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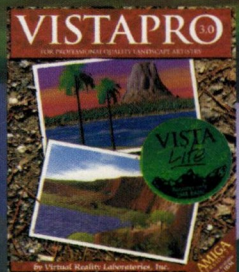
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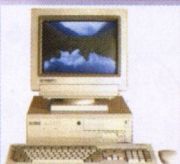
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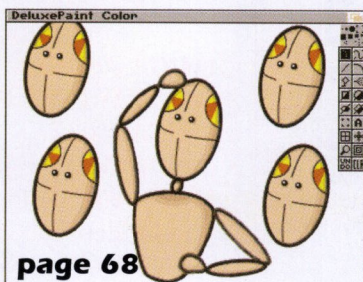
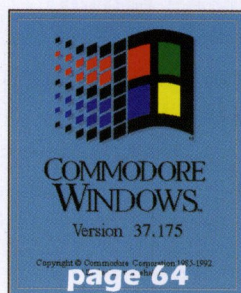
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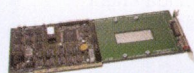
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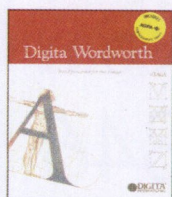


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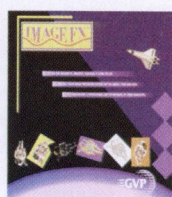
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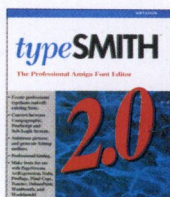
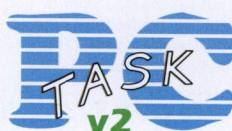
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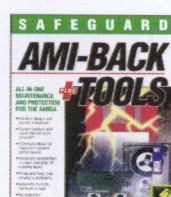
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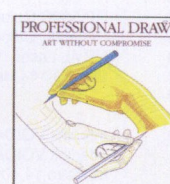
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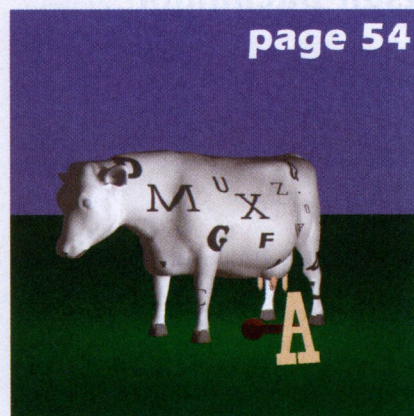
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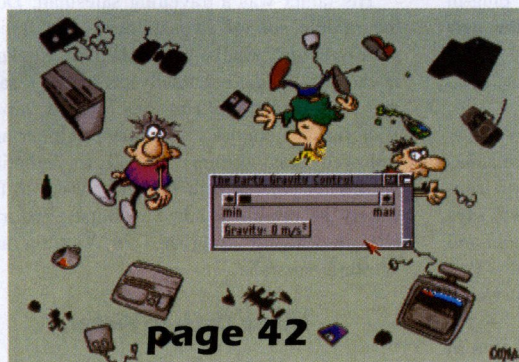
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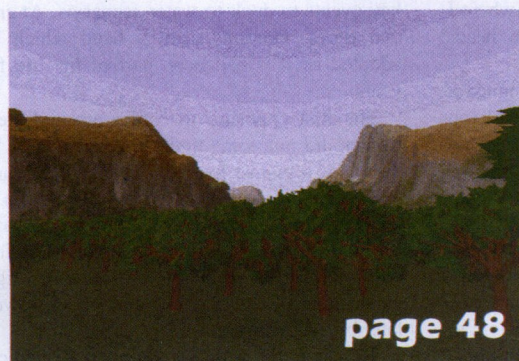


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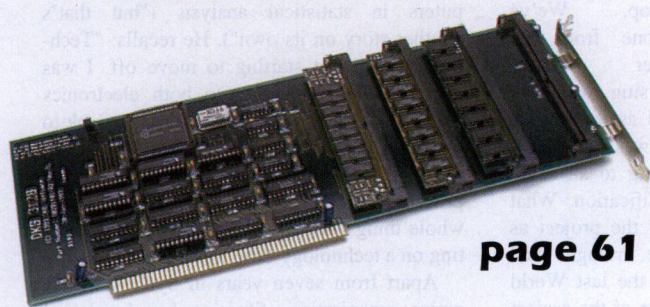
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It's been years in the planning, but the light is now clearly at the end of the tunnel for Don Sforcina, who discussed with Susan Buchanan...

The Vision Of MEDIA-FLEX

DON SFORCINA HAS always been driven by a vision: the belief that anyone with reasonable intelligence, who masters the techniques of an occupation and applies them with enthusiasm, can succeed. The will to succeed has fuelled his own life — he describes the past 20-plus years as "riding a technology bow wave" — and the results of his vision are about to revolutionise the video world.

His company is Media-Flex; his product, a complete digital video production system in one unit, fundamentally different from other non-linear systems. Unlike its predecessors, Media-Flex maintains original video quality by making all the transitions and graphics in realtime via hardware, rather than compositing in software — in a process substantially below the cost of conventional tape equipment. Each time the transits are done in a compositing system, such as Avid, the JPEGed video must be uncompressed, composited, then re-JPEGed; each time the JPEG process occurs, the accompanying loss will obviously accumulate.

The new technology is revolutionary. And although the Amiga was by no means the prime contender for the computer role, it beat PC equivalents to the post, primarily on the grounds of its unbeatable (at that time), 32-bit bus speed.

Said Sforcina: "We certainly took a very hard look at other platforms. We wanted to use the PC — simply because of its popularity, and because we were looking at a desktop solution at that time. It would have just been a matter of plugging in our product to existing equipment. But we found, with the way that we wanted to design the system, it wasn't possible to use the Mac or PC. The technologies just weren't coming through the way we wanted them to." The PC scene, with its ever-changing buses, lacked stability; Mac bus speed was insuffi-

cient; and expense eliminated Silicon Graphics, the only other alternative.

Somewhat by default therefore, the Amiga has come to rein supreme in the Media-Flex package. The first system installed in New Zealand (for David Curle, Video Director, of Sterling Video), includes three standard A4000/040s; two DMI digital broadcaster boards; two Picasso II display boards; an OpalVision board; VLAN control; a SunRize 16-bit sound card; and a large hard drive array with extended Zorro III, SCSI-II hard drive controller. Seven 2-gigabyte Seagate Barracuda hard drives are mounted in a plug-in rack system, all tied together with the new QuickNet Ethernet cards.

Always Innovative

Born and raised in Perth, Don Sforcina has long prided himself on being ahead of technology. "I've always been an innovator," says the electronics engineer of Italian descent and Managing Director of Color Computer Systems. "It's on that basis, I believe, that we've been able to be ahead of the market — not necessarily in our usage of technology, but in the application of technology, in terms of design philosophy. That's where I believe we have the head-start.

"We've designed a system from the top down, as an online, on-air system. Others have worked from downstairs, with all the shackles of historical compatibility and being desktop. We've gone from the other side, analysing what we wanted as the perfect system. It was not a question of working to an absolutely defined specification. What we did was basically develop the project as new ideas and concepts came through. And those concepts changed since the last World of Commodore. The main tenor of the project

is there, but we went even further upmarket.

"Our research and development programme is not a destination — it's a journey, which we plan to continue, and the light is very, very clear at the end of the tunnel."

Put Don Sforcina in an unfamiliar setting and chances are he'll master the challenge in record time.

He has always set goals, possibly influenced by "a fairly hard childhood" which made him determined to make a success of his life. "I suppose it's the reverse-psychology thing. Life wasn't easy financially."

His father was a travelling salesman; Don, the middle son of five children. His Italian great-great-grandfather, banished to England in the 1850s, had eventually captained a sailing ship to Australia. His crew jumped ship in Victoria, he found a replacement skipper and followed suit, turning instead to tempting Australian palates with Italian cooking in the bakery he established in Sandhurst, Victoria. His descendants flourished in Victoria and Western Australia.

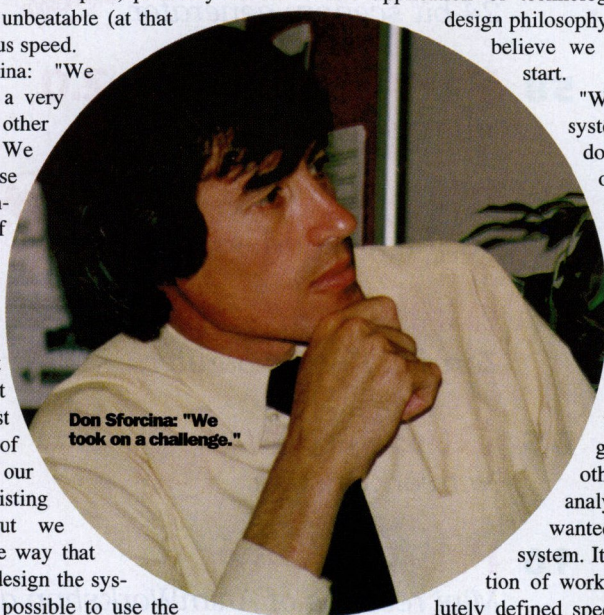
Like a Duck to Water

Reviewing his 42 years, Don Sforcina likens key events to duck-to-water scenarios. At crucial times, fate has dealt a hand which he adopted as if it had been part of his life for years.

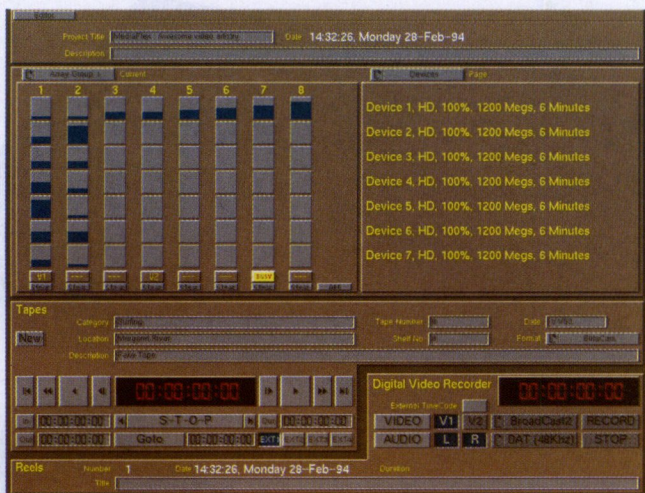
His first exposure to computers and electronics did not come until university days. "It was as if a pianist had come along to a piano and immediately been able to play — as if someone had said here's what you are to do in life. Go for it." Ironically, computers had initially played second fiddle to Sforcina's original leaning — medical technology, followed later by engineering.

Research for a doctor during his medical technology studies involved the use of computers in statistical analysis ("but that's another story on its own"). He recalls: "Technology was just starting to move off. I was introduced very quickly to both electronics and software and it was like putting a duck to water. In the early 70s, I was into the 4004s, the 8008s, the very earliest micro-processors...I started at ground level when the whole thing was taking off, and I've been sitting on a technology bow wave ever since."

Apart from seven years in Sydney with a major organisation, Sforcina has lived and



Don Sforcina: "We took on a challenge."



The Media-Flex software, as displayed on the included Picasso II card.

worked in Perth. Engineering jobs culminated in a period with a Perth company as chief digital design engineer working on communication projects. (All 1500 paging transmitters used by Telecom Australia-wide contain Sforcina's design in both software and hardware.)

A Grades Irrelevant

In 1988 he resigned. "I had had enough of the tendering process and the pressure of work. But the amazing thing was that I didn't continue engineering. I went into video production. Someone loaned me a Camcorder one day, and that was, again, like putting a duck to water. The technology side of video was the burgeoning area, and having an electronics background, it was easy to pick up."

The frustrations of video editing inspired him to don his thinking cap and revolutionise existing technology. Therein lay the seeds of Media-Flex, which quickly ripened and matured, with the aid of a team of programming engineers, handpicked by Sforcina, not for pure academic ability — As on their resumes were irrelevant — but for flair, talent, and computing/engineering ideas outside the norm.

The important factor was that they shared the same vision and enthusiasm. "Without energy in any project, you might as well give up," he says. "Particularly when you're working with small budgets, and in an environment fraught with difficulties — and we've had our technical problems. Fortunately, I've had many years of experience in handling engineering problems. We knew that we wanted to make a niche for ourselves in the marketplace,

in the venture: "That's worth 100-fold. I have a full-time video production job, but basically, I'm there inspiring my engineers."

He is also quick to acknowledge the benefits of the close working relationship with US company Digital Micronics: programmers from each company now plan working hours to coincide with the time change between Australia and the US.

Sforcina expects no more of his employees than he is prepared to give himself. And that goes also for overseas companies acting as marketing arms for Media-Flex. In making those choices, he looks at organisations in terms of company philosophy. "I'm interested in the veneer of the building, but I'm much more concerned with what's behind — who's behind it and where they will be heading in the future, not necessarily what they're doing here and now. Whether they have the resources to implement services and support for a product like ours; not so much whether they have the floor space to store some product."

Part and parcel of the philosophy of Don Sforcina is continuous assessment of direction — "what do you want to get out of life?" Although the Media-Flex project has the

potential to bring him extreme wealth, he sees the ultimate benefits of exceptional financial success in terms of bringing a better-quality lifestyle to others less fortunate.

Behind the Veneer...

An invaluable asset lay in their being users, as well as designers, of the technology. The fact that Sforcina is a video producer, he believes, is a key reason behind their success in the area. He cannot over-emphasise the value of "inspiration"

"Quality Time"

Certainly he and his wife (a payroll clerk) will enjoy reaping the rewards of years of long hours: "it's been a project of love, a project of hard work, which, I suppose, makes us even more determined to make it successful." It is a priority to spend "quality time" together, along with their four children, unless business dictates otherwise — "as part of our lifestyle, we go walking, jogging, bike riding together, on a daily basis. It really comes back to what you're trying to get out of life. You can have the most wonderful engineering project which might make you heaps of dollars, but you've got to think, where's it going to get you? If you lose your health, you might as well throw the whole thing away."

"With the enormous stress and pressures of running engineering work, as well as video production, I've got to keep myself in tiptop trim all the time. I'm often working a 16-hour day on a regular basis. When you're pushing yourself that hard, you've got to make sure that you cope in other areas."

The lifestyle ideology is close to his heart — so much so that he has undertaken production of a promotional video, *New Starts*, aimed at changing the diehard habits of Australians. The concept defines nine areas

Continued on page 33



Media-Flex is Coming!

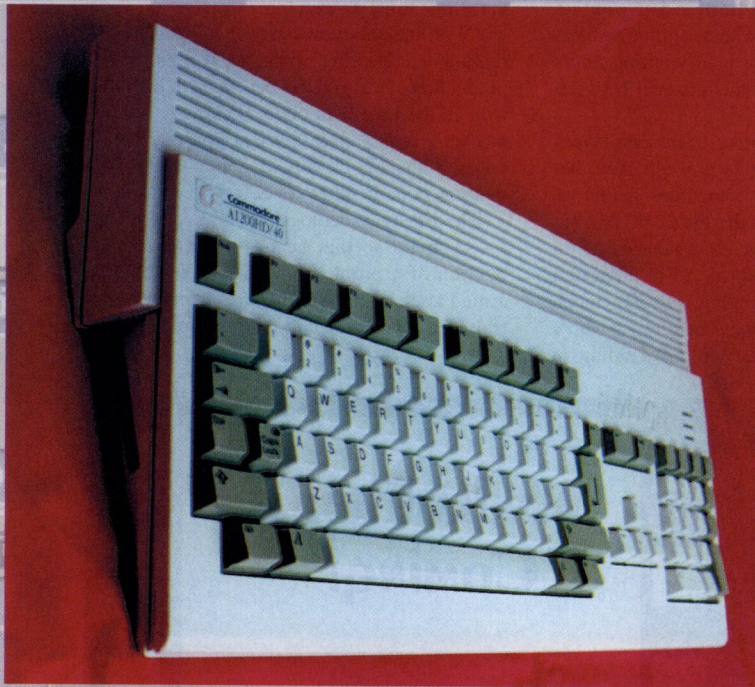
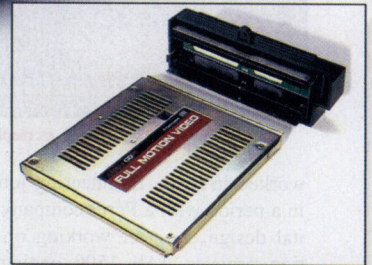
SEE PAGE 33 FOR FURTHER BACKGROUND.

MORE ON MEDIA-FLEX IN NEXT MONTH'S A.D.U.

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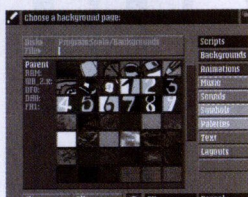
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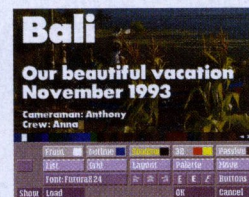
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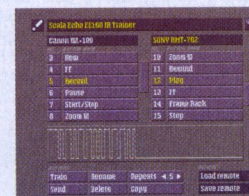
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MAY 1994**

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ADVERTISERS INDEX .. page 32

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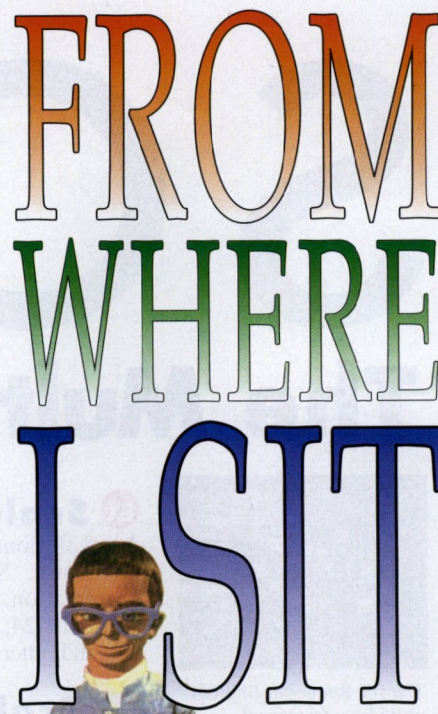
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WELCOME TO OUR third monthly issue! We're well into the swing of monthly deadlines now — without sacrificing any of the quality you're used to. Our readership continues to increase, and more and more writers and advertisers are keen to participate — so it looks as if we're here to stay.

Changes are in the wind this year. Commodore Australia has faded into oblivion and Commodore Australia 2 is here, for the sequel. Actually, Commodore Business Machines (Asia Pacific) Ltd., as you'll see in Clipboard on page 14.

World Of Commodore is now *The Home Computer Show Incorporating World Of Commodore Amiga* (WOCA), and a month earlier than usual (see page 27). This year's show will compete with other computer brands, which, of course, has its pros and cons. On the one hand, we might enlighten more non-Amiga computer users on our under-valued technology; on the other, we might lose some converts. The Amiga will also be running head to head with the money and publicity machine supporting other brands. Taking on the big boys, as they say. The WOCA section will definitely be smaller than in previous years, but Commodore has plans to participate in more shows this year by going to other main centres and also to different markets, such as SMPTE (see page 12). Reaching a bigger market and expanding their show presence can only mean a better profile for the Amiga. This is a positive initiative on the part of Commodore, so show your support by visiting these exhibitions.

Many readers are sending in disks of PD utilities and games. This is great! It certainly looks as if the Amiga is still alive and kicking out there. Keep them coming. We try to review them all in the magazine, but don't be



concerned if this doesn't happen immediately. A certain time frame is necessary for contributions to be reviewed and written up.

On the games front, we see a definite upsurge in the release of CD³² games. Unfortunately, floppy disk games are dropping off. As most Amiga games are released for the UK market, where CD³² machines are selling like hot cakes, it obviously makes sense to publish more CD games. And at last the potential of the CD³² is being realised (see the Microcosm review on page 73). Since CD³²

"Even our own home-grown successes, like SkidMarks... and Seek and Destroy... are making the big time in the UK..."

owners also don't pirate games, software companies make more money.

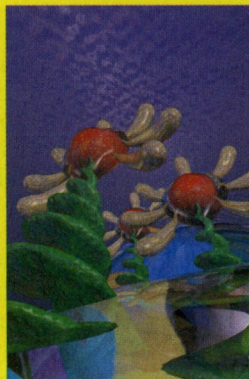
Even our own home-grown successes, like SkidMarks from Acid Software and Seek and Destroy from Vision, are making the big time in the UK, but fizzling a bit Down Under.

Let's hope that Commodore releases their A1200 and A4000 CD-ROMs soon, so that we can all enjoy the new software.

The NAB (National Association of Broadcasters) '94 show was recently held in Las Vegas, giving the Amiga another chance to rear its head at the serious end of the market. And it sounds as if it turned a few heads. Check out the report by Auckland attendee David Curle on page 34. OpalVision were there, proclaiming a release date in the near future. The word from Opal Technology in Sydney is that we'll see the new Roaster chip and Video Processor board in the shops around June.

We'll be at The Home Computer Show Incorporating WOCA, so hope to see you there. Don't forget to look out next month for our tear-out WOCA guide and programme.

COVERSHOT



Sydney artist Shih-Wei Wang created this image using Imagine, Essence and Opal Paint on an A4000 with 18Mb RAM. The image is 2000x3000, 11Mb and took 60 hours to render.

Grumpy Editor

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Clipboard

Imagine 3.0

Imagine 3.0 was due for release in mid-April, so you should be seeing it by now.

Imagine 3.0 is a complete 3D object creation tool, as well as a comprehensive animation and rendering software productivity tool for the Amiga and PC computer platforms. It performs well above its suggested retail price of US\$695 and will work on almost any standard Amiga with at least 4 Mb of RAM and a hard drive.

Imagine 3.0 will introduce the user to amazing animation techniques, such as Kinematic control, object morphing, texture morphing and image tacking. Included with Imagine 3.0 are more than 100 procedural textures including the new Transmission Textures. The textures create lighting effects previously found only on software costing tens of thousands of dollars more than Imagine 3.0.

Imagine 3.0 also includes a particle system allowing the user to create such complex effects as rain, snow, dust, sparkles and thousands of others with a few clicks of the mouse. Imagine 3.0 runs in AmigaOS and supports numerous output file formats such as IFF, TIFF, TGA, RGBN and RGB8. Also supported is Anim Opt 5 and FLC format. Using these various types of animation compression schemes, the user can transport animation with ease to other computer sites.

Imagine 3.0 also breaks new ground for 3D systems with the introduction of GLOBAL F/X, a process allowing different features like lens flare and haze to be applied to any generated image, without the overhead of rendering these effects. Included in the new set of tools is the States command, which allows the user to set a POSE, then create a new POSE and the States command will interpolate the movement between the two.

With more than 350,000 copies of Imagine sold worldwide, new and present users can choose from over 300 new items in this, the third version of Imagine.

Press release from Impulse, Inc., USA.

MacroSystemUS

As we said in ADU 7, the Warp Engine series of 68040 accelerators will soon be released for the A4000 and A3000. The A4000 models with four SIMM sockets and SCSI-II controller were due to be released in mid-April. The A3000 models, with only two SIMM sockets, will be out a month or so later. There will be 28MHz, 33MHz and 40MHz versions.

VLab Y/C is now shipping, but in limited quantities. The new Retina emulation software and the Retina Z-III are due out at the beginning of May. And the Toccata 16-bit sound card is due in June.

Information from MacroSystemUS

WOC Amiga

The Home Computer Show, held annually at Darling Harbour, Sydney, covers everything from Sega and Nintendo to IBM PC — and now Amiga. Offering a chance for punters to see all brands under one roof, this year's show, incorporating World of Commodore Amiga, will be held from 10-12 June. We'll see you there.

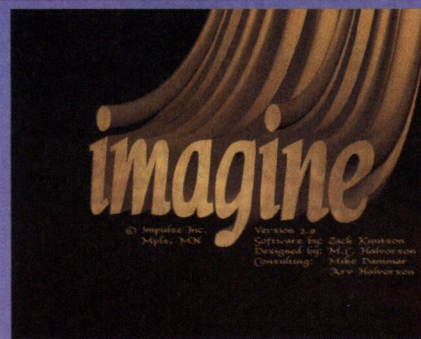
Information from Commodore, Australia.



One of many users preparing to demolish all previous limitations is our own Dudley Storey...

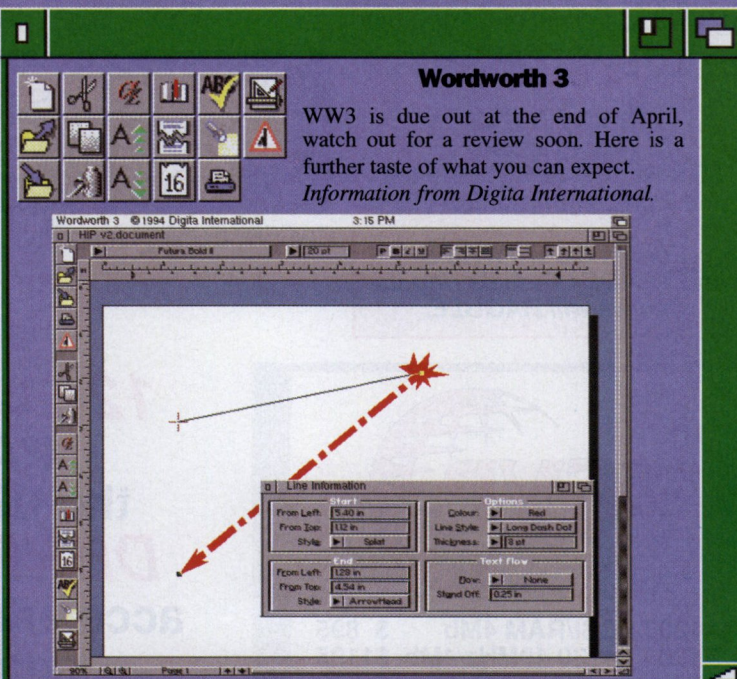
Imagine 2 FREE

If you are looking to try Imagine, don't miss ADU 10, June 1994. We will be giving away the full Imagine 2 software with an upgrade to Imagine 3.0 at an unbelievable price. Don't miss our next issue!



Wordworth 3

WW3 is due out at the end of April, watch out for a review soon. Here is a further taste of what you can expect. Information from Digita International.



SMPT

For high-end users, Commodore will also participate in the Society of Motion Picture and Television Engineers' Show, to be held from 5-8 July. This is more a trade show and is ideal for reaching the professional video market.

Information from Commodore, Australia.

DKB and Power Computing

You may start to notice very similar products being distributed under two different names from two different companies. In fact, they are not similar: they are exactly the same. DKB, from the USA, and Power Computing, from the UK, have formed a symbiotic alliance to distribute each other's products in each other's markets. So from the USA comes the DKB 1202, and from the UK, the PC 1202; MegAChip from the USA and MegAChip 2 from the UK. DKB will now market Power Computing's range of hardware and software.

Sounds confusing? It will be for us down under, because both brands are being imported into Australasia and will be competing with each other. But that can only be good news for consumers.

Information from DKB.

DKB Down Under

Distributors have been appointed by DKB for their products down under. CompRepair (see ad page 53) are the official Australian agents, while The Parts Warehouse (see ad page 18) will represent DKB in New Zealand.

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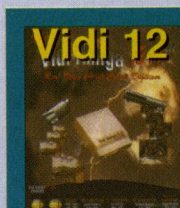
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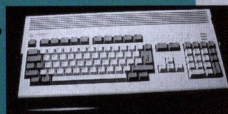
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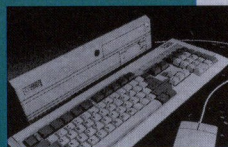
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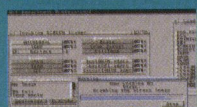
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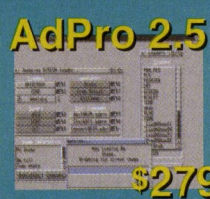
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Warp System

U.S. Cybernetics, a Canadian firm with marketing offices in California, has announced the release of the Warp System, a massively-expandable, parallel-processing accelerator.

The Warp System is based on the advanced Superscalar Innos T805 Transputer chip. Previous uses for the T805 were mainly in the supercomputing industry, due primarily to the chip's enhanced ability to work in parallel with other Transputer processors. With the Warp System, this powerful and flexible technology is now available for the desktop environment.

The system consists of a Base Board that plugs into the computer, and external cases which can contain as many additional boards as desired. The slide-in motherboard is a 32-bit processor with onboard 64-bit FPU, which operates in parallel with the main processor, and adds 30 MIPS and 4.3 MFLOPS to the performance of the machine. The most beneficial feature of Transputers are their serial links, which allow scalability not possible in other systems.

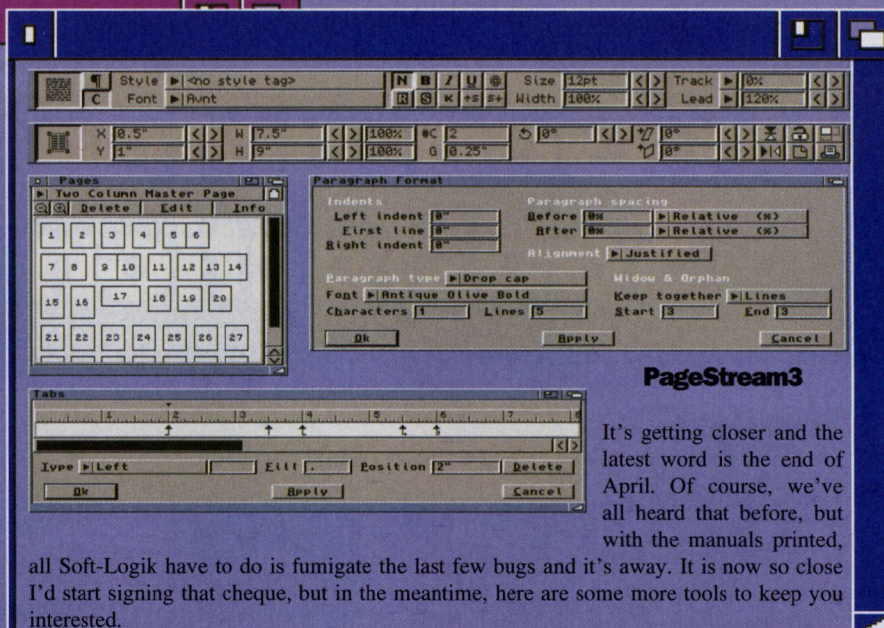
The installed Base Board easily connects to a free standing, air-cooled tower containing slots for 30 add-on Transputer boards. Each board installed increases the machine's overall

computational speed by 30 MIPS and 4.3 MFLOPS, with no upper limit. A massively-parallel supercomputer can be easily assembled to quickly perform complex image manipulation, utilising the most advanced graphics and animation software.

Many graphics software packages are already porting over to operate in conjunction with the Warp System's own advanced, multitasking operating system, that comes complete with Warp Net networking software. VistaPro, Real 3D, Imagine, TV Paint and Aladdin are in the process of porting over for use with the parallel accelerator, and manufacturers of Caligari, Claymation, Q-Sound and Lightwave are currently displaying interest.

The Warp System is currently available on the Amiga and is auto sensing in any Zorro II or Zorro III slot. Pricing on the system is US\$1995 for the Base Board and US\$1295 for the add-on modules.

Press release from U.S. Cybernetics, USA.



PageStream3

It's getting closer and the latest word is the end of April. Of course, we've all heard that before, but with the manuals printed,

all Soft-Logik have to do is fumigate the last few bugs and it's away. It is now so close I'd start signing that cheque, but in the meantime, here are some more tools to keep you interested.

Prices Go Down!

Commodore have announced new A4000 models. The A4000/030 is now standard with 2 Mb Chip RAM and no Fast RAM, allowing a substantial price drop. You can now buy the A4000/030, add more RAM, and still pay less.

The new A4000/LC040 is the same as the old A4000/040, but the 040 has no FPU. Again this has enabled Commodore to drop prices.

The new model, the A4000T (tower), has all the bells and whistles. You get the 040 with FPU, 4 Mb Fast RAM, five Amiga Zorro III slots, two video expansion slots, SCSI-II FAST controller and, of course, a nice big tower case. The A4000T is around the same price as the old A4000/040 model.

Information from Commodore Australia.

Bars&Pipes 2.5

The Blue Ribbon SoundWorks, makers of music and multimedia hardware and software, have announced their significant, forthcoming Version 2.5 upgrade to their Bars&Pipes Professional music and multimedia environment for the Amiga computer. Bars&Pipes Professional 2.5 contains nearly 50 new features and enhancements for MIDI musicians and multimedia authors.

Some of the additions include the ability to loop any number of measures on all tracks simultaneously; split one track into several containing only one pitch; precisely control the number of measures per line and staves per page when printing notation; and much more.

Registered owners of Bars&Pipes and Bars&Pipes Professional Versions 1.0 and 2.0 are eligible to upgrade to Version 2.5 for US\$208, US\$168 and US\$70 respectively, and will be notified via mail as to specifics. Bars&Pipes Professional 2.5 will remain at Version 2.0's price.

Press release from The Blue Ribbon SoundWorks, USA.



Amiga Expo '94

Readily accessible, with tram access to the door, a train station within walking distance, and convenient parking, the Malvern Town Hall is undoubtedly the leading computer swap meet venue in Victoria. On Sunday 29 May, it will be the location for the Melbourne Amiga event of the year.

The Amiga Expo '94 is organised by Amiga Users Group Inc., care of Post Office Box 684E, Melbourne, VIC 3001.

Information from Amiga Users Group Inc.

Commodore Australia Lives

Until recently two Commodore-related companies have been operating in Australia: Commodore Business Machines Ltd. (CBM) and Commodore Business Machines (Asia Pacific) Ltd. (CAP). CAP runs the operation for the Asia/Pacific region (to countries like Hong Kong and Thailand), while CBM handled only the Australian market. As we all know by now, CBM is no longer trading. The Australian operation is now handled by CAP, keeping everything under one roof.

An authorised spokesperson for Commodore Business Machines (Asia Pacific) Ltd. says "Amiga dealers have been incredibly loyal, which we're grateful for." CAP, now specifically Amiga, has come out with some very competitive prices. "We've released new models of the A4000 and the A1200 to provide a more flexible product. A1200s are now sold without hard drives, giving the buyer more options on configuration. The A4000/030 now has only Chip RAM as a lot of buyers were trying to trade in the 2 Mb Fast RAM installed for 4 Mb SIMMs. This has allowed us to drop the price. We were also able to bring the price of the A4000/040 down and still provide a higher-end machine with the A4000T."

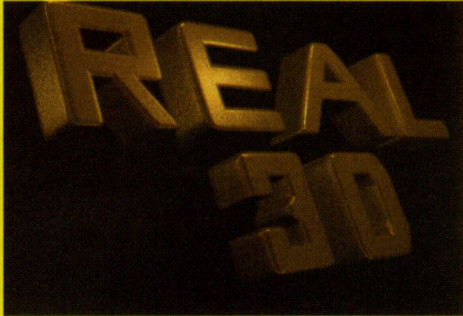
Support for Amiga has improved. Software support is now handled directly by CAP and Compu-AID have been appointed to service Amiga hardware, both old and new warranties. Compu-AID are Australia wide and can be contacted on (02) 898-1555.

You can contact Commodore Business Machines (Asia Pacific) Ltd. on (02) 680-3288.

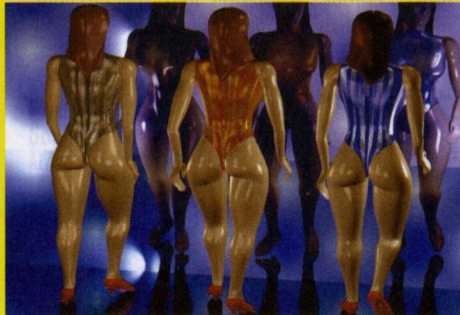
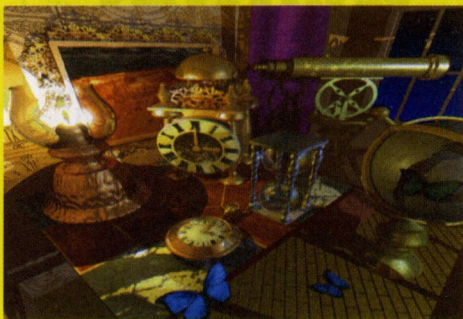
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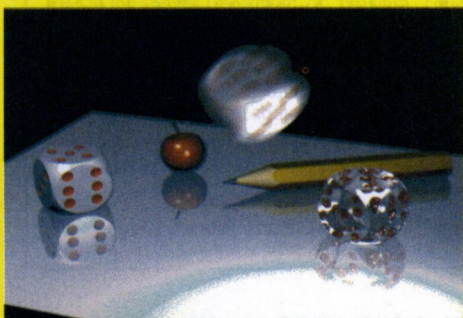
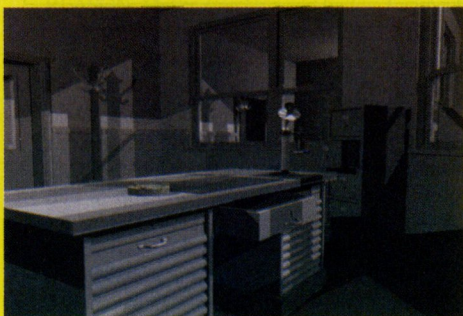
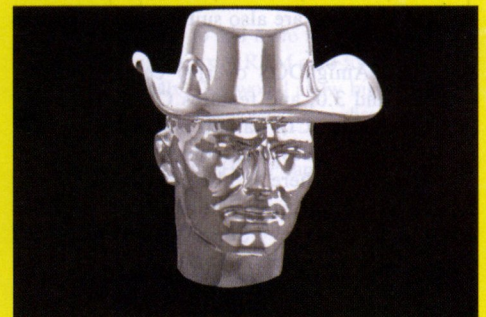
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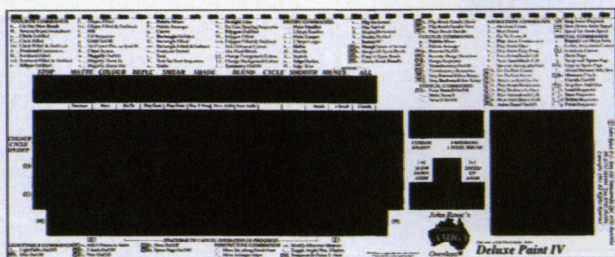
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Productivity

Brief reviews of some of the hottest new products for the Amiga.

Aussie! Amiga Overlays

ANOTHER HOME-GROWN PRODUCT, this time aimed at the beginner or those with short memories, comes in the form of John Rowe's Aussie! Amiga Overlays: one



for AmigaDOS commands and one for DeluxePaint. These overlays will fit any A500, A1200, A2000, A3000 or A4000 keyboard, and are also suitable if you have a keyboard skin.

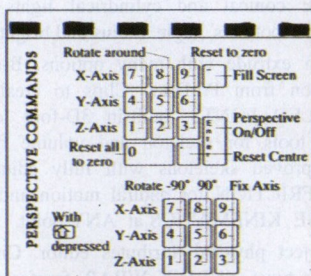
The AmigaDOS overlay covers WB1.3, 2.xx, and 3.0, and features CLI editing and control keys, CLI pattern matching, AmigaDOS error codes, CLI commands and script commands. There is also a disk with utilities like Arq, AssignWedge, AutoCLI, Disk Speed, ReOrg, SuperDuper, SysInfo, Undelete and others.

