.2 credits. Before starting to save the people a warning appears: Laying Fuel Load. Don't dock but skin the sun for more fuel and then save the people.

Mission 4

The government has received information of a ship which makes you on board computer go funky. Your job is to destroy the ship, but there's a few problems when you shoot it disappears then reappears somewhere else. It also is isolated with an ECM system so don't bother involving it. If you complete it you get 500 bounty.

Simon A Edwards

Bewdley, Worce



ST & Amiga

Your first task is to collect the three statues. The first of which is situated in Rio. It can be obtained by clicking on the beach. You will notice a yacht; click on the yacht and a rather nice captain will appear. Tell her you're looking for adventure and he will give you a limited of aphrodisiac pills. Once done, stay on the beach, and click on the series of buildings request the insurance you will enter the casino. Buy a cigar from the woman with the tray and give it to the blonde sitting at the roulette table. He will take you away and eventually give you a statue. Next go to Pasadena - which is on the mountain in Rio - and tap the fountain.

Tap the liquor and click on the gift of the materials. You will be treated to a fully detailed mission sequence that results in the capture of the second statue. While you're here, it's time for you to test your vigour! If there's a girl in blue at the reception area then try and chat her up. If you fail, or she isn't here, then go to the waterfall and come back again, continue until you're satisfied.

Now travel to Manaus and tell the doorman that you want to go to the opera house. If the man "It's closed but I can get you in at a price", accept. If you travel straight to the opera house and you're told the performance is over, keep on going as your reward is the final statue. Once accomplished, click on the 10 button and walk away back another young floozy will appear in the MR. Ask her if she can read between the floors. Be warned! If you cook it up, she won't come back! With that you will magically transport to a garden party.

There you will see many floozies, including the one that you have already found; click on her and give her the item at the bottom-right corner when prompted. Then tell her how sensual she looks and hear of the men have been playing at her club that she will obligingly show her breasts out of the window and one of your statues will back.

Travel to Salvador and tell the doorman you want to go to the lower town. Hopefully you will see a yacht. If not go back to the hotel and down to the lower town again. It's certain to be there the second time. Now click on the yacht and... surprise, surprise... yet another young floozy. She will take you to Rio and give you an enjoyable time on the way. At Rio there will be two floozies waving at you. Click on the left hand girl and chat her up with either a phrase that includes art, music or instruments. Both will be required, but they can come in any order. Accept a naughty night with her and the other girl will ask to join in (only decent of last).

Once completed you should now have enough evidence to find Emmanuelle. But you forgot about her, didn't you? If your evidence is over 75, go to the hotel and try to find the barman. Once found ask him about Emmanuelle's next destination. If he doesn't know then you've got

to repeat the procedure. Eventually you will learn out of her the information you require. That done, go to the airport and you'll meet her!

If you're wondering about using the third statue, try chatting up the floozies at the reception in Salvador. If you're successful then she might just tell you the room number of a hotel you need to see. If she doesn't which is 99.9% of the time, don't jump in bed with her as it uses vital evidence and energy. If you get the number, then go to the appropriate room and a floozy will give you some tips and also a mark. With that mark you will be able to go to the carnival at the top of town where you chat up the girl in the background with the mark. By 5-mining her you'll have achieved all three things.

A few useful tips: the woman at the reception area in Rio gives you an energy restore and keeps coming back if you don't... you know what. The helicopter serves no use at all other than giving you extra strength in fights. If, at the hotel reception, you ask the man if Emmanuelle's staying at the hotel and he gives a room number, visit it for the best... errr, worst scene in the game! (depending on your point of view).

Amiga Needs

Wayne Garden City, North

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PD UPDATE

What do you do when your Ferrari Testarossa has a flat, Dirk the Daring and Sings the Dragon have kissed and made up, and WordPerfect doesn't seem so perfect anymore? Take a trip down to the PD libraries of course! Take a trip with JASON HOLBORN and discover the latest and greatest in PD-ware.

AMIGA

All the programs listed within this month's Amiga PD Update were taken from the Free Disk collection of public domain disks. Many of the programs are also available within other libraries, but the disk numbers quoted refer only to the Disk collection.

PLATINUM

ESCAPE FROM JOVI DISK 148

Escape from Jovi is an adaptation of the old arcade favourite Lunar Lander with a difference. Instead of trying to land on some barren planetary surface, you're got to fly your aircraft to escape out into deep space before the planet explodes. Sounds easy? Don't be fooled about that, many a landing between you and the nearest safety of space is a hazardous case of later class.

ETA is one of the finest PD games available and even manages to give some of the best sighted games a run for their money. The game employs multi-directional smooth scrolling graph-

ics and sampled sounds to give you that true arcade feel.

PLATINUM

TASK CONTROL DISK 99

When the Amiga was first released back in 1985, the machine was hailed as state of the art. Everything that both users and programmers alike had been crying out for for years was there in one little box, the Amiga was a truly a complete multimedia machine.

Not only was the Amiga hardware hailed as state of the art, but the multi-tasking operating system was greeted with gasps of delight from happy users worldwide. However, after several years of hard use, the Amiga operating system is no longer viewed with such enthusiasm, in fact it probably has more enemies than friends.

The reason for this hostility is the unstable nature of the multi-tasking executive. Whereas only a few years ago users used to talk about the amount of data that the Amiga could process at one time, these days the conversation centres around the amount of data that can be lost at any one time!

Several very powerful utilities exist

within the public domain to make the Amiga operating system a safer place to work in. The most notable among these include Guard for Multitask on your first Ferrari cover disk and Task Control.

Task Control is a very handy little program that will allow you to keep close watch on all tasks currently running in your Amiga. If a program starts to go out of control, with Task Control you can kill it dead before it can do any serious harm.

Other powerful facilities it offers include the ability to put a task to sleep so that it does not take up any processor time. This can be useful if you are running a program that is very processor intensive such as say tracing packages.

PATRIOT DISK 130

Programming the Amiga through the systems software in a language such as C can be a tiring, tedious and long-winded affair to say the least. Achieving even the most mundane of tasks requires a large number of data structures (structs)



■ Patriot in action. Just choose your address in the grid and the results are displayed instantly.



■ Task Control keeping users under control.

AMIGA: BEST OF THE REST

Choosing programs from the vast amount of quality software within the Amiga PD libraries can be a bewildering task. Below is a list of a couple of programs that are well worth checking out.

- **Quantum** ■ Disk 154 ■ One of the best PD virus detectors. Quantum sits in the background and monitors disk access and creates. When you try to boot from a floppy disk, Quantum automatically checks the disk before it can gain control of the machine.
- **Gauge** ■ Disk 111 ■ A very handy program that continuously displays system memory usage in a vertical bar graph.



THE SUPPLIERS

In the UK, the following companies are responsible for distribution of ST and Acorn PD software. For their full addresses, go to their a tag or write the advertising pages.

AMERICA

Group-Thomas - 87560
234
Box Best Fax - 8761
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Acorn PD's website
Sub-Box - 8761 24288
Purple PD - 8761 37542

ST
The ST UK - 8761 48524
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Page 4 - 8761 24288
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to be set up before you even start thinking about the program itself.

With systems software as fast as the Acorn's, it becomes curious as to why price tag many utilities have been willing to take the pain out of the first stage of software development. Probably the most famous program of this genre is Power Windows, a window, requester and gadget editor that generates source code in various languages, that can be pulled straight into your programs.

PatPat is a handy little utility that allows you to design patterns for use with the 300x300 1:1 macro. All you have to do is draw your pattern in a fixed grid and the program then outputs the appropriate system structure in C source code.

**ST**

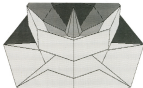
The programs listed within this month's ST PD Update were taken from the Hoggy/Mag collection of disks and therefore all numbers quoted refer to that library. Many of the programs can also be found in other libraries.

PLATINUM

ST WRITER WORD.07

If there is one single application that has most revolutionised the way we work, it must surely be the word processor. The word processor market is one of the largest in the computer industry and many companies have grown up to serve the public need for more and more complex word processing packages. You'll find virtually every make of computer in existence has at least one word processor available for it, you can even word process on a Sinclair C185 if you really wanted to!

ST Writer is a word processor written by Acorn and placed in the public domain for general distribution. "Public domain word processor" isn't a bit of a cop word! But no, ST Writer is in fact a very powerful little program that includes all the standard functions you'd expect to find in a program of this type, plus a few more besides. From within ST Writer, you can edit your text and



■ Three-dimensional graphics made easy with Design 3D.

then perform any number of powerful editing features such as cutting, copying and pasting.

