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ART GALLERY GOES TO THE MOVIES 
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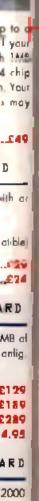
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# CONTENTS





Your one-stop guide to the Amiga, the Workshop is once again stacked with tips and into to help you get-the most from your machine. This month sees the first of a regular series of Beginners' Guides which kicks off with Everything You Ever Wanted to Know About Amiga Music. There's also the return of the Comms column, and the best DIY project yet – How to Build a Robot! If that wasn't enough, you'll also find the latest installments in the *DPaint*, AMOS and *Videottier* tutorials. It's all rounded off with book reviews, Club Call, and the most informative technical O8A section anywhere.

## REGULARS

#### 9 NEWS

Word of the linst UK CES show King's Quest VI due on the Amiga Price increases follow Japanese explosion Alired Chucken election results!

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It Dino Dim a *Goal!* has got you running around the prich like a Jack Russell, our expert guide will transform you into Gazza Mk II (although we can't guarantee the been belly and Geordie accent).

### PRODUCTIVITY REVIEWS

See panel on opposite page

116 ART GALLERY More examples of line Amiga art are on show from talented CU AMIGA readers

#### 132 PD SCENE

00

There's an explosion of games in this month's PD entertainment selection. On top of that, you'll also find the usual range of anima, demos and kicking music clicks.

#### 135 PD UTILITIES

The latest version of *D-Copy*, a whole load of AGA utilities, Chinese horoscopes an atternative Workbench, and a chock-full disk of fonte are all on offer for next to nothing

# 30 ANIMATED

Professional animation is no longer the preserve of megabuck super computers – these days the Amiga is lending a hand in everything from blockbuster films to experimental art.

Low cost digitising equipment and 24-bit graphics boards have meant that anyone with a decent Amiga can produce the kind of Speilbergian effects that have cinema-goers leaping from their seats.

Then there are those on the alternative side, pioneening techniques that just aren't possible with conventional animation methods. How can you get into all this? Tum to page 30 to find out.

## 131 AMIGA WORKSHOP

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OFF THE CUFF

EDITORIAL

We ve got another BIG VALUE Lense for you this month, with TWO progenm-packed disks, a FREE video offer, a 32-PAGE supglement act, for our younger read-

art, i

= Mingoby - Editor

completely huge *Soccer Kid* poster. Not only that, but we've also got the WORLD'S FIRST hands-on teet of Commodore's new CO32 console, as well us an exclusive peak at the machine's development. Incredibly, it look just els months to produce the machine leare scraich, and we've pot the inside story on how it was done. In secther ecoop, yos'it also (ind reviews of the first two CD32 pames — to find out how we relied them, twin to pape aupplement.

Eisewhere in the mag, you'll lind pur usual sciectic mis of news, reviews, opinion and step-by-step guides, plus a comprehensive look at advanced animation techniques. One-top adimation is a growth area for the Amiga at the moment, and Pater Les and Nick Velich defail the latest advances as well as taking a look at some of the more popular program. If you've steps well as taking a look at some of the more popular program. If you've steps well as taking a look at some of the more popular program. If you've steps well as taking a look at the first a how in go the source of the source of the provide steps well as taking a look at the how in go the source of the source

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And, with the bottom of the page repidly approaching, that a li ton another issue, I'm off to play Syndicate

#### NEXT ISSUE ON SALE 19TH SEPT

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## GET SERIOUS

PRODUCTIVITY REVIEWS PRODUCTIVITY REVIEW

In the world's most informative Arriga review section, this month we've got a round-up of five new monitors, and a close scrutinisation of *Technosound Turbo II*. We also give you the low-down on the tatest update of Macro System's Retina, plus a massive leature with all you could possibly want to know about data storage, and all the usual expert reviews of the tatest hardware and software to be released for your lavourts computer

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Remittere video ineres grainbarg is one pi the most eaching developments in Amige graphics. End picthon Video Prizza Californi steppen up to base of the

# SCREEN SCENE

It is here! The official Star Trek game has finally made it to the Amiga – well, almost. We lift the lid in a special two-page Work in Progress future. Soccer Kid also makes his debut this month – lind out whether we give it a good kicking on page 58. There's also Uridhum 2, European Champions, and the totally mad One Step Beyond! The Nightboat to Cairo is about to depart from page 46.

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It is a game unit, but not as we know it. Beam down to page 45 for a good gawp all the forthcoming Star Trek game.



Can Ocean's new golf sim match the neetly mowed greens and sprawling fairways of PGA Tour? Tee off on page 74.

# COVERDISKS

Yet egain Cil AMIGA brings you not one but two stanning free disks! On Coverdisk 64 therm's the complete Advantage spreadsheet system, and a fully useable compling program. This menth's sterming game disk features Soccer Kid, F-117A, and a straboscopic rave dome.

#### DISK 64

#### PAGE 20

Advanage is not just a spreadsheet – it's a complete home office management system. Whatever the size of your personal or small business finances, Advantage has the power to put it all into order. Combining a spreadsheet, database, and data analyser sections in one fully functioning program, Advantage makes light work of heavy figures. Sporting 126 spreadsheet functions, keyboard and mouse macros, lightning-fast catculations, and a choice of 10 types of graph plots, it's just about the

most advanced finance manager available for your Amiga, It also leatures support for 68881 and 68882 co-processors. compatibility with Lotus 1-2-3 files. ARexx and Transwrite You'll also find the latest version of the superb VMorph image processor on the disk, too



#### DISK 65

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#### PAGE 24

He's football crazy! He's lootball madt He's Soccer Kid! The star of our bulliantly addictive playable demo just can't resist a good kick-about. Prepare yourself for one of the most gripping and original platform games ever seen on a computer or console. All the fun of kicking a football around the house, with none of the consequences – could you ask for anything more? Well, you could ask for a playable demo of *F-117A*, the brand new action flight simulation from MicroProse! Take control of a state of the art USAF Stealth Fighter, pass unnoticed through radar traps, seek out and destroy arms factories, and restore

world peace. Then put the kettle on and have another go. Alternatively, you could let your hair down with the stomping Euro Retina One techno demo. Not for the faint hearted, it's an experience to be relished. Got any 'andcore mate?





# HI QUALITY VERINA AND.CON

# IF THE STREET JUST AINT TOUGH ENOUGH TRY... PLAYING IN THE PARK

# IF IT'S NOT JURASSIC PARK IT'S EXTINCT







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On July TR 18th, amid sweltering heat, Commissioners console, the COSE was shown to the general press and the soft-Arra Outsiering fraismity. The unverling took pleas T Source Museum in Kensington, and desprie Te full that the bash was by invitation only, guards minity evented Commodore's expectations and a the of important industry figures, who arrived inter many turned away by an over-zealous safety surrections document (apparently, much to the cha-77 al Devid Pleasance, Commodore s UK MD). Of TOURSE industry journalists were treated to a private along almost two weeks earlier, but by ell impounds the console was well received by all imparthat watering

Although Commodore were promising a large number of tittes evailable at launch, guite a few of them seem to be old CDTV ones, which just happen to be compatible. There was a reasonable devel opir presence, but few had completed stigs ready to display, just demos. Over 50 biles are promised before Christman though, including Mortal Kombat, Nick Faldo Goll, Syndicate. Civilization and Whale's Voyage. Little technical information was added to the which had already been released to the oness, but there was one shock

Law Eggebrecht revealed the existence of a MPEG add or la the CDS2 when a low an and Disybeck Full Mation Video thes Commanders are looking to release the add on before Christman, but wouldn't give any guarantees. A separate MPEG cartridge was expected, but not quite so noon, When released it will rated for under £200, which makes the CD32 a very viable option in the market al present. Philips are expected to drop the price of the CD I (which also has an MPEG cartridge available) tate: the year, but it would be difficult to

imagine them matching the once of the CD32

Perhaps most telling of all was the reaction from a number of Commodore's rivals to the launch, whose response seemed lation with sour grapes rather than prything else

Despte being the largest console manufacturer in the world, Nintendo apparently have no CO-based machine la compete against Commadore's offering, or, for that matter, against erch-rival Sega's Mega CD. Nintendo a American marketing vice-president. Peter Main, in reported to have said. CD as we see it. on the market lodgy is not the enswer'. He later went on to say that There's no point in launching anything yet ... and tailong about Sega's Mega CD. he said that It was Deed in Japan and dying in Europe' Gloomy words indeed - couldn't be because you simply meand the boar Peter?

in a more significant move, Commodorn's Insditional rivals Alari announced the development of their own 64-bit console called the Jacuar. No units were available as the machine doesn't yet exost, leading some industry pundits to call 'loui play on what has been seen as spoiling techos from Atam Ironically, considering the dubious succase of Segals add-on CD drive, the Jaguar will nol come with a CD ROM drive as standard and even the consols itself is unlikely to appear before 

only rively in the CD console market, and their response was the most -luminating; they point - . blank refuned to give out any Mega CD details to Amiga journalists. Afreid till suffer by comparison, eh boys?! If you want to see how the two systems compare and it's not farlenge to Sega, take a took at the Tech Specs we've printed in the month's supplement - Edi





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above so a of brand new software and state of the art hard. 1014 Expact in maximi of the deleging of the home states. ingi a sa maningari it lanas dagit off when the phase clags. Or how about a personnal degetal organisar that incegulaes yees handsurfag? De maybe yeu il peales its waterprech inmain that me by claused in a dribu sedies?

inn singkey this accessing a set element dead a fit gadgate with gala, kunsiwasa noni sailwasa na fuliy necesarkia ulang unib damansiminaya amayis, campatitians lautarus and sami nare, live interested and radio breadcasts and showher personalities (installing Phill College joing a Young Composes of the Year content) as well as the tiest public showing of the new CO32! The show was know the 16th to the 20th of September and costs just F7 per type? For tell intersection suit the ligher bottline on 073 070 0141

## SHOWING OFF BIG STYLE

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Many stars sumed up to the CD32 isomph, including the Big Breakfast a Chris Evens and Redio One DJ, Branz Brookes. Chris was then as the official presents: helping is introductive scherwise specify duit display.



# DARE YOU RE-LIVE IT?

6th June, 1944, Evening,... The storm clouds of was are gathering over the Channel, Just after midnight Operation Overlord will commence, unleashing the alijed forces against the might of the German Army on the braches of Normands...



Hone your skills beforehand with up to 28 training missions. Now, as the legendary General Delight D. Elsenhower, you're ready to lead the offeneite....

Liberate the strategically crucial village of St. More Egline. In the hush of the war-room, goes over the war map, plan inctice and issue your commande.



Then it's into the fury of battle as you take to the tracer-litekies at the controls of a E17 Bomber, actioning up your target with a during pinpoint bombing raid...

With explosions still ringing in your ears, drop the 62nd Airborne into sale locations remember, their lives hang on your skill...

Now come the big guns. In the sweltering heat of a tank you





Finally, with beyonsts fixed, wave in your intentry to take back the ultage in treacherous hand - to - hand combat. Adjust difficulty levels to match your ability. Introduce the log of war to make those strategic decisions ultimately realistic... do whatever you need to for victory, ASK YOUR RETAILER FOR

D-DAY NOW!

FINRA

New data are condex to infranzia el tres produit que de facemen papera sobie de participación de maior a party articipación en el en object in the respert y and facemente en el facemente de maior in the respert y and facemente en el facemente de maior en el facemente de la facemente de

Australia on PC & Concentibles, CBM Assist & Atol 37.





## SYNDICATE DATA DISK

Fars of Bullirog's latent hit game will be delighted been that a data disk is not only planned but minuady been written and should be available by the beginning of September.

Rather than simply producing loads more levin which are exactly the same as existing ones. Builling have modified the existing game to make t even more exciting, even more playable.

The greatest enhancement is the fact that the gume will now feature a datalink mode whereby up to eight players can link their Amigas together to battle n out for control of each city. Each player will control a separate Syndicate and there will be special multi player scenarios which have been designed to challenge the hardest player, in addition, the single player levels can also be played by multiple players.

Builtrog's head honcho, Pete Molyneux, says that the new game will make the previous one lock like a walk in the pert, and dote if ou upwithe meaning of terror when you cust to encounter police armed with gauss guns' [fiame throwars]!

In addition to existing game features there will be two new weapons which make the gauna gun look like waterpistol<sup>1</sup>, and a disguise for your agents in wear, Makes you droot at the thought of it<sup>1</sup>



FAST REPAIRS

allowing about you playing die he fire instant Arriga vagaars in the country. Reproved converse generations on three day herearthead, tool under their special provides varying collect to term hereafed in by 11 am work he (could and randy to collect in the the name day dayi fire fireg for the increasing our observed generation who are course fire Arriga of the profess

Al the accoment the average cost of a right is to C38 13 although dividently preservary according to within their to be done. As part of their regard environ. HCS alon of the record meaned measured downs for two theorie of the price of accord new avers. They also give a free going to be backed ady work is undertaken. Phase HCS on 171 252 3553.

# WORLD OF COMMODORE

Corring Linebour, 2nd-4th June 1993 in this first of an irregular series of reports, Bruce Smith travels to Australia to report on their recent Amigs extravegitize

Es only when you have been liters that you traine what a bloody long way Australia is But, for those attending and those exhibiting, the World of Commodorn Amiga at Sydnay's magnificant Darling Harbour complex was an unqualified success.

In case you're wondering about the viability of the Arrigh in a country of just 17 million people, the official attendence figure for the three day event was put at 22,000. No doubt that this was on the generous side, but the 15,000 or so who probably did attend ware treated to a number of new releases and krot time stavings.

While the runstance of Commodore a plight world-wide abounded Commodore Australia reported record hardware shies for each day of the show, Judging by the number pl A1200s I saw lucked away under errors it was hards, autorsting. The A1200 was the big puller at the show although a number of A600s were also making their way past complex encurity systems (if in actually harder to get out of this show then get int). The A4000 Tower System was due to have its own first showing on the Commodore stand but it never materialised.

The advertised theme of the Show, and in parboular of the large although somewhat disappointing Commodors stand, was multimedia That said what the Sydney outpost tacked in Derivating the sydney outpost tacked in purpose tout meeting on percented for by the purpose tout meeting on percented for by the purpose tout meeting that is a standard for the sydney to the syde. The theatre, which sealed some 150, was well stocked with four-channels of CO-quality tound, lighting, on screen (cascade) graphics and where disk players – all mainly controlled by Scala

The cropy of electronics provided the setting for e-monthm of intervising discussions although the hardware is all for the most part, elemented under-classid. The most part, elemented under-classid. The most part is a stars not overly process to the stars of a Show other provide 45°. Cfr ROM areas which was probably the most page of per-phonent to buy after an A1200.

And tailing at boying - the last day of the Show was a read earlier to see in terms of what was on ofter to these enterings i won't go into the

complexities of Australia pricing but sufficial to any environ deplete visiting the show as the day told me that they could not buy some of the hardware at the proce if was being sold at by the main Commodors out-

The World of Commodore Show in Australia was an ungualified success judging by this snap. Many 412000 wave and filteraginous my award well cauch injammi wave genetized ion other Amigu produces down-under its reasouring to say Commoding still prepared to investig states lets Nuff said

Some familiar names to furn up at the Show (and several local bars) were Dights International, Power Computing, Mendian Distribution and this reporter, Bruce Smith, under the guise of Bruce Smith Books. One name who didn't quite make it was Amiga Format. The staff arrived but the magazines didn't – well apparently not unlit the day after the Show finished!

Florida-based Moonlight Software – which produced the excellent Ami Tools and Ami Back packages came, sew and, for the large part, conquered. President Gary Holland was more than happy with the first showing of his products Down Under. But the Australian market is far from being European or US driven and it was interesting to note that Australia now supports two independent megazines, while the New Zealand-produced 'Amiga Down Under' is well worth a read.

Sydney based Wall Street Videos also made their debut at the show with their A1200 Beginnen: video which proved to be a big hit with those with A1200 in hand

The one thing wonderfully lacking from the show was noise. Absolutely no competing between stands for the title of most annoying noise. Indeed, the ambience for the half was set rether well by a local electronic violinist who did a nuch some did every hour or the or the commodore trand.

User groups abounded – not just for the average punter easking support, but also for the developer – something that might work will up here. Developers were also given the first chance to see the new CD32 system behind closed gioont. (So much for being a developer here in the UK – Commodore have yet to fail me and gute a fave like me that it accually exists.)

And, of course, just like any good Amiga Show the shell achieves burgeoned with dealers and box shetters with process failing as quickly as the English wickets ware that week

All in all an interesting experience and, judging by the amiles on exhibitors and punters alike, a very rewarding one. A Giday or three was hed by all.





#### Our exclusive hotline to Commodore's UK boss was red hot this month. In a frank Q&A session, David Pleasance fields your latest batch of questions.

Six months ago I bought a Commodora CDTV. Now I'm told that the machine was a matake and I should go out and buy a CD32 console instead. I have spent \$700 on my present system and feel \$hat if a been a waste of time and money. Will there be an upgrade/trade-in clast for CDTV own ers or time you just going to ignote ut? *Philip Alderson, Wirnel*.

I have to admit we get many letters of this nature, and it is frankly quite a dilemma. The pace at which technology is advancing is quite staggering, and we are forced, by the actions of our competitions, to continue to offer more for less'.

When we issuched the CDTV it was revolutionery, offering performance standards second to none. Unfortunately, the high cost to menutecture meent a retail price point too high for mass market appeal. We at Commodors are renowned for offering more upgrade opportunities then any other manufactures, I will be taiking to the corporation about CDTV comprabut it is very difficult when the cost of the Amide CD32 is so much less than the CDTV, I shall, of course, let you know (through this page) of the Quality \ outcom

I have purchased an A1200 and have been fairly pleased with my new machine. Unfortunately, for reasons known only to yourselves, the computer didn't come with the Using AmgaDOS Guide or the Using Arexa Guide their are issued with the A4000. I have tradits that are issued with the A4000. I have tradits that are issued with the A4000. I have tradits that are issued with the A4000. I have tradits that are issued with the A4000. I have tradits that are issued from depart ment to department, been told to write to vancus addresses, and generatily been given the runaround. Maybe as the top man at Commodore. you could tell me where i can get these books.

#### Sheun Watsh, Bristol

trom?

The Amigs 1200, because of its low price point, does not have either manuals you misr to included as standard. As a result of your letter (and many other similar enquiries) I have instigated an enquiry as to the viability of making menuals available through our distribution channels. Watch this page for an update.

Why do you that your and usars with so much contempt? I was one of the fools that runhed out and bought an A800 as soon as n was released, because I wanted to upgrade my A500. Little did I suspect that a few months later you would release the A1200 and then cut the price of an A800 virtuely in hell. To make matters even works, I many parties even works, I discount on the A1200 Nov, less than a mohth after the offer begin. I find out that I could have held on to my A500 becture you had decided to reduce the price of the A1200 to \$259. While I applead your compatitive pricing policy, can't you understand that the prese of those users who are the linst to support you?

Derren Williams, Hull

I am very empethatic to your situation, but trankly we are in a no win position (see the first latter this month). However, I now believe that now we're a 32 bit only' company we will have stable price points for some time yet. Also, we strive to make launched, with a view to minimising the obsolescence of software plus peripherals owned by existing Amiga users. Rest assured that it is in everyone's best internal if we can achieve a high volume of using at a macanable RRP.

Why delay the launch of the A1200 CD drive? I would have thought it made sense to launch it at the same time as the CD console for maximum publicity. I own an A1200 and don't want to be left behind in the CD revolution. Mark Stacey, Eastbourne.