The second overlay, for DeluxePaint IV, lists all the hotkeys and their functions next

to the keys themselves, including the various functions with shift, ctrl, alt or Amiga keys depressed. What a relief not having to recheck the manual or search through menus to find the right function. All the toolbox, brush, colour, animation and special commands are listed, plus all function keys.

Some keys perform neat tricks that we were unaware of. There is even a little flip-up card attached with hints and tips. The disk with this overlay contains utilities like ListFont, Anim2IFF, AnimCombine, AutoCLI, SysInfo and more. A must for any budding DPaint enthusiast.

Attached to each overlay are a couple of extra flip-up cards, containing extra information that wouldn't fit on the main overlay. Also included is a chignagraph pencil for making notes on the lam-



John Rowe's



inated surface of the overlay. The lamination also makes them easy to keep clean and extends durability.

A selection of flip-up cards is available to add to your existing overlay: blank cards with the function keys marked, so that you can fill in your own functions; another has an ASCII chart with all the characters and decimal and hex codes; and three cover guru meditation codes and their meanings.

All in all, you can build yourself a very useful overlay to avoid all those frustrating times when you can't remember which key combination rotates the Z axis 90 degrees, or the syntax for protecting files, or what you've programmed on to your function keys. Well worth a look for less than \$25, so give your local dealer a call.

GC

Reviewed by ADU

AnimWorkshop v2

ANIMWORKSHOP PROVIDES A set of tools for creating, playing, processing, editing and adding sound to your Amiga animations. You can Create an animation from a list of files, or Separate an animation into individual pictures. You can delete frames from an animation; add or insert pictures into an animation; use the full featured anim player to view the animation with sound; and much more.

AnimWorkshop (AWorks) uses Art Department Professional (ADPro) or ImageFX when image processing is required. You can convert colours, scale, flip, or perform an ADPro/ImageFX operation on any animation. Anything you can do with

ADPro/ImageFX to a single image, you can do to an entire animation. Use AWorks to apply any ADPro/ImageFX operator to the complete animation, such as ADPro's Antique, Blur, Line Art and more. AWorks brings the power of your image processor to

the animation level.

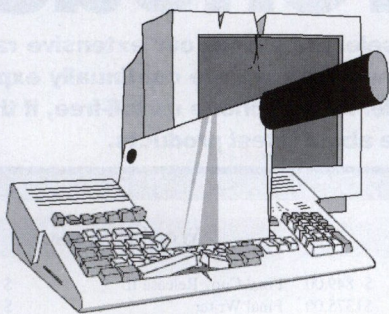
Use AWorks to build an animation "on the fly", while your favourite 3D program renders each image. You can also create your animations with frame-by-frame changes in colour palettes. Use AnimWorkshop to add sound effects to your animation. Simply tag the exact frame for sound playback and attach your sound file to it.

AWorks version 2 supports all AGA modes, Anim5, Anim7 and Anim8 animation formats. It also supports anim brushes, custom ARexx scripts and more. The power of AnimWorkshop version 2 is recommended for any one serious in the animation field.

RS

Reviewed by
The Parts Warehouse





Amiga Down Under provides answers to reader queries...

We are unable to publish all the letters we receive, but if you have a question on any Amiga-related subject, or an answer to a question printed here, send it to:

**Help Key, c/- ADU
(see page 10 for address.)**

HELP!

KEY

Approval for Amos

I am a keen Amos user and have much enjoyed the Amos articles in ADU. It's about time there was local support for Amos users.

I have been writing a game in Amos called "Downstairs Citadel", and would greatly appreciate your scrutiny, suggestions and comments on how to improve the game and my programming techniques. Thanks for any help you may give.

Yvon Lepine, Auckland, New Zealand

Amos Tips

Your programming techniques seem pretty good, although I can see some room for improvements in your style of program flow. Here are some ideas that I think could help you to make more efficient use of the Amos language.

IDEA: Lists of the same commands can be grouped together and the 1 command can get its parameters from data statements.

REASON: Saves space. Easier to follow program flow.

IDEA: Put groups of similar commands (i.e., menu definitions, Setup Code...) into a procedure and Fold the procedure.

REASON: Makes searching and finding fragments of your code easier. Makes large programs easy to write and modify.

IDEA: Put all procedures at the top of your program and Fold them.

REASON: Makes searching and finding fragments of your code easier. Makes large programs easy to write and modify.

IDEA: NEVER USE A "GOTO" COMMAND.

REASON: They make a program very hard to follow and therefore introduce unforeseen bugs, which are extremely difficult to find.

IDEA: Use descriptive variable names more.

REASON: Good use of descriptive variable names makes a program very readable and thus easy to modify later, should you decide to add to it.

IDEA: If all procedures use the same variables, make those variables global to your program.

REASON: Saves repetition of program code. Helps to prevent typos in variable names. Saves on final program size.

I hope these suggestions are what you are looking for. I tried to write the above comments using a "constructive criticism" approach, as I have found that this is the best way to master new techniques. As for improving the game's playability, I feel that the user interface in a game of this type (adventure-style) needs to be totally point and click, with no

(or very little) keyboard work. For me, point and click interfaces make an adventure game playable. You have achieved this; thus I find the game quite interesting to play. Thanks for your letter.

Ray Abram

Which Programming Language?

I have been wondering which is the best programming language to learn, as I have an Amiga 1200, and I want to become more familiar with the workings of the Amiga. Is there a particular medium which would help me and save me having to spend hours studying several programming methods?

P. Reed, Mount Warrigal, NSW, Australia

As a dedicated C programmer, I'd have no hesitation in recommending this language, since it is native to the Amiga OS. However, to avoid spending "hours studying several programming methods", try a simpler language like Amos or Blitz2 — they may not be as low-level as C, but you can go far with them.

Peter Morrison

Programs, Programs, Programs

I am interested in the most appropriate computer language for me to purchase. I am considering Amos, Blitz2 and CANDO. I do not have time to learn C, so one of the above will have to do. I am interested in writing games that use the modem, some small utilities and who knows what? From experience Amos is not system-friendly, as most of the demos I have run crashed my 030 system. Is this the case or are the programmers responsible?

Andrew Quinn, Penrith, NSW, Australia

It is never easy to answer "which language" questions, without knowing more about the person asking the question. In this case, it seems you want to be able to access low-level device routines, and use intuition windows/gadgets, etc. Amos or Blitz2 will do what you need. CANDO will not.

Peter Morrison

OKI OL 400E Pageprinter & PageStream together?

I use PageStream and find that I cannot print out a full page of bitmapped data (I have 6 Mb on my A1200 HD). Question: Is there a driver which recognises HP IIP emulation and is fully compatible with the OKI printer? I have tried the HPLaserJet which comes with the Workbench disks, and

numerous PageStream drivers. I believe there is a driver called HPLaserJet 2, but I don't know where to find one.

Chris Lucas, Christchurch, New Zealand

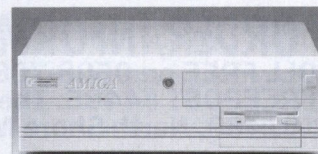
PageStream is probably not your problem here, nor your A1200, as it is the memory in your printer that is important. The OKI 400E can emulate the HP LaserJet IIP, IBM ProPrinter 2 and Diablo 630. Printer drivers for the HP IIP compress the data being sent to the printer and then the printer uncompresses it. Therefore less memory is required. Because the OL 400E has only 512 Kb of RAM, there isn't enough room to send much in the way of uncompressed graphics to it.

If the data was being compressed, it would probably handle it. It might not be much help getting the HPLaserJet 2 driver, as it is only the P model which uses compression, so the driver might not compress the data.

You would be best to add more memory to your 400E by getting the extra RAM card for it. It can take up to 4.5 Mb. This would allow bigger files and bitmaps to be downloaded regardless of the driver used.

Another useful trick the HP IIP can do is rotate text 360 in 90 steps.

Ed.



Me And My A4000/040

I recently purchased Flashback. However, while it states it is hard disk-installable, I cannot get it to load from my hard drive, despite following instructions. Why?

Daniel Kitingan, Adelaide, Australia.

Dudley Storey III, our games reviewer, runs Flashback from the hard drive of his A3000, with no problems. So here are your choices of problems: IDE HD, Workbench 3, 040 or AGA chipset. If you can get it to run off floppy disks on your A4000/040, it is more likely the IDE. I hope you're not using a pirated copy. If you're not, take your game to your local Amiga retailer and ask him to try it.

Ed.



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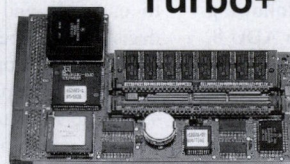
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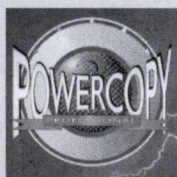


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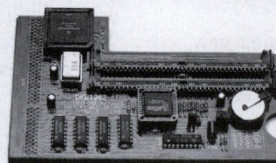
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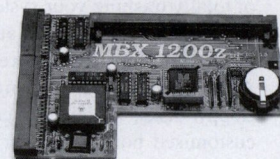
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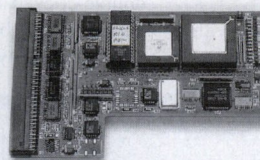
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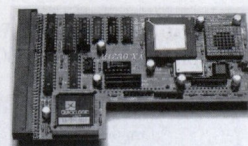


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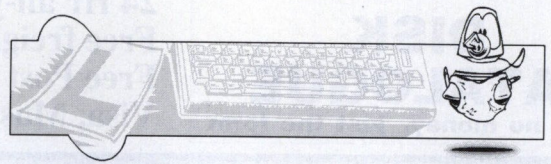
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FIRST STEPS

If you boot from floppy disks, you may find your Preferences on your Extras disk if they are not on your Workbench disk. Preferences settings will be saved to your boot disk automatically.

In the next tutorial, I'll show you how you can, in fact, have different Prefs settings for each user on hard drive systems, all at the click of a few buttons. But for now, just familiarise yourselves with the way Prefs work and look out for my next article.



Murray O'Neill looks at more Workbench 2 Preferences so you can customise your Workbench...

IN THIS COLUMN I hope to portray a beginner's eye view of Workbench 2.x, following on from Peter Moosberger's article in ADU 8, which contained several points worth repeating.

After altering any Prefs, click on the USE button to test your changes. This way, if you do something that makes WB unusable, you only have to reboot to get back to your default settings. When you're satisfied that you've got it right, save your settings.

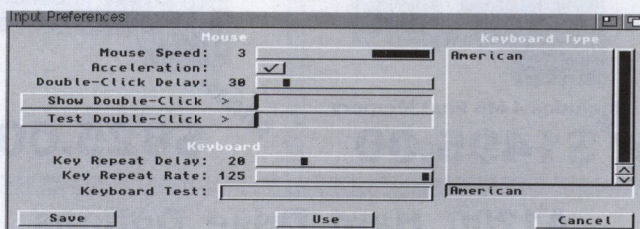
Do not use the master copies of your Workbench disks. Make copies and you can happily alter your Prefs on these without fear of totally trashing your system.

This tutorial is aimed at familiarising new users with what the different Preferences do. As Peter has said, on Amigas that boot off floppy disks, individuals can have their own customised boot disks. On hard disk systems it is not practical to keep altering Preferences, or is it? See my next tutorial.

The reason I have been asked to record my observations is simple: I am a complete novice to the Amiga operating system, and a new recruit to the ranks here at ADU.

Workbench 2 for Beginners

My first encounter with Workbench was with version 2.1 on an A3000. Since then, how-



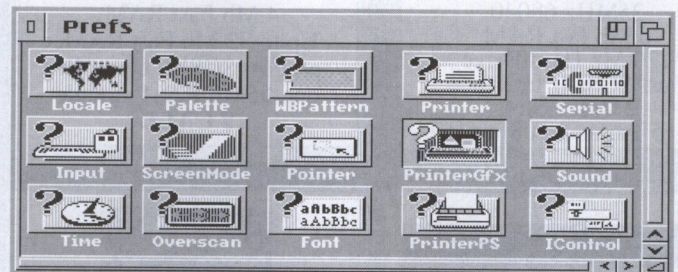
ever, I have experimented with version 1.3 on an A500, to gain an overall view of how the operating system has developed, and found the differences are immense (as also observed by Peter Moosberger in ADU 8). As an experiment, I tried altering the Preferences in WB 1.3 on the A500, and found the options to customise the work area somewhat limiting. To make a comparison, I then repeated the same exercise with WB 2.x (I'd definitely recommend the upgrade).

The manual for Workbench 2.x was foreboding, which I think can be said of most software literature (as far as we rookies are con-

cerned). I therefore decided to put the manual to one side and proceed. In hindsight, this decision was perhaps a bit over-confident, given that the complexities of Workbench are not initially apparent. Had I taken time to study the reference notes first, I could have avoided some of the difficulties encountered later.

Customising Preferences

1. The Preferences drawer will be in your Workbench or System drawer or on your Extras disk. The Prefs icon is marked with a ? and Prefs under it.
2. After double-clicking the Prefs icon, the next window to appear shows the actual Prefs icons for customising your Workbench.



Input Prefs

I began with the Input Prefs, which, when double-clicked upon, give a selection of slide bars and test buttons to determine the click speed and delay of your mouse and keyboard. i.e., you might prefer your mouse buttons to be extra responsive to your commands, in which case the speed setting should be higher and the delay setting lower. Likewise for your keyboard.

1. Enter some parameters in each category, and test with the appropriate button until you achieve the desired result.
2. Use, Save or Cancel.

Palette Prefs

1. Open the Palette Prefs in the normal way, by double-clicking on its icon. Choose a default colour from the bar at the top of the window. The slide bars which indicate red, green and blue below this are active. To achieve a custom colour, adjust these three colours to suit. You will notice that the

default colour selected will change throughout Workbench, according to your adjustments.

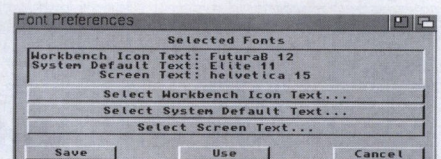
2. If you first open the ScreenMode Prefs and change Colours to 8 or 16 and Use that setting, you can then open the Palette Prefs

and get more colours to play with. Be warned that more colours will use more memory and will be slower.

3. Use, Save or Cancel.

Font Prefs

1. Double-click on the Fonts Prefs icon.
2. Click on the Select Workbench Icon Text button. This is the text that appears under icons.
3. You can now select the font and size as well as text colour, field (background) colour and mode (whether a text field is used or not). A bold font in a readable size is best, as opposed to fancy typefaces. Colour is important here, so that the type becomes readable over your background window shade. If the window background is black, you should choose white or another light shade from the colour bar in



the same window. Refer also to the section on editing. Experiment and see what you like.

4. Next define the System Default Text in the same way. No choice of colour is available for this option. This setting defines what typeface is used to display information, in

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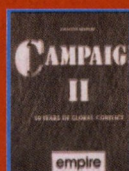
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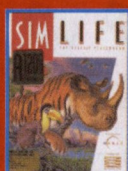
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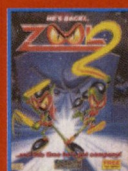
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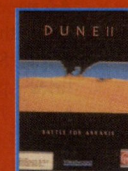
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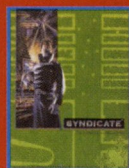
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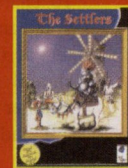
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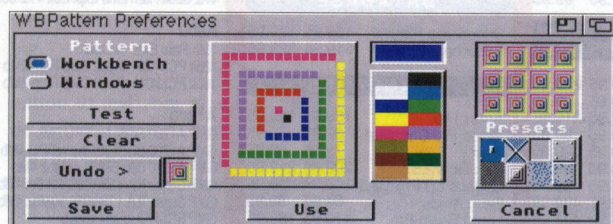
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the Workbench Output window for example.

- Finally select the Screen Text button. This will be the typeface used in all the gadgets and requesters that appear on your Workbench screen. The size of the font should be such that it may be read without any problem.
- Use, Save or Cancel.

WBPatten Prefs

- Double-click on the WBPatten Prefs icon to open it. This sets the background colours and patterns for your WB screen and in windows.
- Click on the Workbench button. Then choose a preset pattern from the Presets boxes near the bottom right of the window, or plain fill by selecting a colour from the



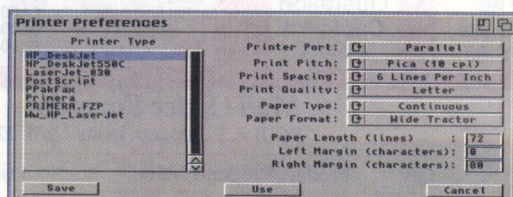
palette and then the Clear button. Alternatively, draw your own pattern in the drawing area (this can be wiped clean by clicking on the Clear or Undo button if you make a mistake). You get an idea of your changes in the small window above Presets. To see what it really looks like, click on the Test button. As long as you don't Save these settings, you're safe enough experimenting.

- Moving on to the Windows pattern icon, repeat the process to apply pattern or plain colour to the windows fill. Remember, if you don't like the colours available in the palette of this, or any other Prefs icon, you can change it via the Palette Preferences mentioned earlier.

Printer Prefs

You must specify the printer driver which matches your printer for it to work. The printer icon enables you to do this, and also to set other characteristics about your printer output.

- Open the icon by double-clicking on it.
- The available drivers are displayed in the Printer Type scroll gadget. Click on the driver for your printer, and it will display



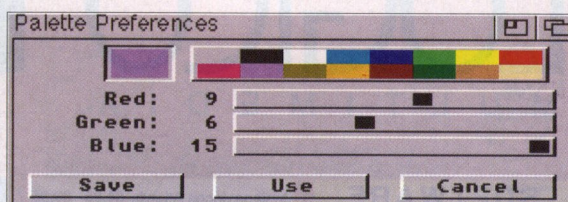
automatically in the text gadget beneath.

Note: If the driver for your printer is not apparent in the list, see Printer Drivers Appendices with the manual for Work-

bench 2.x, as some drivers can support more than one printer. Failing this, check to see if an Amiga driver was supplied with your specific printer, or consult your dealer. More drivers are also likely to be on your original Extras disk.

- Set the Printer Port option to Parallel or Serial, depending upon the source port to which your printer is attached. Clicking on the button will display the current selection.
- Select your Print Pitch to desired characters per inch and Print Spacing to the desired number of lines per inch (depending on the size of the paper you plan to use), by clicking once each on the appropriate gadgets.
- Set Print Quality to draft or letter. The draft option will just print text and ignore any other page contents, while the letter option prints everything on the page. Now set the Paper Type to single sheet or continuous, according to your printer's output. Again selection is made by clicking on the appropriate gadget.
- Set the Paper Format or paper size more accurately. The two most common options are Tractor Feed for dot matrix printers, or DIN A4 (Deutsch International Norm) for lasers. Either way, make sure this setting corresponds with the Paper Type setting specified earlier.
- Finally — specify the Paper Length or number of lines you want to print per page, including margins. Example: A4 paper is 11.7 inches deep; therefore, if your Print Spacing is six lines per inch, you have 70.2 lines per page. Likewise for setting Left and Right Margins: the width of A4 paper is 8.3 inches, so if the Print Pitch is 10 characters per inch, you can fit 83 characters across the page and should allow a certain number of characters left and right for margins.
- Use, Save or Cancel.

Note that most applications have their own internal printer setups and will overwrite some of the settings in the Printer Preferences. Experiment with your software to know for sure.



In Summary

I haven't covered all Preferences here but I hope to in due course. In the meantime try this: Go to the leftmost pulldown menu headed Workbench and highlight the first item, Backdrop. Let go the mouse button and you will see that your Workbench screen no longer has a window around it. Go to the Window menu and Snapshot All to save this setting.

The following is a brief summary of some of the standard icons in the Prefs window and what they control:

Fonts: Used to set the size, style and colour of the text in the Workbench icons, on the screen and for the system default text.

Input: Enables you to set the speed and delay of your mouse and keyboard.

Palette: Changes the colour of your background palette.

Printer: Lets you specify the printer driver to match your printer, and set options such as paper size and fonts.

WBPatten: Allows you to design your own fill pattern for the Workbench screen or use one of the Preset patterns.

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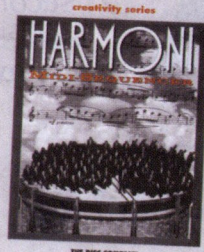
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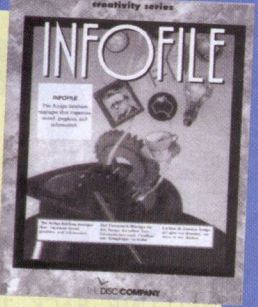
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AGA UNCOVERED!

*Assembler
whiz Mark
Sibly takes us
inside the
Amiga with the
second in his
series of AGA
exposes...*

WELCOME BACK TO AGA Uncovered! After my introductory article in ADU 6, I'm assuming that readers have a thorough knowledge of the Amiga's hardware — this won't be for the faint of heart.

AGA Overview

The AGA chipset features improvements in the Amiga's graphics system and bus performance. Unfortunately, no improvements have been made to the audio or blitter functions. The enhanced capabilities of the new AGA chipset have been implemented by the addition of new hardware registers, and the extension of old ones. As with previous Amiga chipsets, the hardware registers lie in the address space \$DFF000...\$DFF1FE.

Colour Registers

We will look first at the AGA colour registers. Previous Amiga chipsets allowed for 32 colour registers, each containing a 12-bit value, made up of 4 bits for red, 4 for green and 4 for blue. However, the AGA chipset allows for 256 colour registers, each containing a 24-bit value — 8 bits for red, 8 for green and 8 for blue. AGA still uses the hardware registers \$DFF180...\$DFF1BE to access colours, but this only allows access to 32 colour registers. To allow access to all 256 colour registers, AGA splits them into eight "banks" (numbered 0...7) of 32-colour registers each.

We can tell AGA which bank we want to work with through a new AGA register I shall call "COLOURCON0". If we have decided to work with bank 0, hardware registers \$DFF180...\$DFF1BE correspond to colour registers 0 through 31. However, if we have selected bank 1, the same hardware registers correspond to colour registers 32 through 63, and so on. This neatly solves the problem of accessing all 256 colour registers, but does not explain how we can write a 24-bit colour into a colour register, as each colour register is still only 16 bits wide! A trick similar to that for the colour banks is used here, but first, let's look at how AGA expects its 24-bit colour values to be expressed.

The pre-AGA 12-bit colours were expressed simply by assigning a nibble (4-bit value), to each of the red, green and blue components of a colour. For example, a 16-bit

value of \$0F80 gave a colour of \$F (maximum) red, 8 green and 0 (none) blue — an "orange" colour. Note that the high 4 bits are ignored by the Amiga's hardware. To express a 24-bit colour, AGA splits the 24 bits into two separate 12-bit values, the contents of which are similar to pre-AGA colours in layout; however, one value contains the high 4 bits of the red/green/blue colour components, while the other half contains the low 4.

Confused? An example should clarify this. Let's say we want to express the 24-bit colour of red=\$84, green=\$ED and blue=\$3E. AGA requires us to split this into two 12-bit values — one related to the high 4 bits of the colour (\$8E3), and the other containing the low 4 bits (\$4DE).

As with the colour bank system, the same hardware registers (\$DFF180...\$DFF1BE) are used to access the high or low half of a 24-bit colour, and again, COLOURCON0 is used to control this. Let's now look at the layout of COLOURCON0:

COLOURCON0 \$DFF106 W

Bit#	Purpose
15 } 14 } 13 }	These three bits select which colour bank (0...7) to access.
12 } 11 } 10 }	Dualplayfield colour offset (later!)
09	This bit selects which half, high or low, of a 24 bit colour to access. 0=High half, 1=Low half.
08	
07 } 06 }	Sprite mode: 0/1=lo-res, 2=hi-res, 3=super hi-res
05	1=make border area black (see BPLCON0, bit 0).
04	
03	
02	
01	1=sprites appear in border area (see BPLCON0, bit 0).

To write any arbitrary value to any of the 256 colour registers, at least four instructions must be performed — two to COLOURCON0, and two to the appropriate colour register. Here's an example of writing the 24-bit colour red=\$F8, green=\$7C and blue=\$3A to colour register 67:

```
Move #$4000,$DFF106 ;select colour bank 2,  
                        ;high colour half.  
Move #$0F73,$DFF186 ;move in high half of 24  
                        ;bit colour.  
Move #$4200,$DFF106 ;select colour bank 2,  
                        ;low colour half.  
Move #$08CA,$DFF186 ;move in low half of  
                        ;colour.
```

When altering the colour registers, be sure to write the high half of the colour BEFORE the low half. Why? Because AGA automatically copies the high half to the low half, as soon as the high half is written, ensuring backward compatibility.

More Bitplanes!

Since AGA allows for playfields up to 8 bitplanes deep, you may now access up to 8 bitplane pointers. These new pointers are located, logically enough, immediately following the old ones:

BPL1PTH \$DFF0E0 W	BPL1PTH \$DFF0E2 W
BPL2PTH \$DFF0E4 W	BPL2PTH \$DFF0E6 W
BPL3PTH \$DFF0E8 W	BPL3PTH \$DFF0EA W
BPL4PTH \$DFF0EC W	BPL4PTH \$DFF0EE W
BPL5PTH \$DFF0F0 W	BPL5PTH \$DFF0F2 W
BPL6PTH \$DFF0F4 W	BPL6PTH \$DFF0F6 W
BPL7PTH \$DFF0F8 W	BPL7PTH \$DFF0FA W
BPL8PTH \$DFF0FC W	BPL8PTH \$DFF0FE W

BPLCON0 \$DFF100 W

Bit#	Purpose
15	1=Hires, 0=lores.
14 } 13 } 12 }	# of bitplanes to display (0...7).
11	
10	1=enable dual playfield mode.
09	1=enable composite colour output.
08	
07	
06	1=enable super hires (also set bit 15!)
05	
04	1=display 8 bitplanes (if set, bits 12...14 are ignored)
03	
02	
01	
00	1=enable AGA extras (blank border, sprites in border).

BPLCON0 is still used to control how many bitplanes are enabled, but an extra bit has been created, to signify the special case of 8 bitplanes (see sidebar at left).

AGA now allows up to 4 bitplanes (16 colours) in each playfield of a dual playfield display — in any resolution! As in previous chipsets, the odd bitplanes form one of the playfields (usually the "front" one), and the even bitplanes, the other.

Demo Time

That's it for this month. Join us next issue for a look at the much-discussed area of fetch modes and super-smooth scrolling. In the meantime, try this demo program to get you started...

```
;A demo of creating a 256 colour
; copperlist under AGA

section main,code_c

main    bsr    sysoff
        bsr    allocbitmap
        bsr    makecoplist
        bsr    pokecolours
        bsr    mousewait
        bsr    syson
        bsr    freebitmap
        moveq  #0,d0
        rts

makelonyb ;convert d0=red, d1=green,
          ;d2=blue into 'low nybble'
          ;colour word in d6.
        move    d0,d6
        and     #$0f,d6
        lsl     #8,d6
        move.b  d1,d6
        and.b   #$0f,d6
        lsl.b   #4,d6
        move    d2,d7
        and     #$0f,d7
        or      d7,d6
        rts

makehinyb ;convert d0=red, d1=green,
          ;d2=blue into 'high nybble'
          ;colour word in d6.
        move    d0,d6
        lsl     #4,d6
        move.b  d1,d6
        and.b   #$f0,d6
        ror     #4,d2
        or.b    d2,d6
        rol     #4,d2
        rts

pokecolours ;set up colours 0 through 255 to
            ;be black through purple.
        moveq   #0,d0 ;red
```

```
moveq    #0,d1 ;green
moveq    #0,d2 ;blue
move     #$1000,d3
moveq    #7,d4 ;do 8 banks of 32
           ;colours

.loop    lea     $dff180,a0
        moveq   #31,d5 ;do 1 bank

.loop2   bsr     makehinyb
        bclr    #9,d3
        move    d3,$dff106
        move    d6,(a0)
        bsr     makelonyb
        bset    #9,d3
        move    d3,$dff106
        move    d6,(a0)
        addq    #2,a0 ;increment colour
           ;register
        addq    #1,d0 ;increment red...
        addq    #1,d2 ;and blue, giving
           ;purple
        dbf     d5,.loop2
        add     #$2000,d3 ;go onto next
           ;bank
        dbf     d4,.loop
        rts

allocbitmap ;allocate memory for the bitmap
        move.l  4.w,a6
        move.l  #40*256*8,d0 ;width*height*
           ;depth
        moveq   #2,d1
        jsr     -198(a6) ;allocmem
        move.l  d0,bitmap
        rts

makecoplist ;install bitmap into copper
           ;list, draw lines of increment-
           ;ing colour down the bitmap and
           ;show the copper list
        move.l  bitmap(pc),d0 ;poke bitmap
           ;into copper
           ;list
        lea     bitplanes(pc),a0
        moveq   #7,d1
        moveq   #40,d2
        moveq   #8,d3

.loop    move    d0,6(a0)
        swap    d0
        move    d0,2(a0)
        swap    d0
        add.l   d2,d0
        add.l   d3,a0
        dbf     d1,.loop
        move.l  bitmap(pc),a0 ;draw lines
           ;on bitmap

.loop2   move    #255,d0
        move    d0,d2
        moveq   #7,d1

.loop3   lsr     #1,d2
        scs     d3
        ext     d3
        ext.l   d3
        moveq   #9,d4

.loop4   move.l  d3,(a0)+
        dbf     d4,.loop4
        dbf     d1,.loop3
        dbf     d0,.loop2
        move.l  #coplist,$dff080
        move    #0,$dff088
```

```
rts

freebitmap ;free memory used by bitmap
        move.l  4.w,a6
        move.l  bitmap(pc),a1
        move.l  #40*256*8,d0 ;width*height*
           ;depth
        jsr     -210(a6)
        rts

mousewait ;wait for left mouse
           ;button click
        btst    #6,$bfe001
        bne     mousewait
        rts

sysoff ;turn off operating system display
        move.l  4.w,a6
        lea     grname(pc),a1
        jsr     -408(a6) ;oldopenlibrary
        move.l  d0,gr
        move.l  d0,a6
        move.l  34(a6),view_temp
        sub.l   a1,a1
        jsr     -222(a6) ;loadview
        jsr     -270(a6) ;waitto
        jsr     -270(a6) ;waitto
        rts

syson ;turn on operating system display
        move.l  gr(pc),a6
        jsr     -270(a6) ;waitto
        jsr     -270(a6) ;waitto
        move.l  view_temp(pc),a1
        jsr     -222(a6) ;loadview
        move.l  38(a6),$dff080
        move    #0,$dff088
        move    #88a0,$dff096
        move.l  a6,a1
        move.l  4.w,a6
        jsr     -414(a6) ;closelibrary
        rts

grname    dc.b    'graphics.library',0
          even
gr         dc.l    0
view_temp dc.l    0
bitmap     dc.l    0

;NOTE: If you're having problems
;getting your copper lists
;to run properly under AGA, the
;following poke may just
;fix things!

coplist    dc $1fc,0 ;AGA fetchmode
          dc $08e,$2c81,$090,$2ccl ;display
           ;window
          dc $092,$38,$094,$d0 ;display
           ;data fetch
          dc $100,$0210 ;bitplane control
          dc $102,0,$104,0
          dc $108,$40*7,$10a,$40*7 ;modulos
          dc $10c,0

bitplanes  dc $e0,0,$e2,0,$e4,0,$e6,0
          dc $e8,0,$ea,0,$ec,0,$ee,0
          dc $f0,0,$f2,0,$f4,0,$f6,0
          dc $f8,0,$fa,0,$fc,0,$fe,0
          dc $fff,$fff
```



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LETTERS TO THE EDITOR

Dear ADU,

I wish to commend you on a fine job in advocating the Amiga as a serious computer. Your magazine is one of very few that I consider worth buying. However, I wish to voice my misgivings relating to the article AGA Uncovered by Mark Sibly (ADU 6). Mr Sibly puts forward a variety of arguments supposedly justifying hitting the Amiga video chipset directly. His arguments show a rather poor understanding of programming practices, operating system theory and software engineering.

He asks why there are few producing AGA-specific software, and hypothesises that the answer lies in the difficulty of learning C, and in understanding data structures and operating system concepts. He also assumes that the best language to implement graphic-intensive programs requiring fast user response (e.g., games) is assembler. He is mistaken on all counts. More AGA-specific software is indeed coming out, but programmers will only do this when there is a real need — it cuts you off from a large portion of the market. While I admit that C is not a good teaching language, it is by no means difficult to learn. Anyone with basic programming knowledge and skills can transfer to C easily.

The assumption that assembler is always best is a gross mistake, even when programming games. Mr Sibly does not admit the various issues involved. In assembler, the advantages are few and include a minor speed increase (often less than 100%) and reduced code size over a high-level language. Mr Sibly argues that assembler is necessary, but fails to recognise that, in most cases, algorithmic complexity is the overriding factor. A better algorithm can often mean five, ten, or maybe even 100 times speed increases. The hard-to-get two times from assembler pales into insignificance. The only sections of code that should ever be written in assembler are those sections that are often executed and time critical. This normally amounts to 2-10% of code and is true even of game programming.

Then comes the question of whether to use the operating system interface or not. In stating that the OS is not "good enough", Mr Sibly fails to address many issues. Remember that AGA programming requires at least version 3.0 (not 1.3) of the OS. The graphics and layers library of 3.0 are more efficient than earlier versions. In most cases, the OS is quite sufficient, even for games programming. One gets the impression that Mr Sibly does not even know how to program through the operating system; thus it is not surprising that he does not mention the existence of the specialfx.library.

Mr Sibly talks about the new AA (sic) chipset. He does not even realise that this is Commodore's inhouse name for the AGA chipset! The new chipset, currently under development, is the AAA — often called the triple A chipset. That AAA is not hardware-compatible with AGA (which, in turn, is not entirely compatible with ECS or OCS) is a strong argument in favour of using the operating system. One then comes to Mr Sibly's most stupendous statement, the hallmark of stupidity. He advises Commodore to "hold the Amiga" in the state it is now! The poor witless fool does not even realise that this is what Commodore was doing during the late 1980s and that this was a big contributor to why the Amiga almost failed in the mainstream computer market. If Commodore adopt such attitudes again, the Amiga will die a quick death in a fast-moving computer industry. Imagine IBM clones still using CGA graphics!

Michael Cree

Christchurch, New Zealand

I assume Mr Cree has received formal training in the fields of "programming practices", "operating system theory" and "software engineering". I, however, am a self-taught programmer, without the benefit of such knowledge. Mind you, so are a number of other game developers out there — Sensible Software, Bullfrog and Team 17 are a few who come to mind. Nevertheless, I like to think that my "poor understanding of programming practices" has not prevented me from contributing to the Amiga scene in my own way — through publishing two BASIC compilers (Blitz BASICs 1 and 2), two games (Sorcerer's Apprentice and OVERKILL, the latter one of very few AGA-specific games), and writing various PD and shareware titles.

Besides, so what if my programming is not up to his standards? Does that mean I'm not allowed to say what I think and share what I learn? Many people have asked me about the AGA chipset, and, unfortunately for the academic purists, I enjoy helping them out.

I would certainly like to know of all these AGA-specific games coming out. A few examples wouldn't go astray here, Mr Cree. As far as I can tell, the only AGA games coming out are simply "enhanced" versions of ECS games. And while it may be true that the ECS market is much larger than the AGA market, it is also true that if the CD³² doesn't start getting some serious support VERY soon, things could start looking uncomfortable for Commodore.

AGA machines are faster and have more memory than ECS models. Hopefully, this will mean that AGA games will contain better graphics and more variety. Mr Cree suggests that this extra power could be used to compensate for the speed and code size problems of C. Assuming an AGA machine runs twice as fast as an ECS equivalent (a generous estimate, unless you have some fastmem), and that C runs half as fast as assembler, I can only conclude that Mr Cree is in favour of ECS-quality games appearing on AGA machines. This does not even take into account the extra bus usage involved in utilising the enhanced colour capabilities of AGA — perhaps we should give that a miss as well.

I also find it amusing that a 100% speed increase could be described as "minor", when

you're trying to process a large amount of information every 25th or 50th of a second.

Mr Cree is certainly right about one thing — that algorithmic design is by far the most important aspect of code efficiency. Anyone who's tootled around in BASIC could tell you that. The trouble is, the majority of games aren't really that complex a programming exercise (there aren't many ways to move objects around the screen) and in most cases, the only way to get speed increases is to develop a lower-level language.

I can only laugh at the suggestion that only 2-10% of game code is "time critical". I would estimate that 75% of game code is time critical (i.e., the main loop), while the other 25% is not (e.g., intros, high score tables etc.).

The Amiga's operating system has indeed improved in leaps and bounds since 1.3. However, it is still not good enough for serious game programming. Some examples?

- ◆ Dynamic fetch mode changes when smooth scrolling a viewport, making it necessary to design a game around the "worst case" fetch mode if it scrolls (a few do, these days).
- ◆ The graphics library uses a fixed video data fetch start — this knocks out most hardware sprites.
- ◆ Kludgy ChangeViewportBitmap and ScrollViewport — disassemble them: they're a mess.
- ◆ No dynamic updating of Copper lists. LoadView is horrendously slow.
- ◆ I won't even begin to mention the appallingly clumsy GEL system...Etc. etc.

I advise Mr Cree to attempt to write a commercially competitive game using the operating system, before he hands down judgments on its power. Yet again, I shall make no mention of the Specialfx.library...

The AA label was actually used in one of the past DEVCON notes — as was the RISC-based AA(A) description. Mr Cree appears to waste much of his time discussing semantics. These details were irrelevant to my point.

Mr Cree would have us imagine IBM clones still using CGA graphics. Why not, instead, imagine IBM machines which weren't bottlenecked by the ludicrous "backward compatibility" affliction? IBM already appear to have reached the end of that particular road — one on which Commodore appear to be currently entrenched. I believe the Amiga has had its day, and that it is time for Commodore to move onwards and upwards. Of course, this point is very much a matter of opinion, but, to me, with the release of the CD³², the timing seems to be about right.

Of course, Commodore could just keep on releasing Amiga after Amiga until the end of time. If that happens, I, and many like me, will eventually jump ship and get involved in a more progressive market. Perhaps this is what Mr Cree is hoping for — the cleansing of the "stupidity" element from his little Amiga world.

I would suggest that Mr Cree's excellent education has taught him absolutely nothing about the special problems faced by game programmers. The statistics and arguments he presents are, in my experience, a load of utter rubbish. Stick to what you're good at Mr Cree — "serious" software and intellectual snobbery.