If you need a word processor, but can't afford the likes of Protext, First Word Plus or WordPerfect, then ST Writer is a definite must. The program is fast, powerful and very easy to use (it's also extremely cheap) and is a worthy PD Platinum winner.

FAST-COPY 2 UTL.36

Carrying out a straightforward disk copy operation from the desktop isn't quite as straightforward as it should be. In an ideal world, if you should have to do it, just put your source disk in drive A and your destination disk in drive B and then drag the floppy drive A icon on top of the icon for drive B.

Unfortunately the Acorn systems software programmers obviously thought that would be far too simple in reality, before you can even think about copying a disk, you have to find format your destination disk to the same capacity of your source disk. Why can't you copy a single sector disk onto a double sector disk? Only Acorn know the answer to that one!

Fast Copy 2 is a very nicely presented disk copier that will allow you to rapidly backup all those valuable data disks that always seem to attract the droo from your cups of coffee. Like Fast Copy 2's worth do a to-date collection software, such as games, cause they aren't morally right yet!

If you're in need of a very simple way of backing up disks, then Fast Copy 2's well worth investigating.

PLATINUM

DESIGN 3D ART.05

Using three-dimensional graphics at even the simplest level can be a daunting and often frustrating experience for those of us who don't have a degree in matrix transformations. Even so-called professional packages that claim to take the drudgery out of 3D maths, can often reduce you to a state of bewilderment. Does a package exist that allows even the most dullest, or people (I must say) with no artistic talent, to create convincing 3D objects? We bet it does!

Design 3D is a very simple little program that allows you to draw an object in two dimensions and then have your creation lifted into the existing world of the third dimension. Once you've drawn your object, you can rotate it at varying angles and at varying speeds. During this process, your object is displayed in wire frame, but just press the 'F' key and Design 3D will turn the current frame into a solid, full shaded representation.

Unfortunately, using Design 3D is made slightly more difficult by the fact that no instructions are included. Thankfully, the program is fairly easy to use and so it shouldn't be long before you're creating objects worthy of Starliner 2.

ST: BEST OF THE REST

The ST PD libraries are brimming over with quality programs and it's impossible for us to cover all of them in depth within PD Update. Below is a list of programs that didn't quite make it. The disk numbers quoted below refer to the ST UK collection.

■ No.13 Ford Designer ■ Disk A43 ■ A very useful program for all you Star 16.16 printer users. Design fonts and their dimensions from to your 16.16. Should work fine with the LCR.

■ Game Before ■ Disk G13 ■ A PD classic and a definite must for any discerning PD collector. Storage is a Boulderbeam type game that even includes its own screen designer.

001 04 08 09 0E 0F 14D 07H 02 01E 02 01E

002

Dear Bank Manager, 2

003

Give me some cash as I haven't got any and you've got loads more! If you don't give me loads of cash, I'll be forced to sell those pictures of you to the Guardian. You have been warned! 2

004

Yours sincerely, 2

005

Dear Bishop, 2

006

007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 026 027 028 029 030 031 032 033 034 035 036 037 038 039 040 041 042 043 044 045 046 047 048 049 050 051 052 053 054 055 056 057 058 059 060 061 062 063 064 065 066 067 068 069 070 071 072 073 074 075 076 077 078 079 080 081 082 083 084 085 086 087 088 089 090 091 092 093 094 095 096 097 098 099 100

007 008

009 010

011 012

013 014

015 016

017 018

019 020

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ST

Disc 1 - An issue of our ST Discmag. It contains much of interest to the ardent ST follower including some amazing 512 colour graphics.

Disc 2 - Contains a great Database, a Pacman game and some great PD utilities and demo-programs.

Disc 3 - Contains some great games such as the classic Megaroids and Time Bandit. Also includes a version of Neochrome for all the budding ST Artists.

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ASSEMBLE YOURSELF

If the word at location 20 contains the number 505, then **MOVE** 20,00 places 515 in 00. If you wanted to move the number 20 into 00 then you would have to use a fancy **LD**, **MOV**, **ADD**, or **ST**.

The term "addressing mode" simply refers to the method by which data is found or placed, nothing more. So far you have encountered three addressing modes: absolute, direct and immediate. The instruction **MOVE** 20,00 is an example of absolute addressing. It loads the word from memory location 20 and stores a direct address, into register D0. **MOVE** #20,00 uses immediate addressing to load the 20. In this case 20 is said to be immediate data and is held as part of the instruction.

The 68000 provides several powerful addressing modes. Some may look quite complicated, but in fact are not variables at all. They are simple methods of finding and saving data. All the 68000 addressing modes are listed here; they will be fully expanded in due course. Don't concern yourself with the last one; it may be convenient in some circumstances, but no one writes good programs without using it. Illustrate the use of the addressing modes.

Screen tricks

The computer screen occupies 32000 bytes of memory. It may be cleared by moving 0 into each byte, as in the following program:

```

MOVE.L #0,L#00000000
MOVE #32000,00
repeat:
32000 = 1
loop: MOVE.B #L,00001+4
      ST.B 00001+0
      ADD.L #4,00001
      BNE.L repeat
      END

```

In the third instruction the byte of immediate data 0 is moved into the memory location pointed to by A0. Then pointer

HEXADECIMAL NUMBERS

Hexadecimal numbers have digits which take values from 0 to 15. Hexadecimal means isn't a single character for numbers tops up to 15, the letters B to F are used instead. The base 16 number system is very convenient for programmers since the range of digits fits neatly into a nibble (4 bits), viz:

Hex	Binary	Decimal
0	0000	0
1	0001	1
2	0010	2
3	0011	3
4	0100	4
5	0101	5
6	0110	6
7	0111	7
8	1000	8
9	1001	9
A	1010	10
B	1011	11
C	1100	12
D	1101	13
E	1110	14
F	1111	15

A byte may contain numbers in the range 0 to 255 (decimal) or 0 to FF hexadecimal. The same hexadecimal is often referred to as "hex" for short and the dollar symbol (\$) when used as a prefix denotes a hex number. Similarly the percentage symbol (%) when used as a prefix indicates a binary number.

Hexadecimal numbers are very useful when you're used to think you can immediately see the bit mess they represent - 0FE5E is much more meaningful when dealing with bit images than its decimal equivalent 35758. Hex is good as binary shorthand unless decimal is just a pain to the eye.

Don't be concerned if you're not fluent in hex, you can easily get by without it. You'll find it grows on you with experience.

comment addressing automatically moves A0 to point to the next byte.

The last instruction is called a

conditional branch. It instructs the 68000 to load its PC register with the program address at loop if the Z flag is clear (that is, not equal). Hence, the last three instructions constitute a program loop. Loop is known as a label and is merely a word selected by the programmer. It could have been loop or branch, but loop actually conveys some meaning.

The number in 00 initially 32000 is counted down until it reaches zero. **BNE** loop means branch (point to "loop" while not zero. Note also that a comment may be placed after an instruction on the same line provided a space lies before it.

There are several ways to improve the program. For instance it would be quicker to clear longwords rather than bytes:

```

MOVE.L #0,A0
MOVE #32000/4,A0+4
loop: COMPARE
      LOOP MOVE.L #L,00001+4
      COMPARE
      ST.W 00001+0
      ADD.L #4,00001
      BNE.L repeat
      END

```

The "L" in the third instruction not only ensures that a longword is cleared, but lets the 68000 to increment the A0 register by 4 during postincrement addressing.

It is quicker to write data from a register than to immediate data:

```

MOVE.L #0,A0
MOVQ #0,00
MOVE #32000/4,A0+4
loop: MOVQ
      LOOP MOVE.L #L,00001+4
      COMPARE
      ST.W 00001+0
      ADD.L #4,00001
      BNE.L repeat
      END

```

The second instruction in the code given above is an especially fast one provided by the 68000. **MOVQ** allows immediate

OPENING ADDRESS

This month's assembler takes a look at the instructions you can use to move numbers around in memory. The memory locations where the instructions are stored are called addresses, so addressing is simply the method employed to tell the processor which memory location you wish to look into.



ASSEMBLING WITH HISOFF'S DEVPRAC

Two assembly language programs are provided on the disk for you to peek at the start and at the end of your programs. You don't need to know what the code does; it will be explained in a later article. This code is held in the file SOURCE1.A5 on the format tape.