Now that the operating system for Amige CD32 has been finalised, we are currently designing CD ROM devices for the Amige 1200 and Amige 4000 ranges. However, due to an enticipated high level of demand for Amiga CD32, our resources are being directed here first. We should however here the add-on device for the A1200 in early Spring, along with many great software titles expected to be published. Your patience will, I am sure, be well rewarded

I'm thinking about buying an A1200, but el/eady I'm starting to hear rumours about an A1400 as well as the new triple A' chipset that's in development. With new machines welting in the wings, will I be westing my monthy buying an A1200? Devid Carponter, Ludiow

i can assume you that no one in our R&D Department knows enything about any A1400 We are in the process of developing a new Chipast (working name AAA) for our high and griphics workstations.

At £299 the A1200 is a tebulous bergain buy one.

I purchased on Amiga 1200 back in November and had seven months of pleasure from it. Then lass week it developed a fault. Sheer despeir came over me before i remembered my 'Free 12 month in-home Warranty. I thed not to get too excited, though, as i've heard many stories of Commodore's less than helpful customer care But, with no other option. I phoned the holine number.

Imagine my surprise, then, when a friendly voice answered the phone, took down my details and informed me that someone would be in touch whith a hours. Four days lister and twe this would prove down and was told the because I live in the north of the country, I would have to wait a ktills longer than usuall

My question is this. Why should I be penalised for the part of the country I live in and why am I astil webing?! [We have since contected Mr. Hall to find out he had to well seven days for a repair fectoricien to cell – Ed.

Mark Hall, Northumberland

This is one of those instances where your gaographic location is the sole reason for your difficulty Overall, the 'A) Home' service is a great benefit to our and users, most of whom are well satisfied with the level of service and promptness of our engineers. We are constantly striving to improve the coverage, but there are still some areas, such as the Shetlands for exemple, and also low populated regions where it is not practical for an anginear to travel a long distance for one call These ingvitably will tall outgide the time parameters we aut ourselves. If it is of any consolution, returning the Amiga to your dealer for return to best repair would involve a much longer time than a seven day turn around

#### WRITE BACK!

Allips Yorspherig hey arm a hot (and hotyping from a farm devoka) Caromondony o UK Yooka, Carrol Pfeantareas, has agreed to provide the exclusions monthly common (as CU Are go tradtern As worth an dyica roop (Ad Are) of a specific of planes. David will also be programmed any stadem constrained for the pail o device governing governing provide set in the Caromonadary Workey. CU ANIGA, Privary Carol. 34, 32 Farmonadary Units.



If a very much a sporting manify with the top forge littles all hence operationalised. Gasif dense acqueriality with immeny veryon this the neutrice acqueriality with forgene access that the neutrice acquering way for two ways access that the source half operation ways access to the source half operation.



2. Geningen Groech'n Directod (deallegener) 3. Cherneytoeskip Monager III (Donasti) 4. Symilectin (Electronin Reta) 5. Flankhack (ES Cold) 4. Mailee (Pargeneria) 7. Sanahry 2008 (Méren Press) 8. Jakor 2. (Ben) 9. Stanbhach (US Sold) 10. Eheny Engine (Parggede) Cheris sonahed be (MIV)

\*\*6

## **SMARTER THAN THE AVERAGE ANIMATOR**

Did you find the *Disney Animation* Studie part a little ine complex? If us then maybe Empire a forthcoming Henne Rachers Carteon Animates is what you used to make your very own animated cinesies, filled as a simplified version of every animation package, Carteon Animates's contexts and features can, stragadly, be manfated by a newer your old in



## MORPHING MADE EASY

Sica System strapped the price of their well-received to the processing from £99.95 to a very comparison to 25 or VAT. It is an appressive price point strates and Learning, application for Silice System.



increating they some set of the s

Because of the refere been and to cut the price sortcardy. For more details call Silice's Shop on Silice's Shop on

ne op an hoar, loaning the near frae to namply weary about his own creative ability ration than the logis he a working with.

Cortoon Antenator has made at the instance that you would thed in other univertian packagon, combland with a nompliting comlatering, Empire area't structly

niming the product of the younger market thereft, going order for any one that jugt wants to entimere with game order than comprehensiveness.

On another note, the long availand release of Cyclerogage ig now egon ext. O D E, a three it mensional technologi should be biolog the strands garty in October, Wolch for a revolw real action,

## **CD VIDEO** STANDARD AGREED AT LAST

Although there has long been an accepted standard for the storage of compact disc audie, no such standard has existed for video stored aw CD, despite the fact that systems such as Philips' Loser Disk have been around for more then a decade.

Finally, four at the industry's biggest playars in the shape of JVC, Matsushila, Philips and Sany bave got together is agree open a single standard for Full Motice Video (FMV). The glandard is in the imaginatively called Video CD, and versions of it have already then used successfully in the professional Kernake market for secury years now.

The openations of a standard means that gublishers can produce discs which will be non-pathle with all machines that adhere to the standard. The good news is that for-medare's own CO32 FMV attackment (the MPES custodige mentioned earlier) will adhere to the new standard.

## SIERRA MEETS THE VIRTUAL THEATRE

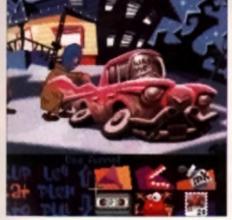
Arright the secondary second in second in Arris was a lower to an or shandwoord the Arright for PC land, one backer of begin has just standard to usual arrivations that the second source by popular days a Coast VI is barry correctly backy transfolded to find the first of the second second and the back the team that being by a coast Of Chr. Terrybrass and the populate has an arrivated downed a Theory II.

noon in he consultat Annual a Time May What a many its many a Time May Incorporate the Mayba manual. It must the two angles the spitulate field are administed prover the frequenties tog al present that they provide the set the set of the spitulate the spitulate the date and part if denotity access the spitule the field the set of the set of the set of the spitulate the spitulate the date and part if denotity access That a prove that the set of the set of the set of the spitulate the spitulate the date and part if denotity access That a prove that and an error of the set of the spitulate the spitul

The only throughout a new house document on the starying. As Chartes explaints. The pist will be absorble if destination they are been been the stary works. There will be new charter and the stary works. There will be new charters are an an in how the stary works.

Alog a Spinst to a night in the sequences of development and a calcular data is shift to be involved. Revolution are contransf that very fulle with these changes from the restant PC version, attimogic day is drawn any of the factors from the recently-released CD BCM version. Herearchy attracts is CD32 version has a libeau relation by Revolution. The final ductplan an that is follow with a Solver.





## LUCASARTS HOAX

Rumours have been buzzing around the Amige world of late that LucasArts were set to convert the highly popular Day Of The Tentacle edvanture from the PC, despite claims from the American company that they have stopped producing for the Amiga. Unfortunately these have proved to be nothing more than goesip as LucaeArts have officially denied any existence of DOTT on the Amiga

A damo disk, purportedly showing Amiga screens, that was doing the magazine rounds would uppear to have been an elaborate hoax.

### JAPAN STUCK FOR GLU

A recent assumination in a Japanese openg regin (actory could have persons appreciations in the proton) of appoint hardware. The Boundame Chaussell Company in Althous, Japan are the unstill a foregoon manufacturies of the openy terms and the state cares for more processary and computer thips. The explorises and requiring term have completely decretated the plant is production systems, configuret, and almost 55°, of the computer industry a real ample.

University the han caused verying degrees of panet beying throughout the world g hardware manutechnice. Larger companies drest the hadly discline mean they have built up the hylles of the rest. But number monotacturees are starting in myller and took not to recrease prices to english the increase in production costs. Refit chigs that ones can t25 have seen to Chill secretary technics unglishes likes for the the already technics the price of their PC minage by 2100.

The PC marked in the worst bit doe to the farge reaction of consequential manufacturers, although there is expected to be a degree of constant damage to other starkets. Among prices should commender that for the time being, so forget as commenders a stark for the time being, so forget as commenders attack the far is deploined before alther approximation translationary can make up for the forget.

The cause of the first in galangous of the gravated and the harmforms Company in still in the process of assaughing the damage. Whether the plant will be able to plant exercise again in the sear leases in able dawn.

# ELECTION NIGHT SPECIAL

The voles have been cast, the results have been counted and the winner has been announced. With the turnol(?) of the recent Christohurch by-election behind us it should have come as no surprise to anyone that the Alred Christon party. Mindecape a rather unque marketing play of running one of their product managers for official deeped in a large furry Almid costume, didn't win. What is surprising is that they actually successful in polling 16 resi-ties, honset to good mere voles and mereged to perfy into last place!

We didn't come lent" autores Mindscape PR Manager.

Jernes Morns, jubliantly, "The democratic system exerned to work partectly well in that 18 people really did want Alfred to win. The Reinbow Alivance party cares inst which justifies our whole reason for exanding "

In answer to receive a bioshed allegations by a leading rational tabled that Mindecape test adventage of the taxpayer a money to get a live advertioning container. Mindecape are advertant that they didn't use any of the opposition invalidate to candidetee. That was a felse claim." counters James, we didn't use those facilities. All we did was have a bit of fun and justified and whole standing by receiving 18 votes. The reports and the quotes were all adve up. There was nothing there that was actually said. I feel nony for periods the Chine Eubank or Philip Scholled that get stated all the term. It is only when the receiving and that you reakes they (the papers) really do make 4 of up.

So, a successful company all round, right down to the scandel in the remempions. We have the CU Actings can't wait for the general election to come round. We refer the second scale of remempions of the second scale of the seco

## **SO LONG, AND THANKS FOR ALL THE GUINNESS**

In scenes of excessive and nendlines violates. Cat they that that the teaching goodbys this month to CU Amigs a fend time. Tech SH, they was a set to per a easi publishing house. Here is a picture of the read of the teaching teaching the set of the set of the teaching house. Set of the period to be reading to the set of the s

In putting incention a rein putting incention a redeak, which we be a first and the solution of the building. It is to we have a brown paper bag, and has have dark which we be a brown paper bag, and has have dark some building. It is building. It is building the fellowing contained in reliment of the words. I make Nick is a dirty rolten traiter and should be the ment to Nick's A Traiter come to CU Arriga and should reach us by October 20th



## VIRTUAL VISION

Remember the scene in Back To The Future 2 where Marty a son was welching TV on a visor scrous his eyes? Well now you can do the same thanks to Virtual Vision, the take enywhere, watch anywhere television.

The Virtual Vision unit comprises of a sun-reflecting water and a transmitter beltgack that broadcasts the TV signal onto a small window in the vices. The result is like easing a small TV screen floating about six feet in front of you, allowing you to wint whatever is being broadcast as well as nea everything that's going on around you. Virtual Views will be on display at the Live TG show.





With Nucle, non-tack of travers done a remoter, CU AMIGA arguedly needs in All a comple of pacificant on the surgacine. We defining the box receipt the intention staff writers who induce the Amiga mobile and out, have a thermuch lower on sufficiently and formarized working style, and have an sufficiently and formarized working style, Magazine dependence day's absolutely recessory. However, However, However, the application work may be required, Apply in could move in staffing start U. In: Day Stingaby, CU AMIGA, 30-32 Farring and Long, London, EDIR 2401.

ERROR! ERROR! The model is 6032 supplement untitated a model between grant May of out grand (in felt year what it is, because it is

menny men in opposing to by you would be because it a find addigetagency and weakers to insis like we don't how weat you to taking the best (when do be meas?)). We digite you to sing the type should be been be and parts and how singed we nee with wish parts of all facts finance to have singed we nee with wish parts of all facts finance to have singed we nee with wish parts of all facts finance to have singed we nee with wish parts of all facts finance to have singed we nee with wish parts of all facts finance to have singed we nee with wish parts of a second factor to a right dow had at CM. CU shall Gal the 30 Facebage and have to a right dow. TO WING for some more easily on by 20th Sectore has The BBC Radio 25 TV and Radio presenter



# AMIGA CD32



The externot only he sleek his locking could the Arrige CD32 is a technological wonder At its hear is the mightily provertal

Swighter is in Communication and the Column Swighter Advanced Graphics Architecture shipper - composing three chips nacksarted Paula, Linn and Alice

Together they make Arrage CD32 and assemer powerhouse of high speed graphics and managements and capabilities

In furt, the machine can dusplay 236,000 calculates at some promption to Serge 4 Mega CD which can only despiny 64 jand has a time colour poletie of 16.8 million enloars. Arrays CD2 also comes with a chasky 2 Meg of RAM (that's 15 orners more than Mega

a di i and a demble mered de ve

#### SPECIFICATIONS:

- 14 MHZ 68FC 020 processor
- 2 Megs 32 his chip RAM
   2 Joystick parts controller parts
- S- video uck
- Composite video jack
- \* RF output Jack
- 🔹 Stereo aucho jacks
- Keyboard connector: samhary connector
- Full expension has
- Headphone (ack
- Headphone volume control
   External brick power supply
- Internal MPEG FMV expension capability
- Multiple services disc expenditly

## INDI DIRECT MAIL Proudly Presents THE JAKKI BRAMBLES COLUMN

#### Hi.

July 16th at the Science Museum in London, Commodore Launched 'CD32 to a very excited audience; and what a launch it was! We all expected to see a very special Arriga but no one rexcept Commodore) could imagine just how special!

In face, only in June of this year did Sega themsolves quote "we could bring a 12 - bit console out tomorrow, but the problem is the price and 1 don't think that problem will be solved this year or next year" Well Commodore have definately brocked that theory on the head with a retail price of **1299.99**.

the net go of about all the other breakthroughs the mode has made as I know the magazines will of reviews giving all that teckie stuff etc. but I really must say something about the staging mount of software that's due for release somewhere between 50 and 100 titles will be the by Christmas and more importantly all great software houses are now developing studiets, including Psygnosis, Ocean, Gremlin and mony muny more,

As it all this wasn't enough there's still more to making this premitible has a there. Full Given the making of a rest whe

pudget called an Mpeg Module you'll soon he able to watch films on CD and that really does mean some really special products are just around the corner, I can't wait to see and bear all instantiate bands on CD and the Amins CD is put waiting to play them.

Anyway I'm sure you're just as convinced as I that this product from Commodore really is a bit special and certainly changes the future for things to come the likes we have never seen before. Why don't you drop me a line and tell me what you think, in fact how about some suggestions as to what you'd like to do with the new Amiga and I'll get Indi to give one away for the total tetter.

See you next month

Cheers a kanbles

#### INDI MULTI MEDIA CLUB

A true 'One Stop' for all members' (in offer each month with no even increasing product range, members can obtain antiware in cover every application including Morphing, Rendering, Raytweing, Video and a PD Library accord to more. The Club also afters a very comprehensive range of videos including the Cult Manga Titles. Masic, Features and Special Interest. There really is something to suit every ones taste. Membership costs only 110 and each member receives a quality grift on jouring, even though there is absolutely to commitment to buy as any time. If you would like to be a part of this exciting club ther call Indi on 0543 419 999



#### DMA ENSURES HIGHEST PRACTICE

As with motor industries, the UK's personal computer industry has us share of cowhoys operating in the mini-order sector and at the repetving end a line up of despancing consumers who have suffered at their hands.

A presental computer is a suphistic and and expressive item and purvided the purchaster is dealing with a reputable and accredited supplier, buying a compater by mail ander can be a perfectly sufe and cost effective energine. The Direct Marketing Association (DMA) was set up in April 92 to set and maintain high landards for the sake of the industry and society as large, and to ensure that we can conditive to regulate our own activities on the basis of

proper professional responsibility. Membership of the DMA is and

conferred lightly - if is a privilege which entails responsibilities, to the consumer as well as to the ordinary. The foundation for this must be good practice. DMA members are required to ahide by the highest standards as laid down in the DMA's code, enforced an members by The Authority of the DMA a separate body with an independent Chainman, and which is an assurance of vrgences self regulation and professional responsibility DMA members also agree as a condition of membership, in shide by The British Code of Advertising Practice and The British Code of Sales Promotion. Practice to apply the Mailing Preference Service file when appropriate, and to subscribe to the Advertising Standards Board of Finance (ASB(IF) and to the Mailing Standards Levy os applicable.

The DMA symbol can only be used by members. Printed in stationary, advertising and other generationel material it demonstrates that these companies conform to the Astoriation's high standards and are subject to the UMA's Lode of Practice, this enhancing the companies credibility with contonnes, suppliers and of greatest importance, the

consumer

Since the symbol was introduced last Jone, it has become synonymous with quality , professionalism and and responshilly. While is cannot be shows in any way which will become a sign of best industry practice and of sirici adherence in DMA codes of conduct. The symbol represents authority for a emberg and reassumatice for consumers is his been a high valued reach of confidence signifying to the consumer the truly professional order of the radiance.

Alison Stan

(Director of Public Relations, DMA)

WANT THE BEST IN PROFESSIONAL AMIGA, WHI NUT TAKE ADVANTAGE OF THE CREDIT DEALS ATAIL TO L (SUBJECT TO STATUS), CREDIT AVAILABLE ON 6,12, 18, 24, 36 MONTHS. WHY NOT RING NOW FOR A QUOTE, SAME DAY RESPONSE.



#### NEW FROM MICROBOTICS MI230XA ACCELERATOR LAUNCH

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Opel Front V2.8 - New Includes foll reage, wood explorements and Alpha Charmel share allows priorit contracting with colorcable least on a passi by pixel least The new Companience office algors along the major into

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Limited off or INACINE V2.5 (r only 611 94 and performed and OPALVERON

imaging ID a the same papeler ID residences extra-set, the sum are parts OpelVanta The to a full version the working can GIRD 4 particular

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and quality at this Price can't be turned away" - Jungs User International mendict was unanimous - brilliant" - Arrays Degree

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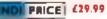
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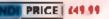
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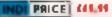
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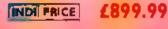
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The event may be over but the fund raising still goes on. If you're looking for the late rough management that the is the starter pack for you. Based around the output A1200, this pack also gives you sleepwalker, a most addictive platform game from o software. You'll be pleased to know that every one of these packs purchased m another d 10 fee Const: Robot

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#### CU AMIGA COVERDISKS



This month's coverdisk is crammed to the brim with Advantage, an ace spreadsheet. Plus, there's VMorph, a nifty morphing program.

## IF YOUR DISK WON'T LOAD

If your constitut down Taxant to work as 3 should. The failow this pingle guidaling. Furthy, convex all unnecessary perphetals, and as priview, manifests, etc. Follow the internations on these pages to the follow. And it also that you find that the the half it down 't work, call the PC. When building on bills 330505 between 1620 and 1220 Menday to Friday. It they advise that that the facility, then pag it is an overlaps with a supervise failure exploriting what the problem is: CU DISE Friday. It they advise to that the facility, then pag it is an overlaps with a supervise failure exploriting what the problem is: CU DISE Friday. It they advises TOP Octabers PARE, MERTHYN TYDET, MUC-62.4000904.05 40 277. Preset induce 20p per disk is close periods and patcing (this is constant conduct). Your disk will be include and a new, another an elegitybeat in you to don't be particle. Presen while the reflex we are PC Wise exception in particle in any disk damaged on its anyligence on the part of the units.

and from the working copy you have made of the Coverdisk and double-cluck on the Advantage icon. You should now be looking al Gold Diek s vertaatile apreadsheet program.

If, is any time, during the tutonal you enter something incorrectly, then a top on the ESC key will usually rentors order.

Manty Ve gram a tile har. Below that a Pacurrent spreadsheet window labelled Unseled Just below that is a box. containing the text A1. This is the Current cell indicator , and A1 refere to the red box in the work area. This a the current cell. The work even igbounded along the lop by columns. labelied A.B.C..., and down the left hand exterby rows labelled 1.2.3... The spot where column A ments row t is cell A1, and where column B. meets row 2 - cull B2, and so on 11 you press the cursor keys you can move the red box enound the spreadsheet. Another way to move the box is to click on part of the work area.