Mark Sibly

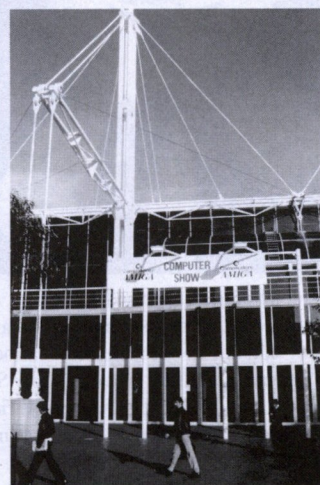
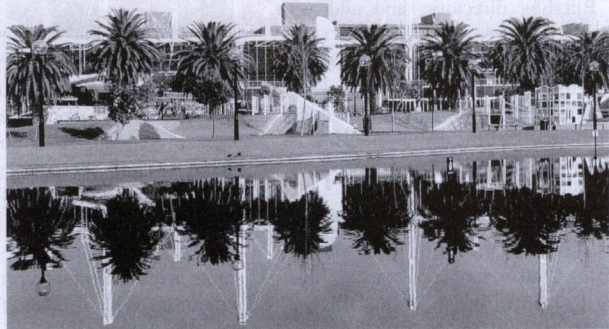


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BLITZ basics and beyond...

Mark Sibly presents the first part of a two-part tutorial, showing how to extend the capabilities of Blitz Basic.

THE BLITZ 2 COMPILER is heavily library-oriented, which means that many of the routines and functions used by the compiler are not actually stored in the compiler itself, but in completely separate library files. This set-up allows new commands and features to be easily added to the Blitz 2 system, simply by creating new library files.

Libraries in Blitz 2 are usually written in Blitz 2 itself, and must be **TOTALLY** in machine code.

Before we get into actually writing a library, let's first look at the basic layout of libraries in Blitz 2.

Varieties of Blitz 2 Libraries

Blitz 2 makes use of three types of libraries: system libraries, Amiga libraries and command libraries. Let's look more closely at these:



- ◆ System libraries are used internally by the Blitz 2 compiler, and include such mundane operations as memory allocation, string manipulation and so on. System libraries will only ever be modified by Acid Software, as they work in connection with Blitz 2 at a very low level.
- ◆ Amiga libraries allow Blitz 2 programmers access to any of the operating system libraries (e.g., intuition.library, exec.library).
- ◆ Command libraries form the bulk of the Blitz 2 system, as they contain all the

BASIC commands and functions available to Blitz 2 programmers. All the Window, Screen, Blitting etc. commands are held in command libraries. To add new commands to Blitz 2, a command library should be created containing these new commands, and this is just what we'll be doing...soon.

Location of Blitz 2 Libraries

When Blitz 2 starts up, it needs to be able to locate all the libraries available. It does so by first looking for a file called Blitz2:Deflibs (for default libraries). If this file is not found, Blitz 2 then looks for a directory called Blitzlibs:. If neither Deflibs nor Blitzlibs: can be found, Blitz 2 gives up and exits.

If Blitz 2 can find Deflibs, it uses the contents of Deflibs as its libraries. If Blitz 2 can only find Blitzlibs:, it then proceeds to scan any sub-directories of Blitzlibs:, and uses any files found as its libraries. At the moment, four sub-directories are set up within Blitzlibs: — System, Amigalibs, Basic and Userlibs.

It's worth pointing out here that Deflibs is simply all the separate Blitzlibs: libraries joined together as one continuous file. This was done to speed up the library loading process, and to make the whole system more user-friendly.

A program called Makedeflibs can be used to create the Deflibs file from the individual Blitzlibs: libraries.

Getting Started

First, you'll need to unarchive the Blitzlibs.lha file into a Blitzlibs directory, and add yet another assign to your startup-sequence (e.g. assign Blitzlibs: Blitzlibs). Next, get rid of Blitz2:Deflibs to prevent Blitz 2 from looking for that, instead of Blitzlibs:. This can be done simply by moving Deflibs from the Blitz2: directory to a different directory, or by renaming it.

Next, crank up Blitz 2 to make sure that everything's still going smoothly. You should notice that Blitz 2 takes longer to start up, due to its having to load in the individual library files from Blitzlibs:.

Writing a Blitz 2 Library

Before you can go ahead with writing your library, you'll have to first choose a "number"

for your library. Each library in Blitz 2 has its own unique identifying number, so you must make sure the number you choose for your library does not clash with that of any other library.

Acid Software has decided, in its infinite wisdom, that any libraries under development should be given a library number from 10...50. So, you'll probably choose 10 for your first library, 11 for your second, and so on...

Listing 1

```
;examplelib
;An example of library writing in Blitz 2

;A decidedly useless command to blink your
;LED on/off

;we're going to give our library the
;id number 10...

#mylib=10

;** First up, a header for the library **
!libheader{#mylib,0,0,0,0}

;** now, the actual library commands **

!astatement
!args{#word}
!libs{#graphicslib,#la6}
!subs{doblink,0,0}
!name{"Blink","number of blinks"}

;That's it!

!libfin

;** Now comes the code for the library **

doblink
;
MOVE d0,d2
BEQ 'skip
SUBQ #1,d2
'loop
BCHG #1,$bfe001
JSR -270(a6) ;call gfxlib's WaitTOF
DBF d2,'loop
'skip
RTS

;***** That's all for our library! *****
```

If you finish a library and are pretty proud of it and feel it would be of benefit to Blitz users in general, Acid Software can be contacted to obtain a permanent library number.

One more thing you'll need in order to write your library is the libmacs.res resident file, which contains a set of macros and constants necessary for writing libraries. Those unfamiliar with resident files should refer to the Blitz 2 user guide section, 10-1.

Libmacs.res can be found in the Blitzlibs: directory. Before starting work on a library, you'll need to load it in via the Compiler/Options menu.

So you've loaded libmacs.res and decided

upon your library number. It's now time to get coding!...

The Initial Example

We'll start with a quick example which should give you an idea of what's going on:

Once you've typed in Listing 1, save it, then create an executable by the name of Blitz-libs:userlibs/examplelib.obj.

To test out your library, use the Compiler/Reload Libs menu item. This will force Blitz 2 to reload all its libraries from Blitz-libs:. Following this, your useful Blink command should now be available to Blitz 2...

```
;Test of the new 'Blink' command...
Blink 10 ;blink ten frames....
```

Now, let's go through the examplelib a line at a time:

```
!libheader{#mylib,0,0,0,0}
```

The !libheader macro should always appear at the start of a library. It looks like this:

```
!libheader{library number, initialize,
return, cleanup, runerrs}
```

The "initialize" parameter allows you to specify a routine which is executed when a Blitz 2 program is run. Likewise, "finish" may specify a clean-up routine when the program ends. If either of these is set to 0, they are ignored.

The "return" parameter allows the library's initialize routine to return a value, in d0, which other libraries may access. If this parameter is 0, the library's initialization returns nothing. If this parameter is 1, the initialization routine returns a value in d0 which other libraries may access. We'll look more closely at this in the !libs section...

"Cleanup" is similar to "initialize", allowing the library to do any tidying up when the program ends.

The "runerrs" parameter informs Blitz 2 of the location of any runtime error checking code. We'll also go into this later.

After the libheader, the library goes on to specify actual commands in the library — in this case, there is only one...

```
!astatement
!args{#word}
!libs{#graphicslib,#1a6}
!subs{doblink,0,0}
!name{"Blink","number of blinks"}
```

The !astatement macro specifies that this command is a statement, as opposed to a function. In other words, Blink doesn't return any value.

The !args macro gives the argument template for our command. In this case, !args{#word} means that the Blink command takes only one parameter — a 16-bit word. We can specify as many parameters as we want here, and they may be any of the following types:

```
#byte
#word
#long
#quick
#float
#string
```

Parameters are passed to library routines through the 68000 data registers d0 through d6 — the first parameter being passed in d0,

the second in d1 and so on. If there are more than seven, extra parameters get passed on the stack. String variables are also passed through the use of a data register as a pointer to the string, and the length of the string on the stack. We'll cover stack usage in more detail later.

On to the !libs macro, which allows us to grab data from other Blitz 2 libraries for use by our command...

```
!libs{#graphicslib,#1a6}
```

In this case, we are asking for the "graphics.library" library base to be placed in a6 before our Blink routine is called. Remember the "initialize" and "return" parameters of the !libheader macro? The Blitz 2 library graphics-lib uses these to open the graphics library and return the library base in d0 for other libraries to use.

We can also specify multiple libraries using the !libs macro. For example:

```
!libs{#graphicslib, #1a6, #intuitionlib,
#1d6}
```

will give us graphics base in a6, and intuition base in d6.

Now we get to the !subs macro:

```
!subs{doblink,0,0}
```

This simply contains a pointer to the actual code to execute, once all parameters and library values have been placed in appropriate registers.

The two "0" parameters here are used for runtime error checking purposes. More on this later.

Finally, we get to name our new command:

```
!name{"Blink","number of blinks"}
```

Listing 2

```
;examplelib
;An example of library writing in Blitz 2
;A decidedly useless command to blink your
;LED on/off
;
;We're going to give our library the
;id number 10...

#mylib=10

** First up, a header for the library **

!libheader{#mylib,0,0,0,0}

** now, the actual library commands **

!astatement
!args{#word}
!libs{#graphicslib,#1a6}
!subs{doblink,0,0}
!name{"Blink","number of blinks"}

!afunction{#word}; indicates that this
; function returns a word.
!args
!libs
!subs{dolestatus,0,0}
!name{"LEDStatus",""}

;That's it!

!libfin

** Now comes the code for the library **

doblink
;
MOVE d0,d2
BEQ 'skip
SUBQ #1,d2
'loop
BCHG #1,$bfe001
JSR -270(a6) ;call graphics library
'Wait top of frame'
DBF d2,'loop
'skip
RTS

dolestatus
;
BTST #1,$bfe001
SNE d0
EXT d0
RTS
;**** That's all for our library! ****
```

The !name macro takes at least two text parameters. The first gives the actual name of the command, while the second specifies the "help" text for the command. A third parameter may be given, allowing a label to be associated with the text — of use when creating Blitz 2 objects.

Once we've finished specifying the format of our library's commands, we use the !libfin macro:

```
!libfin
```

The rest of the program contains the actual machine code to perform the Blink command.

Functions

Blitz 2 functions are created almost identically to statements, except that we use the !afunction macro instead of !astatement. The !afunction macro must be supplied with a single parameter, indicating what type of result is returned by the function. Then it's up to the actual function code to return the appropriate type of value in d0.

Let's expand our library to demonstrate writing a function. (See Listing 2.)

Library Initialization and Cleanup

If your library needs to perform some kind of initialization or cleaning up, the "initialize" or "cleanup" parameters of the !libheader macro may be used. However, instead of simply pointing to some code, these parameters should point to a !nullsub macro — basically a combination of the !subs and !libs macros. The first three parameters of !nullsub are the same as those for !subs, while the rest allow you to pick up values from other libraries similar to the !libs macro. This set-up allows you to import data from an external library for use during initialization or cleanup. For example, let's say you need intuition base to perform your library's initialization and cleaning up:

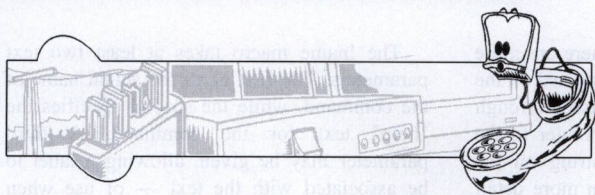
```
!libheader{#mylib,init,0,cleanup,0}
init
!nullsub{doint,0,0,#intuitionlib,#1a6}
cleanup
!nullsub{docleanup,0,0,#intuitionlib,
#1a6}
```

```
.
.
.
!libfin
doint ;actual initialization code
docleanup ;clean up code
```

Note that libraries are initialized numerically, from higher-numbered libraries to lower-numbered. Therefore, if you have written two libraries, one of which requires the returned value from the other, the library supplying the value should be of a higher library number than that receiving.

Note also that the !nullsub macro should appear between the !libheader and !libfin macros — NOT in the main code. ■

Part Two of this article, containing a full list of current library numbers, will appear in ADU 10.



This issue, **Thomas Scovell** examines the information resources of CompuServe.

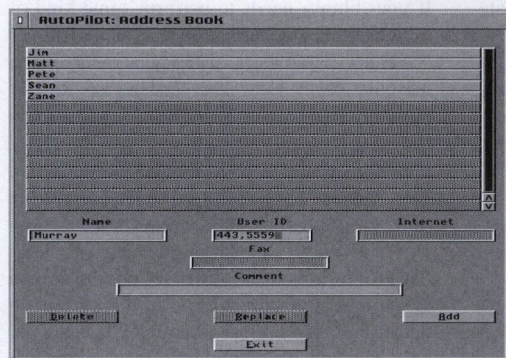
COMMUNICATION BREAKDOWN

WELCOME AGAIN TO the far-reaching area of telecommunications, where your computer, modem and telephone line can link you with a whole new world of information and friends.

This month I take a look at CompuServe Pacific and what it offers.

Compu-Service With A Smile?

CompuServe is one of the world's largest computer information networks. Over 1.3



million people use the service for a vast range of purposes — from planning overseas trips to keeping abreast of international news. Online at CompuServe are 1400 of the world's most used information databases, as well as numerous news services and a wide range of other useful sources of information.

Once on CompuServe, you will find thousands of different options open to you. View products in the electronic mall and order them on your credit card; access varied databases of information (of great use to students and educational bodies alike); chat with people from all around the globe, who share your interests. And, if you feel like previewing tomorrow's weather, you can access a comprehensive weather report, which includes satellite photographs and weather maps. All this is possible, and much, much more.

With CompuServe membership come two publications: one, a quarterly newsletter specific to CompuServe-Pacific, with news and articles on how to get the most out of the service; the other, a large, monthly, full-colour magazine, containing articles on every aspect of telecommunications, as well as CompuServe tutorials.

Who Uses It?

Thousands of businesses use CompuServe daily, (including Canon NZ, Fisher & Paykel and Watties), along with many other organisations (like the DSIR, NZ Police and several NZ universities), for research, inter-company communication and consumer support. And, of course, more than a million individuals also use the CompuServe network.

Finding Your Way Around

Information is divided into more than 300 areas known as forums, each catering for a different interest, and containing message areas, file libraries and databases specific to that interest. The message areas in a forum allow you to chat with other people with similar interests; file libraries allow you to upload and download files relevant to the forum's topic. Forum conferences also take place, where groups of users hold realtime conversations.

These can be pre-arranged (for instance, when a company wants to talk about a new product), or just occur spontaneously when users get together.

To traverse CompuServe, use either the traditional BBS method of following through text menus, or use the GO command. This enables you to miss out the menus and jump straight to your area of interest. For example, the command GO AMIGATECH would take you straight to the Amigatech forum. For anyone with more than a couple of hours' experience in using a modem, CompuServe is a breeze to use.

Mail, Mail, Mail!

CompuServe gives a wide range of communication methods. The first, similar to traditional Email on a BBS, is known as CompuServe mail or Cmail. A Cmail message can be either an ASCII message of up to 50,000 characters, or a binary file of up to 0.5 Mb, enabling you to send word processor files by uploading them as a message — particularly useful for businesses and individuals wishing to send

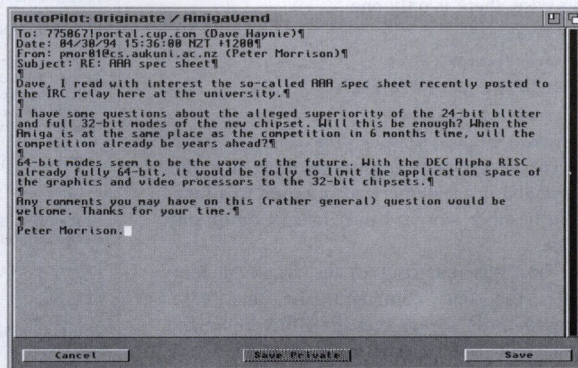
confidential mail quickly and easily.

You can also communicate with users of the Internet through the CompuServe Internet gateway. This is as easy as posting normal Cmail and greatly extends the number of people you can contact. For an extra charge, you can also use CompuServe to send faxes and telexes.

The FALNET Connection

The CompuServe network is based in the United States. Rather than having to make an international phone call to connect, CompuServe Pacific members use FALNET (Fujitsu Australia Limited Network). By dialling into one of the FALNET access points (all Australian capitals except Darwin, and Christchurch, Wellington and Auckland in New Zealand), you are hooked into CompuServe itself. Access to FALNET is charged by the minute — NZ\$0.34/A\$0.25 — which is included on your CompuServe account (charges are further explained later).

Two types of modem are used in the FALNET network. The first supports 300-2400bps with MNP4 error correction, and the second, 9600 with V.42 error correction. Most access points are 2400bps maximum, though more



9600 points are being introduced, which should allow those with faster modems to get the most out of CompuServe faster and at a lower cost.

Compu-Serves The Amiga?

CompuServe features a number of forums for Amiga users, including: Amiga Arts Forum, Amiga User Forum, Amiga Vendor Forum, Commodore Service forum and the Amiga

Tech Forum. Here you can talk with Amiga developers; obtain news of new products; seek help from experienced users; read product reviews and tutorials; and participate in realtime conferences with other Amiga users.

Prominent Amiga developers like ASDG, NewTek, DKB Software and New Horizons use these forums regularly. If you want details of up and coming Amiga products, or need assistance of any sort, CompuServe is the answer.

Going Into AutoPilot

In ADU 8, Grant Preston took a look at AutoPilot — a program that automates many of the tasks of using CompuServe. For those who missed the review, I will summarise some of its features.

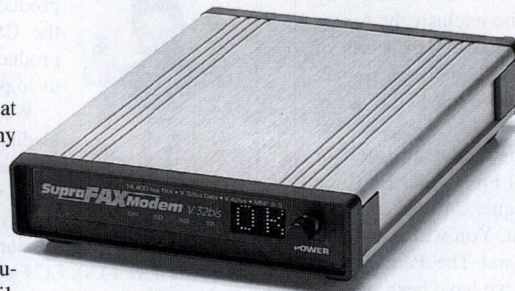
AutoPilot is a fully intuition-driven program, configurable for work on CompuServe such as reading and replying to mail, sending Internet mail/faxes, and downloading software. Programmed by Steve Ahlstrom of the US, AutoPilot needs a recommended system of 2 Mb memory, a hard drive and WB 2.x.

The shareware version can be obtained by downloading it from the CompuServe Amiga Vendor Forum, Library 9 under the name APLHA. The full version of AutoPilot costs

US\$69.95, and registration can be done via CompuServe. (The cost can be charged to your CompuServe account.) For anyone serious about optimising time on CompuServe, AutoPilot is a must.

Pricing

CompuServe charges at three different rates — per month (a flat rate), per minute or per



hour. After joining, the first month's fee is free, after which you must pay a flat rate of NZ\$14/A\$18 per month. Many services listed as basic or free cost nothing extra, but those listed as extended, cost NZ\$0.49/A\$0.45 per minute for 2400bps, and NZ\$0.61/A\$0.65 a minute for 9600bps access.

The monthly fee also entitles you to

approximately 60 three-page Cmail messages per month; additional messages cost more. Some "premium" services, such as databases, incur costs of US\$15 per hour, which is charged to your credit card, although businesses can arrange for CompuServe accounts.

The Bottom Line

CompuServe is most certainly one of the largest information networks in the world and the services it offers are of great value. However, the charges are quite high and may be beyond the means of some users, especially if you need to add on toll call charges. But if you can afford the costs and want access to a great information resource, you should investigate CompuServe. The cheaper first month should give you time to see if the service is what you want.

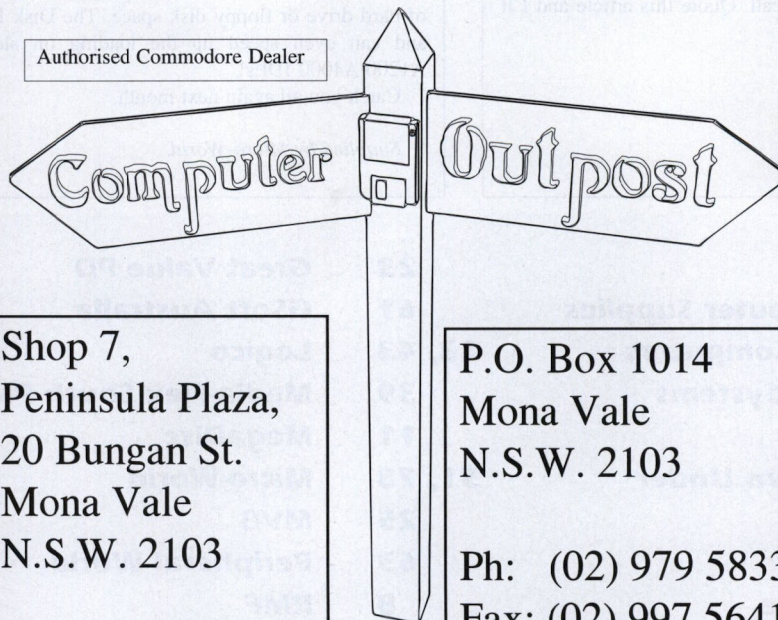
For more information on joining, contact CompuServe-Pacific on: NZ 0800-446-113 or Aust 008-025-240.

That's All Folks

That concludes this month's Comms column. If you have any questions about modeming or suggestions for the column, contact me C/- ADU or via my Fido point at 3:772/125.5.

Are you lost, helpless and confused? Just follow the signpost! (All roads lead here)

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A Big Congratulations to the TUPsoft Twins on their new house. When is the "House-Warming" Party?

Hello to the "Mad Man at Mascot"! Hope that your scanners' reading skills have improved recently!

Outpost



Are you doing the HSC this year?

Call for brochures, pricing, or even a Demonstration disk on our new range of Memory Banks "HSC Personal Tutor" packages, and their range of homework aids! You can improve your marks up to 40%!



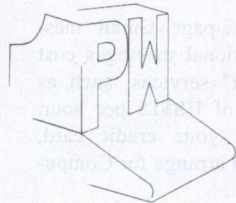
And call about the latest package for Multimedia presentations:

"Media Point".

The latest and greatest package available for quick, easy, professional results!

All enquiries welcome!

Catering for your needs in all areas of the Amiga.



The Parts Warehouse

FOR DAYS THE editorial staff at Amiga Down Under have been hassling me to write a few words about ourselves. To be honest, we are so busy attending to our customers and our stock, I just haven't had the time, but here I am, grabbing a sandwich between phone calls, and writing a few words of wisdom.

So to Commodore and the Amiga — what's our future? It's a question many have been pondering for some time. Already a number of our international suppliers are reducing their Amiga product base and asking why we don't move into PCs. Sorry lads — not us. We are exclusively Amiga and will be to the end (gulp). With a hundred thousand dollars worth of hardware and software (excluding computers) on our shelves, we are either going to cater for all our customers' needs, or have one hell of a fire sale!

So be assured, team. The Parts Warehouse is in the Amiga business for keeps. We are even getting more trendy with our Toll-Free Order Hot Line 0508 708 708, our Freepost No 4485 and our unique, 24-hour service. How do we do it? Just phone in an order and find out. You will more than likely hear the staff answer: "Forrest Hill Motors and The Parts Warehouse" (a real curly line or two). You see, for years, we have been operating in the building of a large Auckland service station, which is open 24 hours. What we did was come to an arrangement with the guys in the service station section to handle our after-hours calls. Don't expect an Amiga expert to answer every call — but any hour of the day or night, we can take your order, or you may just want to call in and make a purchase any day, seven days a week. This way we take care of all our customers' needs and maybe sell each of the staff in the service station an Amiga!

We have plenty of stock — hopefully everything you want. Like ole Murphy's Law, however, we can't keep everything, but, with our list of exclusive agencies and international contacts, if the product you want is not in stock, we will try our best to get it for you as soon as possible. Our international shipments arrive every ten days, but be aware that the product range is becoming somewhat thinner. If you have been contemplating a purchase, order before supplies get too low.

I know you Amigans love a bargain, so if the price isn't right, give us a call. But be realistic: if the product is right, if the price is fair, and if back-up and local support are there, make the decision to buy.

I must move on to packing away today's orders, but first, I ask you to check out our latest advertisement in this great Amiga magazine. Examine the specials and take the time to give us a call. Quote this article and I'll give you a special discount.

Look forward to your call.

Jim Hilton
Director
The Parts Warehouse

Micro-World

HERE AT MICRO-WORLD we stock a large range of Amiga products, from budget games right through to 24-bit graphics cards. Currently we have what is probably the largest range of CD³² and Amiga games in the country, but that's not all we stock. At present on our shelves is a large range of professional software, including word processors, databases, utilities, graphics packages and multimedia software. We also stock an impressive range of hardware for the Amiga, ranging from simple joysticks to the latest in accelerators.



Micro-World are also direct importers of many products. Regular shipments currently arrive from both the USA and the UK. We've found that importing products in bulk has been very cost-efficient, allowing us to pass on some pretty hot prices to our customers.

We have successfully established ourselves as the leading Amiga shop for Amiga hardware, Amiga software and also communication products. We have had many years of experience with Supra modems and can solve most problems. Currently we have the very latest version of GPFax software, which works with the

Supra's new 14.4k LC FaxModem.

In 1993 we scooped the 1993 NZ Commodore Amiga New Dealer award, as well as the overall 1993 NZ Commodore Dealer of the Year Award. We have three staff members, Simon, Zane and Peter; we all use Amigas and have done so for over four years. Peter likes to dabble with pro-software, hardware or modems; Zane, much as he would like to, can never find the time. He's too busy installing RAM or hardware of some description, helping to show a customer how to use a genlock, or explaining how to build a system to do the impossible. Simon's always been a games addict. He keeps tabs on upcoming releases and is the one to answer any gaming questions.

All three of us will attempt to answer your questions, hopefully in a language anyone can understand! In the meantime, here are a couple of hot tips on two of our latest products. Firstly, the new PC1202-8 RAM Expansion from Power Computing. With two SIMM slots, this is now excellent value, offering Amiga 1200 owners the choice of upgrading memory later if required. We also have a little beauty of a program called The Disk Expander, a very effective compactor which can be used on hard drives to save vital space. It runs in the background and saves up to 30-70 per cent of hard drive or floppy disk space. The Disk Expander is also very quick and can even speed up the loading on slower hard drives like the A1200/A4000 IDEs!

Catch you all again next month.

Supplied by Micro-World.



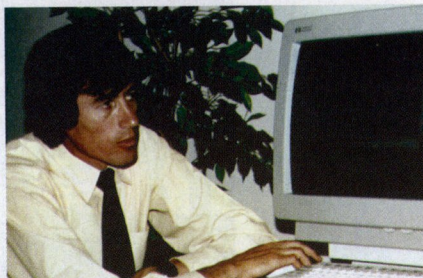
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Continued from page 7

essential for healthy living: nutrition, exercise, water, sunshine, temperance, air, rest, trust in others (people and God) and stress management. Sforcina writes the script, directs, produces and stands behind the camera.

He's a living advertisement for the product: he's long believed in the value of a healthy diet, and outside working hours, exercise is paramount. His boundless energy finds release in water sports, particularly wave skiing — he competed in the world championships in Hawaii in 1986 (finishing 17th out of 100+

competitors), and has also made the quarter-



finals in Australian national championships.

An introduction to snow skiing a year ago repeated the duck-to-water sense of familiarity: within hours, he was tackling advanced slopes with ease. He's hooked and the mountains beckon, but time places its inevitable constraints...

Don Sforcina always has a second string to his bow; that "journey" down the rapidly-changing road of technology will always hold a fascination and as long as he is able, he will make a contribution. "I want to be fully employed — and still wave skiing — when I'm 70."

Three men from very different backgrounds pool their talents to bring Media-Flex to the attention of the video industry. Those individual skills form the backbone of...

MEDIA-FLEX South Pacific

DON SFORCINA HAS stepped outside the industry (in the main) for the South Pacific marketing arm of his sleeping giant, Media-Flex. Of the three in the newly-appointed agency, Peter East and Steve Tilley bring to the position special skills in management, sales and marketing — enhanced by recent experience in the niche market of embroidery software — while final member of the triangle, Anthony Smith will contribute on the technical side. After extensive negotiations, their company, Media-Flex South Pacific, has been awarded the dealership for the revolutionary technology.

For the past three years, English-born Steve Tilley (36) has successfully cornered the world market in computerised embroidery. In that short time, he has secured representation in 31 countries for Microstitch, the embroidery software company he built from scratch. The resulting bank of information on time-consuming matters of officialdom, like international agreements, tariffs and finance, will greatly aid the Media-Flex operation.

Steve Tilley has a definite eye for spotting opportunity. From the moment he arrived in New Zealand (to be eliminated from the occu-

pational priority list, due to a temporary surplus of accountants at that time), he scoured the market for appropriate business ventures. Immigration offered the entrepreneurial alternative for residency. Tilley responded by establishing Resin Weld — a process of repairing, rather than replacing laminated windscreens — which grew to be the largest franchise operation (82 outlets) in the country.

His forebears came to New Zealand, Australia and Papua-New Guinea as missionaries at the turn of the century. Young Tilley grew up with a glowing image of this country that he longed to put to the test. Expectations were not disappointed on holiday here ten years ago, and, after settling business activities in the UK, he returned to live. Quite by chance, he met Media-Flex partner, Peter East, the evening he arrived, when a mutual friend immediately whisked him to one of East's barbecues.

Greymouth-born former schoolteacher, Peter East (40) turned to computing after returning from overseas to face a glut of teachers on the New Zealand market. Several computing courses later, he began as a night operator on HP3000 mini-computers, and

gradually progressed through the ranks to specialise in facilities management. Since redundancy two years ago, he now runs a consultancy business, installing and managing multi-user systems on-site. More recently he diversified into DTP, to produce the quarterly publication, "The Food Technologist".

He met colleague Anthony Smith when both worked at Computertime, and although their paths diverged when made redundant (Freightways sold the subsidiary), they kept in touch. When Smith borrowed East's 20-inch monitor for the first New Zealand Media-Flex demonstration in Auckland late last year, he invited East to attend.

With no Amiga experience at that time — "I realise now that my knowledge was severely lacking!" — East keyed into the reactions of attendees. Faces revealed far more than words and he was quick to join forces with Smith, plus involve Tilley, to actively seek dealership for the product.

The final link in the chain, providing the technical lynchpin for the sales and marketing duo, is 22-year-old Smith. Drawn to computers from the age of 10 (he spent hours glued to screens in Farmers, while his parents shopped), and actively programming for commercial interests by 15, he possesses an innate ability to detect and solve technical problems.

He left Mt Albert Grammar with the Sixth Form prize for computer studies, and a Cobol programming qualification from ATI, and found a job at Computertime within a week. There he discovered the Friday 13th virus a good four months before its public announcement, and wrote a program to detect it.

He later set up his own graphics company, Visual Realizations, and followed redundancy from Computertime with a year on contract to Commodore, focusing on the professional Amiga market. Since then he has worked from home on PC support contracts, plus sales and support of video-related Amiga products.

He believes he can offer Media-Flex South Pacific his technical expertise; a willingness to work (no matter what the hour); and experience in scheduling priorities. "People with video suites are always on deadlines," he says. "The ability to prioritise is important."

All three acknowledge the contribution made by David Curle of Sterling Video — the first in New Zealand to purchase a Media-Flex system. Says Tilley: "He assisted us greatly in this exercise, particularly from a sounding-board point of view. It's fair to say that he backed us up to a great degree."



Media-Flex South Pacific (from left): Steve Tilley, Peter East and Anthony Smith.

National Association of NAB BROADCASTERS

David Curle reports on his visit to the National Association of Broadcasters show in Las Vegas...

THE MAIN REASON I was there was to see in action the new non-linear, online edit suite — Media-Flex Broadcast Studio — that we had just purchased. The software writers, Color Computer Systems, were on the stand of Digital Micronics, who make the system's hardware — that is, the digital broadcaster 32 board.

Media-Flex Producer

DMI were selling a cut-down version of the edit suite, Media-Flex Producer, for approximately US\$18,000 complete, which seemed to go like hot cakes. While I watched, a man from Poland who used an A4000 in television production there, pulled out US\$10,000 dollars and begged for the relevant boards and a 2 Gb hard drive loaded with the software. Apparently it was difficult to get



equipment into Poland, so he had to take it with him!

Amiga Edit Controllers

RGB Computer and Video had a large stand displaying their Amiga-based edit controllers, which also controlled the Video Toaster.

“...Eighty thousand people make the biggest convention centre I’ve ever seen seem small! That’s the number of attendees at the National Association of Broadcasters (NAB), held in the Las Vegas Convention Centre and the neighbouring Hilton Hotel. For four days I walked the acres of exhibits and still did not take it all in...”

OpalVision

OpalVision were next door, displaying the workings of their Opal suite, but as I sneaked up close to look at the new gear — alas! Just prototype boxes and wires everywhere. I am not entirely convinced that we will ever see the suite hit the market place. I think Opal-Tech and Centaur have decided to make money by selling tickets to demonstrations! Who needs to get into actual manufacturing! Joking aside, I talked to Gary Rayner (creator of the OpalVision hardware), who assured me that June was definitely the release date.

NewTek

NewTek were displaying their new “Flyer” — a non-linear add-on, which allows Toaster users to capture realtime video and edit from hard disk. It was interesting between crashes, but it didn’t have time code, EDLs, and many things editors absolutely

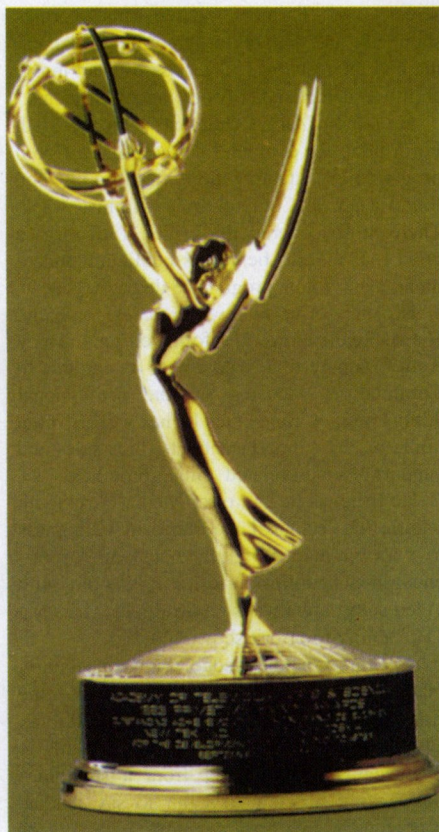
need. It is said to be released in September. What ever happened to the Screamer? It was not even mentioned!

Media-Flex Leads

The trend of the industry was evident at this show. Sony displayed its own non-linear system, Destiny, to be released in December. Panasonic also presented their non-linear package. In all, there were a considerable number of these computer-based systems, including a display by Avid, but one had to wade through the hype and ask the right questions to find out if they really had broadcast quality. Most did not, which made Media-Flex, the Amiga-based system, stand out from the pack. Don Sforcina, Managing Director of both Media-Flex and Color Computer Systems, has really done his homework, and with a compression ratio of only 6:1, is probably about nine months ahead of his opposition.

PS. I brought back with me a plug-in rack unit housing seven 2.1 Gb Barracuda hard drives — 14 Gb! Eat your heart out!

David Curle is the Video Director of Sterling Video.



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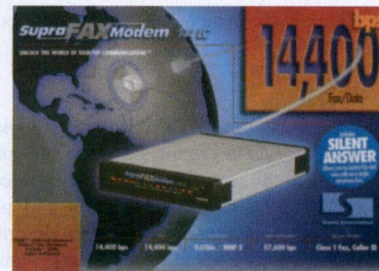


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Peter Morrison bends a few pixels with the latest version of ASDG's image-processing software...

Art Department Professional 2.5

ASDG ■ USA



ASDG'S ART DEPARTMENT software package has been a part of image processing on the Amiga for a number of years. Now, with the company focusing more and more on software products for the Silicon Graphics market, it is reassuring to see that new-look programs such as ADPro 2.5 are still in development for the Amiga.

Installation

Commodore's installer program handles the installation process, after an extensive startup section where the user is asked how much and where to install just about every part of the program. A hard disk is definitely recommended, since the final size of the installation comes to just under 5 Mb, although a cut-down version of ADPro can be created to run from floppy disks. ADPro will run from all Amigas with Kickstart 2.04 or higher, and requires a minimum of 1 Mb of contiguous memory just to run.

To do any serious work, says the manual, will require at least 4 Mb or greater. I would personally set this "working minimum" at 6 Mb, experience proving that even the most ridiculous amount of memory can, and will, prove to be too small at some critical time in the future (ever tried to scan a full A4 page at 800 dpi? Can you say "250 Mb required"?).

The Manual

While installing ADPro, I took a look at the manual, which comprises some 563 pages of ring-bound text, liberally sub-headed, and sprinkled with many diagrams and pictures. An initial section for beginners describes the fundamental concepts behind the Amiga and its interface methods, before moving on to the specifics of the ADPro program itself.

Closely following this rather simple introduction is the tutorial section. Many tutorials are presented, complete with ratings from beginner to intermediate to advanced, which use the example images provided on the tutorial disk. These tutorials can be completed without referring to the "how to" sections of the manual, which come later, contrary to expectation.

Given the barest knowledge of how the Amiga works, operating the ADPro interface is almost laughably simple, much like the old ADPro. With this in mind, it is almost a pain

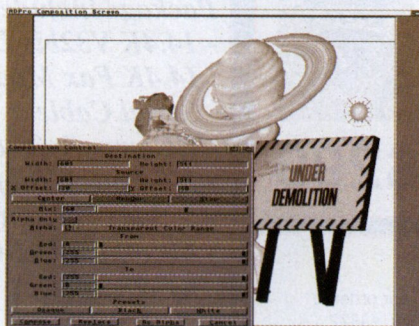
to go through different parts of the manual and be told again and again how to double-click, or what an icon is, or how to use a menu. However, as an encouragement to people unused to the Amiga, (using the platform only for ADPro), these constant reminders of how to do things are probably quite useful.

The Program

ADPro's two major operating styles are controlled by a menu item with the name "Button Interface". When checked, the ADPro window features four logical sections with three buttons in each. When unchecked, these four sections become home to large listview gadgets, showing all the loaders, operators, savers, and user commands.

Enter, ARExx

Unlike the previous ADPro, ARExx is an integral part of ADPro 2.5. The fourth section in the button interface holds buttons for three user-definable, ARExx scripts. No longer magically called up without notice,



or indecipherably named, the new-look "user commands" act just like all the other types of ADPro modules. The manual contains brief descriptions of all the provided scripts, and an extensive list of all ARExx commands is given in the reference section.

Major Changes

The new ADPro interface is so style-guide compliant, that it makes the old interface look like an irrationally-designed set of buttons and

rocker switches, specially planned to look identical under Kickstart 1.3 and 2.0+. The main interface opens in a window on a user-definable screen (which can even be the Workbench, or any currently-open public screen), and there can also be up to four other windows open, containing lists of the loaders, operators, savers, and user commands. These lists activate the chosen option on a double-click, which makes using the main window almost unnecessary.