Run the DEVPRAC assembler — found on the issue 10 disk — by double clicking on the DEVPRAC2 icon (MS-DOS 2.02) or by double clicking on the DEVPRAC icon (MS-DOS 3.01) from the issue 11 disk. Select Load from the File (F) or Project (M) menu. BY clicking (single click) on the SOURCE1.A5 file, the program starts to have to click in the input file type (MS-DOS SOURCE1) file-type on OK.

Examine the program. Note that instructions are always indicated on a file (this leaves room for a label elsewhere). There is only one instruction per line, and a comment line starts with an asterisk (*). Instructions may be followed by a comment on the same line provided a space or tab separates them.

Assemble the code using Assemble from the Options menu, type F9 (F9) or run DevPrac (M) and click on OK. Obviously, since the program runs from the development (DEV) or type source1.a5 or the ICL prompt (MS-DOS), the program simply waits for you to press (RETURN).

data from -128 to 127 to be moved into a data register quickly; all 32 bits are affected.

In fact, it is possible to improve the speed of the program still further! The 80000's designers recognized that people would want to use loops, so they created the DBRA instruction. DBRA uses a data register and a label: each time DBRA is encountered it decrements the contents of the data register and branches to the label if the count is not -1. DBRA stops looping at -1, rather than 0, for a very good reason. This will be discussed in the future. For now, just remember to start the initial count one

TUBBY FOSTER IN THE EIGHTIES



The Chinese Spreadsheet and Game Management Marketing 7.1.

He reluctantly contracted to supply Tubby as a partner for as long as he could reasonably continue negotiating on- and off-line — he is a mathematical expert. Unfortunately, Tubby has become bound to fulfil this role in spite of much criticism from ourselves and readers. He's from IBM, Microsoft, the State's Guild and other of their ilk. Consequently we have little influence over Tubby's programming activities.

Tubby is currently compiling a CD-ROM entitled The History of Spunking in the Police Force. If you, gentle reader, have any material relating to this subject, or other Microsoft files, Tubby would like to hear from you.

The Management, Egan Software

COVERDISK OOPS CORNER!

Oops! If you've been following through our cover disks to try to find the file MS-DOS 3.01, you have probably already realized that it isn't included where it should be, i.e., on its own disk. However, MS-DOS 3.01 will be on next month's disk. We've wanted that the person responsible for these features over the head with a copy of the Apple II/III format manual.

less than that required.

```
MOVESL $0,40
MOVESL $0,00
MOVESL $02000019-1,01
```

;;loop_end DBRA

```
loop MOVESL $0, $A0+loop-1
```

```
loop_end
```

```
DBRA $0,loop_end
```

```
loop_end_end
```

This is the most compact way of writing a screen clearing routine. However, we can still increase the speed of the routine by moving the clearing/looping ratio to, for example,

```
MOVESL $0,40
MOVESL $1,00
MOVESL $02000019-1,01
```

;;loop_end DBRA

```
loop MOVESL $0, $A0+loop-1
```

```
loop_end
```

```
DBRA $0,loop_end
```

```
loop_end_end
```

```
DBRA $0,loop_end
```

```
loop_end_end
```

In this code the processor spends more time clearing the screen than looping.



Almost always, when you're formatting a disk, you'll be able to make between compact code or slightly larger but faster code.

If you were to try running the last version of code you probably wouldn't see anything because the operating system provides a clear screen. However, by using something like `MOVESL $1,00` or `MOVESL $02000019-1,01` as the second instruction and you will see the screen in either colour or with stripes. The 5 sign means hexadecimal (see book). More DBRA techniques next month, in the column by experimenting with the 80000 byte screen.

80000 ADDRESSING MODES

Immediate An operand appears because the data can only come from, or go to, one place. For instance, `RTB, RTB` shifts data from the stack. The stack will be dealt with in a future article.

Immediate Data Data comes from, or goes into, the memory location specified. `MOVESL $014,00` is such an example. Immediate Data is part of the instruction. Like `MOVESL $014,00`. The slash indicates immediate-data.

Direct Data comes from, or goes into, a register. `MOVESL $A2,00` for example.

Indirect An address register points to the address where the data may be found or stored. `MOVESL $A7,00`. The parentheses indicate indirect.

Indirect with postincrement Data is

pointed to by an address register, but the address register is incremented by the length of the data involved (1,2,4 bytes for `B`, `HL` and `L`) after it is used. For instance, `ADD $A5+,$0`. The plus (+) sign parentheses indicates a postincrement.

Indirect with predecrement The address register is first decremented by 1,2 or 4 bytes (according to `B`, `HL` or `L` operation) before the data is handled. `MOVESL -$A7,$0` demonstrates this. A minus (-) sign before the parentheses determines a predecrement.

Indirect with displacement The data may be found or stored at a 16-bit offset (range 32767 to -32768) from an address register or the PC. `MOVESL $0A0,$0` for example. The offset is the number before the

parentheses.

Indirect with index and displacement The effective address is found by adding the contents of a register (`HL` or `L`) to the address found in an address register or PC. An eight-bit displacement (range 127 to -128) is then added. Address register contents are not affected by the instructions. Hence `MOVESL $0A2,$0,HL,DM`. Displacement appears before the parentheses while the data or address register is included after a comma in the parentheses.

The 80000 provides a great many instructions, and it is worth noting that not all addressing modes are available for their operations. Reference should be made to a technical manual (one is included with Devprac 2).



DESKTOP

Managing your ST can be worse than tackling the accounts department of Barlow Clowes. If you survive long enough to see the dawning of your desktop then there's a whole load of features just ready and waiting. This month Mark Greatrix wins the £30 prize for his tips on reviving your mouse.

ROUGHING IT WITH STOS

An amusing effect employed in Microcassette's *Street Dreams* is the magnify feature. A few pixels square are blown up using a special mosaic effect so that individual pixels actually occupy a much larger area than usual. It's very similar to taking a small area of the screen and then expanding it using a Digas or Resochrome package. A similar technique to

this can easily be achieved from within STOS.

First copy the screen to a bank - see left's tip. Then reduce the screen and enlarge it back again. Copy the screen to bank 9 and repeat the process using several different memory banks.

Then you should write a view the bank as:

```
00 004 0+0 00 00
01 004000 0000 0 00
PhysMem
00 0000 0
```

This routine can be customised or used in a \$120 game. The effects are generally pleasing. A.S. Macdon, Exkington, Sherifford.

HARD PROBLEMS

Hard disks have this nasty problem which causes them to boot instantly from the hard disk instead of checking the floppy drive for a disk first and then

booting from that. While the practice might not seem to cause too many problems, it prevents very serious faults if you're trying to use AUTO loaders.

In general it's a good idea never to use any AUTO loaders or desktop accessories on a hard disk because, if there's some problem with these which causes your machine to crash, then you won't be able to get to the hard drive in order to fix the problem. This difficulty only serves to support the idea that all hard disks really ought to be regularly backed up.

Despite frequent boasts that they are the ultimate way of saving disks, they can still crash more regularly than seems at all reasonable. When a hard disk goes down you have to kiss goodbye to at least 20MB of data which can be an extremely heart-rending experience.

Ruth Cane
Hammersmith, London

MOUSE MADNESS

When you squeeze your mouse by its sides and push him up and down the desk only to find that he won't voluntarily budge an inch, don't pick him up by his tail and throw him against an exercise wheel. Some have suggested that he needs a good dose of alcohol to clean off all the dirt, but one of the worst things in the world is a drunken mouse. What you need to do is follow this guide to mouth to mouse reanimation.

- Very carefully remove the ball - this can cause considerable pain to your mouse so be gentle.
- Turn your unfortunely fellow over and unhook and remove the case. There are a few clips located along three of the sides of the case which must be opened to get access to his stomach.
- Inside you will see two rollers with a disk on each one (figure 1).
- Carefully remove these rollers by applying pressure to the small black plastic clips which secure

them into place.

■ You'll find that the actual rollers are covered in strange grey matter - obviously the result of some bad digestion problems. Scrape off this material with your fingernail - don't worry, you won't tinkle your mouse.

■ While the mouse is in pieces give the ball a good clean. This can make a huge difference to the way it grips smooth surfaces.

■ Now replace the rollers and reassemble the mouse. Hey presto, your mouse might almost have had a body transplant.