A comprehensive range of editing tools make Aurorement very entry to set up with complicated aproxibilitati layers. All hyper of entry care he call and panied in hull, or relative form The cell under the mouse pointer then becomet current

The spreadsheet dash is larger than the window that surrounds it. If you want to move to a cell outside the window then click on the arrows at either and of the acroll berg, or you can anter the co-ordinates of the cell directly if Commands/Gate Cell' is chosen from the pull-down menu. These cells are the locations incovingh you may attract four the rest and formulae For exemption

let a draw up a simple table of the number of hours I spand per day on my Amiga

Find of all we put a bite for the spreadsheet in the work area. Click on cell 82 and type. Hours spent on the Amga per day'. This text appears in the cell contents box. Now press RETURN and the label appears on the spreadsheet. Notice the label spreadsheet is inform Advantage that her to being entered.

Although the label is larger than the cell a occupies, it is displayed in full. If something was gut into cells C2 or D2 than it would be truncated. To make a column wider you click on the vertical black line that separates each column, and with the left mouse button held down drag it left or right. A vertical cursor aids your position-



ing A value also appears in the mesage box. This is the cell width. The column that the current cell is in can also be altered in width by selecting "Options/Column Width".

Next, click on cell A4 and enter Monday', Printe Return and enter 'Fuenday', Carry on doing this for the other days of the week. Click on A12 and enter 'Totals'.

Click on C4 and, using the name procedure that we used for entering the days, enter any numbers you like. These are our hours spant in

line spent as the Boly

22

1.2

The environmental pertain another you to choose the direction the current call indicator will ge in after Return to presented. If also sets the size of the agreed share, and the order of colouration, encours other things.

inoni of the Arriga. The call in this column on a line with Total', C12, needs to have the sum of the values in it. So we have to enter a formula.

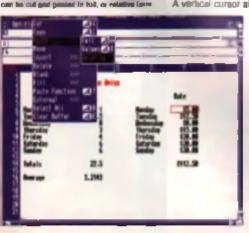
#### SECRET FORMULAE Click on C12 and enter

Catch of C12 and entries "-SUM(C4 C10)". The first equals sign tails. Advantage that a formula is being entered. This built-in function SUM is used to total the values in the column from C4 to C10, hence (C4:C10). It is simply a truncated way of entering the following formula: =(C4:C5=C6+C7+C8+C9+C10).

Having pressed Return you about now see thit total number of hours I may have spent the week in front of my Amiga.

Another useful function is AVG. Click on A14 and type in "Average". Now click on C14 and enter "=AVG(C4:C10)". After pressing

Anvenings get he operand in its men could screen, or on Workbench by altering tooltypes. Interlace is supported too.



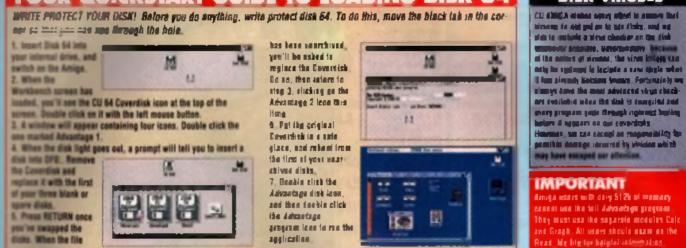
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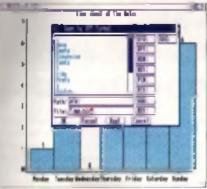
are with any 512k of memory

All searce about a name on the

## YOUR QUICKSTART GUIDE TO LOADING DISK 64

INTELE PROTECT YOUR DISK! Before you do anything, write protect disk 64. To do this, move the black tak in the corner so that and are use through the bale.





#### The chart wave requestion is elimiter in forma-Ver Character Gyerner then an Continued Cra

RETURN the average number of hours spent per day is displayed.

The AVG function operates on the ital in the brackets. In this case, (C4 C10) is a range of calls, but will could have a variety of calls from which to draw our data. A list can be a paries of cell names, values, or ranges separated by comman, or a combination of all three - (A1:A5. 5,D6,29,E8,F3 H6). This last range F3:H6 represents a block of data that includes cells F3 to F6, G3 to G6. and H3 to H8.

## CHARTING THE

Ranges can be selected on the work area by clicking on the first cell in the range and, with left mouse buiton halo down, dragging out a reclangie lo encompass our desired number of cells.

We will do this now to create a graph. Circk on C4 and orag out a rectangle that encloses the column of figures down to C10. Now salect Commands/New Charl' A requestor will appear with 10 different types of chart to choose from. Each suits a particular data set in our case, if e vertical bar chart is most appropriate. Cick on that icon and a requestor will appear. Type in our litia again. We

Numeric noise on can be in the emotion Cangest formal, actantific passarings, or car range The detunit it sign can be changed for the pound vie a looky pelentry

will not need a sub header. or en a exis label, es il will be self explanatory. But we will label the y-exist so type In Hours

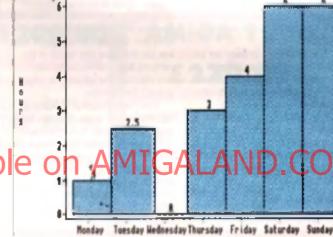
The check box 'Ticks' is aiready on, but we need to tel: Advantage where to find the labels for our x ans These are the days of the weak and are to be found in courre A so the start value should be charged to 1. Column B would be 2 and 60.00

Click on Velges, 'Floating', and experiment with the settings, then

neind Chart Contro/Chart Prets: Al the bottom of this menu is. Set Num Ticks Select this and change the value in the requestor to eight. The graph is redrawn with a better range of values on the years.

Our graph can now be saved to disk or printed. If you choose File/Save as IFF a requestor will appear. Here you must specify which drive, il you have more then one, you wish to send the picture file to This is done by clicking on a drive button. Everyone will have df0 and RAM; as a minimum.

Enter a destination directory, d requirec, and a filename and click on OK. The saved picture is in a formai compatible with all picture



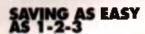
Then speed at the Burga

verware, and paint programs such as Daiuna Paini

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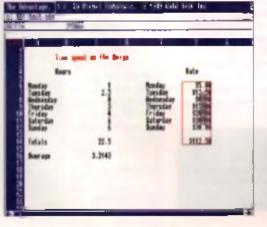
The two other guil-down menus on the chart window a trite bar control the fonts the text is displayed in, as well as its colour, and the colour of the chart the background, borders, axes, and so on, Experiment is the best advice here. We can use the depth gadgets in the top right hand. corner of the window to get back to the spreadsheet. Or you can resize the window and drag if to one side by clicking and holding the life bar.

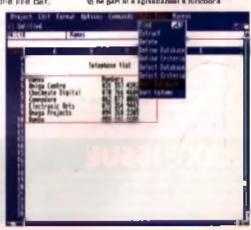
A Brichol shurt mody for grinting or incorpo-ration into a didethow for generation. These are numerous controls over large and colours should you not like the detail in



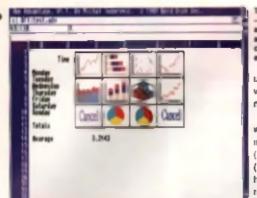
Spreadsheets are saved in a similar fashion to that I described for the charts. In this case the two options are Project/Save and Project/Save As. Save As' is always the first to be

The statisty to port a detebase and Pro and estruct data inper it is not unually considered to he part of a sprandshard a function a





#### CU AMIGA COVERDISKS



used when preparing a spreadsheet. Even if you have not put anything to paper, withe saying goes, it is best to define the destination and litename of your work.

There is a choice of two subtients when this selection is made – Advantage or 1-2-3. The line will save the spreadsheet in Gold Disk's adv format. The other format refers to the popular PC spreadsheet. Loss 1-2-3. If you use a PC as well as your Amge this may come in handy as *Advantage* can also load 1-2-3. Illes

Once Save An' has been set up, any use of the Save' option will automatically and the spreadsheat the to the selected destination without the appearance of the file requestor. This option should be chosen regularly so that, should nomething happen, you have a copy

Ly Proting Lobely Berker Harring

ALL DE LES

## SPREADSHEET

The next many along the top ber is 'Edit', Here we can use many of the lacitities found in word processors, Select the range A4 A10, our column containing the days of the wherk, by dragging cut a rectangle around if

New choose EdsCopy Click on E4, then select Edit/PasterFull\_Our list of days of the week is put iffit column E. Position the current call on row 2 and select 'Edd/inner! twice. Two rows are meetind giving us more space between our tills and the values on the spreadsheet Salect B4 and type in 'Hours' Now select F4 and type in Rate', Move the current cell down to F6 and enter the formula -C6\*5. This is going to be our hourly rate. As soon as you pressed Return you will see a value appear in F6. This is the result of C8. multiplied by 5

Make F6 the current cell egain and select "Edit/Copy". Now drag out a range from F7 to F12. Salact Edit/Fil/Down", immediately ine col-

## NEXT ISSUE

To belp you anyand your sprachtaan capatriliten wa ya pet logathar a tarihar datembagi tutorial. It il famina dalaria on how le una your datembagi peoplarm loa texcheva obtet itam a simple sprandshoat, flow abaki wang li na a databasa, lor iantance? It yan cao timpt liket long wisy natitake advocatgo al one spacial manaal offer oppartia?

Ten different chart types - horizontal, vertical, 3D and hills bars, stacking and plain x/y, scatter chart, plain 3D, and exploding ples.

umn is filled with the values in C7:C12 multiplied by 5. The 'Fill' lackty will place in formula in a column ( Down ) or in form ( Down ) or in form ( Fight) without you having to type it in repeatedly All references to a particular

cell are altered relative to the position of the formula, So, elihough i entered =C8\*5, when Advantage pasted the formula to row 8 ri adjusted it to be =C8\*5.

You may have noticed two other sub-items, Edit/Pasta/Velues and 'Edit/Pasta/Pasta/Velues' and 'Edit/Copy', Now make Q6 (he current cell and choose 'Edit/Pasta/ Values', There is no apparent diference. Now make P6 current. You will now are our formula in the cell contents box. Choose G6, and you if now see just the value (the result) in the contents box. Edit/Pasta/Velues' only copies in the values of a column and not the iomulaes.

Edit/Passe/Relative is armier to Edit Passe/Relative is any formulae are adjusted to take account of their new position – like the Edit/hill commerci Select Falegan and their Edit/Copy, new make Pile current and choose

Edit/Paste/Relative . The value of C14, the total number of hours, an printed multiplied by 5

The next pull-down menu is tried 'Formal'. Here we have been using Genural' for all our calculations, but there are other formats we could choose from. Currency is probably the other one you will use most Salect the range F6:F14 and then choose. Formet/Currency', All the values now have a dollar sign in front, and two decimal places.

## SUBBENE

The dollar sign is default because Gold Disk are a Canadian company. The currency sign can be changed, but not from within the program. This is done before the program is not by selecting the Advantage program's ison and choosing. Into (WE1.3) or "Information (WE2.0-) from one of the Workbanch menus. The tooltype Currency-S is them exited to the sign of your choice, and 'Save' cicked on. From them on Advantage will use that sign. **/MORPH** 



archive the VMorph program as described in the Ourchatert guide' box, but click the VMorph iton instead of the Advantage icon

VMorph is a public domain marphing program. It transforms any to rea 16-option IFF picture into any other, over a names of frames. Instead of simply fading one into the other is comply fading one into the other is comply fading one into affect a court a name of an indige until they match the other. For

unit may reach the other. For exempte, the gras of one face could turn into the eyes of another, even if they were at different places on the screen.

Uniortunately there ween't enough room on the disk is include any IFF pictures for you to work with if you have *DPanit*, take a couple from there. Make sure you convert them to to ree and 16 colours

#### MORPHING

Before you get stuck in, beware of a bug that crashes the program if you click on the CANCEL box in the file requestor section. Bear with it – it is PD!

Click on LOAD IFF from the control panel. Leave the disk in the drive until the directory listing has baseded. Change the disk for the one with your IFF pictures, and deline the path and litenemes in the requestor. Reglace them with DFO and prets RETURN. Load the

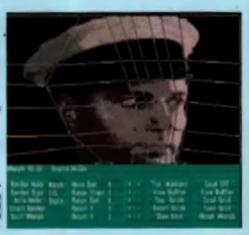
> The mility from pay TV of is to be the image into which Petrics will comple Here, we're colling up the grid.

An ele CJ AllICA texterile Petroi McConter, le statet la la miljistici le neve ration prime analyg recepting

first picture, then once you're back on the main ecceen, dick the right mouse button – this switches you to the eligensitive screen. Now load the record picture.

With both pictures loaded, you have to define a grid for both. Clothes the next button with the pointer at the top of varies of the pictures another line to the grid. The left button moves the points where the lines cross. Flip between the pictures, setting the points is the pictures, setting the points the pictures. Setting the points the pictures are points where the lines cross of the two images. The more points you use, the more accurate your morph will be. Hit the RENDER button, give your morph a file name, and the twears will be generated and saved.

To convert the likes into an animation, load any version of *DPaint* that supports animation. Select the first picture of the sequence from the LOAD PICTURE option, and enter 8 as the number of frames. Press 6 on the main keyboard to run the animation.



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#### CU AMIGA COVERDISKS

In any other context, using the words 'balls' and 'cockpit' in the same paragraph might be awkward. Not so here, since this month's



stunningly excellent coverdisk contains not only a whole level of Krisalis' Soccer Kid, but a complete mission from MicroProse's F117A Stealth Fighter. Get ready for the disk of the century. his could be firer then a complete level from a forthcontaining superb graphics, wonderful sound and a really clever unique level of a forthcoming, etc. etc? Theirs offit, with many thanks to the tolks at Knsells, we are able to bring you CU Arniga's very own level of Soccer Kid, one you won't find anywhere else.

The task is simple – run, jump and kick your way shound the level searching for 11 collectible soccer cards (you know, the likings you used to get in bubblegum packs). Using the kind of football skills that

Jumping on top of the ball allows you to reach new heights of gaming fun.



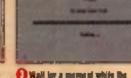
Not goty has Second dista ball basis algorid by all his fortheting harman, if a size his only wangers in the gents. If shi fi shi things and cataliy integ if weat these has

would make Gary Lineker weep, you have to progress through the built-up area of lown, then move out onto the beach, taking care of baid guys along the way. The moral of the tails is 'if it movies, avoid it, 'built you find that a bit difficult try locking the ball stirt. It's fun, it's fast and it's thoroughly addictive. So what are you waiting for? Get factorg.

# YOUR QUICKSTART GUIDE TO

Film simple sings arg all that its interact you and gatting constrange. Follow them gated have and you'll name its adjoying yourself in the only way paperide with a Cit Amigu saverdust





When the many appears you long a starple choice, Press F1 for the F3124 (sme, pears F2 for Secon Kid, a prom F3 to stop the Anna dama. Alternatively you can click on the required botton with your mouse.

O The dame appears in all the placy. If you also a factor Aid the prior will be in a facilitati strip and battanj a facilitati.

game/iame is gamiled ideals.



# e on AMIGALAND CO



#### BALL TRICKS

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alli est pe	arrentedt diere sia gelek gelde te telt gertrei
ACTION	JOYSTICK CONTROL
Pradata San Ball	From and hold fire if the ball excepts your group and a new
	one should some appear.
Renning -	Mary the joyatish, many the kid,
Jumping -	While making, path the joyetick op seel many be poor.
Standard Kick -	Liced in dispage of had page. While reasing in presention of
	the hold group five to knoch is gown the field"
Ducking -	Straphy pull down while statigency and the EM will deck
1/11/1 ( ) ( ) ( )	Pennik -briefs and blend
Slide Tackle -	While remains, guil down as the stick and the fild will start aid
	ing about.
Jung Down -	To jump down toom a gintleren jaat press fire while dealers,
Power Header -	When the half is givenous, prove lies in knoch if with per unit
Trink Start Maste -	When states any and is preparation of the table, pressing firs
	guis von in Trich Shai filgele. You gan now in the fulleming
Same Bet -	Pryss firs and pash the stick is the direction you're lacing in
	weiling Mig half,
Trick Hander -	From fire and gook op in start boarding the ball
Ball Ralance -	Proming for white politing down will become the kid on top of the
	ball boll und right movements while knogleg ties general will
	then examp him in that walk' white gashing ng will come a
	Luter bang.
Dverhead Shot -	igfbilg in Triph tingen mmta, unit mit fin ball in al full baight than
	parte laff as right to researching Pale in Escape To Victory

Hi



Due with the chains gue to use the and in measure you to up which the tanging with our wronged could be able the feature of these

he F117A Stealth Fighter - the world's most secretive plane. It can't be picked up on any reder. Missiles have a hard time lock-

ing onto it. Heck, even its own pilots have difficulty finding it in the hungars. You, however, simply have to load this month's coverdisk to take the controls for a complete mission in MicroProse's forthcoming simulation par excellence.

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Anyone familiar with the basics of flight sims will be able to just jump straight in and start swooping, splitensing and barrel rolling with ease. Those of you of a more tentative return should read on for a lew basics on how to stay allive in the er-

#### The first thing you have the remember to that you youn't be able to shool other aircraft down with any-

thing other than guns unless you open the weapon bay doors. To target something, first put the cockpit into the correct mode (Air to Ground or Air to Air), select the correct weapon (sidewinders for aircrait, everything alse for ground targets) and press the Designate New Target button. The target will appear in the inght-hand display screen and a inquare should appear on the HUD, indicating the target's position. Now, just wart until the word 'LOCKED' lights up and press fire. All being well you should be alive and he shouldn't.

Bas Note red lights on the desintquerd? They ream i min would fill fact these enemy planes on the rades display? They may i min big insufat:



Similary on the names is the sould be been mighted and glace of antici because. Can't minimize and the golden way Results.

So, now you know how to do it. Now for what to do it to You have two options:

THE MISSION

Taka off from USAF base al Nethers, Ety to 1 Accord and thed Stopping and turn for Pilan

Destroy the Mobile SAM Reder at Pilsen and turn for home. Land at Neuberg

## - UNOFFICIAL

Take off from USAF base at Neuberg, Target anything that moves, First mustles, gurst and bombs until you run out. Press All R to resupply yourself (i.e. chant). See all over again. Lond when your tes a ready. Oh, and have a look for some ground depots as you'll get the chance to view a sign showing your lavourite magazine's logo. The choice, as Bob Holmen is tend.

of saying, is yours.



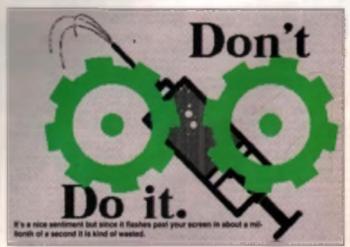
## KEY LIST

As with any flight sim than a simply because a benance to choose from, with these a buying of evening it is not too easy to tell what's what. So, been a tipt of what by down what.

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# **CYLON RAVE**

\*\*\*\* to this disk, we bring you the Cylon Rave demo from Dimension X, a bot moving mix of house music and flashing graphics. However, we must warn anyone that suffers from epilepsy or is particularly affected by mody faithing images, DO NOT load the demo. as it may prove harmful.



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# **Animated Antics**

has dealing with the Amiga we often consider the image quality of static frames - the presi resolution, the colour depth, the somen mode and so by. But there is another dimension to Amiga art, the dimension of time...

Animatem is the display of images in a sequence, unusly at such it speed that the human brain is unable to see the images singly - only as a whole, an animation. As computers have infiltrated the graphics media, so they have till the recommendation to the animation anna.

In some examples, adding another layer of abhevious terms of the sector process, magen are being created light data that has never a solid in the real work, but has been completely generated in the minds of sher and the FAM of mageness

But it donen t all go that way in many other computers are used to useful Vacilizanal emmetion techniques, and even to that building emission in categoe around the world. Because of its unique techniques and emission value for money, the Amige has established mail in an important tool in the emerging industry.