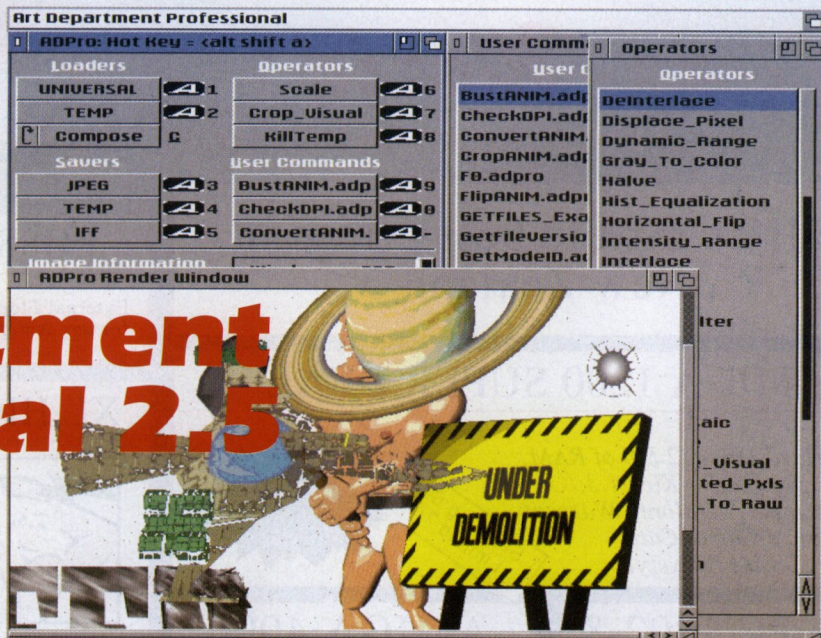
The button interface seems, to me, to be the easiest to use, although both options of user styles come with a full set of shortcut keys. Unfortunately, I still have a couple of complaints with the look of ADPro. Firstly, the button interface is cluttered, due to the Amiga-key icons printed next to every button, showing their shortcut key combination. The corners of the Amiga key symbol are missing, giving the impression of a slight roundedness. This is fine, but this symbol was designed to be shown on a menu with a white background (under Kickstart 3.0+), and there are white pixels at the corners of the symbol. When drawn on a grey background, as they are here, the white pixels are still white.

This sort of shoddiness is reserved for MS-Windows, and should not really be seen anywhere near an Amiga interface! I'd prefer to have the shortcut key text left out completely, and mentioned in the manual under the "power-users" section, since new users will prefer to use the mouse until they become familiar with the program. Apart from these two minor things, the look and feel of the whole program is a huge improvement over the old ADPro.

Minor Changes

Despite getting a thrashing in the image-processing field from the paint-capable ImageFX, ADPro can still hold its own. With a new set of operators, and complete revisions of the existing set, the pure image-processing side of things must be said to be in ADPro's favour.

The newest "toy" is the pattern operator, which uses a SCULPT format file as a black and white pattern, to alter the pixels of the image in a number of ways. When operated



on, a pixel can be replaced by the pixel at the centre of the pattern, a specified colour, or unchanged, according to the setting in the pattern operator. The (generally) small pattern is repeated in a grid pattern atop



the image, and all pixels are operated upon.

Many of the operators have been changed in interface, now opening on a window, with proper Kickstart 2.0+ gadgets and bevelling. Some third-party operators bundled with ADPro 2.5, like Intensity-Range, have changed their interface, and some, like Epson-Scan, have not. This is not as illogical as it may seem. The operators which require visual feedback, and open their own screen to use all the greyscales possible, for example, have not changed substantially in looks, while those that merely open control windows, and do not require special palettes, have.

Also slightly changed in operation is the screen grabber. No longer is it possible to grab screens with an active window, since the screen loader opens (and activates) a window to tell you how well it is doing. With no flood-fill capabilities, it is also impossible to "fake" an active window in ADPro 2.5. While trivial, it is a bit annoying. Also gone is the ability to take a snapshot of a menu. It is not the operation of the screen loader, but that of ADPro that has removed the functionality of this loader.

Loading and saving images is a major part of ADPro, and JPEG performance is somewhat of an issue here. For a 1754 x 1129 pixel IFF-24 image, ADPro took 36 seconds to load, compared with 20 seconds in ImageFX. Saving this image as a JPEG file on a quality level of 85 took ImageFX only 56 seconds, and ADPro 1 minute, 53 seconds. Clearly the writers of the ImageFX JPEG code know something that ASDG doesn't! The JPEG saver in ADPro has quality levels from 1 to 1000, with, it seems, levels 1-99 directly corresponding to those in the old ADPro, and, somehow, levels 100-1000 are a more "non-lossy" method than standard JPEG. The manual doesn't explain it very well at all.

Still Up With The Play

In summary, given that ADPro was first on the image-processing scene for the Amiga, it has since been subject to intense competition by a number of other packages. Despite this, ADPro remains foremost in the pure image-processing field. ImageFX takes the prize for having paint functions incorporated into the interface, but its image processing, while almost as powerful, remains just that bit less sophisticated than the ADPro modules. With this in mind, ADPro still attains an ADU-Approved standard, although the more expensive ImageFX is the better package.

AD PRO 2.5
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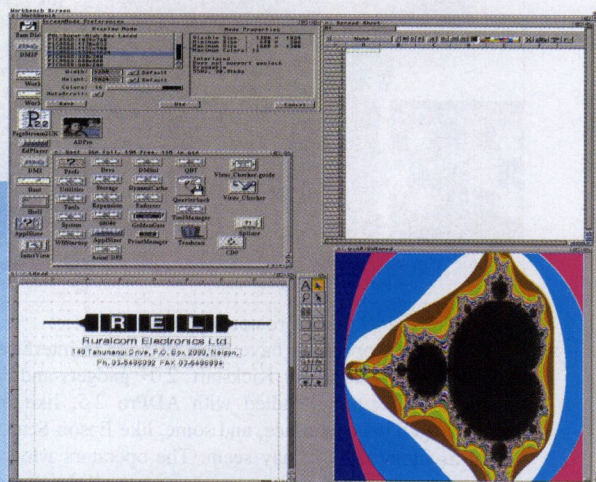
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The Picasso II comes packaged with TVPaint Jr. (24 bit Paint Program), and drivers for ArtDept Professional, ImageFx, ImageMaster, and Real 3D 2.0.

***Re-tar-get-ab-le Gra-phics adj.:** The ability to run software on any third party graphics board. See also: Picasso II.



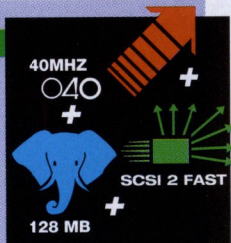
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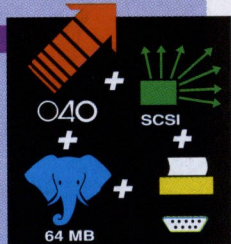
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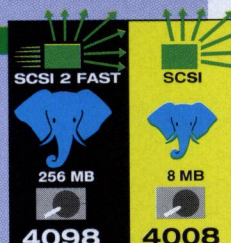
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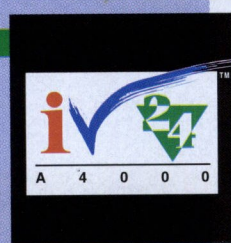
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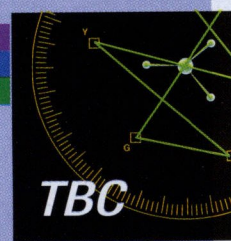
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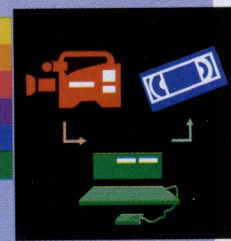


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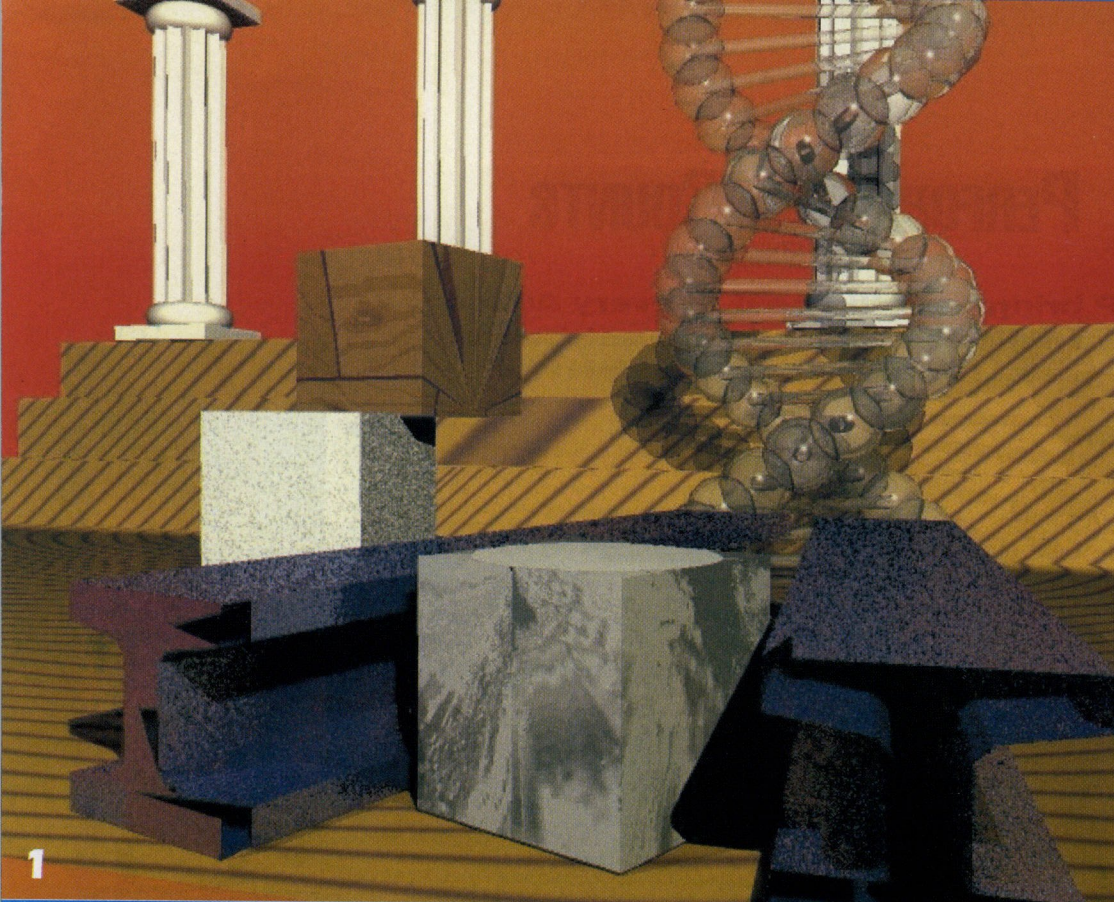
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1

- 1 "Building Blocks" (640x512) was rendered by Grant Preston (NZ) using Imagine 2.0 on a 5 Mb A2000.
- 2 "Showroom Dummies KF" (640x512) was created by Peter Toth (NZ) of Cyberia, using Imagine 2.0.
- 3 Matthew Buchanan (NZ) created this image (640x512) using Imagine 2.0 on a 28 Mb A4000.
- 4 "Cat Chow" (320x512) was created by Rodney Entwistle (NZ) using DeluxePaint on a 3 Mb A500+.
- 5 "Shooting Robot" (736x576) was cre-

ated by David Sloan (Aus) of Video Times, using Imagine 2.9 and Opal-Paint on an 18 Mb A3000.

- 6 "Room with a View" (640x512) was created by Amanda Cass using DPaint IV and Imagine 2.0 on a 6 Mb A1200.
- 7 "Cyberspace" (712x526) was created using Pixel-3D and DeluxePaint IV on a 10 Mb A4000. No name supplied.
- 8 "RedHeads" (1472x566) was created by Chris Gray (Aus) using Real3D v2 on a 6 Mb A1200 with 40MHz 030 accelerator.

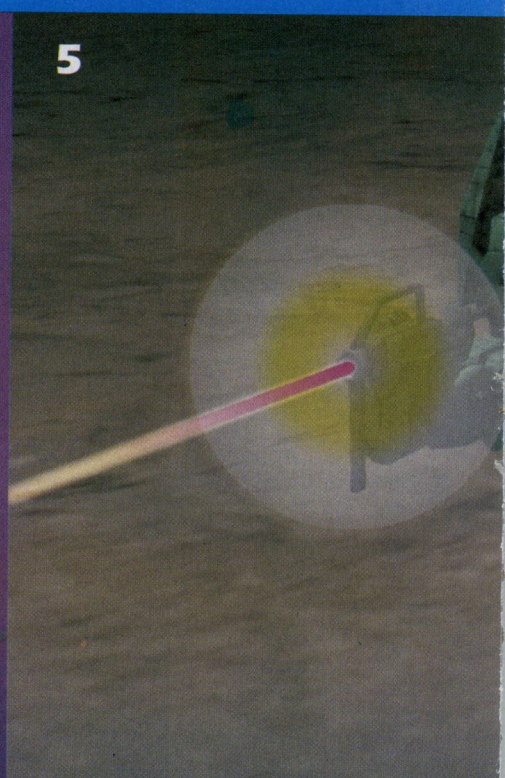


3

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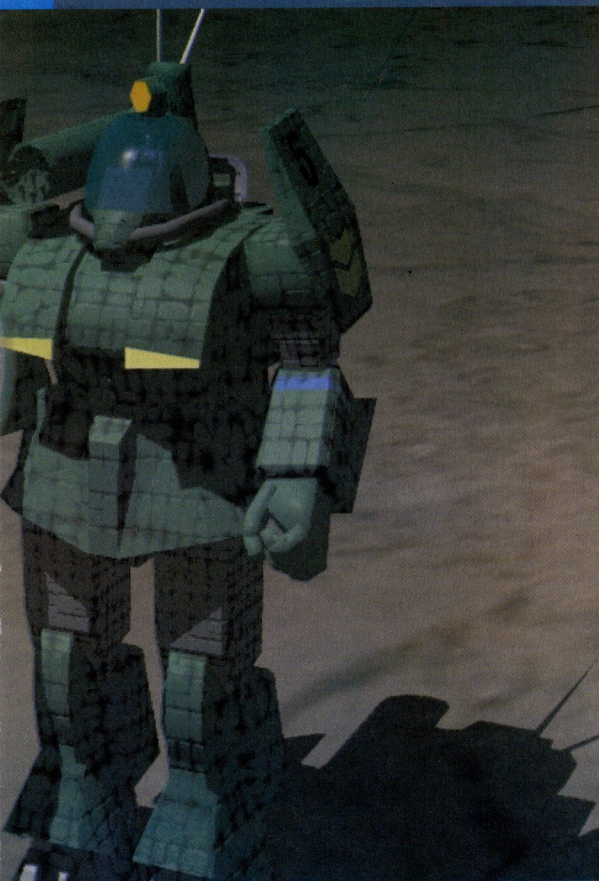
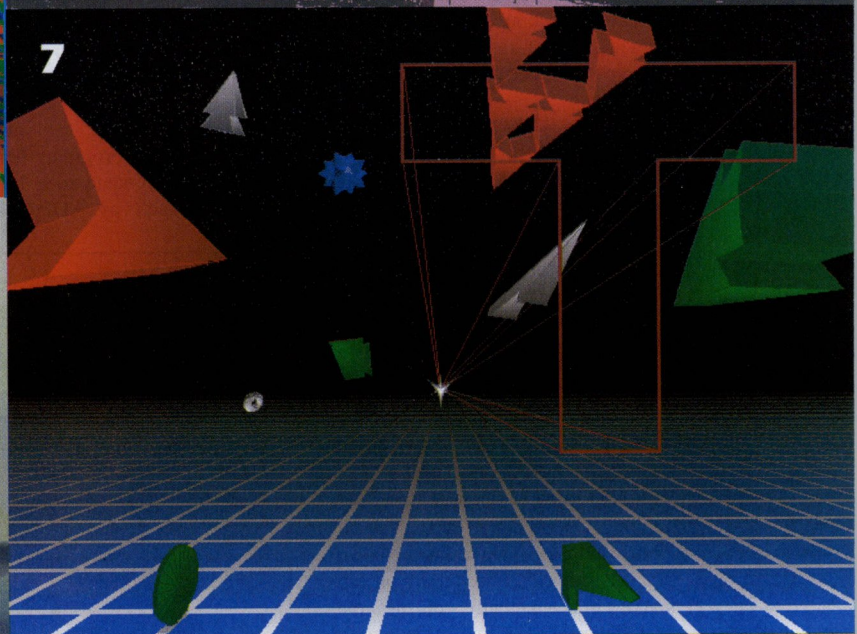


2



5

SILICON CANVAS



Dudley Storey III reviews
PPaint 4, a paint package set to
make DeluxePaint users drool...

Personal Paint 4.0

Cloanto ■ Italy **ADU**
APPROVED

DELUXEPAINT HAS BEEN the unrivalled king of the Amiga popular art scene since the first showing of the computer. Its capabilities, impressive on a micro-computer at the time, drew many to the Amiga, myself included.

Now another program has a real chance of snatching the crown — Personal Paint.

DPaint User-Friendly

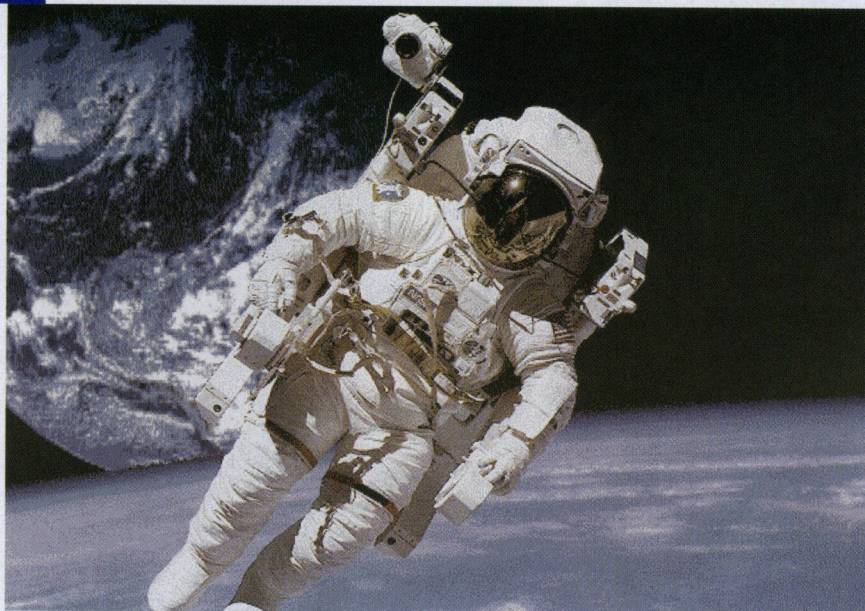
PPaint is unmistakably aimed as a successor or work companion to DPaint IV — its install routine even looks for the latter to guess where to copy itself. That installer happens to be one of the friendliest and most intelligent I've had the pleasure to use. Not only did it find my Graphics directory on one of my hard drives and suggest installing PPaint there; it also asked my permission to copy its demo pictures across, and did so into my Pictures drawer! My only disappointment was that it didn't automatically create its own drawer for PPaint (although you can make one manually during the installation).

Still Images Only

Many of PPaint's general features and interface design are cloned from DPaint, such as left-right mouse button use, and keyboard shortcuts for alternate work screens, tool and menu bars, brush manipulations, stencil and undo functions. However, it misses what drew thousands of excited artists to the Amiga and DPaint III — animation.

PPaint concerns itself solely with still images. But what it lacks in animation capabilities, it makes up for in other areas that DPaint doesn't touch, such as image processing, file encryption, PostScript output, stronger control of colours, and poly-lingual support (English,

French, German, Italian, Spanish, Dutch and Swedish). PPaint not only loads and saves standard IFF-ILBM pictures, including 256-colour AGA, but also GIF, JPEG, PCX and IFF24 formats, and recovers uncompleted or corrupted files! Let's see DPaint do that!



Inexpensive Image Processing

Probably the most profound distinction between the two programs lies in the image filter controls. A standard in higher-end image processors such as ADPro and ImageFX,

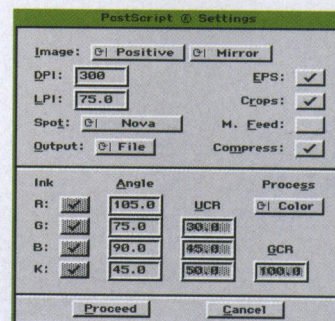


PPaint brings image transformation tools like blur and sharpen, dither, edge detection, water-colour, tint and texture into the hands of others, at less than A\$100. Moreover, the processes can be limited to a particular area (either freehand or rectangular), brush or picture, new processes added, and edited in their kernel matrices for precise effects. These tools may be used to produce special effects, and correct or convolve scanned images.

PostScript — Yes!

PPaint works in a 24-bit colour space, and selects the best match from the screen palette for display, to produce the most effective results. PostScript output is finally supported by a paint program! Both dots and lines per inch

can be specified, crop marks included, colours separated, corrected, or removed (specifically, black ink, in the undercolour removal process), and spot type determined. The PostScript file can be encapsulated (for use as an EPS graphic in a word processor/desktop publisher like Final Writer), compressed, and sent to disk or printer.



EPS images output to disk in this method and retrieved in another program worked well.

Full Colour Control

Cloanto have taken the best features from DeluxePaint's colour selection system and improved on them. The palette may be adjusted globally in every respect (useful for brightening a scanned image, or "pumping up" a colour component within it).

HSB sliders move in synchronisation with RGB counterparts when adjusting a colour, and palettes from different images and brushes may be selectively merged, creating a single, averaged palette — very useful when mapping one image on to another, such as two scanned images merged together in the "digital darkroom" of PPaint. Of course, PPaint is also strong on simple colour reduction, anti-aliasing and remapping, which can be automatically invoked when a picture or brush is resized (such an operation often "crushes" pixels together, ruining the colours).

DPaint's only features which still remain superior in this area are stronger colour range and spread tools, and colour cycling (a simple, yet powerful, type of animation, never approached by PPaint).

Ideal for any Amiga

Personal Paint V4

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Personal Paint version 4.0 features image processing capabilities comparable with software costing several times the price.

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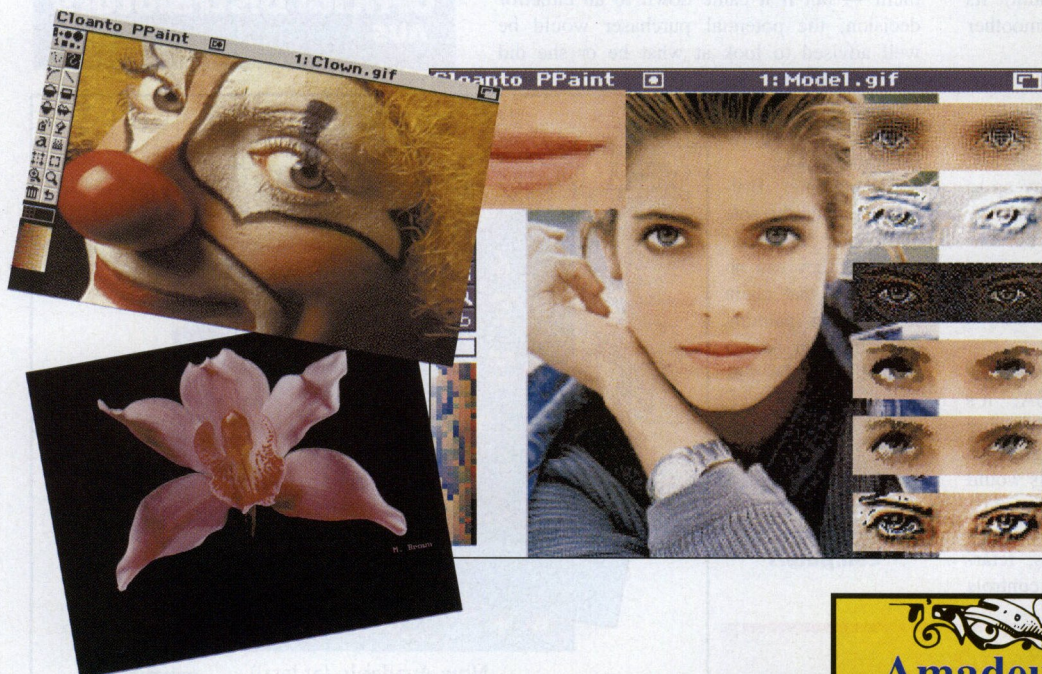
take advantage of the latest graphics cards like Retina, Picasso and EGS.

Personal Paint 4.0 has impressive 24-bit colour printing capabilities - especially when used with the HP 550C. It's easy to use, thanks to the use of accepted standards for menu functions the same as those used in programs such

as Deluxe Paint.

The latest version is a faster, more robust program all round with many useful improvements. At \$99, with Australian support, Personal Paint V4.0 is unbeatable value too.

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Conversion:

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Printing:

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Display:

AGA 256 colour, Picasso, Retina (support for Retargetable Graphics)

Brush Tools:

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Brush Colour Control:

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Many Helpful Features

Other improvements over DPaint are smaller, but still noteworthy. The magnification function places the area under investigation into a separate, scrollable window with drag bars, which can be resized — very useful.

Palettes can be drawn from another screen, a brush, or from a font (helpful when using text like the Kara range, fonts with properties like "granite" or "wood" with their own associated palettes).

Similarly, PPaint can grab another open screen as a picture.

Up to nine separate, customised brushes may be held in memory — no more cutting and pasting between screens when using multiple brushes! Brush handles (the area where the brush is "gripped" by the pointer), are also selectable from the menu — a far better system than DPaint's "guess and slide" method of selection. Brushes can also be "chopped" to conserve memory space or to resize them. An automatic 3D outline effect can also be added to brushes.

More Intuitive

Final improvements show up DPaint's weaknesses. Personal Paint's font requester is so much nicer, more intuitive, and quicker to use, and its on-screen editing of text is much more powerful (instead of treating text as a brush as soon as it leaves the cursor, like DPaint). Its curve tool is Bezier-based, creating smoother curves.

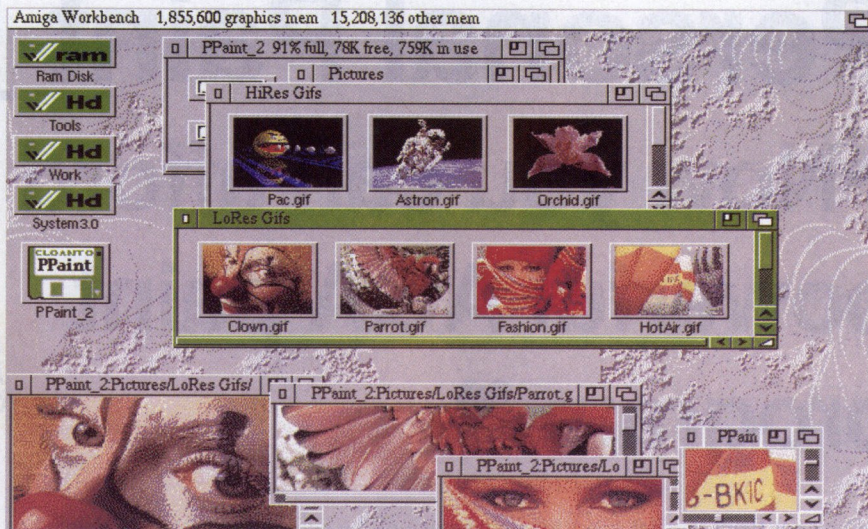
The airbrush's spray pattern can be elliptical or rectangular.

Like Cloanto's other product in the "Personal" range of programs, Personal Writer, PPaint can encrypt any file, with a key up to 49 characters long, making it unreadable by any other paint program. Legal uses of this feature escape me, but it could be useful to some.

Manual Perfection

PPaint's loose-leaf manual is almost excessively correct — AGA isn't AGA; it's Advanced Graphics Architecture — covering in exacting detail the Amiga OS, graphics hardware and keyboard. Obviously this would be of great benefit to first-time Amiga users.

For more advanced users, the manual's section on PPaint's Preferences settings, retargetable graphics and environment controls



PPaint can grab another Amiga screen as a picture to then be worked on.

should prove informative.

Summary

As a straight paint program, on a feature-by-feature basis, PPaint kills DeluxePaint IV outright. As an animation tool, DPaint remains the only choice between the two. Ideally they should be used together — PPaint to create and output the images; DPaint to animate them — but if it came down to an either/or decision, the potential purchaser would be well advised to look at what he or she did most (painting or animation), and choose the program on that specialty.

DPaint and Brilliance remain the sole choices for 2D animation, but they can no longer lay that claim to computer painting on a medium Amiga budget.

Supplied for review by Amadeus Computers



PERSONAL PAINT V4

NZ\$149 A\$99

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★★★★★

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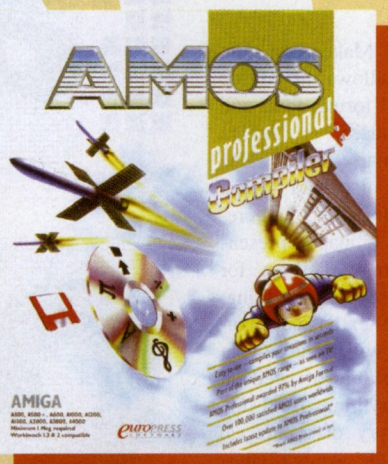
Replay!

We're extending the deadlines for the competitions in ADU 7 and 8, to give those still searching for the elusive, requested coupons a chance to enter. We were in error — our apologies. We no longer print coupons for our competitions, and don't want to disappoint any who failed to enter as a result. Without further ado, here are the questions once again...

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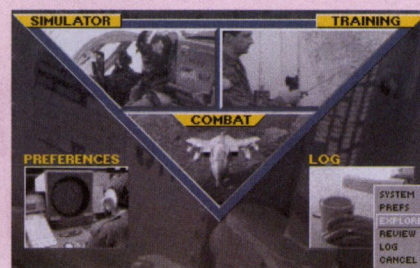


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**How many games make
up The Lost Treasures?**

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Infocom Competition, c/- ADU (see pg 10...)



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Conditions of Entry

The winner for each competition will be drawn at random from all correct entries received by Monday, 30th May. All winners' names will be published in ADU 11. Entries are limited to one per person, for each competition. The judges' decision is final, and all correspondence regarding results will be filed under "T" for Trash.

First released in 1990, Cloanto's font designer is now two separate programs. **Matthew Buchanan** counts quick brown foxes with the all new...

Personal Fonts Maker

Cloanto ■ Italy

WITH THE SUCCESS of Personal Paint (reviewed on page 42) under their belt, Italian firm Cloanto continues to cement its excellent reputation for producing low-budget, high-quality Amiga software. The latest release of Personal Fonts Maker is to bitmap fonts what TypeSmith is to scalable fonts. Nothing has been done to the original program, but you now get PFM2 AGA Colour Extensions (Personal Fonts Maker meets Personal Paint) — a full-colour, AGA font editor — for your admission price.

Installation

PFM now comes on just two disks, with the executable files compressed using Imploder. Hard drive installation is possible via a script file which decompresses the imploded files if

instructed — a full hard drive installation (including supplied fonts) requires just under 2 Mb. Alternatively, the programs can be run from the non-bootable program disk after Workbench is loaded.

PFM employs a memory-sensitive interface — a cut-down, two-colour screen is used for editing if memory is low. Both programs include a toolbox on the left-hand side of the screen and a selection of menus for the load- ing of fonts, changing of attributes, etc.

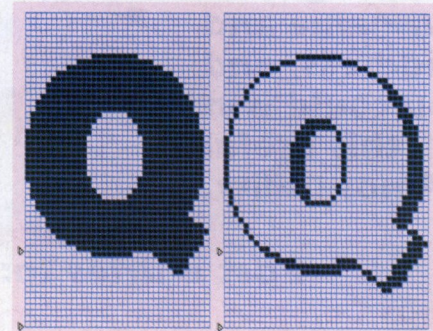
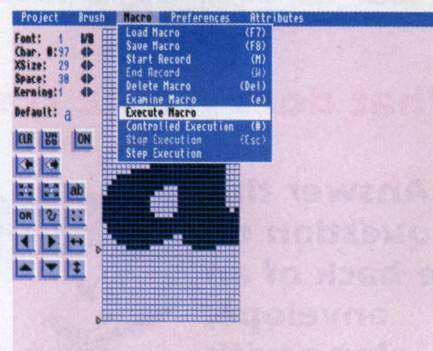
PFM

The original Personal Fonts Maker is a tidy, easy-to-use program which allows the editing of both its own internal PFM format fonts and standard Amiga bitmap fonts. PFM can also load Amiga outline fonts and create bitmap representations of them for subsequent editing. The extensive manual will bring novice users up to speed on everything from the history of typefaces, to the Amiga environment, to font kerning, and one of PFM's most valuable features — the macro recorder.

Included specifically to remove the repetitious action of making similar changes to dozens of characters, the macro recorder allows all gadget, menu and mouse actions to be saved, and subsequently executed on one or more characters in memory. Several macros are supplied with PFM, including files for outlining, bolding, shadowing and

underlining.

PFM's toolbox also includes a copy and paste buffer, brush cutting capabilities, a logical Or mode (to control the opacity of transparent pixels when stamping down a brush), and character mirroring and movement gadgets.



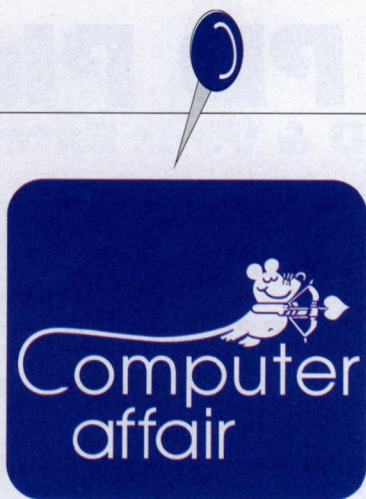
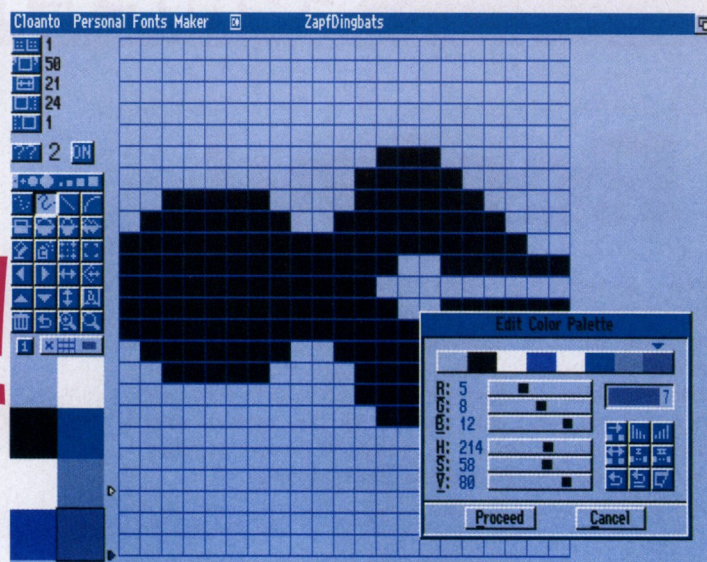
Before and after the Outline/Shadow macro.

PFM's more advanced features include the ability to actually program the format of the files which PFM creates, using its proprietary FFDL language, and the ability to download font files for printer usage. A Printer Driver Modifier is even supplied as part of the PFM installation.

PFM2

Unfortunately, the inclusion of PFM2 is almost without documentation. While many of the commands and menu items are identical in both programs, the gadget layout is somewhat different, and a familiarity with the Personal Paint toolbox is necessary in order to make the most of the features PFM2 has to offer.

Up to 256 colours can be used to edit a



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font, and Personal Paint tools such as stencil, airbrush and grid-snap, as well as the ability to load several different graphics formats (with the help of Workbench 3.x DataTypes) are all provided. The magnification feature is far more flexible than its counterpart in PFM; however, the macro recorder is sadly missing.

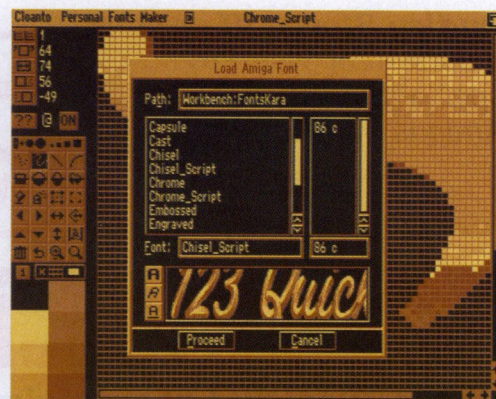
The only documentation supplied with PFM2 is a short text file on the disk, which details some of the differences between the programs, and — surprise — points the user in the direction of the Personal Paint manual for information about the toolbox interface.

However, once familiar with PFM and its operation, simple editing of colour fonts should not cause great difficulty, even if the more advanced features of PFM2 remain out of reach. As TypeSmith is the only outline font editor available for the Amiga, PFM2 might well be the only colour font editor — I certainly know of no others.

Impressions

The PFM package cannot be faulted for price / performance. It offers a versatile set of tools, the scope of which should leave little unable to be accomplished. As with all drawing/editing packages, however, the user's skill is paramount in creating a pleasing final output. PFM will not draw your fonts for you — it is simply a tool by which you can create, edit and save font files. And an impressive tool it is.

Supplied for review
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Amadeus Computers



PERSONAL FONTS MAKER

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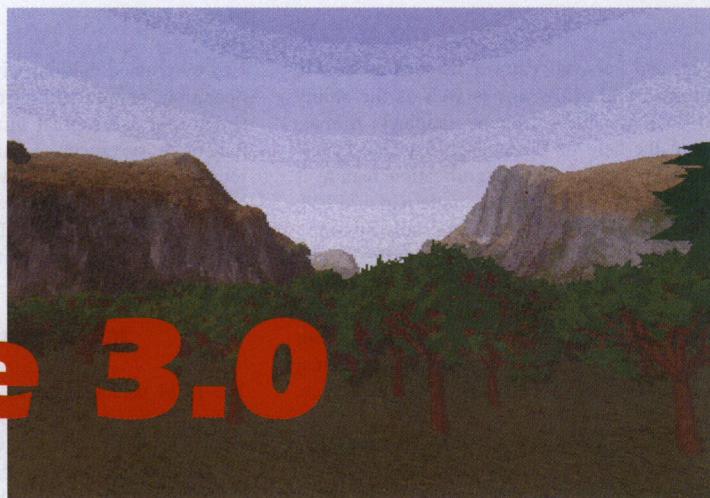
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Dudley Storey III reviews
a version of VistaPro
specially for those
Amigas on a RAM diet...



VistaLite 3.0

Virtual Reality Laboratories ■ USA



ANYONE YEARNING FOR an artificial horizon inside their Amiga, a new frontier, or a chance to explore other worlds, has heard of VistaPro 3.0. It's the premier scenery creator for the Amiga, capable of producing incredible, almost photo-realistic images from Vista's own scenery sets (derived from the U.S. Geological Survey data and NASA), Julia and Mandelbrot sets, or your own landscapes, grown from fractal "seeds".

These images can be used for simple amusement, animated as "virtual tours" of places as far away as Japan and Mars, for educational, recreational, business or environmental purposes, or used as backgrounds or objects in other graphics programs. However, this performance comes at a cost in power. VistaPro 3.0 requires at least 4 Mb of free RAM to render anything, and at least 6 Mb for pictures in AGA mode. VistaLite (great name) works with only 1.5 Mb of contiguous RAM, and takes up about the same space on your hard drive — a necessity, I'm afraid. It will even use the hard drive as a virtual RAM buffer, if Chip memory becomes squeezed.