By the way, after about a year of using him you'll find that he can swallow lots of dust. This causes particular problems with the micro-switches which can become an unsympathetic at times that they're almost impossible to use. If you need to do it is open up the below and breathe a blast of air inside him. Hell! Bless you're God and be so grateful afterwards that he'll function without any problems at all.

Mark Greatrix
Cancock, Staffs.



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HOW STANDARD DISK FORMATTING WORKS



A standard formatted disk is divided into 4 sets of concentric rings named tracks. Usually track 0 is the first one on a disk, located at the outside edge. The ring closest to the center is track 79. Altogether there are 80 tracks and these are then subdivided into sectors numbered 1 to 5. Storage disk formatters, which give you more than the usual 300K storage space, work by squeezing more sectors on each track. Every sector may be identified in the form: Track x, Sector y. This gives a simple format when applied to single-sided disks:

Track 0, sector 1 - boot sector
Track 0, sectors 2 to 5 - File allocation table (FAT) and track 0, sector 7 to track 0, sector 9 - FAT two
Track 1, sector 0 to track 1, sector 9 - directory
Track 2 to end of disk - File space

The boot sector holds simple information about the disk such as its format, disk type (single or double sided) and default information for the computer. Programs that boot automatically often have information in the boot sector which instructs the computer to load a file. It's manipulation of the boot sector which can cause virus problems. By placing a virus in the boot sector it can be loaded from disk as soon as your ST is switched on and remain hidden inside the directory until you make a disk access, at this point it copies itself into a new

boot sector. Certainly not an experience to be recommended - your ST can become schizophrenic and starts going away at your precious programs as if they've been shrunk down to fit.

The file allocation table (FAT) keeps track of how your files are stored on disks. For no reason at all, DOS keeps a backup of this - FAT two located in track 0.

The directory sectors hold the names of all the files which are active on disk. It is here that the file name is stored, the file size and the date and time of any changes recently made to the file. Also here is the address of the first cluster for that file.

On a double-sided disk this data is stored in a slightly different manner:
Side A, track 0, sector 1 - the boot sector
Side A, track 0, sectors 2 to 9 - FAT two

Side B, track 0, sectors 7 to 9 and side A, track 0, sectors 1 and 2 - FAT two
Side B, track 0, sectors 0 to 6 - directory

The remainder of the disk holds your files. Each sector on a disk can hold a maximum of 512 bytes. In order to maximize space these are grouped together into a cluster - two sectors to a cluster. Because of this structuring method the smallest amount of space any file can occupy is 1K. This obviously causes problems for files under 1K in length because they can end up occupying massive amounts of disk space.

A standard formatted disk contains 702 sectors which can be trimmed to just 351 clusters. The advantage to cutting down on this amount is that the FAT table - which

keeps track of all of these - can be held in memory rather than loaded from disk each time. With hard disks there can be in excess of 40 thousand sectors on four 5.25 inch 1/2" disks grouped into each cluster.

Every write on the disk is made up of a header, the file data and then a closing remark - the CRC. This is the cyclic redundancy code which exists to check for possible disk errors. As the data head moves across the disk it will read a new sector. Here, it will read the information included in the header - track and sector numbers, disk side, size of sector and the first CRC code. Then the head will read in all the data from the sector and finally the last CRC code which closes the sector. The head is now ready to read the next sector on the track. It will read each one in turn.

On newly formatted disk data will be saved from the first track and then on to consecutive tracks. However, when a considerable amount of saving and erasing has occurred, there will be spaces left on the disk as these sectors are filled with contents of a file. This is effective for saving tools, but can dramatically slow the disk down.



MORE MOUSE MATHEM

Certain magazines - not Format of course - have claimed that it's not possible to control the mouse from within ST Basic. They're all fans and don't know a thing about the ST. Despite the fact that ST Basic is probably one of the most reduced programs in history, so far in fact that computers have to write its bugs into their design in order to ensure compatibility, taking control of the mouse is easier than you might think. The program below illustrates how to go about taking this problem.

```

50 PULLDOWN=0
60 GOTODY=1,1: PUSHDN
70 "OK" AT 1,1
80 GOTO 4,5,41,20: GOTO 7,8,10,15
90 A$= "MOUSE: X,Y,L,R"
10 ST PUSHDN: GOTO 15:R$
140: Y1=8: A$= "Y1=3: A$=
150: Y2=8: GOTO 140: GAINFRA
160: GOTO 40

```

```

40 GOTO 40
50 ONKEY=0
60 GOTO 1,1: PUSHDN
70 PUSHDN: PUSHDN: GOTO 1,1
80 PUSHDN: PUSHDN: GOTO 1,1
100: Y1=8
110 FOR R=0 TO 2000:
NEXT R
120: GOTO

```

**Derive Capacity
Presses, Microcenter.**

CIRCUITRY

After reading the article in last month's ST Amiga Format on connecting the Amiga to an Amibased CPC monitor, I decided



1 - Ground
2 - Composite Sync

- 3 - Blue
- 4 - Green
- 5 - Red

The red, green and blue sub-pixels need resistors to get the brightness right. This is better than coming up the monitor side.



4 4 1 1 1 1
1 3 0 0 1
0 0 1 1 0 0
0 0 1 1 0 0
0 0 1 1 0 0
0 0 1 1 0 0
0 0 1 1 0 0

The composite sync can be taken from the composite video output.

- Amiga connections are as follows:
- 1 - composite video
 - 2 - green
 - 3 - red
 - 4 - blue
 - 5 - not
 - 6 - ground
 - 7 - ground

This diagram is taken from the plug and, as such, is the mirror of that shown in the Amibased manual.

**Dermit Byrne,
Luton, Beds.**

MONEY FOR NOTHING!

Yes, you have the chance of getting your mitts on an Amibased Am! at what cost to you? A few busy days of time on getting the best out of a software package, or a hardware modification, or how to use the Operating more efficiently or anything you feel will increase your and ST use.

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Protext is the result of 4 years of development. Unlike the majority of competitive programs Protext is 100% British and is being developed further all the time in response to the needs of British users. Registered users are always informed when upgrades are available.

A brief summary of some of Protext's features ...

Background printing, edit/delete further files while printer is busy
move, copy, or delete any box as well as blocks
Configuration: set over 50 options to your own preferences using our flexible, driver configuration program
Dictionaries: accelerate words to/from suggested 70000 word Dictionary. Create your own personal dictionaries.
Disk utilities: copy files, move, rename, type, create directory, change directory, remove directory, catalogue files
Extra files: allow sequences of commands to be used to save you time
File conversion: flexible file conversion utility for other W/P files
Find & replace: very powerful find text with many options
Foreign languages: 10 built in keyboard languages. Easy to add accepted letters: a-z 0-9 @ # \$ % & ' () * + = ; : . , / _ ` ~ | } ~ | } ~ | } ~ | } etc.
Formatting: auto-format; returned page, block or whole text, up to 8 lines of text, different dovetailed leaders and footers, auto page numbering, footnotes.
Help: Full and contextual help available on screen
Keyboard macros: string any sequence of letters together on a single key e.g. "Your always". Load and save macro key files. Special recording mode as you type.
Line drawing: ideal for drawing lines (not) connected text
Line spacing: variable in half lines, including 0, 1/4, 1, 1 1/2, 2, 2 1/2, 3 words with any padding or leader printing. Wide range of center dividers supplied, incl. letters and 24 pin printers, or create your own dividers in half inch, bold, condensed, double strike, ultra, italic, enlarged, plus, PLD, subscript, superscript, underlining, proportional spacing, any other printer fonts.

Atari ST: Unlike its competitors, Protext does not use GEM. The scrolling speed is four times faster than that of Gem based word processors. Yet Protext is still WYSIWYG and still allows access to desktop accessories.

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Amiga: PROTEXT uses the Amiga "WIMP" interface fully and supports pull down menus, use of the mouse for cursor movement, block copying and window raising. Protext is fully compatible with the Amiga's multi-tasking operating system and makes full use of Amiga Preferences settings.