Hi Quality Version Available on AMIGALAN



Many professional artists are starting to realise the Amiga's potential as a graphic's powerhouse. Not only does it produce high quality stills – it can make their move too! Join Nick Veitch as he takes a tour around the Amiga's animation tools.

# **COMPUTER ASSISTED ANIMATION**

Even when a computer is not used as a central component in the replay or generation of the animation, it is still a very useiu fool for the artist. Many irreditional artists find it difficult to create an on the computer, but would like to use the advanced adding facilities available on automated computer-controlled equipment.

One of the more radious ways of doing this, but nevertheless a quite popular one amongs non-computer types, is using a digitioning label or arm and tracing in line drawings into a computer-based an package. This can be done quite inexpertively and easily on a machine like the Amga – all you need is a copy of *DPaint* and a graphics tablet, such as the Genus DT. All that is required is to place the artwork under the protective coviring and trace over it with the peri. Atthough reliable, the process is laborious and time consuming. This rather delease the object a little, which is about making the process more efficient after all

A more sensible option is to use a scanner. Artwork can be prepared and then fed into a scanner a frame at a time. The only difficulty here is that, obviously, the computer bitmapped images will all have to register properly if they are to form part of a meaningful animation. This means that they all have to be accounted in exactly the same position to ensure that the images match up properly. This can be a bit tricky, even on an experience flatted scanner. If you are intending to feed the finance through a multiple document scanner thare is writely no chance that the frames will line up.

The images can always be realigned in an art package later, but agen the introduces an extra process - more time, more effort, less productivity. Since it takes a professional enimator it day to create five complete frames, time is always of the essence.

A more popular way is to dignate the images using a video camere. The camere is mounted on an overhead impod, coming down at an enimption base. The base itself would contain locator page to ensure that the termes were all located in precisely the correct position. Since the camere would be set up for a specific terms size there would be no need to change in position. Lighting can prove to be a problem, but a tew bright lights attached near to the base should colve the.

The major advantage of entering images into the computer the way in that the in the way animations thereadyes used in be recorded. The camera may be of the CCD video variety rather than time and the bullons to be presend may be on a computer keyboard instead of at the end of a shutter release cable, but the principals are the alone.







COMPUTER GENERATED ANIMATION

changed the way the media task operated. Nowadays newspapers are designed on computers, and News At Ten mouldr. I be worth broadcasting without animated computer graphics. Having infiltrated the establishment, computer graphics moved down market to animated title sequences and game shows like Catchphrase.

The impact of computer generated animations was heightened when what would have taken 20 funditional arbits a month to produce could be churned out by one bloke in an afternoon – with the aid of some very expensive micro-elect lionics. It was the birth of a new artform.

## Morphing

Morphing hit the headlines a lew months ago as the fashionable who effect to be seen with. If was inted in Terminator 2, if was in TV temmercials – if even made if onto Temorrow's World. And es if by Fugic, at least three Amiga morphing packages hit the shelves

Morphing can occur in two ways – either ee a post-production sperol effect, or as part of the indering process. Software such in *CristMorph, MorphPlus* and ingeMaster er able post-producter morphing in other words you find in the still images (either one officient some the insequences) and after some inder the morphed images are pro-

These effects work particularly if with moving video – such as the live shots of laces taking. This place has been used in several videos, and goes like this.

The two separate secuences of Person A and Person B are led into the software, and control points. are attached to important lealures. such as eyes, mouths, ears and hairline. The morphing software thinks about it, and produces a third sequence which starts with Person A talking, who then mysterious viransforms into Person B by the end of the sequence. The effect is much more than a simple dissolve blend, as the various parts of Person A sifece seem to re-arrange if amselves to become Person B. It a a good effect, but can be very easily over used.

Interestingly, top Amiga rendering packages all teature morphing effects which can be applied to objects. Morphing an object is an excellent way to add the to an otharwise dull shape. For example, think of the many TV commercials where the product is a box of wasting powder, household cleaner or hair get. Which as the box bounces around a rendered super clean futchen with a life of its own, deforming as it moves and/or speaks. One way to create this affect is to model the product in a rendering program, and then morph it between several key positions – the software can automatically carry out all the in betweeping celculations.

Creating the product object is remarkably easy – nimply scan in the artwork from the box and wrap it around the object as a brushmap. The latest betch of Amige rendering aoftware is ideally since to such operations, as they now a low the brushmaps decorating the object to stretch and deform as the object moves. Previously, the brushest would remain intact as the object aguirmed beneath them.

In this degenerate MargoleRan were used to even a a second transition from one energy to the estimation in the actual file them are over 20 interest.











#### CU AMIGA LEAD FEATURE

## » Playback

Playing back 24 bit images is freught with problems. For intertions unlines you are happy with the pseudo 18-bit colours of AGA HAME mode, a separate 24-bit board will be required. Unless your animation is viry short or you have an enormous number of SIMMs, it is unlikely it can be stored and played back directly from RAM.

You may be lucky enough to have a depley board which can playback sufficiently quickly from hard disk (another good meson to invest in super test SCSI-2 equipment), but in most circumstances a trame-byframe approach is called for.

Recording frames individually in the way is a time consuming busimess, bus wome still a video deck will cost several Provising bounds.

#### PROBLEMS

Most Amiga randoming packages will produce 24 bit images, which means theoretically at least, every Amiga is capable of producing professional quality results. The linst problem is the time required to produce the film. With full mylracing, each picture can take hours or days to produce – and don't think is 68040 will change that figure. The speed-ups from expensive silicon implants soon get istochad as you add just one more lightsource, or bumpings or motion but effect. An enimesion which leasts to opport the hybrid which

asy two days. It is many each trame must be rendered in just under four minutes. At this time, no Amiga activers naming on any Amiga can produce autoble images in this time.

The solution is to use multiple Amgas, retworked to a carriest storage device. Even two Amga 2000s triad with 40MHz 040 cards can speed this operation up as theil you should see something around lunchome on the third day

The second problem is storage space - a 24-bit frame consumes a

let of memory, so hard clake with sizes in the Gigabytes are required. Optical and lioptical devices are mendelicity for back-ups

#### CONSIDERATIONS OF SPEED

The speed factor is very important in estimation, in order to provide a reallatic animation which can tool the human brain, frames must be pranetted at a speed of around 20 per record. Animation have chosen a mendert of 25 fps for video work, which mosily matches this format's speed.

When it comes to your Amiga playing back your Animation, you could be in trouble though. It is all very well for you to select 25 the from the *DPaint* control panel, but it is enother thing entirely for *DPaint* to chilver at this speed. With a 66000 based machine, animating it acquerics of to-resishots in 15 colours chirot from memory, you have a deeren chance, but if you switch to be resiyou can just about forget if.

There are many dedicated playback programs around, most of the good ones are in the public domain. too. DPaint conforms to a standard known as Anim5, a development from the earlier definishing differencing systems. These Anim formats have apare by using a differencing lachingue on successions frames in an enumation. Instand of storms complete runges, of the cents that have playout from analyzem to the cent

ere stored. This results in a much smaller file, and in some instances, a much guicker animation, ion.

Aithough the processor must spend time decoding the Anim information, it doesn't have to redraw the entry frame. Also, due to the much amaler the size, each frame can be accessed much faster. This makes it more leasible to run animations from disk instead of RAM – a limiting factor which has previously been insurmountable.

With later Arriga models, with

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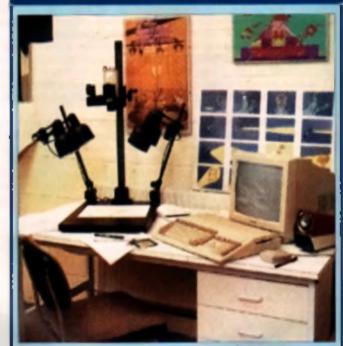
Images are produced on the Amiga either using a 24bit board or a HAM graphics mode. Animations are either played directly from RAM or harddisk, or displayed frame by frame.



The incoming video signal is displayed on a second monitor

For short animations a domestic or semi-pro video deck can be used. Longer films need a frame by frame system.

## AMIGA PROFILES



#### CHROMACOLOUR

Chermacolous in a booten based busiceess which deals gesmanly with suggifying not easten studies with constants in primal or calls, gamty, provide, brocker, etc. Is have upgig elignt base constant maps of the globe, from basis demonstration forget.



seven. If is associativity a simple device - a depictors and example ymmetical area as parametrics performed econocided in an Amiga. Ling galaxity digitizes and on the heart to require a net then the performed digitizes much one to hear. The terms are there is ing denign on the the nequence can be played back by any instead or added - adding and removing features in the started sequence with the gaught to the way ymmithe M.

They down i mean in he mything revolutionary adapt the miliyou cannot be alternatives. Al generati, mest studies adapt droughy goig vidge - adding facilities are meet campleated. Mare appearing and take meet longer to gradues the same testals.

Because the equipment is so expresive jut insolitance the price of the Chrowincefour set up), such a simpler because can poly aftert one or but of these units. The result is a ling-just of participation in generics of in one the equipment, only in tind after a languing abased participation that a couple of formers were out at successor, or one was shell before by accident, and it could be barre or even days before they get a

There are aswerd particing of Companies and a Line Test software available new which allow the addition of cound, and multiple assumption beyond, which can be mixed in much like a and way of bounderschulles mixed with Meet For longe colourties, large antenation of RAM are required.

Having phipped around a bundled units mediawite, the Chepmannings mail be ensurineed intrip measure Clients Include Disney (who have Drun). Roll Marrie (atreiously), and Rog Rolls litans, who expected the all true andmated grant, Br. Reas. Future developm lealade a very similar but sealed down system designed. ior beginners and schools. This manial space is assessed some soft uver being fourlaged specifically for the gargeme in conjunction with Hagesd Ente Ba'na takan ngank at akét a saming ag and it lands very interesting indeed. Link and he a restructe CU same. Chenmagaious can be couldeted an 841 838 8422







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## **AMIGA PROFILES**



One been supporter of the Amiga as a complete onlution for momentum to Jone Wagman, an MA student on the longes and Communication course of Goldemith a College. Having started out to the more physical arts as a scalibrane, she moved into computer generated images and asimalign first at Comberwell and new al Goldge lib's where she has just completed her MA project, a five minute gainsting called. The Seamstreet

This project was put ingeliar almost completely as an A4000, noing a variety of Amiga coffware and hardware. Video sequences were abet using a camcerder and then digitized using the Vidi digitizer from Anothe, Using this hardware it was possible to grab neveral frames a second from the real time playback.

The images were grabbed in a mean in tea formal, graing an image reastation which appears only eligibily pixelinies when recorded down onto simularit. VHS tape.

The images were then hand explored by teading each trame individually into *DPaint* and expanding the poletic, before being served back onto hard disk. The sequence is poleticated by many applicities such as manybe and rippion, which were all performed using either *DPaint* or 6VP's image FX estiware.

The reasting unimation was then recorded by glaying the estire seguence directly from the A4086 a hard grive and recording it axis video.

Why an Amiga7 Well, the power/price ration makes it ideal for gaupie with minimal resources, such as anders the world aver. There is nothing second rate should the output sitter.

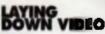
The actual process of digitizing all the formers and coloring them facts a fittle over three months - greatentably short amount of time considering that a conventional line article can only produce should minute at the quality animation a year.

Jaan in optimistic about the future. With the current news tewards CO factoring there will be more domand for computer-fluent enimetere, working products graphic sequences for the multimedia products of the future CONTENTS OF CONTENTS

#### Pair 32-bit addressing and faster CPUs, direct from disk animation does become viable, even for higher resolution strages, Recent developments include the Anim? format which can highly an animation direct from disk on an A4000 030 tester than an A500-A500 can show a sequence direct from RAM.

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The other womying factor is that many programs simply similar speed - sometimes the gap between irames can very. The may be acceptable if you are eiting watching if at home, but it is not pood enough for recording. Betwee activate is in development, but for the moment the only solution is to asverely over your machine for the lask you want it to achieve.



The other solution to the recording problem is not to record an animation playing from your Amiga, but a sequence of still frames. Any Amiga can display a single image, to you don't even need a very expensive computer. Unfortunately you will need a very expensive video deck. Even it you go for a fairty bog-standard deck you are fooling at a lew thousand guid for a machine with frame socurate recording.

There are cheaper solutions. Many of the top-and consumer dacks available today, in the £400-700 price range, are capable of recording to a couple of frames of accuracy – good enough for doing roughs and demos before booking atudio time for the final cut

This also means that you can produce much better animations in terms of image resolution. Never mind bill resultariace, what about 24-bit? Well, you can certainly manage a HAMS enimation, but 24bit is alightly more tricky. Depending on your 24-bit card, you are more than likely to need a iranscoder as well. Most boards just give an RGB output for use with a montor, but you'll be hard primated to find a deck that accepts RGB as standard.

A typical quality encoder/ transcoder will stretch your budget by encloser £150 or so, if you are enably estimized. Obviounly, the more experiment fill deck you are using, the more important if a lo chose your inspecider with care.

If you are tacky, your 24-bit card will come packed to the Zono buses with ultre last RAM. This can be used for buffering animation frames – ensemble to buffing up images in an animation so that the frames are complete when displayed. Technology in 24-bit cards has come a long way and many are now capable of a fairly respectable frame speed, but not 25 tps.

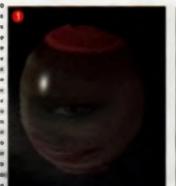


## RayTracing

The beauty of raytracing (and other image rendering methods) is that the pictures which are produced look real. Depending on how much effort is spent designing the objects and their various textures and maps, the finished pictures and maps, the finished pictures can look is real it would be impossible to tell them spent from a photograph. Of course, the next logical step from stills is animation and the possibillies which result from being able to make finish about object and make finish about object and access which don't is dually east.

 Pertags the simplest scenes to render are those featuring spaceships and plenets. The simple lighting (one star and some ambient back-till light), tack of casting shadeves (the ships don't cast shadows on the plenets) and relatively simple objects (plenets are spherical) mean that rendering a photorealistic interplanetary shoes am up is a one of the first areas where Amigas have stready been used in real life. Rendering packages work a lot

Ike imaginary film studios Camerae and lights can be positioned exactly where you want them, and the objects - your actors - can be given pre-defined paths to follow Objects can elso be antimated, so a helicopter's rotor blades spin, a car's wheels rotate and the key on a clockwork robot



made down.

After checking the movement with a wreiteme preview, it's only a matter of waiting for the finished full-colour animation to be rendered For an animation, it is useful not to use full reytracing, as the extra time needed to create shadows is usually wasted. A good scantime algorithm will produce images of more than satisfactory quality.

If you want to see what can be achieved with consumer level equipment, check out the Star Ware Video Collector, which feature work of machine Tobles Richter Oal BVG on 0874 611833 for details).

The problem with creating more down to earth animations is the creation of realetic objects. This is an artform in itself, and several people and companies are making names for themselves in this relatively new field.

Several of these virtual prop builders' frequent Builetin Boards such as CIX, so dual off your modern The program Real 3D v2 can take things a step further, by allowing interaction between images. Using a so-called particle animation system, objects can move under the force of gravity, colide with each other and bounce down lights of stairs.

For those producing 24-bit raytraced animations on a budget, the latest Relina 24-bit display card comes with software which can replay images at a very satisfactory rais











Paytraced langue can be used to model or sometry that events, it generates use is the nucleation of conflections - here winese. If ways a figs real such (generate him, num over his test and agend into the distance.

## **Digital Editing**

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This is a new lield which is set to explode within the year. Currently inditing video is a lime consuming and expensive business, requiring decicated hardware and a lot of time to get a right. A system which uses digital images, and therefore a lows real time epicong, relatinging and proviewing would find a space on

Prodesk of many a studio Purther as the images are effort the digital domain generation oss is a thing of the past as the images can be reproduced with 100% incouracy every time, before tinal meatering to video tape. Soon even this stage will be removed as we all watch time directly from CD- ROM using MPEG lachrology.

Impulse, the makers of the rendering program Imagine, are working on such a device and have called n The Dream Machine. They are aiming for a launch this year, and hope to provide units which will allow ediling of everything from 30 second commercials to three hour feature films.

We won t have to wert that long to see Digital Editing in action Steach At his momentapleced software from the American multi-

media company. Penlaray, is already in the final stages of testing. Called Bay if is a further developmuni from a previous package designed for use with the CDXL formal on the CDTV.

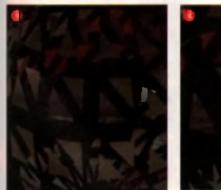


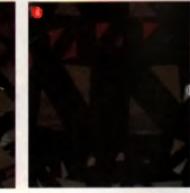
The future of animation, and maybe the future of video, lies in the realm of the computer. Although tradilional animatous may whings and complementations may whings and computer animation (which is only true when considering film, not video) there is really no other way for a modern enimation house to

operate. Having one hundred a meators all working overtime for a year to chum out a feature is simply not the future.

Of course, thetis not to say that future ensimators won t need to have a good grounding in introficional enimation techniques before moving on to computer-based development

Below and Left: Using a 'real' digitised image in a raytracing program can result in some pretty strange effects. Here an image has been wrapped around a substration support support of the strange of







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A sequence of images from an examined incruting to Jamas F. Biron - one of the locating fathers of consumery granings, exercises has ease his isonate veyages theby time, created for NASA hadres from grane and grant left the granted. This 24 bit entration are caused for the Retire 24bit card with transition and gives back its 400 instead from memory in two-films on an A4008 330



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# A CUT ABOVE THE REST

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Fancy getting your hands on a decent animation package? Fortunately, you don't need the financial backing of the **Disney Studio or the genius of Industrial** Light and Magic to create spectacular animated effects. Peter Lee offers a

rough guide to what's out there for the animator.

ven special FX junkia, Stavan Spisiberg, had to start somewhere - and he didn't have the advantage of the best home graphics obmouler. You do and there a planty of software out them to help you to bring your dreams to kin - in full, glonous and frighteningly realintercention and movement

We ve picked a sample of widely available, moderately prined and easy-to-learn animation parkages to suit the animation newcomer as well as the more straet-wee enimator who is maybe stuck in a full with a fave program. and who may want to grow by trying new techniques Here's Peter's personal whistle-slop guide to the software

# ation Park 9.95 • NO LONGER

an Animator is just one of the few vector graphic animators available. Vectors have many good points - very smooth transmons, object movement and point editing - but the downside with Animator is the tack of a freehand drawing option. You can create knew polygona, circles, stars and rectangles, with ease but curves take pailence and are nearly always angular.

Nevertheless, you can effortlessly entrate and morph the range of objects available. Squaring a dide is a two minute job and real paths can be drawn along which objects can be animaled.

Controlling the way riems flow into different shapes is cleverly handled. Each object created (apart wom bitmaps) is composed of points. Earling these is simply a marter of activating one and stretching 2 repositoring it. Once the rubber-banding has been done, you click on the icon which moves to the mixt frame, and the animation which results from your changes is handled automatically by the program. So, no matter how eavare your changes on the shapes from one trame to another, they all flow amonthly as the sequence plays.

Brimeg graphic screens and brushes can be loaded in, but only in the program s low-resolution arctie. You'd be summised how at consistent in combination of vector and bitmad animation is given on planmic A real rick when works yon will slo love in a bitmad prove the trades of a move it up Frame by rame you can edit the shapes to represent curtains opening, or a camera lens? ins opening and shutting, revealing your image

Colour compolis perfect, allowing colours to change between frames (something even DPaint can i match) for super lades or flashes. Take a simple glow miact, for example, in most other an malion programs live an elog to do. But in Animator you can have one colour build from background gray, through a whole range, unit of fasthes while. All this is cone simple by adding the colour values of that single colour frame by frame, if a great for having invision objects (careings, text and the like) appear gradually from nowhere.