How has VR Laboratories managed this feat, while retaining VistaPro's major features? Mainly by reducing the number of data points in the DEM (digital elevation model) landscape sets. VistaLite "Tiny.DEM" landscapes have a maximum size of 130x130 data points, spaced at 30-metre intervals. Imagine pacing out your back yard, planting a flag in the ground every 30 paces. Each flag would be a data point, with a known position and elevation. Join those points together in a grid and you have its representation in VistaLite's world, as opposed to VistaPro's higher resolution of 1024x1024. VistaLite can still load full VistaPro "scapes", but only with greater amounts of RAM.

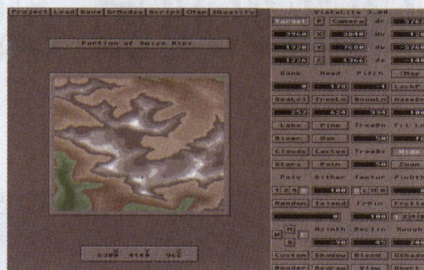
And it still looks good!

Doesn't this lower resolution make the landscapes look chunkier, less detailed? Not really. Vista, Lite or fully Pro, uses methods borrowed from fractal, fuzzy and chaotic maths and raytracing, to smooth the broad planes into a continuous landscape. Careful use of lighting, texture and camera work can eliminate most "jaggies". To use these well, you'll have to understand the variables of haze, shading, blending, dithering, and polygon size, given fairly brief, but informative,

explanation in the manual.

Secondly, removing some of the advanced features from VistaPro has saved more space in memory. VistaLite cannot generate roads or buildings; the landscapes cannot be saved as Imagine-compatible objects; and animations can only be saved in VistaLite's VANIM format, not in the IFF ANIM format. Similarly, you cannot load your own colourmaps, produced in programs such as DeluxePaint, to convert into elevation files. Since few machines with only 2 Mb of RAM could manipulate a full-screen, 24-bit image, the capability to render in this mode has been removed. However, all other screenmodes, including Ham8 and Productivity, are supported.

VistaLite keeps most of Pro's "fun" features, like four types of tree growth (palm, pine, cactus and oak), clouds, rivers and lakes,



waves on the sea, snow and haze, to enhance your scenes.

VR Labs also wins a "Politically-Correct Software" award for including information on the Nature Conservancy, an organisation working to protect the natural environment, while we render artificial equivalents at home.

One can see the huge improvement in interface design over the first Vista, inherited by VistaLite from its more powerful brother, VistaPro 3.0. Several menu shortcuts are invaluable for producing fine landscape art. Image Quality automatically sets all the Preferences for picture quality, from Low to Ultra. ColorMap spreads the colours used in the landscape to conform to a season, time (sunrise, full daylight, or sunset) and special area (desert or Mars). A wireframe preview mode for the camera also allows you to set the view interactively. File requesters have been improved, as has the overall "look and feel" of the program.

While optimised to run in as little memory as possible, VistaLite's manual still strongly

recommends that an accelerated Amiga be used to gain efficient rendering times. Obviously VistaLite's marketed use will shrink as the computer's performance increases — there aren't many 68040 Amigas out there with only 2 Mb of RAM. An A500 might be looking at hours or days of rendering time for a detailed, high-resolution scene.

What else could one want from Virtual Reality Labs? For starters, they could bundle Vista's utility programs, Terraform and MakePath (sold separately), into one deluxe package. Terraform allows editing of a landscape on a point-by-point basis, and MakePath generates spline-based camera paths for smoother, more complex animations. Secondly, they could add more landscape sets. VRLI's sets are strong on the scenic features of North America, particularly California and Colorado. There's only one Mars set, covering some of the equatorial region. I would really be interested in other areas — the Eiger mountain, Angel and Niagara Falls come immediately to mind — and a "scape" covering the Martian Noctis Labyrinthus region, including the so-called "face on Mars", for my own amusement. (With Terraform, I could actually make it my own face!)

VistaLite is highly recommended, with one proviso — if you have any intention of upgrading or enhancing your Amiga in the immediate future, to the 6 Mb/030 processor level, using Vista to output 24-bit pictures, or landscapes with Imagine, hold out for buying VistaPro. Similarly, if you're interested in rendering scenes from VRLI's huge, geographical, DEM catalogue, you might want to try the full VistaPro. (None of the scape sets is yet available in VistaLite's Tiny.DEM format). Otherwise, dive in to the addictive world of creation.

Supplied for review by Micro-World

VISTALITE 3.0
NZ\$149 A\$99

SPEED

★★★★★

FEATURES

★★★★★

EASE OF USE

★★★★★

MANUAL

★★★★★

VALUE

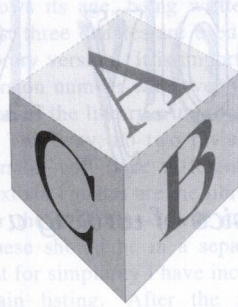
★★★★★

OCS / 1.3 ✓
ECS / 2.0 ✓
AGA / 3.0 ✓

92%

LIVE LEARN

With Commodore Education's
Russell Robson



A WHILE AGO I was asked what schools actually do with their Amiga computers. The obvious answers spring to mind, such as word processing and running pre-packaged drill and practice-type activities, but are Amiga computers used beyond those realms?

The following article comes from **Garry White**, Principal of Elstow Primary School, a small country school in New Zealand's Waikato. It serves to illustrate what can be done and is being done in schools, with a little imagination. It also illustrates how the Amiga can extend beyond the realms of word processing and interactive fiction, into a complete, creative learning system.

Commodore Intensive

The idea of a computer intensive was born after discussions between myself and Nevil Robson of Hillcrest Normal School, on a possible focus for a special week intensive I had in mind, for a selected group of children at our school.

Originally seeking ideas for the use of the computer as part of this intensive, the suggestion of making the computers the sole objective of the week was keenly accepted by the Board of Trustees, who were 100 per cent behind the idea. I cannot stress enough the importance of the role of the Board, as it was they who approved the funds for the employment of a teacher for the week, thus releasing me from my classroom to take responsibility for the intensive.

Once the focus was set, it was a matter of organising ten computers for the week, to allow each of the Form II children (the selected group), a computer of their own for the week. This was easily settled, with generous support from Commodore NZ Ltd, (who loaned us four computers to complement those the school already had), and the remainder borrowed from within our community.

With the hardware sorted out, it was time to determine which programs would be used during the week. Two areas were finally decided upon: simulations and creativity.

The simulation part of the week would focus on Sim City, and the creativity, particularly animation, on DeluxePaint III.

My own knowledge of animation at this point was zero, but after a session or two with a group of Hillcrest Normal students, who taught me how things went, I was quite sure that our Form II students would be able to handle things well. After all, if I could do it, they surely could.



My confidence was certainly not misplaced, as the children took to both programs with ease, and before long, had left me well behind. Problems which arose were simply experimented with as we went along — the theory being: try something and see what happens. This method proved very successful and it was rewarding to see students trying something new and then sharing their findings with the other members of the group.

Sim City proved a great hit with the group, with all children finding out very quickly that citizens of any world complain when they don't have jobs, when crime's too high and pollution levels are unacceptable. They also discovered that there were shortcuts which could be taken by those brave enough, but that, in the long run, you paid a high price for embezzling funds, even if you were doing it for the citizens' benefit. A ban on embezzling brought some moans and groans, but the children were equally quick to discover that fiddling with the tax rates was even better than embezzling, and citizens only moaned for a short time if you did so at the right time of the year. Some amazing cities grew during the week, and many true-to-life lessons were learnt by all.

The success with DeluxePaint was nothing short of staggering. From starting with blank screens and no prior knowledge of the program, there were all sorts of animations darting across screens by the end of the second session, and some extremely clever and detailed final pieces produced. All animations were eventually compiled through Amiga Vision and copied on to video, with each member of the group receiving a copy of the tape.

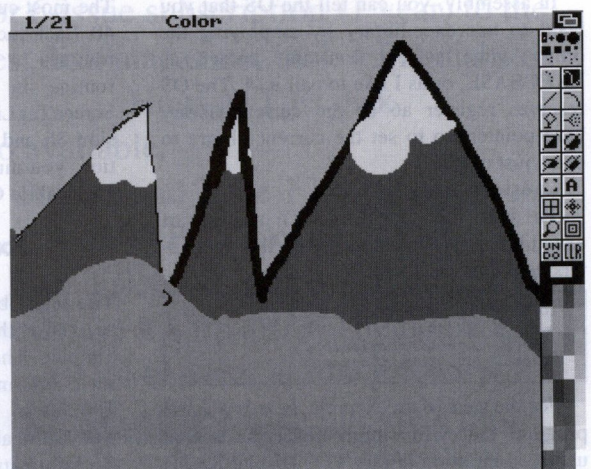
Half way through the week, an open night for parents was held, with a large number coming to see just what was going on. Most left very pleased with themselves, as they produced animations in one session, although if you had told them beforehand what they would be able to do, they would have laughed at you. We will have no trouble at all continuing our purchase programme!

Of course, the Board wanted some form of evaluation of the week. After viewing the video, no further case was needed. If success is measured solely in terms of enthusiasm, it was a great hit. Children had to be thrown off their machines at break times, to ensure they had some fresh air during the week. A change in attitude of a number of students was also apparent. They now realised that they controlled the computer, not the other way round. My biggest pleasure was showing some doubters, and all communities have them, especially when it comes to computers, that the computer can be a creative tool. This is really what we should be doing more of in our schools; we should use the computer as a creative tool, not merely a passive one.

All in all, a great week — one which we are sure to repeat in some form. I would recommend the idea to anyone thinking of doing something similar.

All I would suggest is:

- ◆ Do your homework — know the basics of what you plan to cover, but be prepared to experiment when you don't really know what will happen next.
- ◆ Restrict numbers — I wouldn't recommend any more than ten, as this way you have time to work individually.
- ◆ Get your Board of Trustees inside — their support is invaluable.
- ◆ HAVE FUN — you learn a lot more that way.



Some Assembly Required...

Grant Berridge demonstrates the basics of writing a shared library for the Amiga.

IF YOU'RE CLUED up on the Public Domain, you've probably heard of Nico François. The author of a number of superb Amiga programs, he has released into the Public Domain an excellent shared library called `reqtools.library`.

As any Amiga system programmer knows, the shared library is a very convenient tool, allowing many different programs to use the same piece of code, without having several copies of it taking up memory. Another advantage is that, if a routine in a library is modified, all programs which use that routine will take advantage of the modification, without having to be re-compiled. Because of their many benefits, shared libraries have become an integral part of the Amiga's unique operating system, and yet, to many, they remain a mystery.

Featured in this article is all the code you need to create your own shared library for release into the Public Domain, or even for use in your own commercial software! I shall attempt to unravel the mysteries of these curious beasts and give you the foundations you need to produce libraries of high quality, such as the `reqtools.library`.

First Principles

You need to tell the OS if you wish to use a library by using the `OpenLibrary()` routine. Strangely, this routine is itself inside a library, known as `exec.library`. Fortunately, the OS already assumes that you will need to use `exec.library`, so you do not need to `OpenLibrary()` it.

In assembly, you can tell the OS that you want to use `exec.library` by employing the only Amiga system constant, known as `EXECBASE`, or as I like to call it, 4. The OS reserves register `a6` as the current library base pointer, so to set the current library to `exec`, just use

```
movea.l 4.w,a6
```

To call the `OpenLibrary()` routine of `exec.library`, you need to set up the parameters, and then `jsr`, like this:

```
lea      INTUITIONNAME,a1
move.l   #0,d0
jsr      OpenLibrary(a6)
move.l   d0,_IntuitionBase
```

For the sake of an example, here is a small program that will simply flash the screen using `intuition.library`'s `DisplayBeep()`

routine.

Notice that in the example below, I checked to see if the `OpenLibrary()` call had

```
OpenLibrary = -552
CloseLibrary = -414
DisplayBeep = -96

movea.l 4.w,a6
lea      INTUITIONNAME,a1
move.l   #0,d0
jsr      OpenLibrary(a6)
tst.l    d0
beq.s    ExitCleanly
move.l   d0,_IntuitionBase
move.l   _IntuitionBase,a6
sub.l    a0,a0
jsr      DisplayBeep(a6)
movea.l 4.w,a6
move.l   _IntuitionBase,a1
jsr      CloseLibrary(a6)
ExitCleanly:
rts
_IntuitionBase:
ds.l 1
INTUITIONNAME:
dc.b 'intuition.library',0
EVEN
```

returned 0. A return of 0 indicates that the library could not be opened, usually because of low memory conditions or a similar reason. These are the times when your Amiga is most unstable, and usually at its busiest. Crashing at a time like that is a very bad idea, so make sure you check for these failure results, and handle them correctly. A failed call to `OpenLibrary()` can also occur when you are requesting more recent versions of libraries which might not be available on some systems. The first parameter of `OpenLibrary()` is the name of the library e.g., "intuition.library". The second parameter is the oldest library version that your program is compatible with. If you specify version 0, any version will suffice. The most current version of most libraries is 40. Each successive version adds several new routines to the library — for example the routine in `intuition.library` called `OpenScreenTagList()` is only available with version 36 and higher, so if you use this function, you must specify at least version 36 in your call to `OpenLibrary()`.

Forbidden Knowledge

You might be asking the question: "How did he know that `OpenLibrary` equals -552?" Simple! I have access to several sources of such information. Anyone who has used libraries in AmigaBASIC (remember that?) will know about `.fd` files, which contain all the information you need about Library Vec-

tor Offsets and register usage. A program called LVO will also help to extract this information from `.fd` files. This is the simplest and cheapest way of getting the information, but you can also find out LVOs from books, most notably *Amiga Intern* and *Mapping the Amiga*. If you are lucky, your includes might also include `.LVO` equates for each library.

Documentation

Most importantly, Commodore's AutoDOCs are absolutely invaluable when programming the system. The AutoDOC format is the approved way of documenting libraries on the Amiga, and several programs can use AutoDOC files to build *AmigaGuide* documents and the like. If you wish to release your libraries into the Amiga world, I strongly urge you to supply AutoDOC format documentation with them, so that other programmers can take advantage of your programming skill. Note that the format is fairly strict, as the system library AutoDOCs are produced by software.

Now that you can use libraries, I will show you how to create your own. The following code fragments will assemble into a library, which can be used from within your own programs in exactly the same manner as `intuition.library`. It contains five functions, four of which are required by the OS. Note that every single Amiga library must have `Open`, `Close`, `Expunge` and `Null` routines, because the system uses these routines directly, and it also assumes that they are always in the same place in a library. `Open` is called every time a new program calls `OpenLibrary()` on your library. `Close` is called whenever a program says it has finished with your library by calling `CloseLibrary()`. `Expunge` is the routine which completely erases your library from memory, assuming that no-one is currently using it. The system may call this routine in low memory circumstances. `Null` is a routine which really does nothing, but the system assumes it is there, and I therefore recommend that you include it. I include an AutoDOC style document explaining the use of the other routine as well. Enter the listings in order into the same file. They are divided into separate blocks so that it will be easier to explain the purpose of each distinct piece of code.

Listing 1

```
LibPriority = 0
Version = 1
Revision = 1

OpenLibrary = -552
CloseLibrary = -414
Remove = -252
FreeMem = -210
DisplayBeep = -96
Delay = -198

SECTION LibraryCode, CODE
Include "Exec/Libraries.i"
Include "Exec/Initializers.i"
Include "Exec/Resident.i"

STRUCTURE AduBase, LIB_SIZE
UBYTE adu_Flags
UBYTE adu_Pad
ULONG adu_SegList
ULONG adu_IntuitionBase
ULONG adu_DOSBase
LABEL AduBase_SIZEOF

XDEF Init
XDEF Open
XDEF Close
XDEF Expunge
XDEF Null
XDEF FuncOne
XDEF LibName
```

Part 1: The Header

The chunk of code in Listing 1 sets up all the constants and structures we will be using. If you don't have access to the include files mentioned, you will have a very hard time programming for the system. I recommend that you obtain these system include libraries, but you may find it easier to find the information needed in a book, such as

Mapping the Amiga. This book, however, shows its age, being written for V1.3. The first three equates are used for updating the library version. It is important to update the version number whenever you release a version of the library with any new functions in it. This way, no two revisions of the same version will have different functions. The next six equates are the library vector offsets for the functions I will use in my library. These should be in a separate include file, but for simplicity I have included them in the main listing. After the includes, I have defined my own library base structure, consisting of a library structure, and several of my own fields. I have storage space in there for IntuitionBase and DOSBase pointers, because I will use these libraries inside my own function. Any information you wish to store for the life of the library should go in here. The XDEFs are merely included so that my symbolic debugger can trace through my library more effectively. It is over to you whether you wish to have this facility or not.

Part 2: Foolproofing

This is the first piece of executable code (see

Listing 2

```
ExitCleanly:
moveq #0, d0
rts
```

Listing 2), inserted here so that if an inexperienced user attempts to execute the library as a program, it will not crash or cause any unexpected results. At this point, you could get carried away and print a message to the user, telling him/her that the library is not an executable.

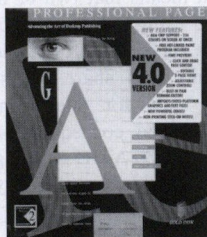
Part 3: The Function Table

In Listing 3 we have the first library-specific data. Note the version string. PLEASE

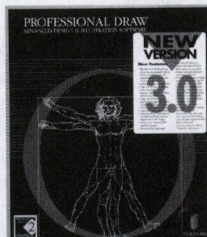
Listing 3

```
InitDDescrip:
dc.w RTC_MATCHWORD
dc.l InitDDescrip, EndCode
dc.b RTP_AUTOINIT, Version,
dc.b NT_LIBRARY, LibPriority
dc.l LibName, IDString, Init
LibName:
dc.b 'adu.library', 0
VersionString:
dc.b '$VER: '
IDString:
dc.b 'adu.library 1.1 (27.02.94)'
dc.b 13, 10, 0
EVEN
Init:
dc.l AduBase_SIZEOF, FunctionTable
dc.l DataTable, InitRoutine
FunctionTable:
dc.l Open, Close, Expunge, Null
dc.l Adu_LibFuncOne
dc.l -1
DataTable:
INITBYTE LN_TYPE, NT_LIBRARY
INITLONG LN_NAME, LibName
INITBYTE LIB_FLAGS, LIB_SUMUSED, LIBF_CHANGED
INITWORD LIB_VERSION, Version
INITWORD LIB_REVISION, Revision
INITLONG LIB_IDSTRING, IDString
dc.l 0
```

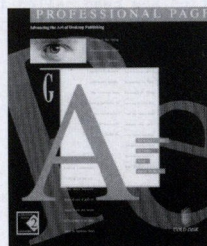
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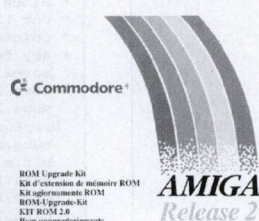
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include this string in this format, so that other users can use the CLI version command to obtain information on your library. Apart from the version string, the FunctionTable is the only part of this section that you will ever need to revise. Every time you add a new function, just add a dc.l to the list between Null and -1. Make sure that new functions go at the end of the list (just before the -1), so that the order of previous versions of the library is not changed. If you do change the order, programs which made use of old versions will cease to function correctly. This is NOT desirable! The rest of this information is partly magical, partly system-required and partly redundant. Don't worry about it. I don't.

Part 4: I Will Say This Only Once...

Pointed to by Init, in the library data section, Listing 4 is the routine that the OS calls when it first finds out that the library is needed. This only happens once, so if your

Listing 4

```
InitRoutine:
* d0 contains a pointer to our library
* a0 contains its SegList
* a6 is SYSBASE
* If we return 0 in d0, it means this
* function has failed for some reason.
move.l a5, -(sp)
move.l d0, a5
move.l a0, adu_SegList(a5)
lea INTUITIONNAME, a1
move.l #0, d0
CALLLIB OpenLibrary
move.l d0, adu_IntuitionBase(a5)
tst.l d0
beq .NoIntuition
lea DOSNAME, a1
move.l #0, d0
CALLLIB OpenLibrary
move.l d0, adu_DOSBase(a5)
tst.l d0
beq .NoDOS
move.l a5, d0
bra .Exit
.NoDOS:
move.l adu_IntuitionBase(a5), a1
CALLLIB CloseLibrary
move.l #0, adu_IntuitionBase(a5)
.NoIntuition:
move.l #0, d0
.Exit:
move.l (sp)+, a5
rts
```

library is already in memory, the OS will not call InitRoutine again. Since I will be using Intuition and DOS in my library, I open both libraries, and store the library bases in my own library base structure for later reference. Note that even in this routine, I check to see if the system was able to open the libraries, and provide clean exit code just in case.

Part 5: Opening The Library

Sometimes you will want every program that has opened your library to have its own separate resources, which should be allocated here. No matter what else you do in Open, you must always increment the LIB.OPENCNT and clear any pending, delayed

Listing 5

```
Open:
* a6 contains our library's address,
* which we must return in d0
* REMEMBER : The OS has turned off
* multitasking, so be quick in here
addq.w #1, LIB.OPENCNT(a6)
bclr #LIB.DELEXP, adu_Flags(a6)
move.l a6, d0
rts
```

Expunge requests. Listing 5 is used by all other programs using OpenLibrary() on your library.

Part 6: Closing The Library

Any resources allocated in Open should be freed up in the Close routine, which is executed whenever CloseLibrary() is called on your library (see Listing 6). Remember also

Listing 6

```
Close:
* a6 contains our library's address.
* This routine should return NULL unless
* the library is now fully closed, and
* there is an expunge request pending, in
* which case the system expects the
* SegList which we received in Init.
* REMEMBER : The OS has turned off
* multitasking, so be quick in here:
moveq.l #0, d0
subq.w #1, LIB.OPENCNT(a6)
bne.s .ExitWithoutExpunge
bset #LIB.DELEXP, adu_Flags(a6)
beq .ExitWithoutExpunge
bar Expunge
.ExitWithoutExpunge:
rts
```

to decrement LIB.OPENCNT, and see if you are required to Expunge yet.

Part 7: Removing The Library

The routine in Listing 7 is called when redundant system resources are being flushed. If your library is not currently open, but is still resident in memory, it is eligible for expunging. You must reverse any allocation done in the InitRoutine call. Remember

Listing 7

```
Expunge:
* a6 contains our library's address.
* If the library is no longer open,
* Expunge should return the SegList.
* Otherwise, the delayed expunge flag
* should be set, and NULL returned.
* REMEMBER : Never use Wait() or take a
* long time in this routine.
* You may cause a deadlock or other
* unwelcome behaviour.
movem.l d2/a5/a6, -(sp)
move.l a6, a5
tst.w LIB.OPENCNT(a5)
beq .FreeLibMemory
bset #LIB.DELEXP, adu_Flags(a5)
moveq.l #0, d0
bra .End
.FreeLibMemory:
move.l 4.w, a6
move.l adu_IntuitionBase(a5), a1
move.l a1, d0
beq .NoIntuition
CALLLIB CloseLibrary
.NoIntuition:
move.l adu_DOSBase(a5), a1
move.l a1, d0
beq .NoDOS
CALLLIB CloseLibrary
.NoDOS:
move.l adu_SegList(a5), d2
move.l a5, a1
CALLLIB Remove
moveq.l #0, d0
move.l a5, a1
move.w LIB.NEGSIZE(a5), d0
sub.l d0, a1
add.w LIB.POSIZE(a5), d0
CALLLIB FreeMem
move.l d2, d0
.End:
movem.l (sp)+, d2/a5/a6
rts
```

that Expunge can be called even though your library is still open. Be careful that you don't actually free your resources until it is safe i.e., LIB.OPENCNT is zero. If you are requested to Expunge, and LIB.OPENCNT is non-zero, set the LIB.DELEXP flag, and

return zero. The system will otherwise expect the SegList obtained in InitRoutine to be returned in d0, ready for freeing.

Part 8: Are We Just Wasting Time?

I have asked numerous people why the "Null" routine (Listing 8) needs to be here, and have

Listing 8

```
Null:
moveq.l #0, d0
rts
```

not yet received an adequate answer. "Compatibility" and "historical reasons" are the best to date. I suggest you put it in, because it can't hurt, and only takes up 4 bytes of memory.

Part 9: The Interesting Part

Listing 9 is my own routine, callable from within your programs. See the AutoDOC entry below for interface specifications. Your own routine(s) can replace this code, and all you need to know is the following:

- ♦ Register a6 contains your library base.
- ♦ Functions that return values should return them in d0, even if they are pointers.
- ♦ You may use d0, d1, a0 and a1 as scratch registers i.e., you do not need to return them in the same state that they were in before your routine was called. All other registers MUST BE PRESERVED. You can do this by pushing any registers you use on to the stack, and then popping them off before you return. Note that the stack you will be using belongs to the program that has called your library routine. The library doesn't have a stack of its own.
- ♦ You may NOT use any global variables inside your library. All your code must be re-entrant, which means that two or more programs may be using the same piece of code at the same time; if you use global data, all programs will share the same data. Modifying data for one program might have unforeseen consequences on another. If you need STATIC data e.g., a library base, you should store this in your

Listing 9

```
ADU_LibFuncOne:
* Takes a long int in d0, and flashes the
* screen that many times.
* Since this function has been called in
* our library, we can assume that A6
* points to our library. This is true of
* any function in our library.
movem.l d2/a5-a6, -(sp)
move.l a6, a5
move.l d0, d2
.BeepLoop:
subq.l #1, d2
blt.s .FinishedBeeping
suba.l a0, a0
move.l adu_IntuitionBase(a5), a6
CALLLIB DisplayBeep
move.l #25, d1
move.l adu_DOSBase(a5), a6
CALLLIB Delay
bra.s .BeepLoop
.FinishedBeeping:
movem.l (sp)+, d2/a5-a6
rts
```

library base. All VARIABLE data must be allocated on a per-caller basis, probably in Open.

- ♦ While you are executing your library func-

Listing 10

```
INTUITIONNAME:
dc.b 'intuition.library',0
DOSNAME:
dc.b 'dos.library',0
EVEN

SECTION EndOfLibrary, CODE
EndCode:
END
```

tions, the computer thinks that your library code is part of the calling program. Refer-

ences to any private memory that your library has allocated during Init-Routine etc. will be illegal, and subject to Enforcer hits. Use MEMF_PUBLIC for any memory allocations that will be accessed from within your library functions.

```
* "adu.library"
##base _ADUbase
##bias 30
*--- functions in V1 or higher (distributed as Release 1.1) ---
##public
ADU_LibFuncOne(number) (d0)
##end
```

library. The file adu.lib.fd is printed at the top of this column.

Stay tuned all you budding C programmers, and I'll show you how to plug your own C routines into this code to create your own library, without having to understand one word about assembly. See you next month!

Part 10: Finishing Up

TABLE OF CONTENTS

```
adu.library/ADU_LibFuncOne
adu.library/ADU_LibFuncOne          adu.library/ADU_LibFuncOne

NAME
ADU_LibFuncOne -- Flashes the screen and beeps a specified
number of times (V1)

SYNOPSIS
ADU_LibFuncOne(number)
d0

void ADU_LibFuncOne(LONG)

FUNCTION
Uses intuition to flash the screen and beep a number of times
specified in d0. The beeps will be separated by approximately one
half of a second. If the number is less than 1, the function will
return immediately. A pause of approximately one half of a second
follows the final beep.

INPUTS
number - The number of times to flash and beep.

RESULT
None

BUGS
None known

SEE ALSO
```

That's the end of the code. Just join all the listings up into one file (from Listing 1 to Listing 10), assemble it, and save the executable as LIBS:adu.library.

The AutoDOC

On the left is the AutoDOC for adu.library; on the right is an example of how to use the library you just created. It calls ADU_LibFuncOne() with a parameter of 4.

For completeness, you should also release a .fd file with your

Working Example

```
OpenLibrary    = -552
CloseLibrary   = -414
ADU.LibFuncOne = -30

Start:
movem.l a0-a6/d1-d7, -(sp)
movea.l 4.w, a6
lea     ADUNAME, a1
move.l  #0, d0
jsr     OpenLibrary(a6)
move.l  d0, a6
tst.l   d0
beq     .quit
move.l  #4, d0
jsr     ADU_LibFuncOne(a6)
move.l  a6, a1
movea.l 4.w, a6
jsr     CloseLibrary(a6)
.quit:
movem.l (sp)+, a0-a6/d1-d7
move.l  #0, d0
rts
ADUNAME:
dc.b 'adu.library',0
EVEN
```



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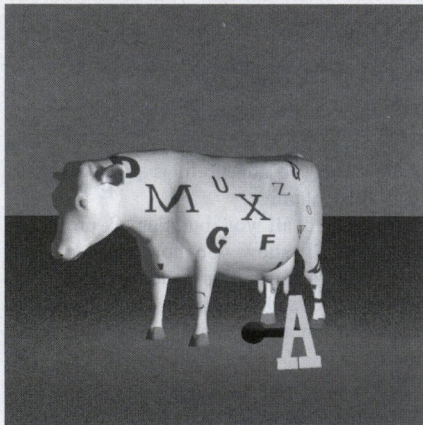
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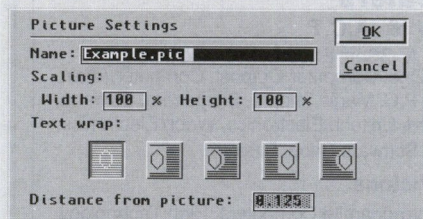
WE'VE HAD A number of letters from readers on the programs featured in the word processor roundup "Get A Grip", (ADU 6) and the Final Writer review (ADU 7).

Dear Sir,
re: Review of Word Processors.

The review of word processing software contains factual errors regarding ProWrite 3.3.

Text Flowing

Firstly, the article states that "...all but ProWrite can actually flow text around a bitmap, using colour zero as transparent". ProWrite is exceedingly capable of doing just that! I have been trying to duplicate the effect shown in the article with a similar, 32-colour graphic produced with DeluxePaint III, and can only do so when the "Format/Picture..." requester in ProWrite is used to select a "box" effect for the graphic. Using the "Format/Picture..." requester allows the selection of offset effects, such as those shown in the article for the other programs. Five offset types are available and the user has control over the amount of the offset of the text from the other colours in the graphic.

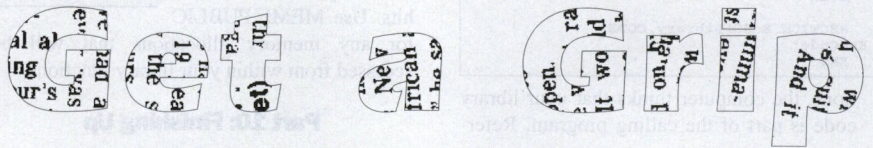


Printing

The article also makes comment about ProWrite being unable to handle the hi-res picture when printing. I have had no problems printing files containing lo-res and hi-res pictures to dot matrix and PostScript printers, so could not duplicate the problem involved.

In the summary table on page 63, there are further discrepancies...

Dudley Storey III comes back to you with letters concerning Word Processor reviews in previous issues.



Revisited...

User Dictionary

The User Dictionary is editable — it is a simple text file that ProWrite can open easily for editing, like any other text file. Just remember to save it back as a "text only" file.

Outline Fonts

ProWrite has "Outline Font Support", in that it includes them in the font listing, shows them on screen and prints them! Did the author have another meaning for "support"?

AGA and File Formats

ProWrite supports up to 256 colours on screen when using an AGA-equipped Amiga. Doesn't this qualify as "AGA support"?

Users should note that although the included "Convert" program does theoretically allow conversion of up to eleven foreign file formats to ProWrite format, I have had trouble with some file conversions. For example, the "Word Perfect" files are converted most of the time, but come out as a document only one character wide (This is easily fixed in ProWrite). The "RTF" format converts randomly — sometimes it works; sometimes it doesn't. I have been unable to rely on it, even when the RTF files come from the same source program on another computer.

To finish, let me thank you for a great magazine and the stimulating articles.

Rudy Kohut

Mt Waverley, Victoria, Australia

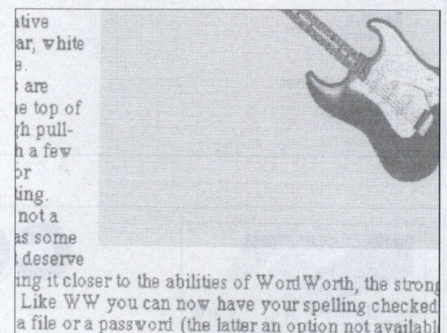
My explanation might be simpler if I explain how I approached the review. I took the majority approach, or the 80/20 rule. As you probably know, it's a standard rule of thumb that 80% of the purchasers of any program will use only 20% of its features. For this reason, I concentrated on the major features that would be used by most potential purchasers, without supplying work-arounds or hints. In other words, if I couldn't use or find a function easily, most users wouldn't either.

With that in mind, I'll respond, in order, to the points you made.

Text Flowing

I used two standard images to test the word processors: a scanned Ham image and a 16-

colour, hi-res picture, raytraced in Imagine 2.0. No matter how hard I tried, ProWrite would not wrap text around the pictures, through the transparent (black or colour zero) background. Every other word processor reviewed with a picture facility accomplished this easily. Goaded by your letter, I experimented further in DPaint and found that ProWrite will wrap text around the outline of



BRUSHES, and force colour zero to be transparent within them. This facility is fine as far as it goes — however, it did not meet the criteria of the review. ProWrite still cannot handle pictures, and I expect that most users would not go to the bother of clipping out objects from a background in a paint program, to paste them in a word processor document.

Printing

Next, I did not make a reference to printing a hi-res image in ProWrite, but rather, loading it! For some reason, ProWrite would not load the standard raytraced image into the document — it flatly refused.

User Dictionary

Your point about the editable user dictionary is well made. Again, it is a question of criteria. My basic premise for the section was: "Can the word processor edit words saved to the user dictionary from its own interface?" I was looking for a button, a command, anything in the program that would allow me to pick and delete words in the user dictionary. If I said that the dictionary is user-editable in ProWrite by loading it in as a document, I could also stretch the point and say that the program itself is configurable by loading it as an ASCII document! (as opposed to, say, making a

macro or an icon in Final Writer). While the point is fine, I hope you can see my perspective.

Outline Fonts

To your criticism regarding lack of coverage for outline font support, I must plead guilty. My system partition was filled to the brim, unexpandable, and any outline fonts were saved elsewhere. Since ProWrite has no facility for changing the default FONTS: directory, (except perhaps by using an ASSIGN in the user startup-sequence — I should have thought of that, but then again, it probably falls outside the criteria of "most users"), I could not use them. I should have tried harder.

AGA and File Formats

Yes, ProWrite does support 256 colours on-screen. However, having to adjust the tool-type information (as I discovered) in the program's icon is not what I would call user-friendly!

Summary

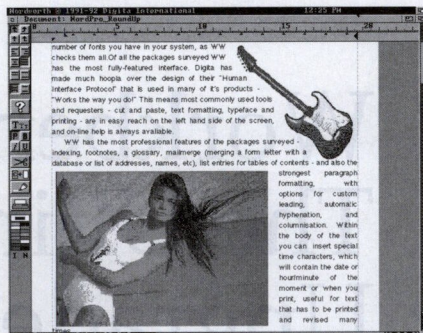
In summary, let me thank you for your well-placed criticism. I hope you can see that the majority of the points I made, or failed to make, were written from a set of standard criteria, applied equally to all contenders in the word processor roundup, without favour.

Dear ADU,
I'm writing in regard to a couple of the problems you describe in your reviews of Wordworth 2 and KindWords

3. While I haven't used KW3, I do use WW2 (now, for instance), and have experienced two of the printing problems you described.

The first, that of extra pages feeding through, was, on my system, caused by a setting in the Project/Print Setup menu. Under the Paper Setting buttons to choose paper type is a Form Feed box, which on default installs to selected. This option produces a form feed after every print run. Useful if you have a tractor feed printer, but a pain in the butt for the rest of us; deselecting it may help solve that problem.

The second problem you describe, that of the margins causing difficulty in fitting the page on to the paper, may be a problem, again with the Print Setup menu. On the bottom right of the menu is a Print Border option. It is aimed mainly at lasers and similar printers which "grip" the paper and have non-printable areas. I had endless frustrations with printing on my own dot matrix, which



has non-printable upper and lower margins, with symptoms as you describe, until I altered this setting in line with the non-printing areas outlined in the printer manual. This option forces all print to remain within the area, ensuring that the desired margins set in the Document/Page Layout menu are compatible with the printer, and adjusting when they are not. A useful option, but one that is somewhat hidden in the manual.

I hope this is of some help in solving the problems described; WW2 is a superb product, but the printing caused me immense aggravation until I sorted the problems out, as I am sure it does others.

Rodger Donaldson

Okato, Taranaki, New Zealand

Thanks for the tips, Rodger. We use slightly different fixes, like setting our page length to 28.5cm for A4 paper. With a bit of experimentation, WW2 users should be able to solve any print problems. You might be interested in our review of Wordworth 3, coming up very soon.

Dear Dudley,

With reference to your review of Final Writer in ADU 7, I think you were over-generous in awarding it four stars for speed, as it is without doubt the slowest word processor it has been my misfortune to encounter.

Printing Speed

On an A1200 with 2 Mb memory expansion and a P1124 printer, it took 1 min 25 secs to print a document of only two short paragraphs of three lines each.

On a similar machine, but using PageStream with my printer, the same document was printed in 57 secs, and PageStream is no racehorse either. It seemed an accelerator was the logical solution, so a board clocked at 42MHz was fitted; all my Basic programs fell over and the document was printed out in 1 min 15 secs!

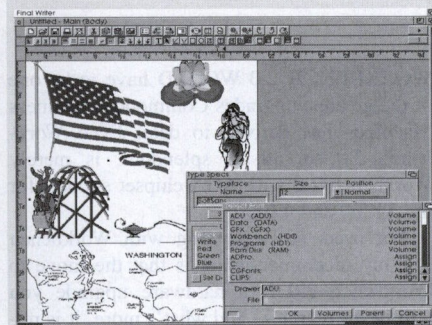
All the average Joe wants in a word processor is a program that will output his work quickly, with a good quality printout; all the bells and whistles that Final Writer offers will

seldom, if ever, get used. This program is more of a DTP than a word processor, and a slow one at that. It's cost me the best part of \$1,000 so far and is still a lemon. It has not been used to write this, as I am well past three score years and ten, and want to get this written and posted before croaking. It is doubtful that this could be accomplished with the use of Final Writer.

PS: I tried to use CMD to speed up print-out, as it puts the file in RAM — OK, but I have not been able to send it to PRT.

R.T. Salter

Russell, New Zealand



Outline Fonts

I can only say: I warned you! I mentioned slow printing times in my reviews for both Final Writer and its predecessor, Final Copy. As with programs like Professional Page, Final Writer and Final Copy use outline fonts. Outline fonts are of very high quality but, of course, require more time to process, and they must be downloaded to the printer, rather than use the printer's resident fonts, resulting in very long printing times.