"Protext really is the best text processor on the Amiga"

STURMICA FORUM 299

Program mode: suppresses formatting; auto-indent; set tab stops
Proportional text: will print proportionally spaced, right justified text
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Right margins and non-proportional tab stops: check from disc or current text, as you type if afterwards. Suggests alternative spellings, blocks of foreign languages
Spelling checker: check from disc or current text, as you type if afterwards. Suggests alternative spellings, blocks of foreign languages
Symbols: full character set available on screen. Choose symbols may be redlined
Time and date: block element on screen. Use date within document help you to start using Protext
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"Protext deserves to be the system by which all other word processors are judged ... Amiga has given the market a superb product" YOUR COMPUTER

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WORKBENCH

Getting iFFy

One source of confusion for many new Amiga users is the iFF file format and the jargon that surrounds it. OK, I know what an iFF file is for what's all this about iBM files and what about iMSX and iSMB files?

Contrary to what you may think, iFF is not a single file format for pictures. It is, in fact just a common method of storing different types of data that was devised jointly by Electronic Arts and Commodore-Amiga in the early days of the Amiga. You'll find all sorts of different types of data stored in iFF format, there's an iFF type for sampled sound, two dimensional raster images (pictures to you and me), animations, and even music.

Each different iFF type is identified by its own individual four-byte string, called the iFF form. For example, the iFF form for storing pictures is the iBM file and the form for sampled sound is the iSMB. The form of an iFF file is used by programs to identify the particular iFF type before it is loaded. The major iFF forms are as follows:

- iBM - Picture files
- iSMB - Sampled sound
- iMFM - Animations
- iMSX - Music scores
- iTXX - Text files.

Blinking LEDs

The hardware designers at Amiga, for certainly got it right when they

Explore the potential of your Amiga with Workbench. Whether it's tips on getting the most from your favourite wordprocessor or how to poke the very depths of Agnes, you'll find them here in abundance plus a lot more besides. This month's £30 winner is John Stanley for his DigView tips.

designed the Amiga hardware. Everything a programmer could possibly want to do could be handled by the hardware; there's forwarders sprites, scrolling and even a programmable power light Programmable power light? yes, that's right, you can even turn the power light on and off under software control. As an example, by resetting your Amiga and watching what happens to the power light.

The LED on end of watch is actually controlled through one of the peripheral control lines in the Amiga CPU, which is located in memory at HEX BF0201 (decimal 12574123). Don't worry about the technicians, accessing this line is very easy indeed.

The peripheral control byte actually handles not only the power LED, but the mouse and the buttons on a joystick.

Because the byte is multi-purpose, only one bit is allocated to the LED - bit number 2. Programming the LED through Assembler is very straightforward and is achieved by the line:

```
LDI.B #01,0201
```

Unfortunately, achieving the same effect through AmigaBASIC is a little more involved.

```
A = 10000110174123100000000
PULSE 12574123, A
```

The LED control bit is in fact a toggle and therefore to turn the light back on after you've turned it off is just as easy. All you have to do is repeat the same procedure a second time.

Centre of Attention

If you've ever been producing a

sky screen display from AmigaBASIC when using any font other than the standard system font. Tapes, then you'll be aware of the problems that can occur. They lie in the fact that the standard system font is not proportional, which means that each character takes up a standard number of pixels on screen (right is "space" mode), which is very convenient when calculating the location of text. The other Amiga fonts such as Garbit, Diamond etc are proportional, which means that each character only takes up the bare minimum of pixels - an 'i' is narrower than an 'm' and so on.

Centering text in space font is very easy to do, but what do you do when you are using a proportional font such as Ruby? Here's just one of the programs below:

```
DECLARE FUNCTION DrawLine
OPEN LIBRARY "Graphics:Library"
LIBRARY "Library"
DISPLAYMODES = KIT
```

```
Graphics "This is a testing of lines...."
DECLARE "....." and "...." as "....."
```

```
LIBRARY CLOSE
END
```

```
USE Graphics (mouse) GRAPHIC WINDOW "DigView.ams"
```

```
Length = TextLength("....")
DrawLine, 400,0,Length,100
LIBRARYCLOSE
```

DigView Tips Galore!



Those of you who are lucky enough to own Newtek's excellent DigView Video Digiviewer will be interested in the following selection of hints and tricks which will allow you to get the most from this powerful add-on.

- If you have a video camera other than that recommended by Newtek, you may have noticed that the filter wheel supplied with Digiview doesn't always manage to completely cover the camera lens. If you do have this problem, it is very easily overcome. You could replace the Newtek filter wheel with proper photographic colour filters like those manufactured by companies such as Color, but these are astronomically expensive. The solution comes in the form of acetate "blue" filters. The filters to look for are the ones that are cut from sheets rather than the pre-molded variety. These can be picked up relatively cheaply and will probably cost you only £1.50 for a set of the different colours. Another advantage of these filters,

apart from their price, is that they are already colour balanced and should in theory produce better results than the official Newtek filter wheel.

- It is sometimes inconvenient to hold or place a filter between the camera and the subject. By illuminating the subject with light from a 35mm slide projector using transparencies of red, green and blue acetate.
- If you notice dark or black discs or trails which seem to be fixed to specific areas of your monitor screen while displaying the output from your video camera, don't jump to the conclusion that you have "burn-outs" on the video tube (many second hand cameras have this problem). Uncover the lens and try a photographer's blower brush in case there are bits of dust or hair on the front of the tube.

John Stanley
Wiltaton, Cress

What's your Preference?

You all know how much fun customizing your Workbench disk can be. From the Preference program you can define a mouse pointer of any shape, however wide, change the screen colours to beautiful shades of pink if you require, and you can even run your nightcap permanently by having entering `DN`.

What do you do therefore if you want to use the latter configuration on another boot disk? You could run Preferences on the disk and set everything up from scratch, but that could take an awful long time. However, there is another way.

Hidden away in the DEVS directory of your Workbench disk is a rather obscure file called `SYSTEM-BOOT.PREFERENCES`. This file contains all the information about screen colours, shape of your mouse pointer, which pointer size you use, etc., and is read by the Amiga when a disk is booting. If this file does not exist, the Amiga reverts to the default settings: blue screen, white text etc.

If you want to use the file as has been used disk on another, all you have to do is to copy the file across into the DEVS directory of the destination disk. It is as easy as that!

Peter Milne
Plymouth

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BEGINNERS' CORNER

In last month's *Beginners' Corner* we took an in-depth look at the various fundamental components of the Amiga's disk operating system, AmigaDOS. We discussed volumes, devices and subdirectories and this month we'll actually start putting some of that theory into practice by getting our hands dirty with a few CLI commands.

This tutorial was written with the single drive Amiga user in mind. If you've got a dual drive system, the theory is not only the same but it is also considerably easier to get into practice. Most of the disk operations are carried out on either your standard Workbench disk that came with your machine or the AmigaDOS RAM drive. Don't worry if you still haven't got Workbench 1.2 either as all the commands will work with both Workbench 1.2 and 1.3 (though not Workbench 1.1).

The first thing we must do is to create a more workable environment for those of you with single drive Amigas. Enter the following commands at the CLI prompt. Don't worry about what they do for the meantime, as we'll explain them eventually.

```
CD% CD:VOLUME:DEVELOPMENT: /NO. -Press RETURN.
DEVS:RAM:ADD -Press RETURN.
```

The DIR command

Probably the command that you will use most of all during your CLIing sessions is the old faithful `DIR` command. If you've used computers based around either CP/M or MS-DOS, then you'll feel instantly at home. The format of the `DIR` command is as follows:

```
CD% CD:VOLUME: /NO.
```

The `DIR` command is used to display the files and subdirectories within a specified directory. If you do not specify a directory to be listed, the `DIR` command will automatically display the one that you are currently in. Now let's try it out.

As an example, if you had a disk in drive DFD, that contained a subdirectory called `AMIGA` which in turn contained a subdirectory called `AMRN`, to display the contents of the subdirectory `AMRN`, you would type:

```
CD% DFD:AMIGASUBDIR: -Press RETURN.
```

Now that you've seen the format of the `DIR` command, try displaying the contents of the various subdirectories on your Workbench disk. When a directory listing is displayed, all subdirectories within that directory are marked by a `>` file symbol.

Moving around a disk

The next command that you will need to be aware of is `CD`. The `CD` command is used to change your current directory. When you first enter the CLI, your current directory is locked to drive DFD, regardless of what disk you have in that drive. The format of the `CD` command is as follows:

```
CD% DFD: /NO.
```

The `CD` command saves a lot of time typing out full pathsnames of files as you can move into the directory they are in. For example, if you wanted to access a file that was held five subdirectories down from your current directory, typing in a path such as `CD% DFD:DIR1:DIR2:DIR3:DIR4:DIR5:FILE` every time you wanted to access that file could soon become tedious in the extreme. In this case, all you would have to do is to enter `CD% DFD:DIR1:DIR2:DIR3:DIR4:DIR5` and you can then access the files held within `DIR5` directly.