Animator also has a comprehensive, though not the intertitive, storyboard function for cutting and patting between suguences. Poor memory use restings the length of sequences lealuring brimaps, by) if a a real animator a limit to Jan, and down things Electronics Arts have ignored throughout the leg of DPseri

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No imreductions are necessary for Deluxe Paint because it offers more power per pound than any other normalion package. It hasn't got vectors or path an mations (yet) but it can do just about every thing else. Version III introduced enimation and cut no corriers by edding brush manipulation in three dimensions, as well, Version IV expanded on this rock-solid base by incorporating all paint and animation features in HAM mode, too

Dedicated HAM animation packages have far better Special FX, but they can t compete against the thoroughness of DPsint for other jobs and they can never be the mode of chorce for enimations. on a standard Amiga due to speed image resolution and quality

Brush morphing was probably line one feature in Version // which draw real admiration from longators Talk about excite

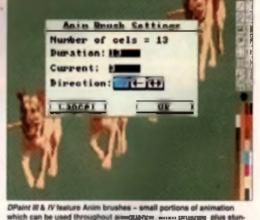


ent - this leafure alone makes it worth the upgrade from /// Although it's by no means period - dedicated programs have since emerged which give professional morphing results - it is a major attraction on a piece of home software. Brush morphing has a size restriction, naturally enough, and it really only gives an elite performance on brushes of similar size and roughly similar colours. The

chicken morphing into an egg a life example, but it shows what kind of magic DPart IV can work. More usefully you can morph two different lext brushes, or outline lext, into a drawing. One fun effect is to have two digrised pictures morph into each other - Major and Thatcher, or your mum and dad, for instance

Version IV also introduced the gee-whiz Light Table, allowing gnion-skinning of animation frames, plus an animation control panel, which simplified the whole business of editing. There are still things wrong with DPaint, but who wants to niggle when you get so much? An animation standard not because it's used by almost everyone, but because it's good enough to be used by almost everyone.





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# BELUXE VIDEO

This well-setablished prece of software has found a home as both a video effects generator and a general animation controller. This is not a paint package, it's simply an animation and re. Ong nally the sister to *DelarePeant* if features a manyelique control model for when you are working on Iracks, you can on Lags to signal events stong a line representing the duration of a back.

So, for instance, if you were a sound to begin 25 seconds into it anguinces, you simply flag the event at the 25 second mark and select the play sound event for the flag. Similarly, Anim brushes or ominary brushes can be made to appear and move on cue in a variety of transitions.

DVideo's visual scripting language is vary easy to earn, desprie the planters of options. As you become more proficient you can toggle an advanced user mode, which gives you even more control and power.

Take a simple thing like loading a picture. There are no fewer then 24 options to choose from, ranging from having it scioll in or whe out, right it rough to take in or colour cycle. Once you we chosen an option, you can tweak even more subtle events – oriection of sciol and coarseness of checkerboard effect, for example. The wipe effect has 21 leatures, which enable you to fine tune your sequence to an electricitize level.

Because *DPaint IV* has such comprehensive animation features, and built in graphic creativity, it's hard to justify *DVideo II* simply as an animation shafer. If on the other hand, you imend including special effects or shund frecks on images, then it's still well worth a look.



B-fmaps and vectors combine beauf fully in this fun metamorphic animation package. As well as working in several Amiga modes, the program a lower sounds to be

clayed back in precetermined frames vectoor fireaux may sound this rule use a program which supports them if you enjoy animating for the sake of it. Then they can add another real crimension to your out-



The environment and the events complete control over your Amedia Movied - which is (use as well presidentially out I must an est panchage in lowel in working working working the Antonistican and created by planting flags on istacks, which regions is sumit a working specific terms.



As far as vector editing is concerned, things couldn't be simpler with each object having a variable number of points, any of which can be stratched or on electover a sequence. Objects can meld into others very smoothly and bitmap brushes can be incorporated with lift eliuss. Beckground bitmeps can be loaded effer the animation has been completed. *Fantavaron* has a very completens velocities of editing and crawing look, and can rotate vectors in three dimensions.

Although Aegrs Animator got there first, Fantavision 1 have to norm did it before, especially with PAL (full screen) support. Control of the program is initially a struggle, but then things become intuitive. After a few hours you will be able to create super-smooth animations thanks to the software doing all the really hard work on the tweens.

Constructing an object – take the example face above – is juill a matter of defining different coloured polygons. If you make a mistake, you can edit the point out, or reposition if, it strikes me as being a lot like painting by numbers, with small solids making up the whole. Here, can be moved independently or as a group and you can wre trame your objects for easier control whilm adiang. Moving brimap brushes is just like moving any other object, you can combine vectors and bitmaps for special effects.

The only real let down is tack of storyboarding technics. Otherwise it's a joy to use and has super-stick potential, it has a great fun-to use factor, too,







Even included this operabilist package because of the lun 4 offers in cruating strange new worlds and animating them. OK, it may be a one-note place of notiware which does all the drawing (or rendering) itself but you control everything about the landscapes that Visita. Pro generates, repti down to the enalevel and show line. The program takes the dota you ve input, and turns it into a realistic landscape scene, either as a angle scene version wave or an animation.

Most interesting landscapes are, naturally enough, from the United States, which is quite appropriate if you feel like flooding the Minn appy Mesour basin. Data for the topography has been taken from tetrelite racial, with a resolution of around 30 metres. This may not be the real world, but a corres close.

There's a great deal of pleasure to be had in Mate Probat, on belience, you have to agree it's a pretty stania expension. You do your God bit - add a deah of snow above 1.200 feet. Rood the valley, spletter it feet from around workers the propriate it's Fail that's Autumn to you and mot and that're beworkers, near photometers image on screen. Starty Earthant com the Hitch Hiker a Guide (the coestime designer, you might receil) would low that'l know I do, but I've yet to use it for anything else other then creating print

backgrounds for Debase Paint Anim brushes, It's pretty demanding on your system at it needs megabytes of RAM and takes ages to actually draw an animation. It also ests into your herd drive capacity like a gannet

But, if you ve got loads of memory, and if you have the storage capacity and if you don't mind leaving your Amiga cooking all night, then easing your camera a flight path over the mountains of Mara, or some green and predmant land, is all worth k. The big grumble is that these animations are neved in a non-standard form. So relatly if's art for artic cake, which is not a bad thing at this level of guality.



## **MOVIE MAGIC**

Cin to angle a fine frat port a same Da cartan

in 1995, the first US carbon went on theatrical release; it was called Certie the Dinessor and was made by Winser McCay, a reurospect throught. From the tale 25s, carsons were corrected by

Walt Disney, whose period grew from Silly Symphonies to fully-findped feature-jangth carloon movies (Enow White, Pinocchie, Bambi, Pantasia), In 1941 some of Walt's animators went on strike, legt their jobc, and hounded UPA, which was responsible for carloon series such as Mr Megoo and Carald McBoing Boing.

Apart Insue Dissery (1901-1905), others have left an indelible mark in the world of cinema animation. Here are a few greats:

dien und Deux Remiliek - Unse bestiers werd tie chiek risels to Genery in the Ale. Traves-ture Can and Deux (here in New York) hereind op in 1920 in create such classics as Setty Deux and Papers the Sarias Alex a sick of a herein spect - Fourier meets Sariag the Sarias in 1930 - they find their hands of a hereinstein of a herein find the station of the num calles General Travela, and instance is a here hereing traces from find and the setting General Caller (a find the Saria and instance) in the station of the station of the general law.

Ter Avery - Taxin Inter Fried deury man one of the centers of Bogs Halley. Her mich inst hand stallmen alrengig and west much more superficiable that his continuepersist. Averag his creations were CMSy Writy (Second, W) a per-

guint), Drangy the Bog and Locky Decky

Fritz Freiong - Crostes of the Pink Pancher dude. Fritz was been in Kesses in 1900 and spent a little time of Dianoy Sature menting to Warner Bren, where, for 30 years, he helped lower the careers of such carloon stars as Buge Boary, Spendy Genzelos, Tthewell is an a gessy care, in this, I hild Taxaely Pic and Taxioather (arry, Sylvectur).

Regist Release - whe? CR, sut a bautehold assee, had write of the works are. He detected the interactions relationship of the dist. Last of the Regis (1978), not well on Ferlis the Col. These of an when som it to 1972 feel is bit worked, as if was 8 valid (18 in failing a bit worked, as if was 8 valid (18 in failing a

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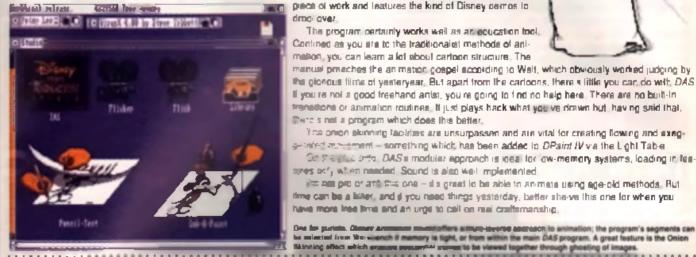
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This is a major quality release which addresses animation in the traditional way. This has its good and bad points. The Disney approach has been to partition entitation of abon into distinct areas, whereas most other programs allow full random access to any feature. The building blocks of the animation process are genol-test, exposure sheet, ink, paint and camara

Disciplined users hankening torold values and skills will be at home as they panot test their work helpte colouring th in 1 find this factous and over demanding in terms of prophening and alithing for the guick response to deas which genstally make a work session flow more fluidly. However combername I find the program, I have to admit it a completionsive piece of work and leatures the kind of Disney comos to



543 3500

Every CU AMIGA reader should have this clever itie crogram - we give i nevry on dol cove dink an September II you were childeky sriedgh hot to get the mag, then you're mining out on a lively, hun enimation package.

Control is more complex then it should be, but hopefully you caught the tutonals we gave. In any event, all this complexity hiden a very linear approach to animation. If you like the constraints offered by more traditional animation methods then you II love it. Free-wheeling suck-it-and-see animators may feel inhibited though.

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Animation production is based on tracks, which have events in them - sound, colour cycling, acrolling and so on. It's very much an editing suite for animations, building up sequences item by item in a really powerful way. Although them are drawing tools contained within Movie Salter, there is a very usaful option to load in images which have been DPaint-ed. While not being able to fault the features offered in the program for cartoon style storyboards - a much wider range than any other package - it has to be seed that if you need a special effect in a hurry this isn't the best way to do it. One for Tex Avery/Dan Bluth aspirants rether than quick that seekers



Given away on one of our coverdisks, this cartoon-style animation program is packed with facilities, but takes a lot of Sound effects and animated brushes are all part of the package; and there's even animated clipart available.



One for partners, Ob

The program certainly works well as an education tool.

nives sof, when needed. Sound is also well implemented.

I ce onion element facilities are unsurpassen and are vital for creating flowing and exegmost any ensuing which has been added to DPaint IV via the Light Table. On stagely arts, DAS's modular approach is local for low-memory systems, loading in tea-

its on prolonant that one - disignation be able to an mate using age-old methods. But

the mineral from Versionant interaction management in the program's seg-bar mineral from Versionant if memory is tight, or from within the main DAS program. A great feature is th Manning effect which examine memory many to be verse together through ghosting of images.

**JARGON BUSTERS** 

 BITIMAP GRAPHICE - The addition of each pixel - Hs ara way it gramam and baggan at - agains no malan tring the Amiga a haff bille (fid entane) ar HAM mentes, i glast's televantine is sevialized in six bit glasses. A it place can be imagined us a layer of memory contelsfer intermation that the computer south to work pat it a talaus and brightnans at any one pixel. That's a whole los of memory

· HAN MIDE - A special gaughten meda as the Antiqu which allows 4006 colours no sprage through clover use al despiny content. The leade-cell is showne animations and polating das is larger essents of data being abilited, and ibn denaded integrag affact, uburn edjacent zalauer can rivers tate each aldes. However, if really in moth the faunside fer Die gierrane raaf-ille images per can antmain of HAM.

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70/263 - la anamatine, un in-haimann state, in maraiing, for anangle, you have a shell image and an and mage. The computer marin and the in-barianess (sumer, which arg gailed tu even.

VECTOR GRAPHICS - Resear impose based on Uner and painin which are effectively in mirnes on ordinates, and plants, information on Norms draws on screen are church as cu-ordinate in moment, and not at blictin of smage data an in hitseny graphics. Draws Herrs can be invated as shjects indegandent of their partition on example and an cad he moved, claund as added. Vacios actination lakes care of ides smeath brankition front own shage to coulles. The uses just dufinest a start and and skape, and on playback the andierten meide the stinger an Antoha wiehen.

# PHOTON VIDEO AND PHOTON PAINT MECROLLUSION LTD. · PRICE £79.99 ·

As in the case of *DPaint, Photon Video*'s animation functions evolved to support a standard art package. In the case of *Photon Paint*, HAM had always been a selling point and the writers managed to seamlessly integrate both drawing and animation features.

Together, the programs are a HAM dream. Photon Video is also very effective in all the other Amiga resolutions. This is useful for roughing out your animations first in less demanding resolutions. Control and effects are many, and superbly implemented. For instance, you can load digitized enimations into Paint and add some wonderful HAM effects before completing the enimation edit in *Video* 

Sound is a major attraction with the Video software, as are comprehensive adding functions, which effectively cover all aspects of animation production. Sound tracks can be added independently of the motion, and *Paint's* excellent drawing tools and brush mapping form the badrack of a feature-packed suns which has always been dogged by *DPaint's* esturation coverage, but which deserves better.

Two programs which ofter a great deal of commitment to HAM mode. Special effects are well handled, which is the major



SPECTRACO

In the cld days when HAM painting on the Amiga was barely in its infancy, *Spectracolour* he pad to open up the potential for 4096 colour painting. However, it only works in HAM, which means you will shill need a standardmode animation package for the lower-level jobs.

Painting options have plenty of spa-

cial effects, as you despect with all those colours, and these can be used to great effect in the animation side of the program. Brushes can be animated throughout a sequence and paths can be decide of simply by placing the brush at the stad and and positions of a desired sequence or path, or more used by B elevinity of treatment path. On the control of a desired sequence or path, or more used by B elevinity of treatment path. On the control of a desired sequence or path, or more used by B elevinity of treatment path. But sites a size of the control of a desired sequence of path. But and path of the stade of the control of the control of the control of the size of the control of the size of the control of the size of the control of the control of the control of the control of the size of the control of the contro

find prayback suggish due to the amount of data being used in HAM mode. Spectracologi has been eclipsed by *iPaint IV*, but it can shill offer a demicated solution to HAM animation. If you need to ourivert any low-resolution animations into HAM for effects work, the program will happily (and slowly!) convert them.

A tim brushes can be loaded and animated too and with the brush reimap option they can have their colours matched to the existing an mation palatte.



This is a very useful way of pulling together items from different sources – a professional Anim brush sequence into a colour digitised background, for instance – which need to be incorporated into a single animation.

Good points – HAM special FX and brush movement control; bad points – speent and lack of other drawing model. Order again, is a the HAM options which make this a joy to use Animyton control is straightforword and powerful,

#### ANIMATION TIPS

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(2) If you remain to consider a basi drawing, don't worry. Theys's lets of artwark out there randy and wasting. Insurgublic damais drawings and digitized images in protestatent Action braches. These integers are there is use, don't be autoeved — except.

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Which the just property. One i just let the computer do off the work. After an extension there will always be extracted by band. Jagged adges to excells only shadows to add, for example.

# **Choices, Choices...**

OK, so now you we taken a limb of what's out there and you we get a mark blan of the good and the hast of each of the packages. The hereing quantities upon to how the they spin? Here a pe at-a-pignee golds in the world of anomalized

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  - GOAL!

**85 TROLL'S HEAD** 





13% and a germ 's exercit a based by threas there around but if a garm grass one it it be ecompletely cyst menoice. We've searched the Amiga scene for the hottest news on upcoming games. Here's some sneak previews of the best.

TEAM 17

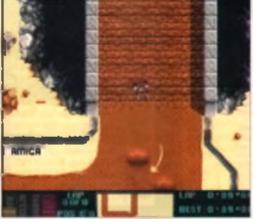
THE GAMEPLAY, A racing bonariza In the style of everything from Super Spontho Super Cars. Bace one of four different vehicles (Grand Pha racer, buggy, off road 4x4 truck or sports car) around 20 different types of terminin Grand Prix, City, Ice, Muc and a 4x4 Arene. The whole thing is traved from above with a mountain but no the ustrument as G at the

bottom of the screen so that you can see the bends shead, slong with all the bor us objects lining the tracks, such as turbe pads, which send you rocketing along at high speeds, and cash and prizes conveniently placed in inconvenient places.

WHAT'S NEW Speed. You may well have seen this kind of game before, but you've never seen it run this fast. As with all Team 17 games,

Overdrive clocks up a 50 MHz update on the scrolling, eaving you fiying all over the strop. The temliker rouzional control means that you won tiget tool too quickly. The difficulty curves are being designed so that you can work

Strategically placed arrows guide you around the track, warning you of dangerous bends.



Have a an overview of ease of the tracks that i appear in that I claimed veralow of this contest

through the game all your own pace – slowly for novices but in lengt and bounds for argents.

SCENES OPPOUND IS Daing coced for Team 17 by Psion c

Systems, authors of Assessin with David Broachurst hending coding, Haydn Dation on graph as and Austain Brimble in, charge of sonics. The game is been in production now for around seven months, although there seems to be nome disagreement over whose dee it actually was. David wanted to do a car racing game at the same time as Team 17's Marin Brown wanted to dee gnicht. The game was her ded to a different team, who diopped outeaving David happily perched at the keyboam.

FIRST IMPRESSIONS If you think you ve seen everything where is to

tes when I corres ID 100 YIEW LOCACE. think again. At the moment Overdriva is restricted to a single track, sightlen demo, hut already 1's highly addictive. There's even been some uproar over who can get the lowest lap time, and the challenges look set to continue long into the night. We'll have a full review next month





## 

THE GAMEPLAY: Tear around all of the official Formula One tracks at the lond of speed that turns your hair gray, working through the gears and getting as much power out of your mechine as is humanly possible. This product is a combination of a couple of tries already available in Europe – namely Vroom Extra Courses and Vroom Multiplayer. As you can probably guess, it is been coded by Lankhor, the team behind Vroom



**MPRESSIONS** 



THE CAMEPLAY Cross Synchronia with Campon Fodder, throw in a disthof Leaser Squad, and you'll have some data of what Theatro of Death 4 all about Despite its undestiming extender, the is no ordinery wargoms – in fact, the is no much a incidence i wageree more a thering man is should as small platoon, with the acle sim of billing all the interny. Once you've done that, the off to the need level

WHAT'S NEW Diversity is the name of the game. One minute you is a "C Submit decision in the rest you is an the moon lineal, and the next you is an the moon

with a pairol of spacement instead of

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WHAT'S NEW, Vroom him aiready become a he sharks to de incredible speeds F), as well as being offcally endorsed and tweaked to fit. the licence, feetures a multiplayer mode, where you can go head to head on a split screen with no loss of speed, signs with a special learning curve, that allows you to tailor your car's maximum speed to make the game easier to play for novices. BEHIND THE SCENES THE CONdole versions are the fest to appear. so naturally Lankhor have been beevering away on those for the test six months. Don't worry, though, the being led to a logical sectors. The owners come actual time and agaps in other to keep each new tevel fresh BEHIND THE SCENES It 1 the first geme by Deve Anthony who e actually coded and designed if all, FIRST IMPRESSIONS ALL glance you might think the le just another Ponuique, but il s lar more accessible then all those high brow God arrule torn Death is approached with a potentially offensive sense of humour, with lots of blood and musiation in here a loagh lime up against Dannor Fodder but should wer volan from the more strategically minded. violation treaks

Arrige version on 't far behind. With Vizoni Invehed some time ago, and Vizoni Multiplayer similarly released in France, there an't really much work left.