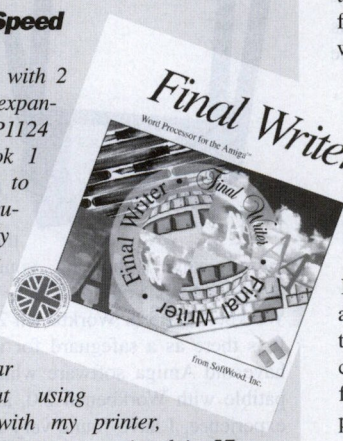
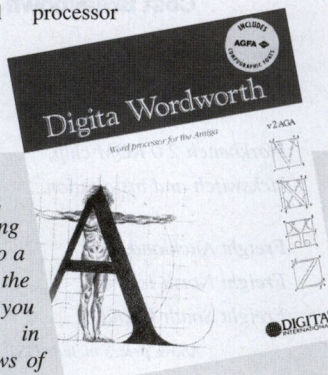
Printing speed is just one factor I have to consider when awarding points for speed. In most other respects — inserting EPS graphics, re-scaling pictures, compilation of statistics, spell-checking, and search and replace functions — Final Writer performed quite well on the A3000 test machine (although cut-and-paste speed could be improved). If

it was possible to award fractions, I would have given Final Writer three and a half stars for speed, but overall, I think it deserved four.

Another Man's Treasure

I would agree with most of what you say about "bells and whistles", but I would question your definition of "work". A word processor that suits one individual will not perform well for another — a PhD student preparing her thesis has quite different requirements from a child writing to Grandma. Final Writer's features are undoubtedly aimed at the top end of the market. If you don't need those features, don't buy such a professional program.

If you have any more useful tips or questions you'd like to ask about word processors, write to me c/- ADU. See page 10 for address details.



SKOTTY EXPLAINS: Workbench 2.0 The Ultimate Upgrade

by Scott Gardiner

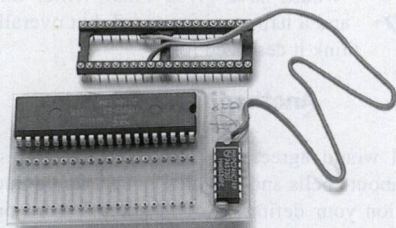
WORKBENCH 2.0 WOULD have to be one of the greatest upgrades Commodore Business Machines has derived to date. Even Workbench 3.0, in all its splendour, is merely Workbench 2.0 with AGA chipset support for the A1200 and A4000.

For users still operating with Workbench 1.3, my recommendation is that the move to Workbench 2.0 is a hardware upgrade you will never regret — and what's more, it is relatively inexpensive to do so.

Comparison

The first major difference a user of Workbench 1.3 will notice when upgrading to Workbench 2.0, is the pleasant change in default screen colours and all the extra functions now available through the pull down menus. This is merely the tip of the iceberg, however: delving a little deeper, you will notice the variety you now have in screen size, the size of the Workbench window, the added ability to have more than four Workbench colours, and smart little enhancements, such as support for the ARexx language.

Setting up device drivers using Workbench 2.0 has also now been simplified. You simply drag an icon from storage and into the appropriate directory in Devs:. No more problems with incorrect syntax because it's all done with the mouse.



Twice the Size

The Workbench 2.0 ROM chip is now 512 Kb in size, as compared with Workbench 1.3 (256 Kb). You will also find that the fast file system (which, under Workbench 1.3, had to be loaded from disk), is now located in the Workbench 2.0 ROM chip, thus leaving valuable memory free.

The many major enhancements are too

numerous to mention individually — suffice it to say that you won't be disappointed.

Hardware

Workbench 2.0 comes in two sections, as does Workbench 1.3. Your first priority is that your Amiga computer will need to have a Workbench 2.0 ROM chip installed.

(I strongly advise that this be installed by an authorised Commodore Service Centre, to avoid any damage to the chip from static electricity.)

Installation of this chip will result in a greatly improved, animated Workbench prompt, requesting that you insert a disk, rather than the bland Workbench 1.3 hand prompt.

Software

The second half of Workbench 2.0 is the software — the Workbench manuals and disks. The Workbench 2.0 ROM chip can be purchased on its own, or as a kit with manuals and disks.

You may also decide to purchase a kickswitch with your Workbench ROM chip. If you hold down the left mouse button while rebooting your Amiga, this device allows you to switch between either Workbench 1.3 or Workbench 2.0 ROM chips. It is there as a safeguard for users who may have old Amiga software which is not compatible with Workbench 2.0, although, in my experience, I have found very little incompatible software.

Readers' Upgrade Offer

Computer Specs Ltd is currently offering a special to all NZ Amiga Down Under readers who wish to take advantage of the enhancements of Workbench 2.0 and upgrade.

For \$95 + GST (including installation), you can have your Amiga upgraded to a Workbench

2.0 ROM. We offer same-day service on the basis that if your Amiga is brought in during the morning, upgrades will be completed for collection in the afternoon.

Kickswitches are available (\$39 + GST) for those who feel older software may be incompatible with Workbench 2.0.

Should you wish to take advantage of this special offer, or ask further questions, please don't hesitate to contact me on the numbers shown in the advertisement below.



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Workbench 2.0 ROM chip and installation...	\$106.88
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DMS-WINDOW V1.30 for DMS V1.11

WRITE Mode START

Bitmap Show Text BEST CMode

Validate Pause File Name

GET Ram:ADU-PD-Disk-9.dms DestFile

00 ToTrack

79 HTrack Key

DRIVE A: DFO:

DMS-WINDOW WRITE DFO: CLICK CLOSE WHEN DONE

COPY 100% COPY 100%

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Insert Disk(s) Into DFO and Press [RETURN]

HD installation

Backup 92.42 - Backup an 80386 partition

Include	Exclude	By name	By date	By bits	Reverse	Parent
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Directory: DATA:\articles

Selection: 0 file(s), 0 byte(s)

OPTIONS

START

File Name	Size	Attributes	Accessed	Modified	Created	Parent
100000	100000	----	10-01-92	10-01-92	10-01-92	100000
100001	100001	----	10-01-92	10-01-92	10-01-92	100001
100002	100002	----	10-01-92	10-01-92	10-01-92	100002
100003	100003	----	10-01-92	10-01-92	10-01-92	100003
100004	100004	----	10-01-92	10-01-92	10-01-92	100004
100005	100005	----	10-01-92	10-01-92	10-01-92	100005
100006	100006	----	10-01-92	10-01-92	10-01-92	100006
100007	100007	----	10-01-92	10-01-92	10-01-92	100007
100008	100008	----	10-01-92	10-01-92	10-01-92	100008
100009	100009	----	10-01-92	10-01-92	10-01-92	100009
100010	100010	----	10-01-92	10-01-92	10-01-92	100010
100011	100011	----	10-01-92	10-01-92	10-01-92	100011
100012	100012	----	10-01-92	10-01-92	10-01-92	100012
100013	100013	----	10-01-92	10-01-92	10-01-92	100013
100014	100014	----	10-01-92	10-01-92	10-01-92	100014
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100029	100029	----	10-01-92	10-01-92	10-01-92	100029
100030	100030	----	10-01-92	10-01-92	10-01-92	100030
100031	100031	----	10-01-92	10-01-92	10-01-92	100031
100032	100032	----	10-01-92	10-01-92	10-01-92	100032
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100035	100035	----	10-01-92	10-01-92	10-01-92	100035
100036	100036	----	10-01-92	10-01-92	10-01-92	100036
100037	100037	----	10-01-92	10-01-92	10-01-92	100037
100038	100038	----	10-01-92	10-01-92	10-01-92	100038
100039	100039	----	10-01-92	10-01-92		

[illegible]

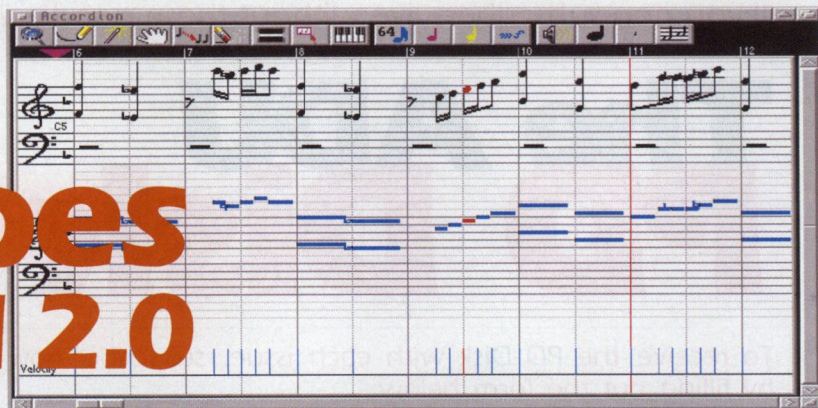
AMIGA DOWN UNDER SUBSCRIPTION FORM

Cheques payable to Amiga Down Under. Photocopies of this form accepted. See page 10 for address details. Credit Card min. charge \$10.

Matthew Grove gives his thoughts on version 2 of this popular MIDI sequencing package...

Bars&Pipes Professional 2.0

The Blue Ribbon SoundWorks ■ USA



PROFESSIONAL MUSIC PROGRAMS for the Amiga are few and far between, but the capabilities of Bars&Pipes Professional provide just what the musician needs. Bars&Pipes is a MIDI sequencing package, specifically designed for use with a MIDI set-up. It allows you to record the output from a MIDI keyboard into music tracks, and, by building up the tracks, to form a song. Each track is usually devoted to one instrument, with no limit to the actual number of tracks you can use. Apart from the ability to record and play back MIDI data, the unique concept of pipelines of MIDI data used by Bars&Pipes to manipulate the music, makes creating complex effects as easy as dragging an icon on to a pipeline. Let's take a closer look at these pipelines...

Pipelines

Each music track is treated like a pipeline of MIDI information. When you want to record music to a track, you simply stipulate which pipeline should receive the incoming MIDI information. Before that information is actually recorded, though, you have the opportunity to manipulate it by placing tools in the pipeline. These tools, which include effects like Echo, Quantize, and Delay, can be dragged from the Toolbox window and placed anywhere in the pipeline. Double-clicking on a tool in a pipeline changes its settings, and every time a tool is placed in the pipeline, a copy is created, so that each tool — even those of the same type — can have different settings. After passing through the tools placed in the pipeline, the MIDI data is then recorded on to the track. By default, the input

pipelines start with the MIDI In tool, but with the right tool, input could come from any source (SuperJAM!, reviewed in ADU 8, provides tools for use in Bars&Pipes). An ARexx Realtime In tool allows input to come from an ARexx script.

By placing tools in the input pipeline, the effects can actually be recorded into the score permanently; tools placed in the output pipeline alter the MIDI data before it is sent to the MIDI Out tool, which sends the data to the MIDI interface. Using the basic tools provided, it is possible to construct your own tools, with their own icons, and place these in the pipelines. The Triad tool, for example, uses two Transpose tools to create the extra two notes of a triad, based on the input note. Using the Branch Out and Merge tools, the MIDI data can be split and merged between pipelines, allowing one track to output through several MIDI channels e.g., using the Echo tool, you could merge the echo with another track and have that set to another instrument.

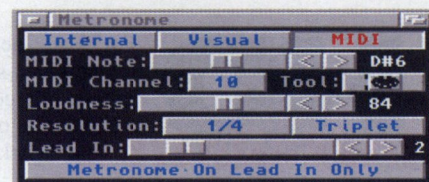
Recording

By far the most common MIDI set-up is a MIDI keyboard, connected to the computer via a MIDI interface. The easiest way to enter music into the computer is by having the software record what is played on the keyboard. Bars&Pipes offers a simple, but powerful, method of recording. When recording a track, it is possible to either record over the track, or merge with whatever is already on the track. Turning the recording on can either be done manually with the record button, or you can set where the recording should start and stop.

Bars&Pipes can also loop through a section of your music several times, recording what you play; it then allows you to hear each loop, and select the best one to use. If you have two MIDI keyboards, Bars&Pipes can record each keyboard on a different track.

Editing

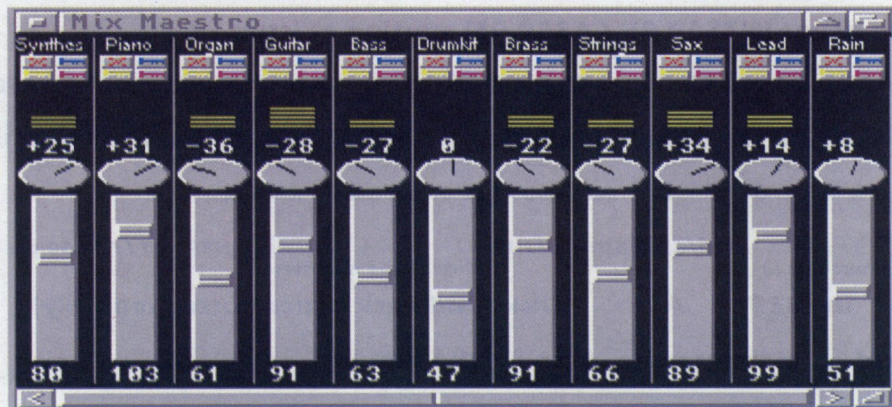
From the main Tracks window, individual tracks can be deleted, created, and copied, as well as saved and loaded. It is also possible to collect several tracks together to form a group. Up to eight groups can be defined at any one time, and tracks can also be temporarily grouped together by holding down the Shift key and clicking on several tracks. Sections of tracks or groups can also be copied, cut, pasted, deleted and mixed from the Tracks window.



More precise editing of individual tracks can be performed from the Graphic editor, which allows editing of individual notes. Notes can be displayed in traditional notation, as well as a piano roll style and a hybrid style, where horizontal lines represent the notes. Notes can also be displayed as fret numbers on guitar strings, and, if you record from a MIDI guitar, an accurate transcription of what you play can be created.

The Graphic editor also allows for editing of MIDI data such as the Note Velocity (or volume), Pitch Bend, and more complex events such as Mono After-Touch, Poly After-Touch, and Control Change, using a horizontal graph of vertical lines. Bars&Pipes provides extensive options for editing and manipulating MIDI events, which allow total control over even the most complex MIDI device.

Another powerful editing option is the use of tools to manipulate notes. Tools, which can also appear in pipelines, can be stored in the ToolPad, accessible from the Editor window. From there, they can be selected and applied to individual notes or groups of notes. You could, for example, apply the Echo tool to individual notes, or use the



Mix Maestro: "...enables the volume and panning of each track to be controlled individually, or in groups."

STOP PRESS!
Just as we're going to print, The Blue Ribbon SoundWorks have announced the release of Bars&Pipes Professional 2.5. See Clipboard for more details.

Triad tool to create chords.

Song Parameters

To aid in the creation of a song, it is possible to add extra parameters, both to individual tracks and to the whole song. These include lyrics, chords, key and scale, rhythm, and dynamics. The lyrics and dynamics can be printed with the music, and the other parameters are used by tools. As an example, the CounterPoint tool generates a countermelody to the notes flowing through it, using the key and scale information contained in the song parameters, to ensure that it generates notes that are in-key. The Groove Quantize tool will quantize (align) notes with the rhythm defined in the song parameters. The Phrase Shaper tool will use the dynamics in the song parameters to alter the volume appropriately.

The scales, chords and rhythms provided are no limitation to the possibilities: you can define your own, name them, and save them for future use.

Bars&Pipes provides a good range of options controlling the printing of standard music notation. It is possible to print either single tracks, a predefined group of tracks, or the entire song. Other options preview the output on the screen only, and save the image to disk for later printing or editing. There is no option for page numbers, but you can specify a title and author. Bars&Pipes will print sharps and flats, key signatures and time signatures, but few other symbols are used.

Accessories

Bars&Pipes offers expandability through its accessories — external programs that can be loaded into Bars&Pipes separately. Use of accessories makes it possible to communicate with other software and hardware. Included is an ARexx accessory to control Bars&Pipes from an ARexx script, which supports a small set of simple ARexx commands. A MIDI Machine Control accessory controls external devices, such as tape decks and video recorders, that support the MIDI Machine Control standard. The sMerFF accessory allows songs to be saved in the MIDI File Format, and also allows MIDI files to be loaded into Bars&Pipes. SMUS files may also be loaded and saved, using the SMoose accessory. Also included are two accessories that allow the SunRize AD1012 and AD516 audio digitising boards, and the Studio 16 audio software, to be controlled from Bars&Pipes.

Bars&Pipes includes powerful synchronisation options, capable of handling both MIDI Clock and SMPTE (MIDI Time Code) syn-

chronisation. These allow your compositions to be integrated with external hardware and events. The timing of compositions can be controlled using the Tempo Map, which allows the tempo of the music to alter with time. It is then possible to either have Bars&Pipes create the timing information to drive external hardware, or have another device provide the timing information.

Mixing

A mixing window enables the volume and panning of each track to be controlled individually, or in groups. By collecting several tracks into one group, all tracks can fade in or out at the same time. The mixing window also records in realtime the changes you make during playing, so that when you play the song again, the mixing window repeats your previous alterations.

Using the Clipboard built into Bars&Pipes, you can also save the mix to disk, where it can be retrieved again, if needed. The Clipboard is actually capable of storing many clips of different types (mainly sections of tracks or groups of tracks), which can be loaded from, and saved to, disk.

Time Line Scoring

If you wanted to collect several songs together, to form, for example, the soundtrack for a movie, the Time Line Editing window is the answer. Several songs can be loaded into the window, where each appears as a horizontal bar. The length of the bar represents the length of the song, and the bar can be moved horizontally to set when the song should start. What happens, in fact, is that all the tracks from the songs are placed in the Tracks window, and each song is offset the desired amount from the beginning.

Media Madness

As if all the features above weren't enough, the Bars&Pipes Media Madness window allows complete integration of multimedia software with MIDI scores, and enables tracks to use a collection of different output tools. The default MIDI Out tool is the output tool of your MIDI tracks, but you can also create tracks that output to tools that can do almost anything. Among the multimedia tools included are: ANIMa!, an animation player that plays specified animations when certain

Bars&Pipes' Tracks and Toolbox windows: add extra parameters to your MIDI compositions from here.

notes are received; FreezeFrame, for use with the GVP Impact Vision IV24 graphics card, that will freeze the picture - in - picture (PIP) generated by the IV24; the G-LOCKenspiel tool, to control the GVP

G-LOCK genlock by assigning commands to notes; the Last Slide Show tool, to display IFF pictures, where one picture can be assigned to each note; and the SamplePhone tool, to play IFF samples using the internal Amiga sound hardware. Other tools control the Scala multimedia software, the SunRize digital audio boards, the SuperGen genlock, the NewTek Video Toaster, and even the internal speech capabilities of the Amiga.

While the Media Madness window is similar to the Tracks window, it is possible to record the events in a Media Madness composition and save this to disk. Once saved, a stand-alone player will play the Media Madness file, without having to load Bars&Pipes.

Impressions

For what is really an extremely complex piece of software, it is actually easy to learn how to use Bars&Pipes. The 372-page manual is well written, covering every aspect of the program, and extra documentation that didn't make it into the manual, appears on the disk. I would definitely recommend a hard drive, and at least 2 Mb of RAM. To be of any use, this software obviously requires a MIDI instrument. It is aimed at the professional musician, providing an excellent platform for composition and MIDI sequencing. Its printing capabilities are not great, and the occasional bug did appear, but this did not affect the sequencing capabilities of the software.

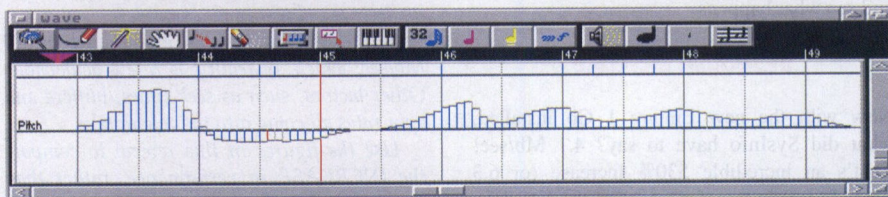
**Supplied for review by
The Blue Ribbon SoundWorks**

BARS&PIPES PRO 2.0
NZ\$695 A\$425

SPEED
★★★★★
FEATURES
★★★★★
EASE OF USE
★★★★★
MANUAL
★★★★★
VALUE
★★★★★

OCS / 1.3 X
ECS / 2.0 ✓
AGA / 3.0 ✓

75%



Bars&Pipes' main Editor window...

Graeme Cheesman tests a card that will transform your A4000 HD from a Bambina into a Ferrari...



DKB 4091 SCSI-II Controller

DKB ■ USA

DRIVES INFORMATION	
NUMBER OF DISK ERRORS	0
UNIT NUMBER	6
DISK STATE	Disk OK, Read/Write
TOTAL NUMBER OF BLOCKS	56494
TOTAL BLOCKS USED	26887
BYTES PER BLOCK	512
DRIVE/DISK TYPE	FFS International
VOLUME NAME	Workbench
DEVICE NAME	2nd SCSI device
SURFACES	1
SECTORS PER SIDE	856
RESERVED BLOCKS	2
LOWEST CYLINDER	2
HIGHEST CYLINDER	67
NUMBER OF BUFFERS	100
SPEED IN BYTES/SEC	4,139,115
SPEED	

THE DKB 4091 is a Fast SCSI-II, Zorro III hard drive controller card for the A4000. It was initially developed by Commodore, but for once, Commodore has done the right thing and contracted manufacturing and distribution rights to a third party company. The long-awaited addition for the A4000 is finally here. It works, it works fast and the price isn't bad.

Buster DMA Problems

Be warned, however: before you rush out and buy a 4091 card, you had better check your Buster chip version. If it is -09, don't bother: it won't work properly, if at all. As we said in Clipboard ADU 6, you will need version -11 to successfully run most Zorro II cards. The earlier Buster had DMA problems which have since been solved with an upgrade.

If you run SysInfo on your A4000, you will notice that your drive speed is around the 625 Kb/sec mark. This might not mean much, until you consider that the A3000 SCSI controller will give a transfer rate of around 2 Mb/sec. Why is the A4000 so

our Quantum 1 Gb HD. It was certainly faster than our IDE drive — a dramatic 380% to be precise. We were now getting 3 Mb/sec, which was 50% faster than the A3000. It was looking good. And it booted straight away, unlike some other cards we've seen, that sit there until all the HD addresses are checked to see if anyone is home. A 15-second wait on boot-up seems an awfully long time when you're in a hurry and time is money.

Curious Problem

Then we encountered a problem — one that delayed this review, which appears now instead of in ADU 7. Files saved from ADPro were garbled and saved as garbage. DKB weren't aware of the problem; neither were ASDG. With the release of ADPro 2.5, we thought it might be solved. Before that arrived, however, we acquired a new Quantum Empire 1 Gb hard drive. As it was rated at 9ms, we decided it

And it shows — you should see the time it doesn't take to load scans now. I'm sure that we could tweak it around and get even better rates out of this set-up, but we'll save that for a rainy day. If we do, we'll be sure to let you know.

The Hard Facts

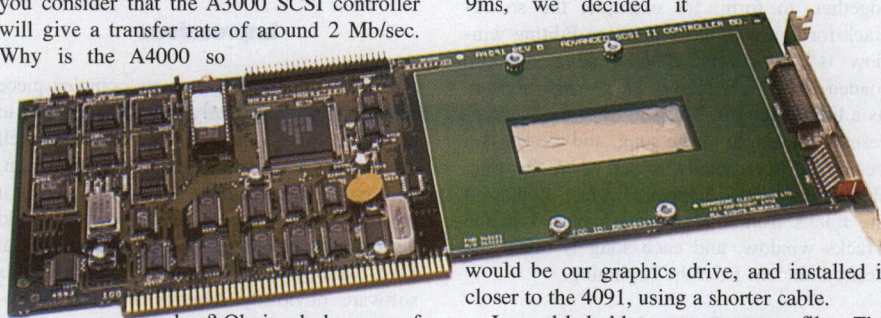
The DKB 4091 is a full SCSI-II card, unlike other SCSI-II-compatible cards. It is Zorro III only; not for the A3000, which also has DMA problems. It will support SCSI Fast bus, which will give extra speed on high spec drives.

The HD can be mounted on the card with power and SCSI cables directly from the card. A high-density, 50-pin, SCSI-II female connector will connect external SCSI devices. This is not the normal SCSI connector that we all know so well; an adapter (readily available) is necessary to connect most other devices. Unlike IDE, you can now connect up to seven devices to your SCSI card.

Eight conveniently-placed DIP switches are accessible from the back of the A4000. The first three set the SCSI ID address of the controller. You can also set the SCSI Fast bus, short/long spinup, synchronous mode, external SCSI termination and logical unit (LUN).

Another convenient feature is the ability to connect the hard drive indicator wires from the motherboard to the 4091, and from the 4091 to the LED. This way the light flashes when you use IDE or SCSI devices.

There is a little circuit board that has been snapped out of the middle of the 4091 card.



slow? Obviously because of the IDE controller, put there to reduce costs on the controller and to save on hard drive prices. The idea was sound, but the result saw SCSI drive prices dropping like stones and A4000 owners muttering under their breaths about slow HDs.

Weak Link

From the beginning, A2000 SCSI controllers were running at 2 Mb/sec, but serious users were paying considerable prices for SCSI-II hard drives, and not being able to take advantage of the high transfer rates. Who cares, you say? We do for a start. When we have 1 Gb of scans and graphics on a SCSI-II drive, we certainly want some kick-butt speed in there.

A few months ago a DKB 4091 landed on our doorstep. The courier was hardly out the door, before we had it loading graphics from

would be our graphics drive, and installed it closer to the 4091, using a shorter cable.

Lo and behold, no more corrupt files. The original ADPro worked faultlessly. So was it the new HD, the new cable, or just the way Pete held his tongue when he put the cover back on the A4000? We'll never know, because we don't have the time to try and corrupt files on purpose; we get enough of that from PPage. If it works, don't touch it, as they say.

The moral of the story is that we don't think the 4091 was at fault; rather some combination of drive and cable or similar. So if you do experience problems, try other options and see what happens.

Incredible Increase

Now with the new Empire 1 Gb installed, what did SysInfo have to say? 4.1 Mb/sec! That's an incredible 530% increase (or 6.3 times faster) in transfer rate than the IDE HD.

Warning!

All transfer rates from SysInfo should only be regarded as being relative to each other. We have tried different disk performance programs, which all give different results because they use different tests. Some figures were double the readings SysInfo gave us. Because SysInfo is so widely distributed, we have used its drive speed test in all examples.

SCSI-II transfer rates are quoted at 10 Mb/sec, which, in reality, is rarely achievable. Other factors, such as seek times, buffers and spin rates all come into the calculation.

Use the figures in this review to compare the INCREASE in performance, rather than the absolute speeds attainable.

This is a SCSI-II terminator that you use to terminate a daisychain SCSI cable, if you don't have a drive connected. While the manual isn't extensive, it covers everything you need to know to get the 4091 running. Don't expect any in-depth information on SCSI-II though: you just get the basics.

Summary

Once you've decided to buy a DKB 4091, all you need to do is set the DIP switches, install it in your A4000, plug in your new SCSI HD, and away you go. Connect your SyQuest drives, CD-ROMs, tape backups or anything else you happen to have, and go to it.

We've just heard that the price of the 4091 has dropped; so I'd recommend a serious look at this useful card that turns your A4000 HD from a Bambina into a Ferrari. ■

Supplied for review by DKB

DKB 4091
NZ\$845 A\$699

SPEED

★★★★★

FEATURES

★★★★★

EASE OF USE

★★★★★

MANUAL

★★★★★

VALUE

★★★★★

A2000	X
A3000	X
A4000	✓

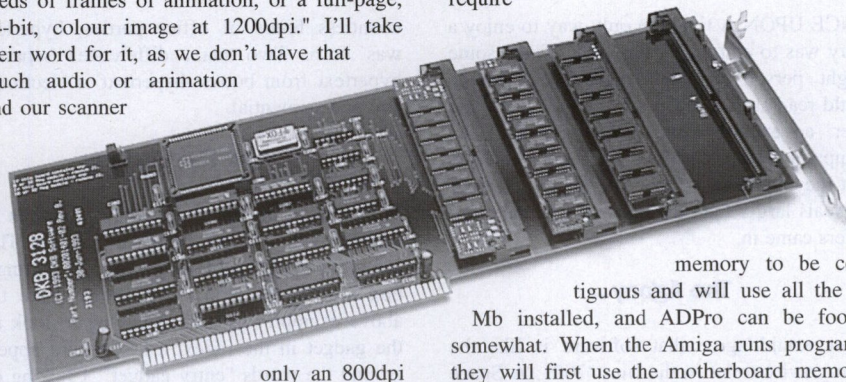
24%

Graeme Cheesman mixes it up with the...

DKB 3128

DKB ■ USA

AS DKB SAY in the manual: "The board that breaks the 18 Mb limit." The DKB 3128 can handle 4 x 32 Mb, 72-pin, 32-bit SIMMs and will run in the Zorro III Amigas, the A3000 and A4000. This means you can add 128 Mb to the 18 Mb on your motherboard and get 146 Mb! "That's enough memory to store and manipulate an hour of CD-quality audio, hundreds of frames of animation, or a full-page, 24-bit, colour image at 1200dpi." I'll take their word for it, as we don't have that much audio or animation and our scanner is



only an 800dpi model. I do know that you need 147 Mb to scan an A4 page in 24-bit at 600dpi, but where would I save it to later?

Again, this is a Zorro III card, and again, note the warnings about Amiga versions that don't work properly — this time, A4000/040 revision 3.0 or older. You need to have revision 3.1 or greater to be compatible with the DKB 3128.

Set-Up

There isn't much to say about RAM cards, except that, in this case, you can mix different SIMM sizes. Combinations of 4 Mb, 8 Mb, 16 Mb and 32 Mb SIMMs can be used. There are three jumpers to be configured, so that the 3128 card knows what to look for. The default settings are for all 4 Mb SIMMs, which will probably be the most common configuration.

A program must be run, so that the 3128 can configure for mixed SIMM sizes, but that's as tricky as it gets.

What does it do?

We've installed our 3128 with all SIMM slots filled with 4 Mb SIMMs. There are another 12 Mb on the A4000 motherboard. The two banks of memory are not contiguous (can't be accessed as one whole block of memory), but can still be very useful. ImageFX doesn't require

memory to be contiguous and will use all the 28 Mb installed, and ADPro can be fooled somewhat. When the Amiga runs programs, they will first use the motherboard memory; we could never get access to a full 16 Mb, because some memory was always in use by the system. So we left 12 Mb on the motherboard for such purposes, and set the 16 Mb up on the 3128 card. This way the contiguous 16 Mb is used last, and usually not at all, until a program like ADPro looks for the biggest contiguous block and voila — there are 16 Mb!

32-bit RAM in a 32-bit Zorro III slot certainly provides impressive speed; it sure beats using virtual memory.

This manual is smaller still, and contains some funny typos, but there is even less to write about RAM cards. However, it covers the essentials.

Summary

The ability to mix SIMM sizes is extremely useful, avoiding the need to discard old SIMMs when you want more memory. The DKB 3128 is ideal for those into high-powered graphics or sound. ■

Supplied for review by DKB

DKB 3128
NZ\$725 A\$599

SPEED

★★★★★

FEATURES

★★★★★

EASE OF USE

★★★★★

MANUAL

★★★★★

VALUE

★★★★★

A2000	X
A3000	✓
A4000	✓

86%

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A Guide to the GUIDE

Jarno van der Linden takes a break from the Shell, and introduces the hypertext reader for the Amiga — AmigaGuide.

ONCE UPON A time the only way to enjoy a story was to employ a storyteller. Then, some bright person invented books, and people could read stories at their leisure. Many years later, an even brighter person invented the computer. Not long after, companies realised that they could make more money by creating manuals larger than the boxes the actual computers came in.

The Agony...

Most would agree that software is like the zero-gravity toilet in the film "2001: A Space Odyssey"; you're itching to use it, but have to read the instructions first. You persevere with the introduction, which typically begins:

countless hours of office parties, hypertext was born. Two main differences separate hypertext from books: hypertext is electronic and non-sequential.

... And The Ecstasy

In hypertext, one or more parts of text can be linked to one or more other parts of text. This linking is made visible to the user by putting a box around the word to click in. Take the above example: instead of having to look up the gadget in the index, a box would appear around the words "entry gadget". Clicking on it will instantly transport you to the section describing this gadget, where there might also be more links to other pieces of text. With

SHELL SHOCKED

package (it doesn't cost you a cent!), which now also comes standard with WB 3.0 (in the form of MultiView). More and more Public Domain programs use AG (as I shall call AmigaGuide to preserve my old, though precious, keyboard), for their documentation; commercial programs, like the SAS/C compiler, use it for online help.

The User Perspective

To install the program, just follow the instructions. All you need is the amigaguide.library in your LIBS: drawer, and the AG program somewhere handy on the Workbench disk. May I suggest the Utilities drawer. There is also an optional help file that you can put in the S: directory. An installations script is provided (though strangely, a Shell script, not an Installer version). Note that there are two versions of AG: one for WB 3.0 (V39), and another for everyone else (V34). Now, double-click on a guide file (such as the guide version of the AG manual), and let the magic unfold.

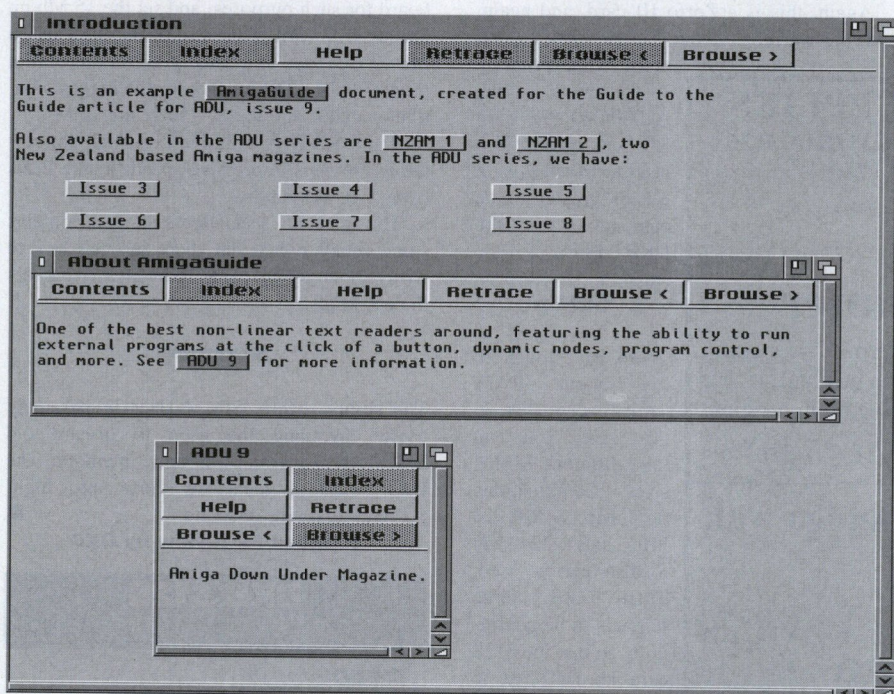
You can either use the mouse ("Your mouse is your friend"), or the keyboard: TAB and SHIFT-TAB to cycle through the gadgets and RETURN to select a gadget. Holding SHIFT while selecting a link will force the new node to open on a separate window, which you can close by pressing the ESC key. Remember that you can use Retrace if you get lost (and you will occasionally — that's the fun of it!). AG also has a bookmark facility for even faster access.

The Author Perspective

An AG file is like a normal text file, with "@" commands thrown in. Note that you do not "write" an AG file; instead, reference is made to "authoring" an AG database. Any AG file starts with @DATABASE (in general, case is not important). This defines the name of the text. For example,

```
@DATABASE "ADU.guide"
```

tells AG that this document is called "ADU.guide" (this name does not have to be the same as the actual filename). A block of text is called a node, indicated by an @NODE at the beginning, and an @ENDNODE at the end of the block. The first node is the Main node, which usually takes the form of a contents page:



"Congratulations! You have purchased the latest, greatest, most expensive...etc. Select the entry gadget to enter." What/where/who is this gadget? Off to the index — in the introduction? But I skipped that because it was so boring! Now I have to read the whole thing...

The point is that although sequential progression of a book is adequate (and essential) for a story, it can totally fall down when it comes to instruction manuals or textbooks. So, after millions of dollars of research and

another click of the mouse button, you are back to where you started, to continue reading. As you can imagine, this allows very quick access to the information you are seeking.

The Hype

Until recently, there was no standard hypertext package for the Amiga. Now, Commodore themselves have rectified the situation with AmigaGuide — a freely-distributable


```
@NODE Main "The Content Page"
[Some text and links]
@ENDNODE
```

Now we can make nodes. To make a link to a node, we use "@{}". For example:

```
@{"The introduction" LINK Intro}
```

This will show "The Introduction" on the screen inside a gadget, and make it a link to the node called "Intro". These links can be made anywhere in the text:

```
Select the @{"entry gadget" LINK Entry-
Gad} to enter.
```

When you click on "entry gadget", the window will clear and be replaced by the Entry-Gad node. It might not always be desirable to clear the window. Sometimes it is much handier to open a new window (for example, when the link is to a definition of a term). This can be achieved by replacing the command LINK with ALINK:

```
@{"Select" ALINK Select} the @{"entry
gadget" LINK Entry-Gad}.
```

```
[...]
```

```
@NODE Select "Select"
```

To click once on an object such as a gadget or icon.

```
See also @{"Activate" ALINK Activate}
```

```
@ENDNODE
```

In the button strip displayed by AG are "Contents" and "Index". In essence, these buttons also call nodes. You can define the nodes by @TOC and @INDEX respectively, followed by a node name. The fact that these can be put anywhere, allows multiple indexes and contents in different parts of the text. Unfortunately, AG can't, as yet, create an index automatically. Two other buttons are the browse buttons. Use of @NEXT and @PREV determines which nodes to display when the user browses forwards or backwards.

What is truly fascinating is that links don't have to point to a node in the same document. By using a file path for a node to link with, you can access nodes in other documents. For example:

```
@{"More stuff" LINK guide2/stuff}
```

will link with the node "stuff" in the AG document "guide2". This way, you can have links, not only across one file, but also across a whole directory — even spread over several disks.

For that matter, they don't have to point to nodes at all. AG can run other programs, instead of displaying text. Now things really start to heat up. First, you can run ARExx scripts:

```
@{"Click" RX example.rexx} to try.
```

Even better, you can run other programs:

```
The @{"Amiga CD32" SYSTEM "display
cd32.iff"} is amazing!
```

We can also actually display pictures with the text. Try:

```
The @{"Solar System" SYSTEM "showanim
planets.anim"} is our home.
```

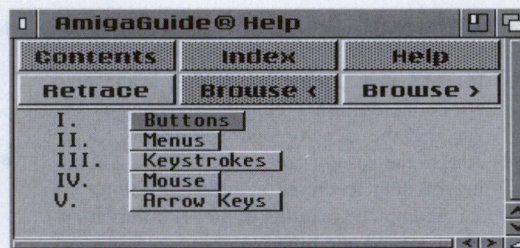
Even animations are possible to accompany the text. Now you can do virtually anything. Shades of multimedia here.

Unfortunately, Commodore haven't supplied a utility to create AG files. Instead, use your favourite text editor. Admittedly, it is hard to see just how everything is linked

together. To alleviate the problem, researchers are working on editors for AG. I expect them to appear soon in the Public Domain, so keep an eye on the PD column.