If you then removed the disk and inserted a completely different disk, you must tell the AmigaDOS that you want the current directory to be this new disk. This is achieved by typing (assuming you have the new disk in the internal drive):

```
CD% CD: -Press RETURN.
```

Now for some homework!

You are now completely able to move around the structure of a disk and get a listing of all the files and subdirectories held within specific directories. Well at least you ought to be!

The best way of getting the hang of something as complicated as AmigaDOS is to play around with it. As an exercise, have a go at roaming around the directory structure of a few of your disks. If you expect your work to be startlingly new month!

Next month in *Beginners' Corner* we'll look at a few more of the common CLI commands such as `TYPE`, `COPI` and `DELETE`.

Didn't we tell you that learning AmigaDOS could be fun?



■ Moving around the directory tree of a standard Workbench disk. Now you could even get lost within the darker depths of AmigaDOS.

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from Logotron

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ST £24.95

In Archipelagos you are facing, as if disembellated, a group of islands known as an Archipelago - green fields surrounded by sandy yellow beaches - in a deep blue sea. Scattered around the Archipelago are stones, and somewhere there is one special stone - the Obelisk. Embedded in the Obelisk is the power that created the islands of humans in Ancient Times, and the blood of the ancient peoples still comes to stain the



land surface.

To remove the power you must destroy the Obelisk. And the only way to do this is to get away from the Obelisk, by a continuous landpath, even by building vast bridges from island to island, if that is what is required. Your ability to create the landbridges that will connect the stones is determined by the collection of bone pads, which can grow quickly. For as the sky grows darker the eggs begin to hatch and with a mighty clap of thunder the poisoned blood of the ancients will spread the fire. Some eggs will even eat away at the island itself. You must work fast.

Disk Code ST030



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 The ultimate shoot-em-up game where greed is the driving force!
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 Shoot blocks out of your way and open gates with your laser to reach your final enemy and to kill.
 This is arguably the best shoot-em-up on the Amiga to date ST Amiga Format Issue 11 order code 8730!

A Special Compilation for Amiga Owners.
 Lombard/RAC Rally and Pioneer Plague from Mandrake Software. The RRP for each product is £24.95. But we are offering the two for only £29.99 (a saving of £29!).



Lombard/RAC Rally

Rallying is rather different from normal racing, and Lombard/RAC Rally features a variety of incident weather: from fog to night-driving, together with three stage types, including an impressive mountain track. The object of the rally's 10 stages is to win enough to pay for repairs and keep your car in prime condition. Beating lap-times adds rewards but wealth can be further increased by entering logic games. If you want to race, you must first complete all 15 stages against the clock. You can then complete them all again, but in competition.



them so that they're ready to be colonised. Sounds like a great idea? It might have been. A genetic defect in life IV meant that it no longer creates environmental variety — which is a way of explaining the fact that all the game's planet surfaces look identical — turning everything into a large slab. With the life IV now out of control, it just rakes all planet life without testing to see if it's inhibited. It's up to you to prevent the spread of the Probes. The Lifestar will take you around the Universe but the airship is your attack vehicle. By selecting a planet with Pioneer Probe in the vicinity, the Lifestar will whisk you away to a sub-Euclidean space zone. The quicker you cruise through here the fewer probes you'll need to total when you get to your cluttered planet. Once a planet has been cleared it's back to the map to select somewhere else. When all planets have been cleared it's over — and better luck next time!
 Amiga ONLY
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Pioneer Plague

The Pioneer Probe life IV was created to solve Earth's over-population problems. It runs around finding uninhabited planets and terra-forming

HISOFT DEVPAC 1

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If you're at all interested in programming your ST or Amiga, you may have read a bit about the different languages you can get. BASIC, C, Pascal... they're all got their fans, but for sheer speed there's only one choice: programming directly in 68000 Assembly language.

Starting last month, **ST Amiga Format** started a six-part tutorial series to show you how to program in Assembly. And the system we've picked to teach you with is HISOFT's **Devpac 1** – widely recognised as one of the best assemblers you can count on.

There was a cut-down version on the cover disk for you to get the feel of, but once you decide to get serious, we know you'll want to get hold of the full version.

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gram running and spot errors as they happen.

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FORMAT LETTERS

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Group action

I am thinking of setting up an Alan ST User's Group, to be called SAGE, but I need to know if any other people with Alan ST's are interested in helping me. It will be a self-financing group which will publish a monthly magazine with all the articles written by members of the group.

If anyone is interested please drop me a line.

It would help me if you send a stamped self-addressed envelope and of course most importantly please write down what you would like to see in the magazine and what else you wish the club to offer you. The magazine will only start when the club has enough support and my contributors will be paid a percentage of the profits, which will be low since the club's aim is not to make money but to create a friendly network of ST users all over the country and possibly the world.

David Pullin
25 Beacon Road,
Sharncliffe, Loughborough,
Leicestershire,
Wigan W90 0SL,
Greater Manchester

■ Cool! Look with the mag, but don't stop buying ST Amiga Format will you?

Globetrotting problems

HELLO... I have some urgent questions that I need answering. If I want to buy some Amiga

software in England would it work on an Amiga bought and used in America?

Also, if I want to be given some software for the ST bought in the States would it work on my ST bought and used in England?

I tried the BIOS program for changing the mouse pointer given in your extremely useful Desktop section and was unable to keep the preferred pointer when saving out of BASIC, how do I do this?

A. Fairhead
Lincoln, Lincs

■ Any software for the Amiga should work fine on both European (PAL) and American (NTSC) Amigas. The only piece of software that will only function on one of the other is ReadySet's Dragons Lair which uses very low level internal Amiga that are different on PAL and NTSC Amigas.

Problems can arise if you try

to use European PAL software on an NTSC resolution Amiga. For example, many European games are written to use the extra 56 vertical lines offered by a PAL resolution machine. Because the American machines do not have the higher resolution, the software, if not written correctly, will not work.

The ST on the other hand, has the same resolution on both European and American machines and therefore these problems will not occur. Almost any software written for the ST should work fine on both American and European ST's - the only exception are can't think of being Calamus. Calamus checks a pointer of size in the ST's ROMs to see if it is running on an American machine or not, if not it won't run - it's a sort of copy protection to stop the marketing of "grey" copies of the program into Britain.

Coming clean about the machines

Your magazine seems to be very unbiased. I cannot believe this attitude can be maintained out of print so I would like to know which computers all important Format staff have. But I don't want to see any debating going on I will stick points to death with my pet ammonia's Vodka.

Daniel Germain
Newbury, Berkshire

■ The Format team have to own up to a bit of a knowledge of machines. Top dog Richard Masters runs an ST Mega4 alongside his Amiga and Amstrad CPC, while chief co-

Why the Amiga wins across the Atlantic

I am an Amiga user and live in Ottawa, Canada. I work in a computer store where we sell the Amiga and the Atari ST. You read your last two issues, I would have read earlier issues, but Format is only recently available in Canada. Your magazine is the best yet because it gives you the best of both sales and has lots of very interesting articles. Regarding your question: Why is the Amiga more popular in the USA and Canada than the Atari ST? There are several reasons for this.

The Amiga is more versatile. It has lots of third party support (both hardware and software).

The graphics and sound difference between the two machines.

Not enough software support for the Atari ST from the American software developers.

The Amiga has almost become the video filing standard for TV broadcasting in Canada and the United States.

Keep up the good work with your magazine.

Stephen Robbs
Ottawa, Ontario

■ About Gold has some more light to shed on the popularity of the two machines across the pond on page 18.

It's a fair cop

There is one small thing that is wrong with your magazine! Every so often a picture is shown the wrong way up. For example, the picture from Pupin Storm Day in the cover disk section of issue 5.

Andrew Jackson
Liverpool, Merseyside
mailto:afj@bt.com

ordinator Jason Holcomb would only use his Amiga 2000 for the Spectrum for sales in his bedroom. Staff writer Gary Durrell is very even handed - one of each - but games editor Mark Higham only has an ST. Even my production editor Stuart Anderson has to admit to owning neither machine - a mere machine PC/AT for him.

So there you have it - totally unbiased





Pon friends wanted

My complaint is a small one which can be easily rectified. Please stop printing the full addresses of contributors in your letters pages. There have been a couple of times where I've wanted to contact fellow ST users to pass on software, ask more detailed questions, etc. I just couldn't because of this.