FIRST IMPRESSIONS Wow! This is socool is assessful file not a true simulation, but if a as close as it needs to be without dampaning the action. Domark are more or less guaranteed a cool game, thanks to the success of Vroom, but whether d's going to be it all the compatition remains to be seen. Whatever heppens, I'm suits we re going to have a lot of tun Anding cut!





#### US GOLD

7HE GAMEPLAY. Based on the sume name, Kingmaker is the final such conversion US Gold have showing in some time. Set in the period of the same time. Set in the period of

history known as the War of the Roses your objective is to control the last surviving Royal and make him King of England. You get to head up a factor of noblem playing against up to five computer oppoments. The board game uses cards to detertaine intoversent and batters etc. but on the version that a stiffee ded by the CPU latting you.

concentrate on the best stintingy you have to get the King. It's all scon and mouse controlled with a mere window covering the map of English the zooms into close up when strategic planning is reacted.

WHAT'S NEW To be homes not a lot There have been many similary board centee that have received the converyon imment, including Risk and Space Crusade However, the programmers have had the sense, not to just copy the game but to decuse with the original board game designer how a could be enhanced. The result is that some of the events that are normally decided by the random turn of a card. can now be influenced detectly by yourself. For instance, on the board game balles are decided by the relatwo excess of the opposing (grade and by the raing on a rendom card. Now, you can elect to light the bells in real time - you may still lose but you may be able to seriously weaken the opponent in doing so.

BEHIND THE SCENES Kingmaker



has been in development for over 18 months and is being coded by Graham Littles, who worked on Herman of the Lance and Shadow Sorcerer, The graphics have been turicled by Kev Buimer, femous for his excellent work on Corporation and Legende of Valour They claim that the Amircuit intelligence has been designed to recreate furner thought processes to enable it to react custify to an even changing tacks and strategic equation. The 32-bit colour evaluable on the A1200 will greatly enhance the ciremails sequences that accompany the events like plaques and storms at see FIRST MPRESSIONS Normally board gemes leave me cold, but I remember playing a good game of the about 10 years ago. Maybe that's why I think that it has preat potential. The chematic scients and very reminiscent

chematic power the very number of Lagencis and the bable sequences are greatifue. The main thing that will ensure its success. Though, is how quickly the computer neach to your plane – and that remains to be seen. If a due for release in take September to we'll bring you a review next issue



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# 25TH ANNIVERSARY

usi over 25 ight years away m the lower comer of our galaxy. the residents of the Rigal syslem (assuming there are any) are just about to take their turn at being the luckest people in the unwerse. For it has taken 25 Farit, years for radio wayes carrying the first episode of the greatest TV senas ever made to reach there. The agisoda in question was an extended pilot show called The Cage', and the series it spawnen hecame the most popular so-l. saties manking has ever known -Star Trek

In order to property calebrate the silver jubilee, interplay were given the license to produce a game based on the orginal sense. Stat Task games have progressed a inter

#### TREK TRIVIA

The U.S.A. a first space shottle was originally called Engrover, until the Whitehouse race well an argune adapted number of phone ratio from rate for the birst comman on that the same of Amorica s first rate apacentry should be the Exterprise. The favour was returned in the first Toek from where the Shuttle was displayed accepted with the other vantels names Enterprise. The saver was returned in the other vantels names Enterprise.

since the pric based combet efforts that the early seventies and, obviously, officially logensed ones can draw oca greater amount of copyrighten relerence material – in fact they are competed to

## BUT NOT AS WE

Characterisation is an important part of any Star Trak venture. As has been demonstrated on our screens. Ind Express until the plubon rulin ingress instrucingress instruction ruling in the subsection surface interesting success, but the instructor of the interesting success, but the instructor of the interesting success, but the instructor of the instructor of the instructor of the

and Bones, Spock was the cold, logcal machine, incepable (except on rere pocention) of showing any emotion. Bones was his nemests, always wellowing in the humanity of the stuction, and Kirk was the decision makes, trying to balance up what both sides were letting him. In any game it is natural for the player to take the past of Kirk, but the game itedit coast provide the thoughts and advest of both Spock and Boses. Kirk, Spock and McCoy will soon be beaming onto your Amiga. Leaving aside jokes about the Captain's Log or his Klingons, Nick Veitch boldly goes to see how they're shaping up.

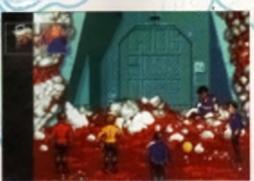
Not an easy task

The designers, or really, the eccipt writers, have taken on this task with glee though. Having watched and analysed as many episodes as possible, they set about their task. The result seems quite impressive. Spack is characteristically aloof and refuses to give anything away that he can t confirm to 20 decimal places and Brines mams about complaining about being transported and whingeing about the weather.

Even the physical characteristics of the vanor significance have been faithfully copied. On the bridge Kirk employs his favourite learning



Four is being over \_\_\_\_\_Churningong Nex, i longe that down i look much like the bransporer source het here you got any better idens?



Speck's tricerder isn't able to explain this door very easily. There'll be tots of mind-bending puzzles like this in the finished version.

49





The USS Republic takes a hit in the saucer during exercises Al the movement speed is a problem here but it's set to be sorted before the release.

#### bioward on one elbow manoeuvre outer immobility, Uhura is offenigiber outer Cassaging Ver earlobes and S Spock goes for the Prince of Wales

hands claspen behind the hack factic

#### TAKING THE CON

Commanding the USS Enterprise won't be as easy as it was on TV – 20th Cartury science has not yet provided a workable voton interface for the Amiga, so you can't lean back in your chair and just give orders, but

#### TREK TRIVIA The Star Tret period and did a controller-

The Siar Treb series in lightic a controllestall start by casting a woman in the role of First Officer. At that time is was considered way beycard the means of local sy that the lemate of the species would be capable of holding such a position of power. She was dropped after the prior priordel relegating women on the Enterprise in the meanst number, globilised before she was should be occasional seculty member who gets shot

The advantureus native of the series coolined though, with the series sporting a number of TV firsts, including the lingt interviewal first

the next best thing is to use the pointer and select people to give your orders to. All the faithfuls will be present on the birdge – Scotty, Uhura Checkny, Sulu and, of course, Mr. Spock, They all control their custom any positions to if you want to fix anything, you'll have to ask Scotty. I you want to wise anyone on the radio (story, subspace frequences) you'll ask Uhure and if you really want



The local franke with he representine as a two elementicate new-gation rang. Their a tenary, i nèwaya theoryte that it had at local three demonsions.

someone to raise their synbrows and fob you of with some secure like – There is insufficient data to make a progrosse at this some their that funny Vuican chap will be your team.

The first piece of action that will lake place is a combat exercise, with the Enterprise taking on the USS Republic in a light to the serie sted death. This is perhaps the most disappointing part of the game at the moment, as it is little more that a

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All the pid energies are set to appear - Himgone will be there to take a beahing from cool hand Kirk. Weath I they there in 7

#### REK TRIVIA

In addition to the Next Generation. Deep Space Nine and the leature litter have been quite a tex Trok spin-dity. There have been quite a tex Trok spin-dity. There are the models, the noneds. The coduring the CDs of the increase litters; the order playing game and most interesting of a t the technical books, which will reveal everything from how to statut so four in the matter and marke chamber in how to sole a Ningon what the time is Bizariety some colleges in America we now offering the raw in Ningon.

son of Elite clone, but the main game will be based on an animated adventure theme.

To keep the game is line with the TV show the designers have decided to start each mission with a jumulated title sequence, complete with an anmatern Enterprise on Acquest planets and typical Treficial titles appearing

The scene is set for an other 50 mm utes of strange new worlds.

The first mission in the game will carine around a landing pany of four – Spock, Kirk, Bones and an expensable person in a red shift. No sooner have they beamed down to Polius V in investigate trouble in a mining plant than they re up against mystenouts energy sources, unknown metalic structures and having phaser battles with Kilingons – but as ever, all in not as it seems

In line with other adventures, control will be via the mouse, but it's been promitted to be easy to learn so that you'll be able to make use of any of the standard landing party type gear – twoorder, phaser, communicator and the medical bee. You won't need the reaction speed of a warp engine to play the game, but you wit



need to be as sharp as Spock s ears to spot at the clues

#### SPACE PORT

The game tasti is being ported directly from the original PC version, which is a good thing really because the PC version was really rather good The downside is that at the moment the game runs a little slow on the Amiga – come recoding to take advantage of the Amiga s custom chips will be receivery. The game to



Mission will start with a bound own to the planatic custom. Here Bit the Restores, eat or Demonia World

actually coming quise late to the Amiga – even the GameBoy has had a Star Trak – 25th Anatwassary title

At the moment no wound is available, but the excellent upor effects from the PC version are bound to be included – after all, you can thewe Star Trak without the noises from the doore, the transporters, the communicators and that rather odd background bleepy noise from the bridge.



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#### WORK IN PROGRESS CU AMIGA



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Flying faster than a speeding space ship, Jon Sloan swoops down to look at a sequel seven years in the making.

oes anyone remember the C64? All those wonderful 8bit graphics, tinny acund, and lousy games? Well, that's almost true, there were a lew brilliantly coded efforts that served to define the state of games to come. One of those was Unclum Designed by aca programmer Andrew Braybrook, it placed you at the beim of a superast space to her Tying over the top hordes of nasty aliens before landing at the other end to set a self-destruct mechanism to blow the dreadnought to kingdom come. It swept the board for games awards in 1986 grabbing such accoledes as Best Arcade-Style Game, Best Shoot 'Em Up, and Runner Up for Game of the

surprising though is why it's taken insven years to reach our screens Actually the answer lies in the hands of the lawyers and receivers

Year. It comes as no surprise then

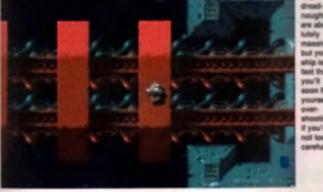
that a sequel is in the ofling. What is

who were wranging over who artually held the rights in the original game. Besides. Andrew enc Grafigoid were busy designing rither hits, like *Firs & los* With the corretion cleared up all that remains is to fell you what the sequel it like.

GETTING STARTED The plot for the pro games are -ary strika with you oper 43113

racing across the tops of huge battle cruisers blasting away all opportion before landing and estacking the main generator.

The craft riself is one of the most manoeuvrable ships yet near in as Amiga blaster, incorporating over 40 animation frames. The whole thing moves along at a cracking pace and Andrew is rightly proud of the 50 frames per second update. He orgnally used the scrolling system from *Fire & los* in an early version but soon found it to be inappropriate for





Lindian is the actolling actually outsimplifies processor's ability to build up new data at the scieen edge. However, being a programming genue, it wasn't too long before he d noted the basics out. In fact, he worked it out so well that the limitshed version will spon not only a twopuryer option but also a drone option. This means that one or two players will be followed by ghost ships which can be umped into when your primary are explodes.

The background dreadnoughts are gigantic sprawling aflairs that take up a good 12 screens in length and were one of the first elements that he worked on Many of the graphics were drawn by Phillip. Williams in a mix of 16 and 32 colours, with Andrew using a custom auto-mapper to lay down the blocks in the correct glades. These ships are not just decoration, however, as they serve as hangars for the various flying energies and ear stages for the ground based tanks. Also there il he raised sections of supersiructure to avoid and bridges. te fly through.

#### ENEMY ATTACK

The enemy aback waves were originally direct ports from the C64 version but the code required a lot of chopping as things have moved on a ong way since 1986. Once it had been set up Andrew decideo that the waves were a little bit too difficult end. intelligent so were toned down some. The Manta creft will still need 61 of da impressive manoeuvrability through to outly the enemy. Fortunately, there s a naw range of special weapons to collect including a lorpedo which targets ground forces and a useful homing missile. However, the enemiss have been beefed up to cope with these specials and now have chaft which contugue homing missiles and leaves them free to attack you. There is also a tricky cheser ship. which follows you wherever you go blashing all the time.

All n all Undeum 2 is shaping up to be one heliuva game, it should be complete by early October so we il bring you a full review next issue. Personally, I can't wait for the little music testuring a didgeridgo!



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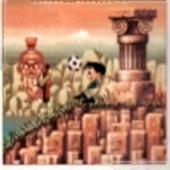
After all, the pre-match hype, Kid to be something special. After all, the been in production for the been part of one-and-a-half years, and had more column inches written about it in the computer press than any other game in recent memory. Thankfully, the finished version of the accuse-cum-platform hybrid is now upon us, and, to put it midly, if a

# Quality Ve

scanned in from ongreal artwork. It tails the story of how the World Cup has been stolen during the 1994 finals by an alien trophy collector, who subsequently smashes into a nearby sateroid while melong his escape. The force of the collision shafters the World Cup into five sepantic perces which crash to Earth, landing in five different countries. Wetching the events unfold from his bedroom, the eponymous Soccar Kid yowe is collect all the missing peoce of the cup and thus save the competition from ruin. Hurrah.

#### **GETTING STARTED**

The first level kicks off in Soccer Kid's Home Town, and from there progresses around the globs, as he meeks to find the missing tragments of the Cup and, ar, give them block together. In all, there are nearly 30 levels to complete, plus another first bonus stages and numerous hidden sochons to uncover as you progress through each some. There are live through each some. There are live



Knock this guy on the bonce and his heat rotates faster than a spinning top.



What's this? Reditations on a provide means and the Tower Bridge? We must be in London, Watch out for the pit buils!



Apparently, the Cald Was lan't over an Barrar Kid has to take or visually the entire fluence Army englehanded. If may not be politically comen but it makes for the generative

nto litrae stages. These, in turn, are then spirt into two sections epiece, so it is not a game you're going to complete in a day!

Each level intent in a particular country, be it England, Italy, Russia, Japan or the USA, and each stage has a particular theme running through a dependent on the country in which it's set. For instance, England involves an encounter with bolshy louristic in London, a jount in the countrystel, and a kickeboul in a grim Northern town, in complete contrast, Italy sees you wreating Roman gladiators in some enclerit runs, taking a soaking in Venice and getting run down by mopeds on the Riviera.

At the end of each level, there's a guardian to beat and these also reflect a particular country's cultural heritage. In Russia you're up againet a gymnast with a deadly leg kick and in Japen it is a body-crushing Sumo Wrestler, England provides a rugby player while in the US is a an NFL guarterback and Italy pits you against a Pavarott lookslike who spaws out a series of deady musical notes. They're not really that difficult to beat, but it helps break up the levels monly, and kept me amused anyway.

#### CARD COLLICTION

The sum of each level is to collect 11 hidden lootball cards, like the type you can buy from your local a bre me inco bre smegaren leg to collect the set. These are scaltered all over the place and can be found perched on top of treas. down hidden sewers, hanging suspended in mid-air, or any number of other places. Once you've collected the alloted number (and it's easy to miss some!), you'll be granted entry to a special bonus level where the idea is to blast away at a series of blocks, making your way to the top of a multi-level platform to find a matering pleas of the World Cup. Like the main level, there example the clock, but the game's designers haven't been so generous here, and there a not much time to luck away the walk and find the trophy. Fortureasity, you



SUPER STAR SUPER STAR few pints, so we thought he'd be an excellent choice to review Krisalis' all-new soccer sensation.

get three attempts at the bonus stage – but only if you collect all the cards for each scene! Once you've collected live pieces, the World Cup it restored to its former glory and it's game over', but Krisalis purposely didn't provide the end sequence on our review copy, so we can't tell you what happens. We're promised inomething a bit special, though.

#### BALL CONTROL You'll soon fact on what a fewbac chap coccar Kid is Not only can be

ump and run about the screen, but he's capable of putting off a series of sturning shots with a football (hat's constantly at his feel. Our football mad here cac use this ball to clobber any of the game's many adversaries. or collect some of the huce amount of bonuses or 'special power cons scattered around each level which would otherwise be out of reach. In ail, there are more than 15 shots evailable to the Kid and it's the ease with which these can be pulled off. that s the key to the game's playabi -Physical Residual Activity in the second boycle kicks, living headers, back heels, power shote - you name it

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The Build Train further stong in a franks speed. Which out for the sectional burryis or you'll when up with a franksiste

and he'il be able to do it. Using the ball as a weapon is the only way to defeat the numerous mation which populate each level, and you'll definitely not get very far if you doode to leave your ball behind. In fact, nome areas aren't accessible if you don't use the ball as a sprogboard, and each shot has its part to play during the course of the game. Whether it is collecting bonuses by lobbing the ball through a couple of banketbell helt or using it to break down profective barners, it's essential to use it to maximum adventage.

Graphically, this is a sturning game. Even more emazing is that most of it is the work of one period, in-house graphic units! Neil Adamson. Soccer Kid himself is made up of ions of frames of animation, and is probably more pliable than a piece of pulty in the movie he can pull off, Just as much care has been taken with the background detail, and each scene looks compietely different. By using a dual playtield, Neil has managed to use



#### ON THE HEAD, SON!

We is the first interface and the state of the second of the measurements and very second state of the first provided by subspace asymptotic and the first and the state of the second of the second

eight colours for the foreground and eight for the background. This might not seem much, but by using copper effects for the sky, the number of colours on screen has been further extended and gives the game a definite consolal feel to the

produedings. And just wait until you see the CD32 version Kriselis are working on – it's simply speciacular, with 256 colours, an extra level that got squeezed out of the floppy release, and CD quality sound!

#### LEVEL BEST

There are so many brilliant touches in the game, it's difficult to know where to begin. There are two unusual steges that deserve special mention – one is set on top of a Japanese builtet train and the other onboard a Russian warship. The builtet train is made up of numerous different correges, and is buey racing across Japan. In a sudden twist, the game now scrolls from right to laft instead of the usual left to right.

33



each time you come into contact with an enemy sprite. mil for each lage - better get Collect 11 specer This indicates the cards and gain entry number of fives to the game's bonus remaining. stages.



and you have to watch out for approaching turns to relie you il and up with quite a headache. Each carnage contains some sort of reward or bonus points to pick up as well as numerous adversaries. The same can be not about the battlenhip, although the time you're pitted against the entite Ruterian navy and some devious more and traps.

The Jeparese Factory level conlains one of the most amusing adversaries you'l come up egainst in the form of small mechanical robots which, when hit once, spir, round making strange mechanical bleeping noises, and then explode when you hit lhem a accord time. Other enemies to watch out for include manic moped indext who'll and hop about the screer, once you kick their blikes away and coal mores which sudden y raise their head



Each level in frameycombed with secret pair angeways common full of hidden borunes.

Bove ground to see what's happening. There are tons of other enumber inhabiting the game simple work, and most are level specific, withough some will pop up again taller.

#### SOUNDS GOOD The game's son cs are also impressive. Each level has an appropriate musical acore in keeping with the setting, and there's a whole hort of sempled sourds to accompany the on screen act on, it's difficult to see where any improvement could be reade, sitholich the music the secon panels the trianite version.

really up to the same standard as the rest. Some sampled speech would have been nice too, but then Krealis have don's wonders to cram everything onto four disks as it is, and any further edditions would have meant paying for an exist floppy.

And don't worry about excettsive disk ewapping. Knealis have organised the game disks so it's kept down to a minimum. There's no swopping required during a evel and the more memory you have, the less disk swops will be necessary. The game automatically takes advantage of ary estits RAM you might have, so A1200 owners are at an advantage etraight eway.

#### IMMENSE FUN

Soccer Kid is an immense game and lots of fun to play. The action is relentiess, there are plenty of pick upp and boouses to collect (essentud in this type of game), and the graphics and enimation are superb Best of all. The hall bounces about the screent in a highly resiliatio manner, Surprisingly, this wasn't much



Mean many Them cale incluing robots have an electriching way of greating Soccer Eld. Give them a good Elds og with your avec-leating bair and they I soon get the meaning.