Tips

- ◆ Remember that you are dealing with hypertext: if there is a link between two pieces of text, the user might not have read everything in between. Random Access is the operative phrase.
- ◆ Consider including a glossary of terms, to which the user can refer.
- ◆ A node should relate to one topic, not one paragraph. If the user wants to know about woodchucks, reading one node should do it (simply saying "ZOT" is permitted in this case).
- ◆ Any terms that might be unfamiliar to the user should have their own node or refer to an explanation in the text, so that if the user does know the term, no skipping is needed. This way, the expert can quickly read the



Confused? AmigaGuide has a built-in help system!

instructions, while the novice can obtain in-depth explanations. If the file threatens to become too big, split it up. Remember that nodes can be linked across different files.

- ◆ You might have wondered: If "@" is used to indicate a command, how can I write an "@" in the text? Simply put "/" in front of it and AG won't interpret it as a command indicator, but just as text.

Hyper Power

There is even more to AG than what we have discussed so far. Another useful feature is that AG has an ARExx interface, which can be controlled using ARExx scripts.

There are also bonuses for programmers. Other programs can use the "amiga-guide.library" to create online help using AG. Full instructions and examples of how to achieve this (using the C language) are included in the package.

Dynamic nodes (DNODE, instead of NODE), are a unique feature of AG (or so the documentation says). A program can hook into AG to provide a node. When AG comes across a DNODE, it will tell the program that owns that DNODE to supply the hypertext. The text doesn't have to be static; in fact, it can be different every time the node is called, i.e., it is dynamic. For example, imagine an AG file about students and courses at a university. Students would be linked with their courses, all nicely indexed according to name and course taken, with pictures for each stu-

dent available using the SYSTEM command described above. The course information can be static. However, student information — course marks, for instance — can change often. For this, a program would have a hook into AG to provide a Dynamic node. To see a student's results, click on the button marked "Marks"; the hook program will retrieve the current marks from a database and pass it on as a node to AG, which will then display it. Impressed? I am. Again, documentation provided in the distribution archive tells programmers exactly how to do this.

Most people learn by example. I find this the best way to gain an understanding of how to create AG files. The documentation accompanying AG — both normal text and hypertext versions — is excellent for learning how to change existing text files into hypertext, simply by putting in links. Probably the best example of AG use I have come across so far, is the ARExxGuide by Robin Evans — a complete manual on the ARExx language, with command descriptions, interactive tutorials, and more. A good example of what can be achieved with AG, ARExxGuide can be found on Bulletin Boards everywhere and is well worth looking for. If you can't find it, try your friendly local PD library (the same goes for the AG distribution as well). Those smart readers with ADU subscriptions will see online help in action with ReOrg 3.1, on ADU 7's PD disk.

That's all for this overview of AmigaGuide. It is fast becoming a standard way of supplying online documentation on the Amiga, so get out there and get hyped! ■

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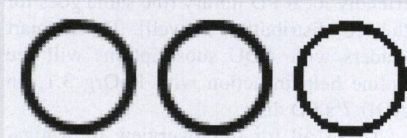
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WORD f o r WORD

Aliasing

In computer graphics, aliasing refers to the stair-stepped appearance of diagonal lines. Therefore *anti-aliasing* is the category of techniques used to smooth the jagged appearance of diagonal lines i.e., the pixels that surround the edges of a greyscale image which appears jagged in comparison with the background, are filled in with varying shades of grey in order to blend in. (See also *dithering*.)



Bus

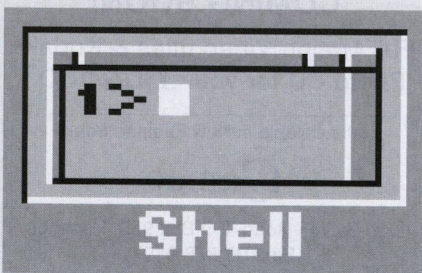
A bus is a common channel or path between hardware devices, either internally between components in a computer, or externally between terminals and computers in a communications network.

Backup

This term refers to additional resource files for emergency use. Backup disks are copies of the latest files from your hard disk or program disks. Data can be lost or corrupted at any time from either medium; therefore making backups is a vital part of any personal computer user's discipline. Unfortunately, it is a lesson that most of us learn the hard way.

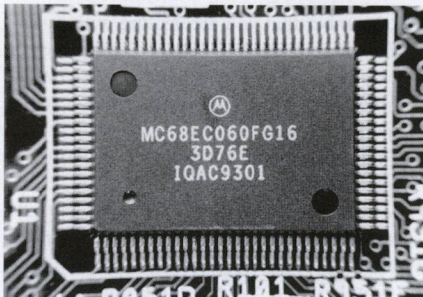
CLI

Command Line Interface. A means by which you can issue commands to the computer via your keyboard. The program used to do this is called the Shell.



CPU

Central Processing Unit. The "brain" of a computer, containing the integrated circuit chip responsible for executing the instructions in a program e.g., 68000, 68040.



Chip RAM

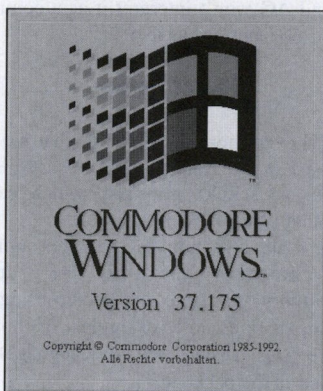
The area of RAM accessible to the Amiga's custom chipset. Used for graphics and sound data.

Dithering

In computer graphics, dithering is the creation of additional colours and shades by varying the density and patterns of dots. And in the case of colour dithering, the mixing of dots to create a different colour — for example, creating purple by alternating pixels of red and blue.

Emulator

An emulator is a device that is built to act like another. The Amiga can emulate a Mac or a PC, for example, by installing the appropriate card and/or software. The PC emulators are called bridgeboards, because they bridge the Amiga and PC slots on the Amiga motherboard.



Fast RAM

General memory used by programs and data.

Giga

Means billion, so 10 Gigabytes or 10 Gbytes is 10 billion bytes. In the computer industry, the Gigabyte is defined as 1024x1024x1024 bytes, or 1,073,741,824 bytes.

Interface

An interface is a connection between two devices. Hardware interfaces are plugs, sockets or wires that carry electrical signals. Software interfaces are the languages, codes and messages that programs use to communicate with each other, such as between application programs and the operating system. User interfaces refer to the devices the user utilises to convey instructions to the computer like the keyboard, mouse or joystick.

Macro

The term means substitute and can refer to several different techniques.

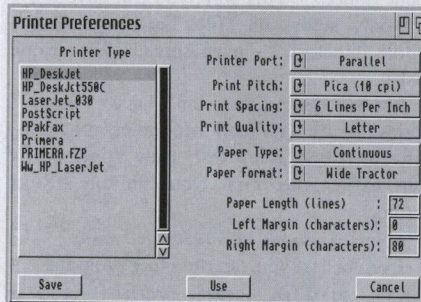
- ◆ In assembly language, a macro is a pre-written subroutine that is called upon at various places in the program. At assembly time, the macro statements are substituted with either the complete macro subroutine, or a series of instructions that branch to the subroutine.
- ◆ In the dBASE programming language, a macro is a variable which references another variable that actually contains data. At run time the macro variable is substituted with the data variable.
- ◆ In application programs such as spreadsheets and word processors, a macro is a small program which automates operations normally activated by selecting menu items.

Motherboard

The main circuit board in a computer on which the CPU and circuitry are located.

Printer Driver

A program that allows the computer to communicate with the printer, taking the information from the computer and converting it to a language that the printer can understand.



ZIP

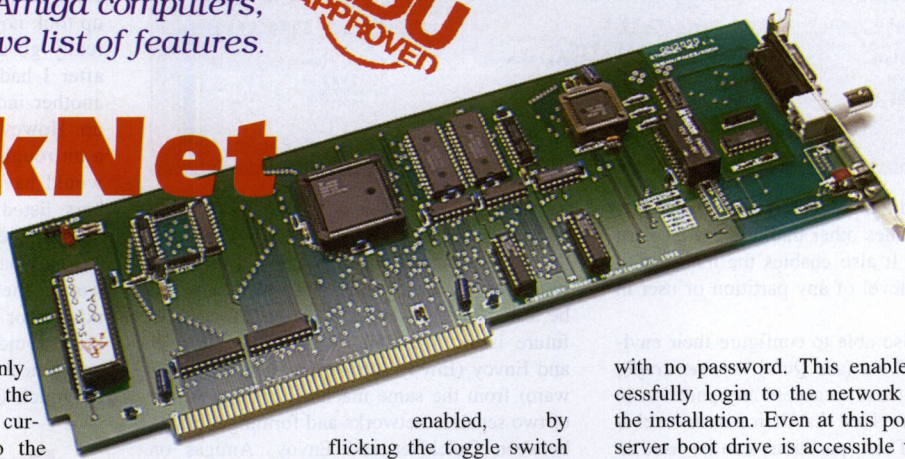
Zig-zag In-line Package. These are the memory chips used most commonly on the Amiga 3000 motherboard and other third party boards available for the Amiga. They are physically different from DRAM chips, insofar as they have a zig-zag pin configuration. The chips are in two modes, either Page Mode or Static Mode, which refer to the chip's memory speed.

Daryl Jay looks at QuickNet, the latest network solution for Amiga computers, boasting an impressive list of features.



QuickNet

RMF ■ Australia



LACK OF FLEXIBILITY certainly didn't appear in the vocabulary of the product's designers. QuickNet currently provides networkability to the A2000, A3000 and A4000 in the form of the QN2000 (with an A500, A1200, CD32 and a 32-bit Zorro III model being made available shortly). It is a "peer to peer" Ethernet network, which basically means that there is no dedicated server; any computer can be a server when another computer in the network wants something from it. All QuickNet cards come standard with thick Ethernet connectors, and either thin Ethernet (coaxial cable, like the cable connecting your TV to your aerial), or twisted pair (yet another fancy name — this time for telephone cable).

A Minor Hurdle

All well and good, but you'll want to know how this network performs in the real world. The cards I was given for testing were the QN2000 models, which fitted into the A2000, A3000 or A4000. Since I only had two cards for review, I cannot comment on potential difficulties with a larger network. After getting two Amiga 3000s together, I proceeded to install the QuickNet Ethernet cards. (Note: Opening your machine may void your warranty. Please check with your local dealer for the correct steps to take for installation.) The fact that the A3000 is slightly smaller than the A2000 means that Zorro cards designed to fit the A2000 are the wrong size for the A3000. Like many other manufacturers, RMF have cut a step in the card so that it will comfortably fit the A3000.

Next I connected the two cards, using the coaxial cable (thin Ethernet) and connectors provided. Funnily enough, the point of termi-

enabled, by flicking the toggle switch to the up position, as indicated in the manual. With the hardware installation complete, it was on to the QuickNet software.

The QuickNet Install disk uses the Commodore installer, which in itself simplifies the entire installation procedure. When you first run the installer, two options are offered: join an existing network or start a new network. Since this was the first installation, I chose the latter. The installer then proceeded to set up the machine as the master server, where all QuickNet configuration and user files are kept. The master server, the core of the operation, is essential to the running of the network. The whole process of setting up the master server was extremely fast: several straightforward questions were asked, with appropriate answers usually suggested. The software is installed on your system partition in a drawer called — you guessed it — QuickNet. It also adds a few lines to your user-startup to tell the QuickNet support programs where the configuration and user files are, and to enable the machine as the master server. Installation took up surprisingly little hard drive space — well under 100 Kb.

Couldn't Be Easier

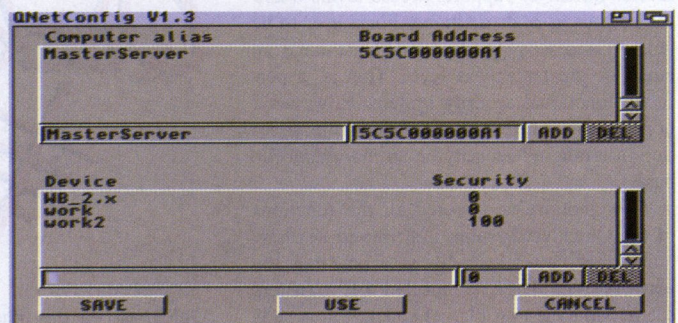
The next step in setting up the network is to get the workstation up and running, which has to be the simplest approach I have seen. All you have to do is turn on the other machine, to be almost instantly presented with a login request (see *QNetUser Login* left). The login requester appears before the startup-sequence even kicks into gear, all courtesy of the QuickNet software built into the ROMs of the network cards. This whole approach makes setting up a network — even a very large one — incredibly easy.

Since there is currently no user set-up on the network, you will have to login as "QNet"

with no password. This enables you to successfully login to the network and complete the installation. Even at this point, the master server boot drive is accessible via an icon on the workstation's Workbench. Now you can run the QuickNet installer again and choose the option to join an existing network; you will later be asked to enter the user name you wish to use on the network. The installer then stores this information back on the master server. It also makes an assign in your user-startup across the network to the master server, where all user and configuration files are located, so that you can edit your user settings.

A Useful Option

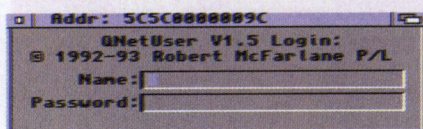
In addition to setting up a basic network of



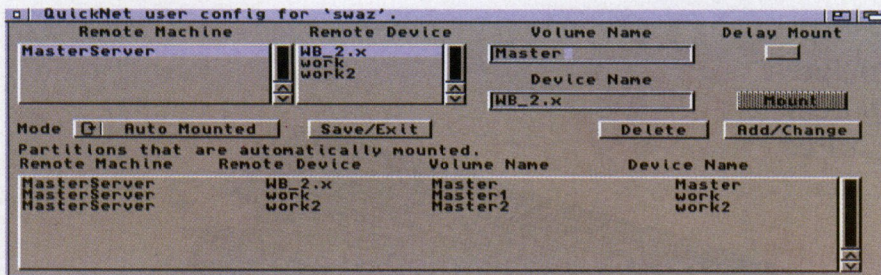
workstations/servers, QuickNet allows you (by using the QuickNet install in expert mode), to set up a boot server and/or a print server. The boot server is a partition in the network specially set up by the installer, to enable workstations without hard drives to boot from it. This extremely useful option means you can make full use of machines in a network, even if they don't have a hard drive.

It even allows more than one user to boot off the partition at the same time. The print server enables the entire network to use a single printer, which is connected to a machine in the network. This option requires a spool directory, where all files directed to the printer can be queued while waiting to be printed. QuickNet has two programs to deal with this network configuration: one for the network manager and another for general users.

The network manager has the ability to change the network set-up by using QNetConfig (see *QNetConfig* above), a utility which



nation was mentioned in the index, but never referred to in the manual. For the network to function correctly, the first and last computers in the network must be terminated with a resistor pack, which plugs in where the cable to the next machine would normally be. Finally I checked to make sure the cards were



allows the addition of computers to the network, using names other than the unique card serial number. It also enables the manager to set the access level of any partition or user in the network.

Users are also able to configure their environment. QNetUser (see *QuickNet user config* above) allows users to access any partition in the network, provided that their access level is high enough. These partitions can be used in different ways. Firstly, auto-mounted partitions automatically appear on your Workbench when you login. Secondly, manual mounting makes the partition available to the user, but does not auto-mount (these partitions can be mounted by the user by using a utility called QNetMount). Thirdly, a boot partition is used to boot from if the user's workstation does not have a hard drive. Finally, on a different note, Change Password enables the user to change his/her password.

Future Security

The concept of security is based around access levels. QuickNet supports access levels 0-255 for both users and partitions. For a user to be able to access a partition, he must have an equal or greater access level. This is a perfectly functional security system. However, I hope that in future, QuickNet takes the direction of arranging security on an individual file basis.

Now that we've covered all the functions of the QuickNet system, it's time to see how quick this network really is. Thrashing the network with large, controlled file transfers seemed like the best plan of attack. The results showed transfer rates of approximately 185 Kb per second for transfers of 1.5-3 Mb in length. In comparison, Envoy running on A2065s (Commodore Ethernet Cards) showed results of approximately 110 Kb per second for transfers of 1.5-3 Mb in length. Obviously these results may vary under heavy system loads.

However, when transfers of 6 Mb were tried on the QuickNet network, the transfer rate dropped to an almost unbelievable, low rate. This is a DMA problem with some early A3000 models. RMF have now fixed their software to avoid this problem but it is a bug with the A3000 not QuickNet.

Open-minded Approach

Another appealing feature of the QuickNet solution is its compatibility/integration with the Commodore Envoy Network package, with the inclusion of a SANA II (Standard Amiga Network Architecture) device driver

for the QuickNet Ethernet cards. At the time of review the new ROMs and software with the SANA II driver had not been delivered, so I couldn't try it out. QuickNet and Envoy will be tested side by side at the ADU office for a future issue. We will be running QuickNet and Envoy (Envoy software and A2065 hardware) from the same machine, making it part of two separate networks and forming a bridge between QuickNet and Envoy. Amigas on each network will be able to access Amigas on the other network!

Envoy (licensed from Commodore by IAM — Intangible Assets Manufacturing) is not a competing product as such, as it provides only a software solution (you have to buy your own networking hardware) for networking Amigas.



QuickNet, on the other hand, provides both software and hardware. This open-minded approach makes me as a user feel much more secure investing in QuickNet, as it would keep QuickNet compatible with any future Commodore network plans, even without a QuickNet software upgrade. Overall, Envoy compatibility is a definite plus.

The speed differences in my Envoy/QuickNet comparison seem to be more software-based. Envoy works through the SANA II drivers, which creates a bottleneck as far as transfers go. Because QuickNet does not have to use SANA II, the RMF team have been able to speed up their own drivers. RMF have also written an improved version for Envoy, which gets Envoy working quicker. QuickNet will always remain one step ahead though.

Simplicity Itself

Overall, I've been very impressed with the QuickNet hardware and software. The ease

of installation (albeit with a minor hiccup inserting the card) of the hardware and software, along with the autobooting QuickNet cards to add workstations, meant that setting up took no time at all. To be honest, I didn't really go through the manual in depth until after I had the network up and running — another indication of how easy it was to set up. However, I have found the manual to be a bit rough around the edges. For example, I would have liked an index with page numbers listed next to the topics, and several blank pages between sections left me wondering what was missing. Nevertheless, what was in the manual was very clear, for both novices or otherwise. I would have to recommend QuickNet to anyone seriously considering an Amiga network — it really doesn't get much simpler. ■

Press Release!

QN500

The latest from Norman Pakes at RMF is that the QN500 should be released by the time you read this. This A500 version fits the bus expansion on the side of the A500 where the hard drive plugs in. Because you can boot directly from any hard drive in the network, you can save money by not fitting a hard drive. A RAM expansion card to fit the QN500 will also be released later.

QN1200

Close on the heels of the QN500 will be the QN1200 and QNCD32. The QN1200 fits the trapdoor slot of the A1200 and has two SIMM sockets fitted.

QNCD32

The QNCD32 fits in the back slot of the CD³² where the MPEG cartridge is installed. If you have an MPEG cartridge, an adapter will allow you to fit both. The theory is that once you fit the QNCD32 and an A4000 keyboard, the CD³² will boot off a network hard drive to effectively give you an A1200 terminal. Another handy use for that CD³² that only plays games!

QN3000+

Later still, we'll see the QN3000+ — a Zorro III 32-bit card for the A3000 and A4000. Basically the same as the QN2000, this will work significantly faster. ■

Supplied for review by
Resource Management Force

QUICKNET QN2000

NZ\$599 A\$469

SPEED

★★★★★

FEATURES

★★★★★

EASE OF USE

★★★★★

MANUAL

★★★★★

VALUE

★★★★★

OCS / 1.3 ✓
ECS / 2.0 ✓
AGA / 3.0 ✓

90%

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EtherNet network system for the Amiga.

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THE SYSTEM

QuickNet is a complete Network System consisting of a plug in EtherNet card and integrated software.

In any situation where more than one Amiga is involved QuickNet will allow computers to share files and peripherals (e.g. printers). This results in increased productivity, frees up hard drive space, reduces computer system administration and maximises the usage of computer resources.

THE HARDWARE

All models are equipped with thick EtherNet and either thin EtherNet (coaxial cable) or twisted pair. The hardware is based on an industry standard chip set and complies with the IEEE 802.3 standard.

THE SOFTWARE

- * Version 1.3, 2.x and 3.x compatible.
- * Works with any commercial accelerator and hard disk drive controller.
- * QuickNet at it's name implies is FAST.
- * Completely transparent in it's operation.
- * QuickNet is easy to use.
- * Installation is straight forward and comprehensively documented step by step.
- * QuickNet has a unique system allowing "diskless" computers to boot "auto-magically" off any computer on the network equipped with a disk drive.
- * The manual provides a good grounding in basic network technology and includes a comprehensive glossary of terms.
- * QuickNet is a "peer to peer" network for maximum flexibility.
- * SANA II device driver also included.

QN500

- * Connects to the expansion connector on the left side.
- * Optional memory expansion with upto 8 Meg of FAST RAM using 1 Meg or 4 Meg standard 72 pin SIMM's.

QN2000

- * Plugs into any available 100 pin connector on the A2000, A3000 or A4000.

AVAILABLE SOON

- * A1200 and CD32 combination network card(32 bit transfers) and memory expander using standard 72 pin SIMM's (fits in the "trapdoor").
- * "QN3000+", Zorro III card with Super Fast 32bit transfers to the network card for blistering speed and low CPU overhead.

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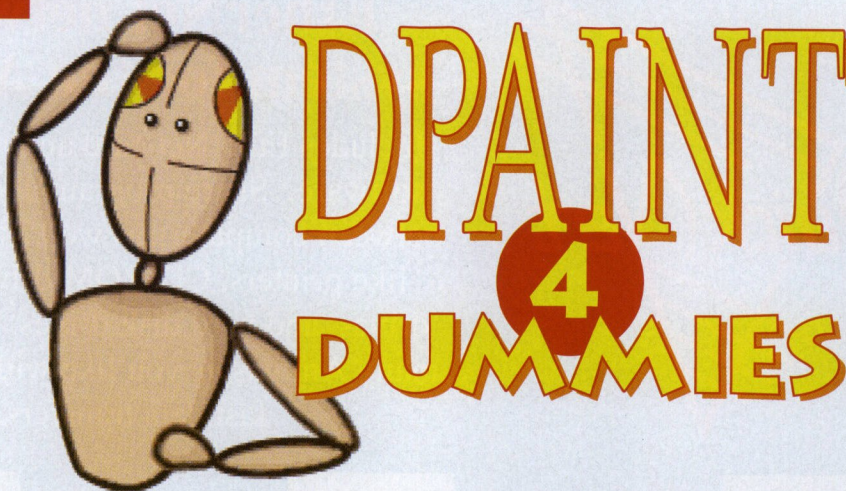
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*In response to the many requests for beginner DeluxePaint tutorials, **Matthew Buchanan** presents a new column for those who consider themselves a little inexperienced when it comes to computers. Of course, it's meant in the nicest way, so don't be shy now...*

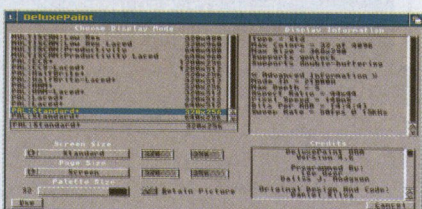
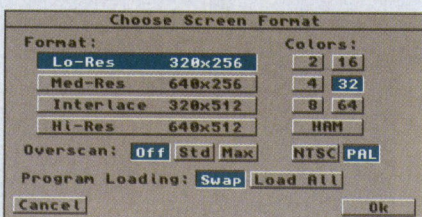
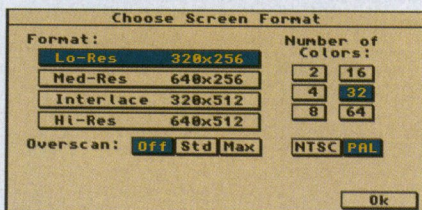


DESPITE THE RELEASE of Digital Creations' excellent Brilliance, DeluxePaint from Electronic Arts remains firmly ensconced as the most popular art package used on the Amiga today. In this series of short tutorials, I will attempt to familiarise new users — and those not so new — with the basic operation of DPaint's tools, venturing into simple animation and revealing a few of the tricks used by me and others in the professional Amiga industry.

DPaint stands currently at version 4.6, which includes support for AGA graphics. However, as this column is aimed at beginners, I will be working almost entirely in one of the simplest modes available: 320x256 in either 32 or 64 colours. Fred — my Crash Test Dummy mascot — was created in this mode in a little under 40 minutes. This mode is not of a high enough resolution for many professional applications, but for this and ensuing tutorials, it will be more than adequate. It also happens to be one of the few modes displayable on all Amigas.

The Startup Screen

Depending on your version of DPaint, you'll be faced with one of the three screens shown,



From top: Startup screens for DPaints III, IV and AGA.

which have been configured to the mode I will use for tutorials. Apart from the settings for screen size and number of colours, the only extra gadget worth mentioning is the "Program Loading" option in DPaint IV, which may be set to "Swap" or "Load All". Those with low-memory Amigas (i.e., 1 Mb of RAM or less) should choose the "Swap" option, which tells DPaint to load only those parts of the program required by the user. In ADU 2's Virtual Art, I introduced users to the DeluxePaint toolbox. Because Dudley will be concentrating on more complex techniques in that column, and for the benefit of our Australian readers, I will reintroduce these tools now.

The Toolbox

DPaint's toolbox should be familiar to you, even if you are a novice user. In its top panel is a series of ten pre-defined brushes. DPaint is able to paint with any one of these brushes, or with any custom brushes which you might create. The default brush is a single pixel.

Below the pre-defined brushes are two rows of nine tools each, five of which are "double-barrelled", in that they provide both outline and solid tools, depending on where they are clicked. The "Tools of the Trade" sidebar gives a brief explanation of each of these tools.

Directly below the Undo and Clear tools is the current colour indicator, which is displayed as two rectangles, one inset within the other. The inner rectangle represents the current foreground or "pen" colour, while the outer displays the background or "paper" colour. A left mouse click on the colour indicator places the user in "Pick Colour" mode: the mouse pointer changes to an eye-dropper, allowing the user to select a new pen colour from any of those on-screen, either in the picture or from the palette. A right mouse click on the colour indicator opens DPaint's Palette requester.

Most programs — especially those designed for video use — treat the first colour in the palette as transparent. Files saved from DPaint also follow this standard, but while editing a file, any of the palette colours may be used as a temporary background colour, a feature which we will employ in future tutorials.

Below the colour indicator are a number of

colour wells equivalent to the number of on-screen colours requested by the user (except in Ham mode, when several banks of colour wells are used). A left mouse click on any of these wells selects a new foreground colour; a right click, a new background colour. This does *not* mean that the background colour of your picture changes — rather, DPaint's internal background colour (used for brush cutting and background colour painting) changes.

The Palette

The creation of a suitable palette should invariably be the first step in the creation of an image in DPaint. Unlike 24-bit paint packages in which all 16.8 million colours may be used if desired, the selection of colours is critical to the outcome of an image for those modes limited to 64 colours or less. If we take the Fred image as an example, I chose the five basic colours with which I wanted to create the image — white, black, yellow, red, and light brown — and then created "spreads" between these base colours to fill out the palette. (Three colours remain unused, as you can see in the palette diagram.) The spreads were created to take advantage of one of DPaint IV's features — anti-aliasing.



From left: DPaint IV's anti-aliasing at high, low and none.

DPaint features two levels of anti-aliasing (low and high), a process which places intermediary colours between the foreground and background colours in use, creating smoother edges. The anti-aliasing process selects its colours from those in the palette, which is why "spreading" between selected base colours gives the best results — the more intermediary colours, the smoother the edges. Anti-aliasing is not available in DeluxePaint III or lower.

The Palette Requester

As well as the method described earlier, the Palette requester can be opened by selecting the appropriate menu item (Picture/Change

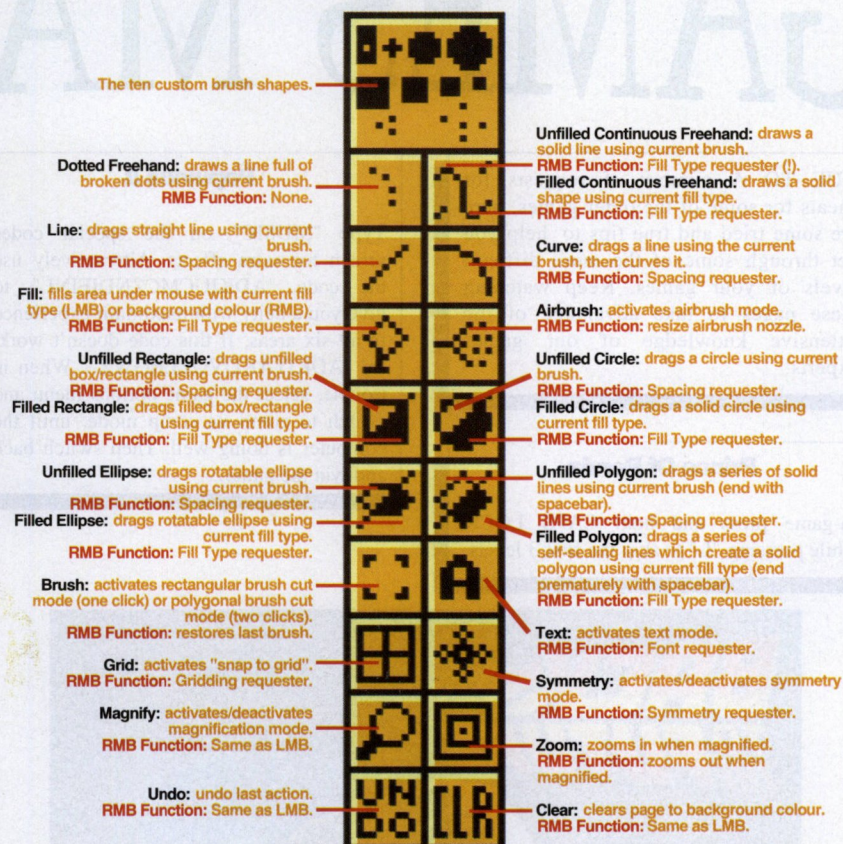
Colour/Palette for version 3 or Colour/Palette/Mixer On/Off for version 4.x), or by pressing the p key. In the remaining paragraphs, I will refer to DPaint IV — those still using version 3 or lower should consider upgrading to take advantage of the much-improved interface, as well as features like Ham support and, of course, anti-aliasing.

DPaint's palette is displayable using either RGB (for Red, Green and Blue) or HSV (for Hue, Saturation and Value) colour space — simply click the gadget marked RGB to swap to HSV and back. Other gadgets in the Palette requester are Copy (for duplicating colours), Ex (for swapping colours), Spread (for creating colour spreads), Pick (for selecting a colour from the mixing area), Delete (for removing colours), Revert (for undoing all changes), Undo (for undoing the last change) and Ok (for closing the requester). Two arrow gadgets at the right-hand end of the palette allow access to colour wells greater than numbers 0 to 31.

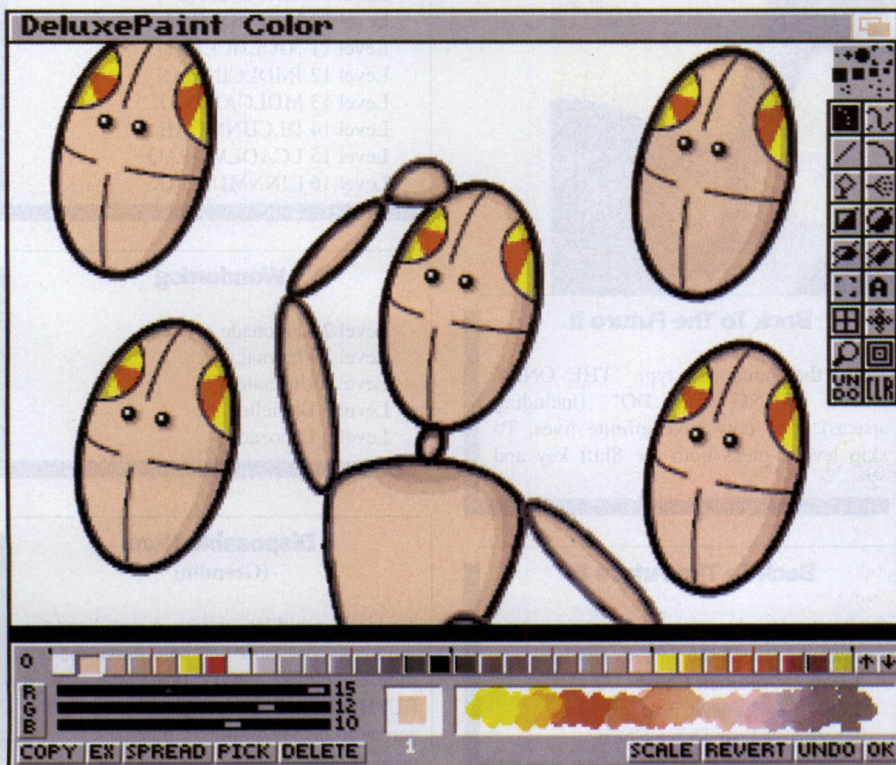
For those interested, the Palette requester actually opens on a Ham screen, allowing many more than the 32 possible colours of our work screen to be displayed, such as those shades which you might create in the mixing area — that large rectangular space to the lower right of the requester. Select a large custom brush from the toolbox and draw — using the left mouse button (LMB) — anywhere in this area. As an artist mixes his paints, so too can you mix colours, simply by selecting different shades from the palette and smearing them into one another. If you create a colour you are particularly proud of and wish to add to your palette, select an empty colour well and use the Pick tool to grab the colour.

As always, experimentation will enable you to garner the greatest amount of knowledge. Experiment with the tools which

TOOLS OF THE TRADE



are explained in this article, and try to become familiar with how the Palette requester works. In the next article we'll look at techniques for creating titles for video or project work. ■



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GAMES MASTERY

DUE TO A number of requests for cheats for some of the older games, here are some tried and true tips to help you get through some of the more difficult levels of your games. Keep watching these pages to take advantage of the extensive knowledge of our games experts!

Prince Of Persia

In-game press and hold CAPS LOCK while pressing "L" to skip the first 3 levels.

Populous II

Type "MUSIC" on the special codes screen for extra effects. Alternatively use the code "ADKIUCMCZNDIFINL" to give you a deity with maximum experience in all six areas. If this code doesn't work, try "ADKITAKDVGZLRGWZ". When in trouble, select the game options menu and switch to comp vs comp mode, until the computer is doing well. Then switch back and win the game.

Christmas Lemmings (Psygnosis)

"Blitz" - Level Codes

Level 1 CAJJNNHBBB
Level 2 IJJFLCCBG
Level 3 NJLFCADBD
Level 4 JLFLCINEBM
Level 5 LFLCAJNFBF
Level 6 FLCIKLLGBN
Level 7 LCANNLFHBL
Level 8 CINMLFLIBE
Level 9 CAJJMLFLJBG
Level 10 IKHMFLCKBO
Level 11 NJMFLCALBM
Level 12 JMFLCIMMBF
Level 13 NFLCAKLNBM
Level 14 NHCMKNOOBS
Level 15 LCANNMFPBE
Level 16 BMNNMMLQBI

"Flurry" - Level Codes

Level 1 IJJDLCCAD
Level 2 NJDLCCADAQ
Level 3 HNDHCMNEAJ
Level 4 LDLCAJNFAS
Level 5 DLCMJLLGAF
Level 6 DLCIKLLGAK
Level 7 LCANNLDHAI
Level 8 CINNLDLIAR
Level 9 CAJJMDLJAD
Level 10 MJHMDLCKAO
Level 11 NJOLHCELAD
Level 12 JMDLCINMAS
Level 13 MDLCAJLNAJ
Level 14 DLCIJNMOAE
Level 15 LCAOLMDPAQ
Level 16 CINNMDLQAK



Back To The Future

Get the skateboard from the crates and skate to the doctor's. When you enter the room, pick up the space suit and look for George. When you have turned George's icon green, go to the hall and get the guitar and bring George to a halt. Your mother should now enter, so get the guitar again, and freeze her next to George. The "Power Of Love" tune should start to play, and your picture should begin to appear. When your mother is standing still, Biff should not be able to get past her; however, after a while they will return to normal. Grab the guitar again and get both of them to stand still. Repeat this procedure until your picture has been fully restored. Now go to the doctor's house and go back out again. Should George run out of the hall, grab the space-suit and make him follow you.

Back To The Future II

Pause the game and type "THE ONLY NEAT THING TO DO" (including spaces). You now have infinite lives. To skip levels, press both the Shift key and "Z".

Back To The Future III

While the storyboard is showing, type the following to reach the various levels:

Level 2 — Rotten Cheat
Level 3 — Lousy Cheat
Level 4 — Low Down Cheat

Wonderdog

Level 2 Lemonade
Level 3 Pharmacy
Level 4 Ultimate
Level 5 Danielle
Level 6 Lucozade

Disposable Hero (Gremlin)

To locate a hidden options menu, head for the high score table and hold down the left mouse button and type the word EUPHORIA. Next return to the initial screen to discover another menu!

Stationfall (Infocom)

Note: You will get hungry (eat "goo" or "nectar"; drop kit when food is depleted), and sleepy (get on bed in any barracks and "WAIT"), and may be attacked by Plato (say "FLOYD HELP" four times) at random times. Also, you must leave the room if a welder approaches.

It is necessary to make an accurate map of your travels since, if there are no physical directions between the end of a section — in this solution — and the beginning of the next section, then you must make your way via your map to the point where the solution continues. This is necessary when any of the actions, mentioned in the preceding paragraph, occur.

The Solution

On The Duffy

E - N - PUT ROBOT FORM IN SLOT - TYPE 3 - S - E - OPEN HATCH - ENTER TRUCK - CLOSE HATCH - SIT IN PILOT SEAT - PUT SPACE-CRAFT FORM IN SLOT - READ CHRONOGRAPH - (Find this number on the Assignment Form in your game packaging to discover the correct coordinate) - TYPE (NUMBER) - WAIT - (until you land at the Docking Bay) - GET UP - GET KIT - OPEN KIT - GET THERMOS - OPEN THERMOS - DRINK SOUP - OPEN HATCH - OUT - E.

Level 5 and Printing Plant

DROP KIT - (return for it when you get hungry) - SE - SE - E - GET TAPE - W - PUT TAPE IN READER - TURN READER ON - PUSH BUTTON - (ten times) - TURN READER OFF - E - LOOK UNDER BED - GET STAMP - W - NW - NW - DOWN - DOWN - (Printing Plant) - OPEN CAN - GET CRUMPLED FORM - DROP ASSIGNMENT FORM - NW - GET DRILL - REMOVE BIT - DROP BIT - SE - GET NANOFILM.

Laundry Room

OPEN PRESSER - PUT CRUMPLED FORM IN PRESSER - CLOSE PRESSER - TURN PRESSER ON - TURN PRESSER OFF - OPEN PRESSER - GET FORM - E - N - READ SIGN - (note number) - S - SW - GET PUCE - E - DOWN - W - GET LILAC - E - UP - UP - SE.

Library

PUT MAUVE IN READER - TURN READER ON - REMOVE MAUVE - DROP MAUVE - PUT PUCE IN READER - REMOVE PUCE - DROP PUCE - PUT LILAC IN READER - TURN READER OFF - W - N - GET DETONATOR - OPEN DETONATOR - REMOVE HYPERDIODE⁶ - DROP HYPERDIODE.