I see no point in printing complete addresses, if someone wants their full address without for reasons of privacy they can easily say so in their letter.

For should this cause space problems, two lines are already allocated for each letter contributor's details, if necessary you could use oblique as separator and chain in the extra information, eg:

Joe Bloggs, 123 High St/
Harrow/PhotoDisc

Berek Peterson
Ayrshire, Scotland

■ If a reader specifically writes to be contacted in answer to a query or otherwise, then of course we print their full address, otherwise we assume they want to be left in peace. Besides our art editor would have a fit at his type crammed into two lines.

Come on, big boys

I can't understand why the big business software publishers like Microsoft, WordPerfect, Borland, Ashton Tate etc. don't convert their programs for the ST and Amiga. Converting Macintosh programs to ST versions should be a

piece of cake for them. The ST version of WordPerfect and Microsoft still are written very badly so what professional programs! I mean there are more than a million STs around making a reasonable chance to make some money. The ST is more than just a great games machine! I have a small tip when you are in the OEM business: when you have a directory of a disk and you have another disk in your drive you don't need to open a new window for a directory, just press ESC and you get a new directory as the same window.

Jay Lee
Camden 4th year, The Midlands

■ Unfortunately not many of the millions of ST and Amiga owners can afford the £300 or so WordPerfect and the rest cost on the PC or Mac, so you get what you pay for.

Real converting programs from the Mac to the ST is no simple business - they may have the same software but the Mac's weird and wonderful operating system is a fairly different.

Spritley progress

I have recently upgraded from a G44 to an Amiga and was wondering if there was any software available that would allow me to create spreads and tables for use in BASIC programs. On the Exidy disk there is an object editor but that is very basic because the word editor. I noticed an advert for an All Animator (page 68 issue 19) for the ST, is there anything like that available for the Amiga? Also I am toying with the idea of buying PD disks but I'm a bit scared about them being infected with a virus.



"Nope, No vacancies for a galactic mercenary. Have you tried modeling for computer games?"

Do the suppliers check them before selling them?

4 Campus
Bristolford, Middlesex

■ If you feel yourself to Adorn's excellent 2000C, then you'll be rewarded with a very handy little program that will let you do very clearly what you require.

Don't be put off the idea of buying PD software just because there is the possibility of picking up a virus; this is by missing out on one of the low cost bargains within the computer industry. Most PD suppliers regularly check all the disks for viruses and the chances of picking up a virus are minimal.

Very good, but...

I would like to say that I feel your magazine the best one on the market for the ST and Amiga. I own an Amiga and the things on your cover disk are certainly very useful. Your games section is one of the best I've seen - and it's getting better. The reviews are first hand and I love all the ready-to-use files. I would buy your magazine especially for the games even if there wasn't a cover disk - the Dragon's Lair review was fantastic. All my friends agree that your games section is the best.

I think there ought to be a lot more games included and a few more of them spread across two pages - always the best. Can we have less of all the boring rubbish and serious stuff as well? Anyway, thanks for a great mag.

Maxine Stone
Bullhull, West Midlands

■ Cheers Marcus, we'll cut down on the boring rubbish right away.

Crib sheet

I had to write to thank you for your review on Commodore in issue 6. I found this very useful in my project for college entitled Commodore - An Application for Computers in Communications Systems. I ended up going in a damn good piece of work and learning a lot myself, so I have had you at the top of the list in the bibliography.

James Bruce
Leighton Sea, Essex

■ We'll never thought of Format as a learned journal before - watch out Bilo, here we come!

Another satisfied customer

I have purchased all the issues of ST/Amiga Format and I have had two disks which did not work. In fact they were unformatted blank disks with a label on. I have returned those and they have been replaced with working copies. My argument is that after having paid the extortionate price of £2.95 I then have to encounter extra expense on postage and packing to return those disks. This is not good enough. When they were returned there was no apology or refund of costs.

Should I ever buy the magazine in future and receive a disk that does not work then that will be the last ST/Amiga Format I will ever buy. It's about time you



"Apparently it's essential if you want to do spreadsheet work"



checked all disks properly before they are sent out. It's all right replacing them but not at your readers' expense.

W D Twiddle
Bull, Haverlewell

■ We make every effort to make sure all the cover disks work, but there are times of thousands of them and it is physically impossible to check them all. Unfortunately, by as we might, there will always be a few disks that won't work.

Jumping for joysticks

I am thinking of buying a colour printer but the article on colour printers in issue 7 was just what I needed. Have you any plans to review printers, because I need a new one that is hard wearing? My last one was too with the computer, a Nam Delta, but I had only had it for a month when it broke.

There is no way I can play some of my favourite games like PA18 Interceptor or Jamball because the three joystick disks not work.

Also, whenever I use my Cover Disk it loads, but I always get the message 'Error validating Cover Disk' and I have to re-use the Markbench disk and the Cover Disk in the drive several times before I can use it.

Sad, I think the selection of software on the cover disk is amazing. The scenery generator was brilliant and I'm definitely going to get Purple Saturn Day.

My father is an architect and would like to know whether there are any good CAD packages on the market for the Amiga.

J J Gann
Barkhamore, East Sussex

■ You're in luck! Last month's Format did feature just the joystick review you're looking for. And point your dad in the direction of page 62 for just one of our CAD features.

Small spreadsheets

There are a number of good word processors for the ST, which one is the best is really determined by the user and the usage. I am quite content with a professional writing style but need a dictionary and thesaurus, others more confident about their typing and English may have different preferences.

One of the reasons why the ST

Video nasties

I recently encountered a problem whilst trying to record about from my ST into video.

My intention was to use Amiga's other 'cover disk' mode to create a message in parallel from my two cards, which was to be recorded onto the master of the video purchased for his birthday.

A suitable message was created and the ST was duly connected to the video recorder via the serial socket. When the recorder and ST were switched on, I was unable to get a picture on the TV screen. I tried to tune one of the channels but to no avail.

Disappointed, I gave up on the idea and a meeting with my

brother-in-law, who is neither clever with computers. He explained a possible reason for my problem.

Computers are generally tuned to transmit or channel 36, as are video recorders. The problem is that the two signals can interfere with each other, resulting in very poor output to the TV. His solution to the problem was simple, reduce the set-top signal from the computer.

Interested in the idea was rejected, and I consulted my ST Owner's Manual which indicated a 1.5m switch at the back panel - great!

Brill! There wasn't one on my computer, it has a built-in modulator. Not to be extreme, I

too failed to make a mark in the business market in the lack of a reasonable spreadsheet for the machine (most money in an office run this type of program). The main reason, obviously, is that it isn't IBM compatible. I purchased WP Professional to enable me to continue working on Lotus 1-2-3 files at home and have come across two main problems: firstly it's so slow because of IBM, and secondly, most significantly for me, the largest spreadsheet I can construct is my extended, I imagine, 5200000 in around 150K. This compares with 280K files on a 640K IBM clone.

D P Pickwood
Tonbridge, Kent

■ If you don't need 3-D compatibility there are plenty of spreadsheets which let you use the full memory of the machine - and if the ST was your main business machine compatibility with PC's wouldn't matter.

Sound of mind?

I have found your free disk impresses me each month. With regard to issue nine's three was a program called SPARKFIX which I have a question about.

When you type, for example, the word HELLO and press Return, the letters HEFLDE appear underneath. What does this mean?

R D Smith
Buckingham, Glas.

■ The program is spelling the words and that way the

system closely at the back of the video recorder. Bingo! - a tuning issue, a quick tweak of which resulted in loss of picture on the normally connected TV. A spare channel was found in the computer, and Message Writer was up and running in no time.

More tape was placed over the antiprotection disk and my message was recorded as planned, and I started for a unique, personalised (pre-recorded) film for his birthday.

Graham Cornfield
Walsall, West Midlands

■ Great idea! For now I'm still about my copy of 'Frankenstein's Revenge' by getting scenes from 'Nightflight over the border' for the coming bits.



wanted brother if you think we need.

Call me

I've often talked with all the free BBS. I have tagged on to so I decided I would set up my own BBS for uploading and downloading PD software. My problem was in testing all my software and hardware to what I need in an Amiga user. I have an Amiga who would be happy to help me test my equipment and in return I will download to him or her some great PD software. If you are interested, please phone me after 6pm weekdays on 03421 45312 so we can arrange a time to log on.