#### PICK 'EM UPS

Sandarze analice auch in eil ann vustere mennene de ensi. Mitana die mult agniaut Barm a noedie Billimes web weg sprit agam tenderling a number of adous genety feelts as welf an vertina Nymoter gemeins i vusse leuterin astan filten en in, maan de ent in Jag og bit fit vusge and ferogester minneffiling, nedellingen und vigst of agartik konst for annen inder a deuter unt for Billingen herrichten in der west bester weben vor de sight atematik annen inder





of a programming challenge, but it looks, mpressive nonetheless,

This Pavaroni Inchailte been

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cord which car knock post

Scener Kid

From Soccar Kicls checky gnn culeness to his amazing ball han ding expertise, this game shouts class, it is definitely a contender for one of this year's top 10 games, if not the top spot its 20

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OVERALL 93%	



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"...great looking, fun graphics and addictive game-play makes this a superb addition to your collection" THE ONE

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Being an Arsenal supporter, what does Paul Presley know about football? Enough to say that this is a damn fine game indeed...

Benefities and an analysis of the second se second sec

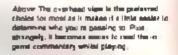




remamber playing Kick Off as a lad. My finest moment was osing 4-2 to a certain Gary Penn in an old EMAP Kick Off World Cup Final, in what was an eenly similar match to the 1966 Water Cop Final (hight down to the contro-

STAR wers al ball not crossing the line' goal! Themember at the time thinking Well, the will never be beaten by another game 'But then came Krok QH 2, followed by Sensible Soccer endi most meanth, Goal! Anyone with hall a brain was switching to an overhead view stopping the ball from slicking to the player's feet and edding after louch. Now the tootball playing fretempty of Amige owners a se divided as Bosina Herzegovina, with just as much charics of a peace plan being put into effect

COLOUR



So, as if three warning factions wasn't enough, storg come Ocean throwing another spinler group of the tray, except these grows have a secret weapon, with European

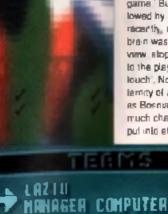
Champions the ball sticks to the player's feet. That's right, sticks to the player's feet. That's right, sticks. And a still retains practically all of the player's feet. That's right, sticks. And that it e fact wasn't enough. European Champions allso proubly beasts an optional side on view to writness the action, it seems that Ocean have decload to cater for just about all the remaining unsatisfied testes, while shill making the game accessible to the devotees.

#### BACK PASSING

As to the controle, they are just as easy (or tricky depending on personal skill) to get used to as *Kick Off's* were, and when mastered allow you to play some really axcling toolball, his tast, it's action packed, and it's completely intuitive.

First up is the ping pass As you run around the pitch, you'll notice a little arrow above your player's head. This simply indicates the nirection you'll pass in should you just flick the fire builton (the receiver also has a halo around his head to make it clearer). What's more, if you press fire hefore he receives it, you'll enter 'one-touch' mode, in which the computer will automatically either head, pass, voiley or shoot the ball the moment he gets it, depanding on factical positioning. This can lead to some

# Version Available



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Every latert toom the Preview language is in EC along wells wang learn trom the major wagans in Finness Gavesley, Hary etc. Where movies of the payors are there too with grant and minimum up watch.

#### GAME REVIEW CU AMIGA



tholling goal mouth action, with the ball floating from one player to

Following that is 'cursor mode'. Holding down the line bullor. reveals a movable cursor in front of the player. Simply point the culeor in the appropriate direction and let the button go, it sounds a bit tricky is get used to, and to be honest it is. But once mastered it makes for

some really intereating football. with power shots. dummies, side **Dasses and other** beraier-lightool **Terminology** sponging to mind.

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**Emaily there's** select passing

#### E similar to ping Lasying article that you let the

player run with the ball while you re act who to pass to it an't used much but can

prove useful when the time comes Of course, add to that alter louch, fliding tackles, barging and all the other usuals and 1 beg rs to sound like it could be a bit tocky to play but 1 is, in fact, brilliant (for Itere is no other word).

#### TOUCHLINE

And none of that is counting the mar ageria iside of things, where you can select, edit and create learns; play leagues, cups friend es; edit on-field strategies, player positioning, skills and attributes and just about anything eite you could wani.

But go on, ask the all important Question. I know you want to lis if better than Sensible SoccenKick Off 2 Goal! (delete according to preference)?

#### WELL IS IT?

That a question I'm not going to actives. Lot a just say that it is as good as Sensi and Co. I forow it at hall of you reading this swear by Kick Off while the other helf stand firmly in the Sensible camp (has Goall been around long enough to gain a lan club?), so I minol ikely to

The best way of gase ing the ball is called ping peeting You elec ply tilts the lite button and the held soils towards the indices player For some waily mades pay press appreci tion indices he gate to it and engage in some one-touch factbell

make any converts. The people that I believe will Ind European Champions appealing are the ones whose main groe about the

others was that the ball didn ( stick to the player a leet. So providing another before ending up in the net you don't mind that little feature, and presuming you re willing to spend a lew sessions getting used to it (which, after all, is exactly what you did with the others), you're "ke'y to find that European Champions has just become the fourth real conlenger for the computer tootball league championship 🚳



To help you get used to the gents, balors such match you are given the apportunity to also various options, inclusing turning all some of the parents modes to knyou mas-ter of a district.

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#### MICROIDS OUT NOW £25.99

Why do I have to review this sort of rubb sh? This and piece of software is probably the worst sports. sum live ever had the misfortune to boot up. After last year's crop of dire Olympic cash-ina (Games Espana. etc.), I thought we might be spared similar travesters

this summer, but Microids have put pred to such wahtui thinking!

There are 10 different sporting wents to participate in /renging from the 109m sprint, through the shot

putt to the 4 x 100m relay swim. Up to lour players can take part against computer controlled opponents. although only two human players can compete against each other simultaneously (and only in certain events). The overall eim a to compete in each event and collect the most gold medals, although it's poswhile to pick and chose which events you want to enter.

Rather than opt for the traditional pyslick thrashing lechniques as used. aging cleasion, such as Dalay Thomoson, Microids have come up with a number of different control methods, each one specifically laloned to individual sports. For Putanos, in the 100m sprint the player has to draw upon a limited. fibre of energy which er ables his on-Interview sprite to either speed up madually or make a sudden burst of acceleration. This is achieved by

lly, all the contestants might drown this gets any further!



either pulking the joystick to the right or etabling the Ins button repeatedly. In another event, the high jump, the coorrols become much more complicated and require a series of joystok and line hutlon combos to make your compelitor twist his body.

through the air and over the bar. Unfortunately, the on-screen act or, fails to set the pulse tering.

BIN Ľ

For starters, oisk edgess arres The Retrendeusly slow, it's not much fur staring at a static acrean while itstering to the disk drive whiring away! Another drawback is the poor quality enimetions - linking trames have been skipped as that company tors jump shout the screec as it they're having an epileptic fit. Sonically, Ioo, things are disappointing. Sound effects are kept to a minimum, although there's a choice of opting for a rather grating in-

game lune if you so desire. Where s the roar of the crowd, the grunts and groans of the competitors, the inane banter of Day o Coleman...? The biggest diawback, though, is

the control system. Merely tapping the fire button at the required time, or making a series of lugs on the joyat ck, is hardly taking stuff. Because there's no joyslick wagging involved. the on-screet action seems remote and detached, as if you re mere y watching the proceedings rether than having any influence over them.

Things also get impossibly hard letter on in the game. The pole vault in particular, teouves pin paint positioning of the pole if you re not to and flat on your face.

All in all, a complate striker of a game, and outregeously priced in that This is one to avoid al all co sta 189 John Mather



The rebirth of the puzzle game in recent years has thrown all sorts of wend and not-so wonderful titles. onto the market. Unable to resist the temptation. Core are now taking they bill of what has turned out to be a very lucrative biscult

With Blob, Core have included penerous amounts of action to appeal to people like me who like to ma' tooda a to tront of a shoot 'am up Who needs unnecessary brain work? The arm is to rescue Blob's

expansive lamity. who make Earth Wind And Fire look like a solo aci. Biob w. berr cally, a blob, and as such a rather Irmined when it comes to overcoming the legione. of netanous aliens which sland between him and his sublinge.

Each acreen contains loads of different types of tires which affect Blob in different ways. Some will bounce him to higher levels, while others will telepon him or slow him down. USION these lifes is the key . In-crecking the game. There are often several ways to complete a level, it's just a matter of eithing back and seeing if you can work out the correct route.

As Blob only has a lumited

0

amount of energy he needs to be kept as far eway from the strengthsapping sliens as possible. Most of them can be destroyed by bouncing on them, but it's often best to just steer clear as that takes less hme and altor. Should you run out of time though an evil Blob clone. appears. This chases your Blob around until you complete the level, or they touch which results in both their deaths

This is one of the better ouzzle



Different vies de different teines. Il s lagornat to learn what's what before you leap

games of the year, although it's nothing remarkable. The graphics are cuts with planty of nice sprites making Lo for the minimalist back

drops, Ultimately, though, the game just doesn I offer enough long term interest. Once you can complete the lits! 10 or so levels the game starts to become a repel-

tive chore and when that happens you won't come back to it. Mark Patterson.



Left if you re starved in pozzie schure, you could do a lot woran they Stab At least is making a change irom incas



blob himself is an aspellent character with longin of the





Still trying to figure out the connection between Madness and Quavers, Jon Sloan goes...



and why Ocean decided to name a puzzle game. That's promoting a prevack, after a track by Madmeu s anyone a gueen. But I suppose they had their reasons. Still, silly number ands what's the game all about?

If a puzzler which is, in contaipt, very senter to Ocean is earlier effort. Pushover, Given that they were both written by the server bloke I suppose you couldn't neely cell it a concretence. The gene stars Colin Gurly, that strenge dog-like creature who also erans in the Ousiver ads. You know, whenever he gots a Quever he goes completely curly and eass just about everything in sight (I still don't underseand quite why eating something that is supported to counter hunger. should make you to harry 3. Anyway, Outsign fortune should be geneplay with a backet designating the start and and of each level.

#### PLOTS AWAY!

Laterturnery. One Step the this serve old continued picit. Colin to playing a heavy season of Pushover while anacking on the lavourite food Anyway, just as the completes the last level to munches the last Quarver, and this combination of tasks and thumph thrusts term into the mechine. Colen is now trapped in this Arrige and the only way out in the ger to the next packet of Quarvers. Yes, sily on Life

Inside the machine Pushover has werped mip a totally new game con-



#### ICON-TASTIC

There are a number of tiles that feature special properties. These can make Colin leap about like a whirting dervish or simply open or close a set of tiles adjacent to them. Here's a run down.



Your common or garden standard tile. It closes once you leap off it. This happy face designates a safe

tile. You can jump on or off as many times as you want.

These numbered lifes must be closed in the order indicated by the numbers. This doesn't have to be consecutive, i.e. you can close other lifes in-between the sequenlial ones so long as they keep the same sequence.



that area you ve jonyad off they don't plana for a portain longer period.

Balan. These art like firmtet to

=

These tiles don't seem to know their own minds and close and open constantly at a fixed speed. The horizontal shutter closes all tiles in the same line as it. So don't as isomaing off it onto one of

don't go jumping off it onto one on the same lovel 'cos it won't be there when you land. The Barramini space has the appendix effect in the similar fragments of the station of the stati

The shalles the cause of all there as a dress dispate in 1. Some footh are clavarly designed as the mapping of the life can seem one class visionity of the local

The termine up words Calor winging his way tole the baseque directly above. In carstal is make tord they there as the there can this closes ofter set and angle larve Calls plunging to a paintal dorth

The houses time closes when you lead on it impging you down in a tim below (hopefully)

The houses of left points Colle Bying off at an angle. His sumprovalle speed how by comber stations as there

The bound op right date for a set boung on the beaute up left, only appendix (abb?).

seting of tiles or platforms which Colin. stands on. To escape he's got to reach the packet of Quavers at the end of the level by jumping from platform to platterm. The unagie that the platforms close when he jumps of them and he a get to close every one to complete the lavel. To make matters works some of the pietowe have different abilities which can affect the other ones or even Coin tatti For maintee, some cause all the others to open agen or categorit Colin off at an angle. If that wesn't bed enough he right to compiele il all in a sei trma limiti tra up to you to use your joystick skills and keen brain to guide Colvir on the best route. to take through the maze of platforms

#### FIRST IMPRESSIONS

Instally, the game appears very bland with the main sprite taking up very little acrean space. If opene peorle with the draw opening of unit very per-

These prove to be a pushover! Fortunently, in later layals, the whole ecteen a taken up by platforms leaving you very liste time to decide on the basi route to take. The difficulty curve is probably piched just right as dive first few levels are pretty simple and allow you time to get used to controlling Colin. However, once the here are sail which content some of these specal bles testured in the panel.

Fortunately, did Colin is a pretty limber dog crustium and, 4 you hold the fire button down, can leap further or higher than normal – the pay off for this is that he is often aturned when he lends loang you precision accords.

#### FRANTIC TIME

As you re up against a time limit you don't have long to decide which route to take, expectally when there a loads of special tiles on acreen

Many levels have very tight time limits so you'll often find yourself repeating them over and over agen till you get the timing right. One annoying aspect is thet Coin heat to perform one of his Quever curts at the end of the level. It a simplify coshe takes up to three excounts to do 4 which can leas you the level. Maybe that was a concumpton for the learner rights.

All in all. One Step Bayond is a fun game. The puzzles eren 1 too hard but there is 100 lavels so they



#### FAST FOOD

Eifer Incoment have long been an estate Indext paren without the general relativy find (Recent markes to be a gebyering forest familie foreigness) for second former that have faire the lower of Chape Chape for have a second for lower of Chape Chape for have a second on the lower of Chape Chape for have a second on the lower of Chape Chape for have a second on the lower of Chape Chape for have a second on the lower of Chape Chape for have a second on the lower of Chape Chape for have a second on the lower of the lower of have a second on the lower of the lower of have a second on the lower of the lower of have a second on the lower of the second of the lower of the lower of the second of the lower for the lower of the second of the lower for the lower of the second of the lower for the lower of the lo

should know you going for a white. The music is plain, but not too intruaive, and the graphics, though simple, are workman like, Colin himself is OK as iconsed bings go, but he is a limit tricky to control, which can be frustrating at times. Still, here of the genra will like it. (3)

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# THE LEGACY OF SORASIL

When it comes to pushing little men around, there's no-one with more experience than Tony Dillon, so we packed him off to Sheffield to play with Gremlin's little computer people.

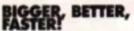


Angor the Barberian engages in a particularly nasty argument with a couple of skeletons. Just check outliness new more significal

Police of Austin

don't know about you, but I thought Heroquest was a reality good game. Then again, I've always been a fen of that kind of email scale strategy advertures. going back to Lass/ Squad and back even luther to games iks Rebeister Reders on my ZX Spectrum, Games where you can take control of huge armies are all well and good, but there's comething about controlling ungle characters that gives the game a more personal touch, tuming 4 almost, but not quite, into a role playing title. It was a very simple little, to be sure, and doubtless that had a lo

to do with the fact that it was Gramits a first boardgame convereron, Just take a look at Space Crussels to see how they improved their game system.



For the past 18 months, though, those likely lads from the ex steel capital of the world have been builtying themselves with a sequel is their original gene. The metruckohn were clear – find cut everything that could be improved with the original, magness it and then make it bigger

Ne 11 Degger This is where year choose your perty Cliphing o the amore heings s runs often acter in, and the amai amai amai

tine trees

and beflar still. When you're working with a tried and tested formula, aurely making it better can't be the easiest thing to do? Don't ask me how, but they've done it!

Despite your lengthy training seenon in Heroquest, the via plaque that peeps the land of Rhui continuse to every, leaving death and denoistion in its trail. Even the Myttic Atemon, your ford and mentor, can do nothing about it. There is only one thing to do other than run away crymp, and that's travel over the Shadow Mountains to the land of Kolchöth and collect two Tallsmans of Lore. Only these can save your once-delightful, now a bit of a desert, homeland, OK, so it isn't the most mapired plot, but these things rerely are.

People already familiar with Heroguest will be midly surprised by the layout of the game Before, you www.e.given your net of missions, and you could play them gut in any order you When you kill monsters, some of them will leave behind useful artifacts, like this potion

wished. Legacy Of Sorasil takes a more linear viewpoint, whereby you have to complete a set of missions before you can progress to the next. For instance, to begin with only the first level, which is next in the lively location of the Barrow Mount of Yaseral, is everiable to you Complete that, and you are offered missions two, three and four. These can be played in any order, but all must be finished before you can progress to the next three, and so on unbi all nine are completed.

#### I WANT MORE!

My first thought on asseng the game design was that runs levels could never be enough. Perhaps I was sport by gating Heroquest complete

with the Witch Mountain expansion, giving me a grand total of around 24 missions to play with. Once I'd ectually played through hall a level, i realised that nine fe \* about all you need They are huge, easily four times the size of the levels in the original game, and possibly larger. Whereas the final level on Heroquest would take the evening player 10 to 15 minutes to complete, I we

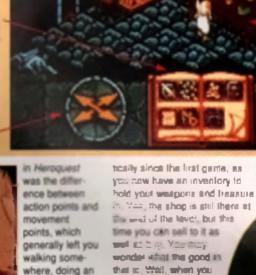


#### GAME REVIEW CU AMIGA

wandering sround the Barrow morind of Yaseral for a full 45 minutes, and was still nowhere real the end No. Immotia locsy game player, that just showe you how huge the levels are. Ong of the biogest

improvements to the gene is the improvements to the gene is the introduction of more than four different character types. Instead of being humbered with a dward, a barbarian, a pelactin and a wizard, you can now choose an eff, in clenc, a ranger and in mystic as well, giving you in terefold These losses control party anticent kind annucling, appelconting, muschling for transition ling for transition lings and decres, etc.

Movement points counter - the direction arrows for controlling



The word of the level, but this merid of the level, but this merid of the level, but this merid as 5 rs. Your may wonder while the good in the se. Wall, when you full carteen monaters, they will have treesure and normormae the weapons they were carrying. These can be collected and hold for profis, or you can sell your old weapon and

#### CHANGES

befried the explored block planetary of the restricted in the basic planetary of here etc.). It you like, you can summaries there by a degree, hereing them from your avermis supprisemen with alighty higger mousies, or plighty huller perception. You have five points to apend over the six hereig antituities of each thereistic, and while you can the and here the size to your hereit a seminat, spec can revea got figure may house them the fayed at which have needed.

upgrade. Best of all, when one of your party dies, you can transfer the contents of their inventory to enother player, so potions and weepons needn't go to weste

One thing I always like about this sort of game is the ease with which you can slip mid taci cal play, ic. many games like this, you just seem to charge around in a large bunch, smacking hell cut of anything you. come across, Legacy Of Solassi just can I work like that. For a start, there are ion many joutes through each level, so to get through you'll need to sput up. Then you learn about detensive play (running eway (rpm heavy combal, in other words), along with constant security checks (looking for iraps and ireasure). The simplicity makes it all the more involving, There's no need to refer to the manual once you ve read it, so you can concentrate on what you're doing without intrusion from complicated game mechanics or obstructive menus and commands.

much gold the party has managed to collect, as well as your available movement and action points.

The main play area is shown here. All the action will take place in this part of the screen.

These are your movement points, displayed as a clock. Use them up and it ticks down.



This is the entire game area at the start of the game. Only the first quest is shown, but as you work through, the game maps itself.