Level 5 and East Connector's Iris Hatch

DROP DETONATOR - STAMP FORM - DROP STAMP - SE - S - [SAVE GAME] - W - [RESTORE if Floyd doesn't follow you into the room; try telling him to follow you!] - FLOYD, GET MEDIUM BIT - GET BIT - E - PUT BIT IN DRILL - E - N - N - NE - (East Connector) - PUT FORM IN SLOT.

Broadway

E - GET HEADLAMP - WEAR HEADLAMP - W - S - S - READ SHEET - DROP SHEET - SE - PUT CARD IN SLOT - TURN MACHINE ON - TYPE SEVEN - GET CARD - NW - SW - SW - SE - SW - GET CAN - READ CAN.

Pet Store and The Balloon Creature

READ SIGN - OPEN CAGE - SPRAY CAN - NE - SPRAY CAN - W - SPRAY CAN - W - SPRAY CAN - W - SPRAY CAN - SW - SPRAY CAN - NW - SPRAY CAN - UP - SPRAY CAN - UP - SPRAY CAN - (the Balloon Creature should follow you into the Chapel).

Chapel

OPEN PULPIT - THROW SWITCH - SPRAY CAN - GET LEASH - GET STAR - DROP LEASH - E - DOWN - DOWN - GET KIT AND DETONATOR - SE - SE - E - OPEN STAR - GET HYPERDIODE - DROP STAR - PUT HYPERDIODE IN DETONATOR - CLOSE DETONATOR - W - NW - NW - DOWN - SE - (End of Corridor) - PUT CARD IN READER - N - GET GUN - (Level 5) - SE - SE - E - DRILL SAFE - DROP DRILL.

Loan Shark, The Ostrich and The PX Machine

SHOOT LOCK WITH GUN - GET COIN - N - NE - UP - NW - (Pet Store) - EXAMINE CEILING - OPEN PANEL - GET NIP - SE - SW - SW - SE - SE - NW - (Doc Schuster's) - NE - UP - N - N - W - W - W - NW - NE - (PX) - PUT COIN IN MACHINE - TYPE 6 - PUT NIP IN HOLE - GET TIMER.

Mayor's Office

OPEN TEXTBOOK - READ PAPER - DROP PAPER - DOWN - NE - NE - N - N - SE - (Barber Shop) - BREAK MIRROR - GET FOIL - NW - S - (Grocery) - DROP ALL BUT THERMOS.

Casino, Flophouse and The Alien Ship

TURN WHEEL - UP - OPEN LOCKER - GET SUIT - DOWN - W - NW - (Grocery Store) - DROP SUIT - (Go to Docking Bay No.1) - ENTER SHIP - TASTE DOTS - (compare with the message on the paper in Mayor's Office) - EXIT SHIP.

Junkyard and In Space

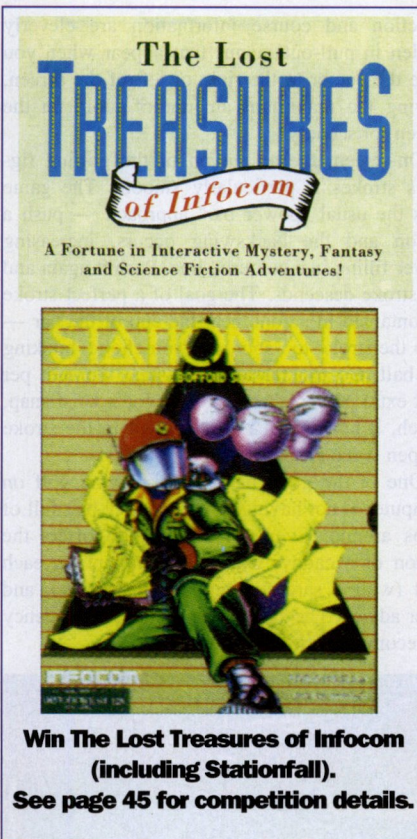
GET BOOTS - WEAR BOOTS - W - NE - UP - N - GET SUIT - WEAR IT - S - DOWN - (Warehouse) - OPEN INNER DOOR - DOWN - (Airlock) - CLOSE INNER DOOR - OPEN OUTER DOOR - DOWN - TURN LAMP ON - GET CYLINDER - PUT CYLINDER IN THERMOS - CLOSE THERMOS - UP - CLOSE OUTER DOOR - TURN LAMP OFF - OPEN INNER DOOR - REMOVE BOOTS - DROP BOOTS - REMOVE SUIT - DROP SUIT - (Go to Grocery) - GET GUN, DETONATOR, TIMER AND FOIL.

Commander's Quarters

ATTACH TIMER TO DETONATOR - OPEN THERMOS - GET EXPLOSIVE - ATTACH DETONATOR TO EXPLOSIVE - PUT EXPLOSIVE IN HOLE - DROP DETONATOR AND TIMER - SET TIMER TO TEN - W - E - (after the explosion!) - GET KEY - W - NW - NW - N - N - GET JAMMER - SET JAMMER TO SEVEN ONE ZERO - E - N - N - UP - GET BOARD - INSERT BOARD IN JAMMER.

Dome

UNLOCK BIN WITH KEY - OPEN BIN - GET GUN, FOIL AND JAMMER - REMOVE GRATING - ENTER AIR SHAFT - DOWN - (until you reach the bottom) - JUMP ON GRATING - TURN JAMMER ON - TURN JAMMER OFF - UP - SHOOT FLOYD WITH GUN - PUT FOIL ON PYRAMID.





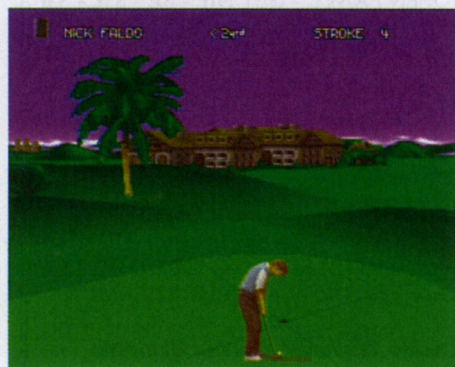
DISCOGRAPHY

by Dudley Storey III

Nick Faldo's Championship Golf

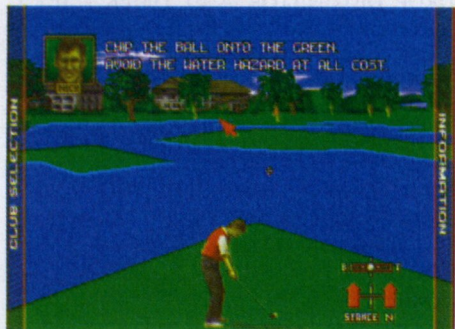
Grandslam ■ NZ\$90 ■ A\$70

ANOTHER CD³² GAME that comes in a confusing, two-disc pack. No, Grandslam haven't done the incredible and made a double-disc game; it's just to make room for the manual. Since it only has eight pages in English, you start to wonder why.



At least Nick Faldo is a better coach than Nigel Mansell (*Nigel Mansell's World Championship*, reviewed in ADU 7's Discography). The coaching section of *Nick Faldo's Championship Golf* has realistic scenarios (bunker play, water hazards, putting, windy conditions, and fade/draw, with scenarios of increasing difficulty in each). Good advice from Nick for every situation, but not quite enough feedback after your attempt. Since all options are reset after each attempt, except for your choice of club, you must also re-adjust your stance, ball spin, aim, etc.

On the green, updates between shots or viewpoints take a fraction too long for my taste — you can almost hear the CD³² grinding away, calculating the new scene. The trees and other ground growth included in the scene are sprites, rather than 3D objects. It would also be an improvement to have more sound effects like birds, or the sound of wind in the trees. Club



selection and course information are cleverly hidden in pull-out menus that appear when you slide the cursor to the right or left of the screen, leaving the maximum amount of room on the screen for scenery.

On-screen, the animation of the golfing figure's strokes is particularly smooth. The game uses the usual "power bar" approach — push a button and the backswing occurs, increasing power filling in a coloured line. Push it again and the stroke descends. The goal of a perfect stroke is contained in a zone near the end of the bar — stop the stroke too soon and you choke, hooking the ball. Go too far and you slice. For ten per cent extra power, there's a zone for a wrist-snap, which, if taken, makes the descent in the stroke happen twice as fast.

One of the great benefits of playing golf on computer is not having to lug a heavy bag full of clubs around. Even so, Nick Faldo offers the option of a caddy, who will comment on each shot (with a sarcastic bite for poor play), and offer advice. The sampled speech has a tendency to become repetitious, however.



(An aside here. Why do most games, including *Nick Faldo* insist on subtitling every piece of sampled speech with text? Is it to attract some small niche market of hearing-impaired game players? Personally, I find it annoying, and wish game writers would add an option for subtitling which can be turned off. I note also that the caddy's speech is sampled, but not Nick's coaching advice. What's the matter folks? Couldn't you get him in front of a microphone for an hour?)

A "Mulligan" option allows you to re-take your shot after every stroke, and teams (up to eight human or computer-controlled players) can participate in stroke or match play during spring, summer or winter seasons. Seasonal changes make no difference to the games graphics; only to the play of the ball. And that ball can get buried in the rough — there are six degrees of grounded ball, from resting to plugged.

Nick Faldo's interface has a few problems. It's too easy to restart a game by accidentally pressing the joypad's top right button, and impossible to regain control of your player after you've allowed the computer to take over his play, by pressing the blue button. The choice of courses is also too limited (Royal Palms or Cheswick International). It's not the perfect

sports simulation for the CD³², but it's getting there — certainly the best in the genre so far.

DS■

Supplied for review by Micro-World

GRAPHICS

★★★★☆

SOUND

★★★★☆

ADDICTIVENESS

★★★★☆

PLAYABILITY

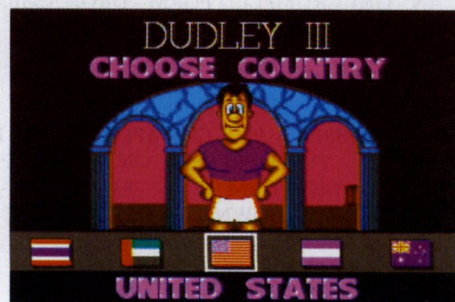
★★★★☆

80%

Summer Olympic

Flair ■ NZ\$90 ■ A\$70

FROM A GENRE in which we can expect many more products, as the '96 Olympics in Atlanta (followed by Sydney in 2000) approach, comes *Summer Olympic*. *Olympix* is more a cartoon-comedy than a serious sports simulation, however. The athletes are caricatures, with huge, encephalic heads, and only four traditional or "Greek" athletic events are represented — javelin, 100m dash, long jump and boxing. Swimming, archery, and the more modern competitions of skeet shooting and kayaking are also present.



There's the usual selection of players (one to four), names, country and associated uniform colours at the start. The basic goal is to qualify for all eight competitions, and place in the top three for time, distance, knockouts or points. The standards are not easy to reach. In the main, the events use the same movements — joypad for direction, front triggers for speed, and the red button to initiate an action. In practice, this means that you have to prop the controller on your knee, since your busy fingers don't have room to grip it.

The moments of comedy in *Olympix* pop up unexpectedly — the gurgle of your swimmer as he sinks towards the bottom of the pool (when you forget to make him breathe); the skeet-shooter berating your unsuccessful attempts to hit the flying clay disks, working himself up to such a frenzy that he turns and shoots you through the screen; your long jumper doing a face-plant in the sand pit. Your wins or failures

are recorded by a reporter — his polaroid photographs will develop before your eyes, recording your ignobility or heroism for posterity.



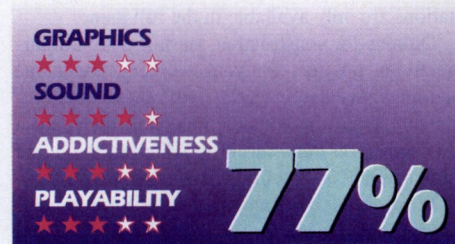
There are a few faults in the gameplay, however. You can attempt to qualify for each event on a random basis, or persevere in one competition, the order of which is determined by the game. There's no way of selecting which event you'll enter, and thus no chance to gain a speciality. You also cannot swap between selection methods, or back out of a competition, except by resetting the CD.



Overall, Olympix isn't half bad, if you have a hankering for cartoon competitions (when I first heard about the game from Micro-World, I thought it was Animalympics — now that could be a great adaptation of a film cartoon classic). Sounds are crisp, the music is OK (but not stirring enough for a real Olympics) and the graphics, such as they are, are acceptable. Those after a more serious simulation should wait for the inevitable tie-ins with Atlanta in a year or two.

DS■

Supplied for review by Micro-World



Microcosm

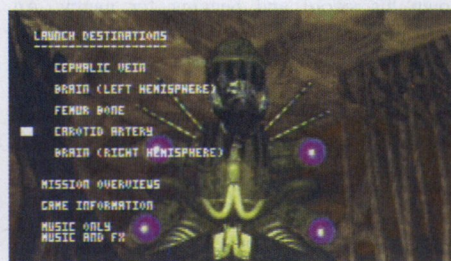
Psygnosis ■ NZ\$140 ■ A\$130

MICROCOSM, THE WORLD of the very small, is the battleground of two trans-planetary business conglomerates: Cybertech, Inc and Axiom. In a plot to destroy its greatest rival, Axiom and the traitor, Dr Knowles, have injected Cybertech President Korsby with miniaturised droids. These viral-sized robots are vectored for major areas in Korsby's body. Carried in the bloodstream, their main targets are the left and right hemispheres of the brain. Should the miniaturised Grey M reach this point and attach itself, Axiom would have control over Korsby's mind — even his dreams — and the power to destroy Cybertech would be theirs...

That's the premise of Microcosm, the latest from Psygnosis, and it's a killer. As the blurb on the box warns "...no-one is immune..."

Microcosm has a very slick, matt, black case and manual, enclosed in a disk-sized box. The manual itself is reminiscent of earlier Psygnosis release, *Hired Guns*, (reviewed in ADU 6), with a short story intro.

The intro on the disk that complements this story has to be seen to be believed. A mix of live action and 3D animation with incredible stereo sound, it blows everything previously done out of the water. To gain the apparent smoothness of the short film, with no jerks or halts for disk access, Psygnosis have allegedly used fractal compression. If that's true, they've taken a considerable



leap ahead, delivering smooth, high-quality video without MPEG.

Cybertech have learned of Dr. Knowles' betrayal just in time. To counter the threat of Grey M, they've injected Korsby with their own miniaturised force, MICRO: Military Internal Cruise and Recon Operatives. These vehicles will seek out Axiom's robots and destroy them. Of course, with Axiom having the initial upper hand, Grey M has already released viral agents to attack the rescue fleet.



You, naturally, command the rescue. Inside one of three transports, miniaturised down to sub-millimetre scale — the Spook submersible, the Hunter-Killer and the Pressure Suit — you will cruise Korsby's insides, purging his body of viral agents and VO capsules at various sites, then finally penetrating the brain to engage Grey M.

Inside, it's like an interactive Star Tours (anyone who's been to Disneyland or the Batman ride in MovieWorld on the Gold Coast, will know what I'm talking about). Veins branch and squirm through the body, through which you must duck and dive while attacking viruses. The sensation of swirling through Korsby's insides is so real, it's almost sickening. There's even automated "artificial intelligence", sampled speech in some areas, to warn you of approaching branches in the system and mapping. Smart bombs, lasers and other weapons are available.

You don't have to go all the way on your own. Korsby's body has "waystations" installed at strategic sites, which can be used to replenish



power and air, and are connected to Portals — long, subway-like tubes that will rocket you to another area. Throughout, Microcosm is rendered in incredibly realistic 3D, with an excellent, addictive, stereo soundtrack by Rick Wakeman. I can see a real educational market if Psygnosis decide to convert Microcosm — imagine fighting real viruses or repairing tissue damage — but why bother, when they have such a great game?

Every new platform needs a killer application, one that draws purchasers like bees to honey, believing that they haven't lived until they own it. For the original IBM PC, that program was Lotus 1-2-3; for Sega, Sonic the Hedgehog. Microcosm deserves the title for the CD³².

PS. My highest score ever!

DS■



Supplied for review by
HotPoint

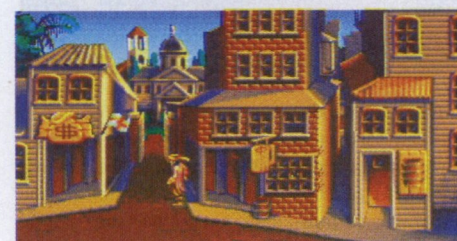
GRAPHICS
★★★★★
SOUND
★★★★★
ADDICTIVENESS
★★★★★
PLAYABILITY
★★★★★

97%

Pirates!Gold

MicroProse ■ NZ\$109 ■ A\$70

PIRATES IS ANOTHER of those games that has been around since the dawn of time — or at least since the Commodore 64 — in various incarnations. This version opens with an impressive intro (all in 3D graphics), before embarking on the real game, set in the 16th and 17th century Caribbean — the Golden Age of piracy (of treasure, not computer games!)



You can embark immediately on your own career, or attempt to emulate the achievements of a cast of famous pirates and privateers from history — John Hawkins, Francis Drake, Piet Heyn,

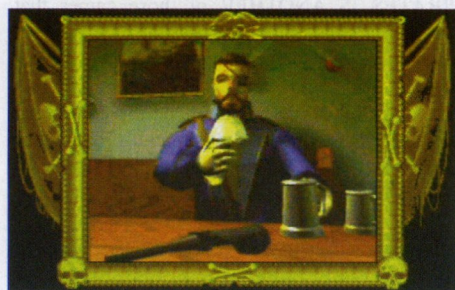
L'Ollonais, Henry Morgan, or Baron de Pointis in an "Expedition". (On second thoughts, perhaps not too closely — L'Ollonais was clubbed to death by Indians, and Morgan died from an excess of alcohol in Jamaica after retirement.)

As in many other role-playing games, you may (as an apprentice captain in Pirates!) choose a particular specialist skill, such as gunnery, fencing, navigation, roguish charm, or medicine, a name and nationality (or "flag of convenience", since many nations surreptitiously or openly hired pirates as privateers, to disrupt the trade of their enemy — this also happens in Pirates!).



Your piratical career is launched in a barque, but you'll need a crew to sail her. Strut into any waterside tavern and start bragging and you'll quickly have an eager crew, thirsty for blood and treasure — then it's into the open sea. Beware, however, that this same crew may grow disillusioned and mutinous without enough gold, and leave you stranded on an uncharted island to rot.

Any port may be home in a storm, but some may not be receptive to a crew of swarthy, unwashed pirates, as you will discover. Most towns are basically the same, with the facilities of a bank, tavern, governor's mansion, merchant and shipwright. The towns are on colonial islands, with allegiances, trading goods, and enemies, which you can exploit. Shipping goods from port to port may sound too peaceful for your tastes, but it's a legitimate way to make money and advance your career. On the other hand, you may feel that any town that rebuffs you deserves to be sacked and burnt to the ground — Pirates! offers that option also. But news of your pillaging may spread, and that nation's other colonies may not offer you shelter, when your fresh water has run out and the crew is near mutiny.

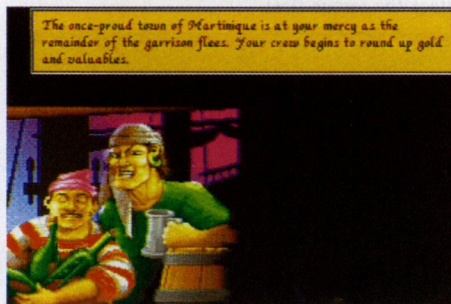


On the islands also lies treasure, for which you can send your crew to search, or lost relations to discover; on the open sea is the floating treasure of galleons laden with booty, ripe for the taking. Success in attacking another ship can be decided as much by the wind, as by the range of your cannon. Combat at sea can develop into a tacking duel like something out of the America's Cup, both defender and attacker vying for the gust that will bring their cannon broadside into

the other. Similarly, attacking a port can be difficult if made against the wind — you may be blown past the town's defences, with no hope of return.

After taking enough damage, a town or ship may surrender, running its colours, or perhaps you choose to board by ramming the ship in a collision. The latter will mean a duel against the captain or governor. Sword fighting combat in Pirates! is limited. There are three possible weapons to use, with just a lunge, slash, and parry (although better than, say, Defender of the Crown's "hit the mouse button 30 times a second" method). And it's somewhat slow, although some prefer this dramatic, staged feel. Unfortunately, you can't behead the captain, or make him walk the plank — drive him far enough across the ship and he'll wimp out, throwing down his sword and begging for mercy. An interesting point to note is that, as time goes by, the inevitable effects of age set in, and you may not be as sprightly as you were as a young, swashbuckling captain. Being slower to attack and parry may mean a change (with the benefits of experience) to more calculated and careful naval strategy.

Politics and gossip hold a greater power than you might imagine in Pirates! As mentioned, you may become an enemy of one nation through over-zealously attacking her fleets — another may offer you amnesty. Courting informants, particularly a governor's daughter (who may even consent to marry you, further increasing your status), hailing passing ships and trawling in taverns for information may prove useful; all is recorded in your log. Like the tide, rivalries and allegiances are constantly shifting in the Caribbean — ally yourself with the right side and you could progress your career.



The game's sea-shanty music is great, and the graphics reasonable (some, however, have been dithered in their conversion).

I only have a couple of gripes with Pirates! (a rare situation, I know). Firstly, you may loot other ships and leave a crew behind, building a fleet; but you cannot split this fleet, which is represented on-screen as a single ship. Going into battle, you are forced to choose one ship with which to fight.

Two small problems relate to the manual — firstly, its 47 pages (half of them in German), are stapled to the inside of the cardboard cover, making it irremovable, and secondly, the lack of an accompanying map makes it difficult to find locations. You can use the map in the game itself, of course, but it isn't as effective. Finding the Cayman Islands, for example, is a matter of interrogating the map by scrolling the skull and crossbones icon over it and pushing a button.

I could use all the piracy similes possible, but finally, with a hand over my heart and a patch over one eye, I will swear that Pirates!Gold is a

great action-strategy game for the CD32 — good for anyone with a taste for blood, treasure and glory.

DS■

Supplied for review by Micro-World



GRAPHICS

★★★★★

SOUND

★★★★★

ADDICTIVENESS

★★★★★

PLAYABILITY

★★★★★

92%

K240

Gremlin Graphics Software ■ UK

GREMLIN'S NEW RELEASE for March-April is a departure from their typical arcade shoot-'em-ups and racers like Lotus, or role-playing adventures such as the HeroQuest II series. This game is really a science fiction god-

game-cum-war-gamer; K240 is a sector in space, rich in

precious ore buried in asteroids. This demo is so hot, we've barely had time to acquire the instructions, but here are some pointers.

The opening screen shows your asteroid claim. Drilling rigs, quarters for miners, life support equipment and weapons emplacements must all be installed on the surface — orbital space stations are only available in the full game.

Options for construction, starting with utilitarian living quarters for your workers, are in the bottom right-hand corner. Click on the blue button to change the construction plan; then find a clear space on the asteroid in which to build and click again. Construction will begin.

In space, no one can drill alone. Your competition for the riches in the sector can be viewed by choosing the disk icon that appears with a right mouse click. TETRACORP's screen gives recruitment ads and access to the aliens screen.

K240 will support fleet engagements and fire fights between spacecraft, but for the demo, only missile combat is engaged. If your sensors find an enemy asteroid or a rouge comet, and you've built a missile silo, you have a chance to launch an attack.

The right-mouse window/"i" option gives further information. The hammer icon gives an ore assay — build your mines to reflect the density of these samples. The bar graph gives a financial summary; the scroll, an inventory of the blueprints you hold. The shoulder-flash military insignia takes you to the fleet command system. K240 will cover fleet interceptions, guarding patterns, and attacks on another asteroid. A full review to follow soon.

DS■

Demo kindly supplied by Gremlin Graphics

THE ACTIVISION® GAME GRID

by **Dudley Storey III**
and
Jason Gibson

Subscribers
Check out our
Games disk for
a demo of
Gremlin's K240
space
adventure



Second Samurai

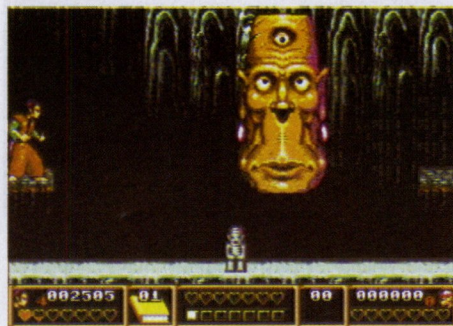
Psygnosis ■ NZ\$90 ■ A\$70

BE IT SOPHISTICATED, next-generation shoot-'em-ups like Microcosm (see page 73), or platform games like Second Samurai, Psygnosis seems to dominate this month's releases.

So how does Second Samurai rate? Some may remember First Samurai. Its sequel, Second Samurai (imaginative title), adds the option of a second player, cast as friend, fellow-competitor or foe, and more magic, more puzzles, more adventure.



Contrary to expectations, your Samurai character does not, in fact, start off with a katana (sword). At first he's limited to barehanded moves — kicks and punches, while crouching, standing, or leaping in the air. Swords must be gained through the use of magical books, which appear for collection through the game. Samurai isn't a great bibliophile — he can only carry one of each type of spell book, which in second and third editions, endow a magical smart bomb and invulnerability effects. But once opened and the incantations read, a magical sword appears, and Samurai's moves change into thrusts and sweeps. The sword doesn't last forever, and disintegrates after a minute or so of use. Other weapons, such as throwing knives, bombs and "seeker skulls" also appear throughout the game.



Gameplay is true to the Psygnosis signature — a mix of platform, beat-'em-up and puzzle. Samurai's environment is divided into three distinct worlds, set in the distant future and the past, with several environments in each, rendered with the usual, expert, Psygnosis attention to graphic detail and atmospheric sound. The usual huge beasts must be faced at the end of each level, and code words can access each one. Status is measured in "experience points" gained from defeating enemies, breaking open the pots scattered everywhere and solving puzzles. There are also trapdoors to open, significant objects that must be relocated, and switches to pull to get further in the game. Some odd features, if explored or exploded, may teleport you to other bonus areas. In some sections, the game may change into a complete puzzle, or a shoot-'em-up format.

GAME OF THE MONTH



I really admire Samurai's options for two-player mode. In most games players can only race to complete the game, either by clearing the level together, without causing injury to each other, or by killing each other outright. Samurai adds a third option, Stun, in which combat between players will only result in a playful "freezing" of the loser. This means that Samurai can be played three different ways with the same friend, at varying levels of difficulty.

Second Samurai's method of weapon selection could use some improvement, however. Most items can be picked up by walking over them, and both players have an inventory of items that roll using the SHIFT key, used by holding down the fire button. Leave the inventory open at a particular treasure and become too worked up during a fight, and you may accidentally release its effects. It would be better to have a key command for their use.

As one who has studied the Japanese art of the sword, it's difficult to say how I feel about Second Samurai. Is it insulting or comic for a small computer figure to say "Ho! My sword!" when he drops one and is toasted by a huge head with laser vision? The richness of Japanese history could provide so much more — how about a well-researched "Adventures of Musashi"? — than a rip-off, however well-executed, like Second Samurai. Hit the Japanese market with a Sega version and you'd have a winner.



For what it is, a platform/puzzle/beat-'em-up game with extreme artistic license, it gets a big thumbs up for the chop-socky. **DS■**



Supplied for review by
HotPoint

GRAPHICS

★★★★★

SOUND

★★★★★

ADDICTIVENESS

★★★★★

PLAYABILITY

★★★★★

OCS / 1.3 ✓

ECS / 2.0 ✓

AGA / 3.0 ✓

85%

Zool 2

Gremlin ■ NZ\$90 ■ A\$70

IT LOOKS AS if Gremlin have done it again with another exciting, new platformer. First there was Zool — now its sequel, Zool 2, looks set to be a smash hit also.



We learn that Zool's previous adventures were just a test and now the real trial of courage has arrived, as Zool fights his way through another six huge (and I mean huge) levels of furious fun.

Apparently an evil fellow named Krool is out to corrupt as much of the Nth Dimension as possible, with the help of his vilest henchman, Mental Block.

Six worlds have already fallen under his control. Rool (Grand Master of the Ninjitsu Academy on planet Loox) has called forth his toughest Ninja, Zool, to put an end to Krool's evil scheme, before it's too late. But this time Zool has help, in the form of Zooz, a young lady friend, and Zoon, his brave and faithful pet dog.



Veterans of the original Zool will be happy to learn that he now has the ability to climb walls, leap from one vertical surface to another, and somersault backwards off walls, which allows for much higher jumps. Zool and Zooz possess identical abilities, except that Zooz can smash platforms from above, whereas Zool breaks them from below, with the result that each character can take different routes through the various levels.



Mental Block is now the end-of-level guardian and changes form to suit the theme of each. Personally, I found Mental Block relatively easy to beat; however, you may find otherwise. The bonus level is there again, this time in the form of an Arkanoid-type sub-game, where you take control of Zoon, bouncing a ball around and collecting any bonuses that happen to fall. No lives are at stake here, so it's worth playing to

gain valuable extra lives and point bonuses.

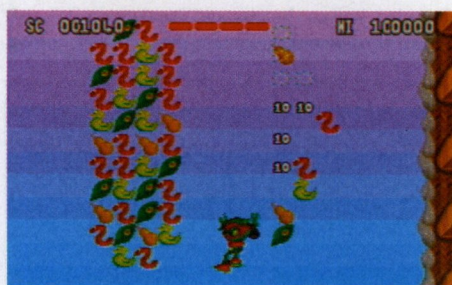
Zool 2 is just brimming with hidden rooms and secret passages, with most containing bonuses and extra lives (especially in the more out-of-the-way places). The time limits can be pretty tough, so it pays not to hang around too long — although a serious player will leave the first level with seven lives, rather than four.



It has to be said that a certain blue hedgehog named Sonic has had an influence on Zool 2, but it's been done well and only adds to the enjoyment of the game.

To say that the levels were big would be an understatement — they are much larger and more varied than the original. The control system has been tweaked somewhat, though it can sometimes be too sensitive, and the extra moves make all the difference, especially the wall-climbing ability.

There are a number of new bonuses for Zool to pick up — such as smart bomb (activated by pressing the space bar), and a nifty new super shot (good for taking out secret walls in a single shot) — as well as the usual shield and shadow clone bonuses.



The sound track is very good, as are the in-game sound effects. Graphics have improved over the original, as you'd expect, with six new weird and wacky worlds to explore: my personal favourite is Snaking Pass, where you must use snake taxis to get around.

Essentially Gremlin have released a nice piece of work, using the same basic ingredients of the original to produce a game that's tough but fun to play, which I'm sure will keep platformer fans everywhere happy for ages.

JG■

Supplied for review by Micro-World

GRAPHICS

★★★★☆

SOUND

★★★★☆

ADDICTIVENESS

★★★★☆

PLAYABILITY

★★★★☆

OCS / 1.3 ✓
ECS / 2.0 ✓
AGA / 3.0 ✓

85%

Lotus Trilogy

Gremlin ■ NZ\$90 ■ A\$70

RACING GAMES LOTUS Esprit Turbo Challenge, Challenge II, and Lotus III — the Ultimate Challenge, were released between 1990-92 by Gremlin. Lotus Trilogy is a compilation of the three — all original manuals and programs have been retained. The boys at Gremlin are big fans of Lotus cars. (They were probably able to buy several from the profits on the hugely successful series!)



Lotus III is the only one in the series to come on two disks. Otherwise they are one-disk affairs, with manuals increasing in size and length to match the growing ambition of Magnetic Fields (the game programmers).

In terms of graphics, Lotus holds to the principle that the best sequels stay the same. Graphics remain remarkably consistent with Lotus I (originally released in C64 cassette format, which goes to show how old *that* one is) to III. Much of the control, play and car selection screens remain exactly the same. Improvements in the games lie mostly in the features, not in graphics.

For music, the original Lotus and III include an effective sampled portion of Siegfried's Funeral March from "Götterdämmerung" by Wagner; II features samples lifted directly from Yello's "Oh Yeah". Both I and III employ a neat graphic of an in-car CD player to select "driving music" tracks. Engine sounds are pretty good. And there's good use of sampled voices in Lotus II.

No flaming deaths feature in Lotus. It is impossible to crash or otherwise injure the car; players can only slow it down. Collisions with cars and other obstacles only generate cute little sounds.



In terms of playing Lotus, I would not — at least not on my A3000. Instead, I chose the option of using ADU's A500 games tester. Compatibility gradually improved with revision, as one would expect. Lotus II occasionally crashed, but III was fairly robust.



As usual, one starts in a field of cars, and works forward through the pack, but there always seem to be cars in front — how odd. Lotus I takes the approach of a flat-out race on nine courses, with pit stops, in which you must finish in the top ten finalists to proceed to the next course. Lotus II follows in a similar vein, but on more varied terrain, with multiple check points and time limits between them. With its Track editor and open-ended interface, Lotus III can play in either championship or arcade mode on a selection of 64 pre-determined tracks or on the player's own designs. Lotus I is limited to two players using a split screen; II and III to four, with a null modem cable between two Amigas.



As mentioned, Lotus III employs a Track editor — of a limited kind. Rather than plotting each curve, the editor (RECS) shuffles various attributes into a track on a percentage basis. For example, a track with 96% curves at 10% sharpness would be very looped indeed, with long, sweeping corners. Other attributes such as length, hills, steepness, scenery, obstacles, overall difficulty, and general environment — rally, futuristic, night, marsh, mountains, snow, roadworks, storm, desert, fog, motorway, wind and forest — can also be chosen. Unfortunately, you cannot mix and match these last environments — it's not possible to race through a windy marsh forest at night during a storm.

The completed track is given a code number. Once you have the number, its application in your, or any other copy of Lotus III will generate that particular track. It's a quick way of designing many different tracks, but not as satisfying as designing one from scratch.



Overall, the package is good value, but I see Lotus III, with its major improvements, as being the most popular to play, since its editor can replicate almost any course from the two previous games. That spares you the bother of trying to qualify for them by racing, the improvements

between I and II being negligible. If you can find a copy of Lotus III at a price cheaper than this package, go for it. Otherwise, for those needing a simple, straightforward racing game (rather than a "racecar simulator") to while away the hours, Lotus Trilogy is a good choice. **DS**

Supplied for review by HotPoint



GRAPHICS

★★★★★

SOUND

★★★★★

ADDICTIVENESS

★★★★★

PLAYABILITY

★★★★★

OCS / 1.3 ✓
ECS / 2.0 ✓
AGA / 3.0 ✓

85%

As promised last month, here's an updated list from UK games manufacturers Gremlin and Ocean on their latest releases.

Watch this space next month for more HOT news of forthcoming releases!



Mr Nutz He's bad, he's bushy-tailed, and he's coming again soon. Mr Nutz, the squirrel with attitude, returns in Part II, due to be released on all Amiga formats at the end of November. In his next adventure Mr Nutz has gone out of this world to a distant planet (Peanut Planet) with billions of baddies lurking around every corner. Set over 45 levels of manic platform action, including Nature World, Water World, and the incredibly tricky Inca World.

This is no holiday, as Mr Nutz is again called upon to save the day! The deadly chickens from outer space are moving in to strip the planet of everything and it's up to Mr Nutz to stop them. Here is a platform to really test your skills, with large dollops of puzzles thrown in to get your grey matter working. Stunning graphics, wacky sound effects, the hippest character in platform land — this will be a big hit with platform fans everywhere! ■

Ocean budget titles available soon: Dune, Jimmy White's Whirlwind Snooker, Lure of the Temptress, MiG-29 Super Fulcrum, Sim City Classic, Wing Commander, Harpoon v1.21, Realms, Road Rash, European Football Champions, The Games, Archer MacLean's Pool.



**Team 17
Imminent Releases:**

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Ultimate Body Blows - CD³²
Super Frog - CD³²
Arcade Pool - CD³²
Overdrive - CD³²
Assassin SE - CD³²

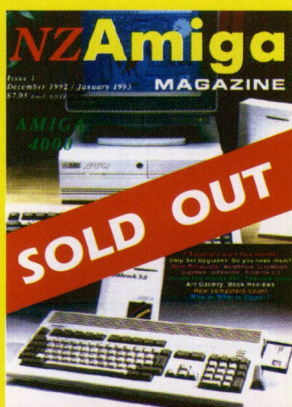


K240 Don't miss the exciting new release of Gremlin's K240, out soon! ADU offers you a chance to preview K240 with a playable demo on this month's games disk. (See page 57 for details of how to get your copy).

HEROQUEST 2 - Legacy of Sorasil (The Ultimate Quest For Heroes). As announced in last month's ADU, the masters at Gremlin have released the first in their Hero Quest Masters fantasy series. You choose your adventurers to free the land of Rhia from the magic of the evil tyrant that holds the country in his relentless grip! Battle your way through ten vast stages to reach the source of the ultimate evil. Presented in 3D isometric viewpoint, The Legacy of Sorasil features stunning graphics, eery sound effects and chilling in-game tunes. ■

Disposable Hero - The History Of The Free Worlds... Penetrate alien strongholds, and return to base with technological blueprints to free mankind from the threat of alien tyranny. Beat 'em up till you drop! ■

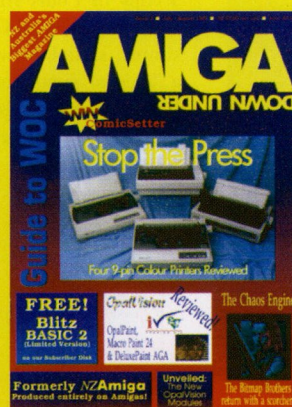
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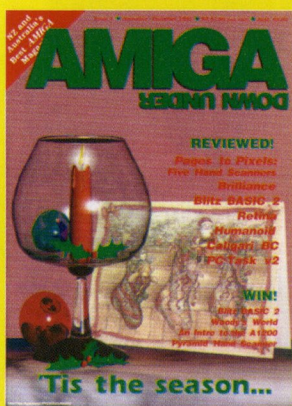
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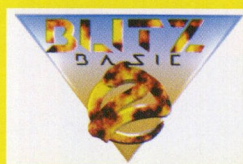
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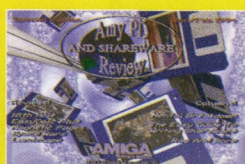
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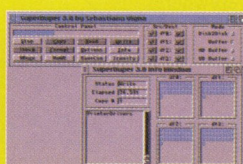
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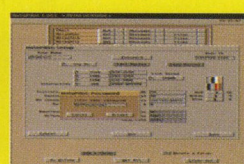
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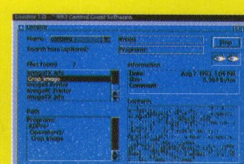
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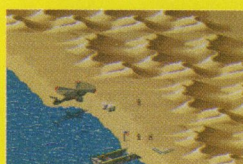
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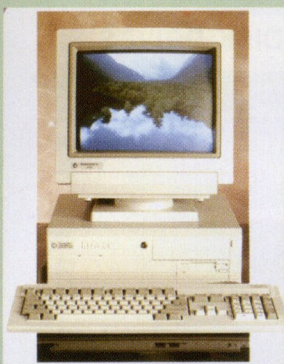
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