Simon Toplein
Cheltenham, Glas

■ No credits please.

Vital question

My dear Commodore Mail always with its Supercomputers!?

A J Herbert, Ferrier
Edinburgh, Scotland

■ Ask Jack Farmer!

Bugged BASIC

Your most recent issue has revived my flagging interest in Amiga programming. Like many home users I have been searching for a not-too-fanciful language to

replace alternatives to AmigaBASIC to only some interesting, reason-ably fast, colourful and totally original ones.

My choice was the bug-programming BASIC 3.0, and I am most grateful to Format for publishing the address of CSD (Cam Ferriest) is the only magazine that has taken note of the plight of second purchasers of the best (but serious) for the Amiga.

John Gray
Eastbourne, Sussex

■ Glad to be of assistance, Sir.

C on the cheap

The popular computer press like that C is a handy language to write in, it seems but I Martin Robinson and some Amiga ROMs were written in it. I would like to learn C but have been put off by the prohibitive prices of C compilers - anything from £150 upwards. I am still at school and cannot afford such extreme prices. Is there any way that I can get into C cheaply, about £75 maximum? Surely there must be something in the way of PD software - it does not have to be for sale, I only want to experiment!

Fengal Moore
Belfast, Northern Ireland

■ There are several C compilers in the public domain but no haven't had them all written. Try checking out Ash disk number #120 which includes not only a C compiler but also a 68000 assembler!

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Transfer tips

A tip for Atari users wanting to transfer text files from their ST to a PC.

Format a 2.5-inch disk on the PC then transpose your letters/characters with your wordprocessor as normal but save the file in ASCII on to the prepared PC disk — the ST will be unaware that this is any different from a normal disk.

The text file can now be loaded into the other WP and will appear perfectly as you composed it except that any features such as italic script or underlining will have been lost.

The process also works the other way round as long as you save the file as ASCII.

This process is also useful for those without printers at home as the readable files found on PD disks are usually in ASCII and can be dragged on to a prepared disk for printing on the local equivalent laser printer in the office.

L E Bowlington
New Beaufort, London

It's a menace

When I use Memoze from Postscript as my friend's Amiga, I thought to myself, I have got to get this parcel. It was forbidden!

There we were, volume full up in stereo, heading into multi-trackers into oblivion. Great fun!

At the Atari User Show Progresso were offering Memoze and something called Mail for 50 quid. Stealing up the banger and rucking it home, we parked it front of the computer, booted Memoze and our ears just fell the floor. I felt totally and utterly ripped off. The graphics are of exquisite standard, the animation is very silky and the screen layout has totally changed from the Amiga version.

If I had met Brian Watson, who coded the ST version, after loading Memoze, I would gladly have inserted the disks, packages and also booked time...

Bryan Stevens
Andover, Hants

■ **No threats of physical violence to programmers, please!** Don't think, it is for telling the truth! Do write and tell us.

The Irish question

But you've never got a letter from over here.

Question: Why do we hear all about the Amiga CD and seem about the ST one? My 865, 868 version ST user would be interested. At the batch file, copy

procedures and exit commands, etc there. It's very long to do, so I will be waiting with interest to see if this is the first and only letter from IR to ever appear on your page!

Sean Corrie
Co Antrim, Northern Ireland

■ **Ahead.** Take a look at the previous letter...

Version query

I have been reading in the Amiga dedicated press since at least December, if not before, that all new Amiga 500s are being shipped with workbench V1.1. When I bought mine on 10th February, the computer powered up with the V1.3 screen, but the workbench supplied was V1.1.

I phoned the supplier, Hollowell, who said that it was Commodore's policy that all 500s were being shipped with V1.2 workbench and that V1.3 would have to be bought as an upgrade. Somebody's wrong!

Dougie Hopkins,
Strathclyde, Scotland

■ After recently purchasing an Amiga 500 from Commodore ourselves, the machine was supplied with Workbench and printer I.I. It will probably take a couple

of months before all Amiga come complete with Workbench 1.1.

Something for nothing

Memory upgrades for the ST are not as easy to do as some cash-purses would like you to believe. We have had it well suggested that didn't work after being supplied by these "cowboys".

At the moment there are three different types of DRAM chips which are used in ST: 256 x 1 bit, 256 x 4 bit, and surface-mounted chips. Surface-mounted chips need special equipment to fit, and 256 x 4 bit chips are sold at vastly inflated prices. So 256 x 1 bit is the only possible option for users who require upgrades.

We have produced an upgrade board which can use either 256 x 1 bit or 1Mbit 1 bit chips, giving users the option of 1Mb or 2.5Mb of RAM.

You can get details by phoning me on 0772 353198.

■ **Downie**
Luscombe Computing
Preston, Lancs

■ Before everyone else writes in hoping for a free advertisement, you don't stand a chance. At least, not until the Editors (or the ad department) have given me "ho".

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As reviewed in *ST Action* (December 1988)



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■ Gary Bracey of Ocean Publishing travels his *Desert Island* game on the dream desert island — well actually it's in Japan.

Imagine you're about to be deported on a sun-drenched desert island; you can take your *ST* or Amiga (both, if you own the two machines), 30 items of software and a computerized set luxury items. Don't worry about power sockets — this island comes well equipped. Your real worries are which software titles to take along.

The software can be anything from games to serious applications while the luxury items could be a computer disk, a hard disk, or even a submarine. In *Desert Island* you're being taken — full.

We put Gary Bracey, software development manager at Ocean, in that unenviable position. This, in no particular order, is what he would take and why.

■ **Dungeon Master**, Microsoft
Really fantastic game world. You don't need to be into adventuring to enjoy it.

■ **Barbarian**, Progress
First game that showed off the difference between 48-bit and 30-bit graphics. It's still as playable as when it first appeared.

■ **Glenn Sisters**, US Gold
Modeled on Super Mario Brothers (one of the all-time greats) but the computer was found to be a class.

■ **Bubble Bobble**, Taito
Marvelous (and expensive) of a horribly addictive arcade game. Gentle helicopter action.

■ **Operation Wolf**, Ocean
Monster arcade hit which was successfully converted onto 16 bit.

■ **Captain Blood**, Virgin
Superb graphics, great sound effects and gameplay. The French certainly know what appeals to gamers.

■ **Korax**, Melbourne House
One of the first — and still the classic! — shoot-em-ups to make it on the *ST* and Amiga. Absolutely superb.

■ **Triluxis**, Frontal
A simple idea well implemented. One of the most addictive puzzle games to appear for a very long time.

■ **Geys Vs. Madquake**
Ocean's graphic adventure game. Its stick, can anyone help?

■ **Arkward 3**, Imagine
Best shoot-out clone by far — and three-four less noisy.

Says Gary: "As I work in computer graphics, I look for something that will keep me interested. Mindless entertainment if you like. As the games listed have something going for them, visual and audio appeal are important to me — you can see that in the games I have chosen. For the luxury item I'd choose a 5.25Mbyte upgrade board for the computer. More and more games require the extra memory."

You can have your personal opinion of what is the best software to take to a desert island. Now it's your turn. We want to hear about your favorite programs and why you like them. Send your selection to *DEI*, 3 Europa Forum, 4 Queen Street, Bath, BA1 3EQ.

NEXT MONTH

The June issue of *Forum* will be arriving into a newspaper near you on

THURSDAY

MAY 18

Among the outstanding articles waiting for publication in its pages are:

■ NEW HARDWARE

Every musical instrument you ever wanted to attach to your machine that didn't have more, 8MB microchips, games, drive bits, digital notes, keyboards et al.

■ FUTURE PROGRAMS

A look at tomorrow's programs (perhaps together with a prediction of what will be happening next in the living clinic. The real machine you see might be alive!

■ PIXEL PORNOGRAPHY



Forum investigates everything from pixel art to underground hardcore. *Pixel Art* is an underachievement.

■ PAINY WARD

After *Deluxe Paint II* comes *Proton Paint II*. Forum's verdict on which Amiga paint package you should get.

■ GAMER GALORE

Deluxe and *Paint II* of the *Living Day* are set to combine all other *Forum* Games. There's also *Regional*, *Reviews* and *Other* Games to brighten up your day — can you wait? About new products we are appearing (and disappearing) constantly for the *ST* and Amiga, we can't guarantee that everything mentioned here will end up in the magazine, but we can promise a great time. See you next month.

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