#### entroiterent of atters, from which r both are displayed on screent you can be the taken of r both are displayed on screent your quest

When you actually get into the game, seasoned Heroquest players will teel right at home. A similar set of toons like at the bottom of the screen, and movement control works in exactly the same way as before — move to a point by either clicking on the squere you want to move to, or by clicking on the direction arows at the bohom, of the screen.

ACTING

Something that was shways a little unclear

perform in that turn, including walking. Every action uses up points, and its you move around you'll see the solid point look ficking down. Thanklully, you can now move rearch and then move again, but only if you have enough points left to do

cross in that turn, and action points.

fell you how many actions you can

action such as a

that you couldn't

This time around,

room search, and then finding

move again.

explained and

both are

1. If you run out of action points that's the and of the furn, regardless of how many movement points are left. If an handing has changed dras-



de well as the regenvert character malaction evel-lable, litere a loads of new momenters to best with Here, there a since graveyard to a complete to correct with

The characters are bigger then before, and far more detailed with a lot more animation. Unfortunately, this has led to less of the surrounding area displayed

on screen than before, but that down 1 maiter because the whole thing scrolla! Yes, scrolls! No more flipping

between locations, and believe me when I say that this makes the whole

A live really proyed it and amour M rently looking forward to playing it a lot

rently looking forward to playing it a folmore. As a role playing game, I don't think it has the subtlety of something like Worlds Of Legend, and is far more fun played as a factical strategy game if you're after an RPG, there are a folbetter, but it you want challenging gameplay and a game that's going to last, you can't go far wrong with this.

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#### MICROIDS OUT NOW £25.99

icky Baom a back! After macining her father from the clutches of the evil which as the end of Nicky Boom 1, the evil that awarms the itreat has yet to disappeed. Could the mean that the which when t responsible? You bei

nucker! So now Nicky has to go backwise the tortest and my to form of a sector shall a gow on V creatures and manimale objects out to stop him and there are plenty of tioms additioned about to help him. etc. As you can probably tell, it's ull basic, standard and exactly what we ve come to expect from a plattorm game.

You begin in the lovest and work your way through five very, very large levels Exact figures even'l

de doors that need keys, b Traps include doors that need keys, not that fall for an experiment reason and brid that colleges when you stop on them.



evaluable, but they re approximating one hundred screeke in size. None of his washed within as bezs, been beers and spiked belie trundle about with they sights simed streight at you. If you like, you can collect some supersonic whistles to blow them away, or use your more standard bubble gun. There's also sacks of dynamie that can be used to blow away evens of wall and floor, and if you're faeling really dangerous, you can try bying around on the back of a aloriul

> Nicky Boom wasn't perfocularly method. geme, and I have to say that the second and much faster Platform games want far beyond this stage when Zool and Robornd bit the Amiga in a world where people like their ection hol, hol, hol. the is makely tep-d. There's nothing really erong with 4, (here well on't much that's right either. **Tony Dillon**



aks Shadow Of The Beatt 2, remove some of the visual excellence, add a broper and more involved geme and you've got Beesford from Grandalam - surely one of the weakest srcade advectures yel seen. The plot wallies on about a mythical forest full of squirrels that is kept in check by a unicorn, a hawk and a beam





of light. One day, however, the unicom a led up, the hawk turned to stone and the beem of light stolen. and the forces of derivness take over the forest. Who steps forward to recises the land? No, not the Dutch You - the Beestlord

# 

which you he people, eat a lot, occa monally order dogs and aquirrels to tetch things for you and hold very simple conversitions with very prople people. Just as well really, so you have to keep your mind on guile's few things. Time runs a lot feature

then usual in this game, no your energy reserves can drop. quite rapidly. The only real way to gen food is to best prople. up, no your find yoursell lighting a hell of a lot of the time. just to stay alive

The design of the game

you need to be invite ble to avoid her. Left: You need to get a knille. If you can't be nice, be rude about it. means that you'll r nee to do a lot g intran to about and map

a deadly spell so

aing before you can really get into the ewing of things - many

locations can'l be unlered without specific objects, no be sure to kind. everything you can limit. For example, on the first level, you can I onler the witch's house without the clock of invisibility or you'll get support.

The controls are a little suspect In say the least The control of the montrye, and the mouse controlled bank of tierns makes the game

impossible to play with a hand-held joystek. It isn't bad, and louches like the ropple effect caused by the clock bring it up above the average mark but only just.



John Mether



Stands you free this gap or in Stars a causer for his taing includ in a cold



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#### Golf is a gentleman's sport. So how Paul Presley got into it is a complete mystery.

all i don't know what it is but it sure ain't golt. Beleve me, I know I play golt and this sun't it. This is some kind of bizaris cross between Operation Wo? and the polygon generator in OPaint with golting parts phemalis tossed in. I don't really want to go into gross detail about the ele-

# ments of interval over colless of a state of the state of

Delief and I wouldn't with the same (ate upon you. Briefly though, have a look at the following exemple.

I'm 50 yards away from the green. The ideal club is a Send Wadge. Unfortunately due to the strange control method of only being able to take full power. In power, three-quarter power or one-quarter power shots (with nothing in between), the only way i can actually take a 50 yard shot is to change is a Number 2 iron and take a quarter shot About as malience as England's chances of qualifying for the World Cup (wrong sport I know but I feel strongly about both).

#### IN THE BUNKER

The trouble with goll games is that there is only one way that you can do it successfully it is the three-click shot policing i matterial. Or a mouse

dial b start michaeling to the short of the short of the short of the start the downloang (i.e. salect power) and one to hit the ball. Anything else just doesn't really work. You have to let a player decide precisely how much power he or she wants to use and exactly how much hook or siles (draw or lade if

> Laff Here a have a weight Relating your club, aim your alter then decide on all the hall, three-guarter half or com-clubter around

Below: With the power decided, the shot is taken by aiming the croasheir at the centre of the ball (or off to one skile if you want to add draw or fade, etc.). Unfortunately, its simulate wind (or somebling) the crossheir "commony konth glow,"





you're reading this in America) is

needed or 4 just an't golf. The only way you can really change the game and make things better is to make sure the presentation and options are better than everyong else s. Unfortungtely for Ocean, even if they had used the three-click mathod, the reat of the



Patting works differently is the real of the genes Determine what perturbing of total power you it mand and press its water the siding tax searchas it.

game would have let them down severely.

For example, a line in the manual describes the camera panning thus, When the ball stops (the camera) smoothly rotates to the new viewing position. The is the slowest option, "I don't know what dictionarus are being used.

In Manchester, but unless 'smoothly' in defined as twith extreme jerkiness, having large gaps between frame updates

then I would suggest they sand them back to the booknhop. At least the last bit was right. It is slow. This is the case throughout. The graphics, while quite nicely defined, are just extremely jarky and enough to put even Nick Faildo

off the game for life.

At any time you are used able to call up a mag of the second light or the whole counts, or who a sighteening (rfg ferenants the sylrest grants using the revolutionary shallowing counts.

#### IN THE ROUGH

You do get to take part in various diierant types of golt though, from skins to foursomes (an axcling title game involving two teams and just one ball per partnership) and the menus are all easy to use and pretty comprehensive That's small comfort though when placed next to the rest of the game

#### informational Open Galf in mmply a lailed a nario to do something dif

ferent with the gotting concept. All credit to Ocean for trying but let a table it, it was a doomed effort from the start. There a only one way you stand a chance of bettering PGA *Tour Golf* and that is to call your game *MicroProse Golf* (and 11) bet that is angered a lew of you PGA puriets out there).

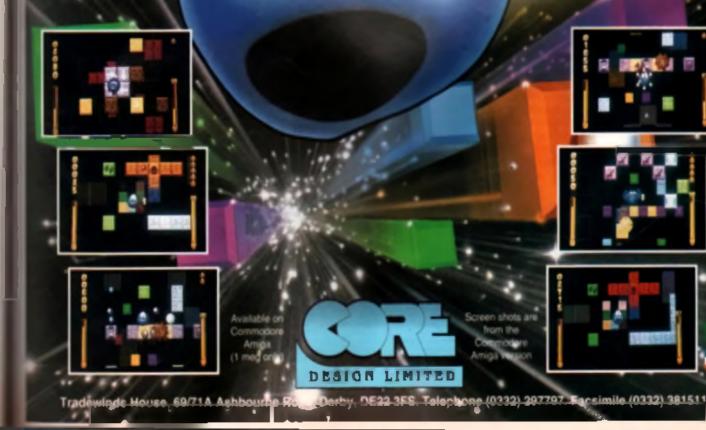
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# HARDINOVA sion Availab

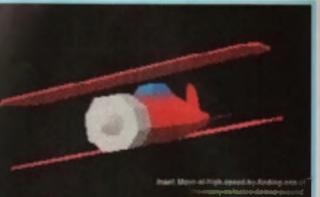
I can abil remember the first time i ever picked up a copy of Hard Nove meny moons ago. Looking at the back of the box I can definitely moolinet a time of anticipation as I read about this futuristic hybrid of space trading, combit and adventura. Could this really be the *Elite* beater if dispent so much time tooking for? Strangely enough, no it wasn't. All that was to be found inside the box was the lowest kind of PC port, conteining the same keyboard-beand, lack of action gameplay designed for a machine that ran at the same speed as a Commodore 64 with the graphics capability of a Cesto electronic personal organiser.

The plot is much the same as most other adventures of the type with you playing a freetance mercenary/trader who gets field into some big proof of interstellar espionage, which leaves you flying between planets, shooting other spacecraft whenever you should happen upon them and chatting with people whenever you come across them. Nothing particularly inspiring, but then games of this type never sre.

When I said the gama was keyboard controlled, I wasn't joking. Most of the movements and menu options are key activated, with little concession lowinds the mouse at times. If all runs too slowly to be exciting, which is just as well because a burst of speed would have runed the space battles. Faither then the big, fast polygons we're all used to, this uses a primove plan view with small graphics and swful sound. This game has too many bad points to put in this ameli space, and not enough good points to fill a paraoraph. Just awiul.



Once you areginer whit points prevet nearface you can accorn incound the even in a nitry little however





#### MIDWINTER II -FLAMES OF FREEDOM KIXX XL OUT NOW £12.99

Midwantar was a huge game. So large in fact, that there are very tew people who could have possibly pulled in off. David Braben is one, Mike Singlaton ta another. This clever mix of 3D action and political strategy so captured the imagination of the public that a sequel was called for almost immediately, and Mike and his mende at Meetatrom didnit disapport. The wheels have takned a cog, and things just got even better. The people of Midwinter have left their homeland and formed the Atlanta Federation with the people of Agors, and have once again called upon you as a freelance spy to help them detsarthe people of the Scharar Empire Achievence 2 of the 43 August and strategy.

Each leand a treated as a separate mission and each is just as hard, if not harder, than the one before. Mind you, the challenge laid on by each island is arough to class them as a complete game each! You want a challange? This is the place to look.

In essence the game can be broken down into two components – travelling and the adventure segments themselves. All travelling is done in real time across a variety of landscapes using all sorts of vehicles. None of this lesp in an F-15 and ify from base to base used in lesser games in *Flames OF Freedom*, you have to use whatever comes to hand, from a plane to a lank to a bus to a hot all balloon, each one performing as you would expect although not working as true simulations

The adventure segments come into play when you reach a town or building. Entening these gives you a series of screams whereby you can talk to people, buy, trade or exchange goods or information, or convince others to join your cause.

As I've said. Midwater II is a mammolh game, and one that it take you a couple of months of hard play to win. Not bad for less than £131



interesting characters have a habit of standing around waiting for you to come along and brighten their lives with a taste of espionage.

# F-15 STRIKE EAGLE II

F 15 Strike Eagle was one of the first games MicroProse over minimud. F-15 Strike Eagle II is one of the best. If a 1461, Accur rate and detailed Tight combat simulation with all the tritts and all the thritte. On an A500, it's great, on an A1200 it is superb

Like most MicroProse sime, you name your character and then proceed through the ranks collecting models and commande tions until you reach your



Things can get aticky for a fighter pilot in Centinal Europe the skies are full of spotler planes and enemy MICs.

peak and return. After entening your name, you are asked to choose which of the four difficulty levels to play under, and in which of the so theatres of war, ranging from the understaffed and underlanded cataput posse of Libys, to the Nuclear-armed Central European boys, whose tracking gear is so good they can fell which way your eyes are facing. Get all the formations out of the way and you are given your first mission which. We most missions, michae blowing up a couple of enemy installations and geting back to beam in one pace.

Then you're in the sky, and straight away you can see why Major Bit (now a Liculariant Colonel) Slealey first chose the F-15 as a subject for a sim, it's very last and very, very manoeuvrable. Forget stealth lactics, this

This recur case controls vertexs (AA) examines arrange the import -If you can knock it and your (ourney home will be at much easier.



plane hits the see you don't already have it. then CIE rush out and get it!



The view from the cockpit. There's a MiG-23 in sight, time to decide whether to take evasive action or to power up your heal-seeking missiles.



#### LOOM KIXX XL OUT NOW £12.99

Ined to push forward The Bourfall for the second of the



configurately uniquely on the section booties in visit. As an and swepte to use, but" - were to check it and the maphy for items to

didn't regimer the player with easy problems or confusing syntaxes. Altraugh Loom doesn't quite have if, it's very close indeed.

You start the game overheaming a clacusterin between the elders from starts you learn that you are a Weaver', someone who can use the mighty Learn hard to weave reage. From here you have to travel the world, learning spatia, perfecting your craft and above all trying to discover why your mother was hept excess from you. On, and there is a big bad woll put around the conner, as you might fancy-wangataling that along the way!

Anyone and the same played a Lucasilim game will know how much of the company a major making expension has apilled over into game production, and Logen is as intragitor to that rule. Glonous backdrops from the film sign action, and clover use of zoomed and panoramic shots make it team even toos like a game and more like a trip to the pictures.

The puscies are balanced well, giving you some challenge but are simply asimple. The manual states that the is a game designed to be complanted – tex and difficult at the same time. My only criticism is that you are it speed up some of the pressi asquences. Otherwes, a



Early an plus I base to link some way to get an a line bare in order to involve how a borner lands and new advertises.



Keep an eye out for keys, which are dropped when you shoot some enemy robots. These let you access other parts of the level.

# GALACTIC WARRIOR RATS

For the finit time of your Amga comes a game with rate-appeal. These events the nort of rate who are content to mill around barrused in mazes, oh no. They ve tooled up with superhard space craft and are right now making the universe sate for unity riding it of a totally chill rate of bendat.



There is no possible along your manage. Safe it is the obspaced

# Quality Version Availab

guiding that through a series of maze-like levels blatting seven balls out of everything that moves

The game is certainly challenging. The mix of exploration and blanting makes it one tough nut to creck. Fraquently, when they're hit, an alien creft will leave behind either a key or a token. The keys are the things you need to keep an eye dut for an they fel you gain access to otherwise secled off areas Between levels you get to invest the spoils of your campaign by visiting the shop. Here you can purchase more emmunition, weapons and other extras to make your ministen essert.

There are no cultilendingly original features, but then you'd hardly expectenything mind-blowing for a termer, My only real children is that the action is very sporadic. A bit more bleating and less of the exploration would have



Your tank only has a timited supply of energy, so don't be alraid to do a runner if things are looking bad. Cowardice is the best policy!



# HIT SQUAD OUT NOW £9.99

Ocean France have come up with some real conversion of the 75k carried and on it you're a find of the original provide find of the original provide some find, then you'll absolutely love the Arrige vereion as to be attributed providely place remember.

There is not at the A a plot Brieffy Tok was a once mighty sammer who has been trans-

formed attain Neonderthal apeby Restrict, att evil spreamer



Variable to Box name of the game in Toki. There's even an undersedant stages!

who has not off with Toki's orthread. Not very heppy about all the our best of a particular of the second off off off of the second off off off off off www.d. if the beginning, ao you know roughly what to expect, and then it is throught into the action. Levels include a crive-like world, an underwritter mage, a jungle, an underground interno and a heavily fortified preon.

You're only armed with globules of spit to begin with(!), but there are five different types of shot available, including triple tire and a next formethrower effect that sends your victims to a flary grave. Add to that an American football believe that issues Toki temporarily invulnerable, a watch con that adds extra time and a beby Tok which graves an extra life, and you'll realise that the game's deorgrave laws given you every chance of making programs. There are also a number of gold come, released after you'll also be swarded an extra life. Everything a sgaret life clock, though no you chi't write for much time exploring each level.

The controls are admirably streight forward. Pushing the psystick up makes Toki jump while pulling down illows him to crouch. By holding down the fire button and moving the joystick from left to right it's possible to spray his splitte around the screen. If a rope or vine is in close proximity, Toki will automapcelly climb, and if he diver into a water-filled ps, our similar freed will eart to ewin.

Graphically, this is just like the coin-og, although the sound is a bit of a let down and the in-gemeilune is positively grating after a while. Actionwise, this is a well peciel piction game, with pienty of obstacles to



evercome and some highly inventive native - look out for the earning end-of-level monstroeities. Easy to play but difficult to complete, *Toku* is a pollahed game. It might be three years old, but it a up there with the best

petition - ape 81



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#### CU AMIGA PLAY TO WIN





Are you suffering from sleeplass nights? Just can't close your eyes until you finish Dune 2? You've got two choices - Night Nurse or Tony Dillon's tips - which would PLAY TO WIN you profer?

#### **ISHAR 2**



lere's a snippet of help from those ely people at Simanis, for people ho are finding it impossible to leat either the first band of rogues ou meet or the lizard king on the island. Basically, don't attempt to ake on either without a fully armed barty. Instead of entering the light at the start, head northwest to the vilage. Five people should have no ouble at all beating the bandits. For te lizard king, make sure a couple of your party members are armed with bows, and weaken him from a 



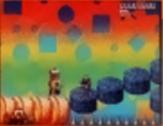
So you want to cheat, do you? Well. here's a rather snazzy, if a little obvi ous, cheat for Empire's latest wargame. On the filing screen, pop up a file and instead of entering your name, enter the words 'Let me heat! (Notice the single capital let er and the exclamation mark). Now whenever you look at the map meen, you'll be able to see the connts of every square. Also, if you ross the left Amiga key and 'W thet, you will automatically win hat should improve your his nicely!

#### DUNE II

More useful hield, if it have the more Wigh camp for Westwood Studio's Supert: sweeter of the A & I of peop ora any canno problems with the Harvorian Inness wandering into the average and same hing everything up The bear form of deletice is it is F rally determine the direction of allack – et a tu e lenemy unds anach om one direction. Then build a l

of around half a dozen concrete. blocks extending from your basa loward the enemy Now build another line of blocks coming across your time in right angles, so that Claces the energy New all you need to be is his to rought hadragers arong the wall, and theil should slop most units from getting near your base!

#### **ROBOCOD A1200**



at how many A1200 owners have rushed out to buy this ge update I don't know, but I bet they're d gagging to see the new levels Out on as the work to remove note people, then this is the creat r you. On the stie screen, type the

#### S. FRIENDLY

Remember to put a space before Friendly'.) Now, during the game. press 'M' and you'll be prompted to ter a code. Enter a number between 1 and 49 to jump to any part of the original game, and us the codes 50 to 55 to see the new





Not the easiest of games, this one, which is why we were so happy when Matthew Lake of Leicostershi/ contacted us with this astound back door to success. All that's required of you is to type CHEATERCHEATERWIMP' on the sam screen when playing the game and you'll gain a bonus million dol ars plus all your building plots will be



Playing football is never easy, especially when you're controlling tiny pixel players. Fortunately top coach, Tony Dillon, is on hand to help you improve your ball control. On with the tips...



So, you want to know how to beau the best, huh? The secret, my boy, is all is the wrist - or should I say, all in your pel control. In Kick Off, you stand misrcept the ball and then oherge with all your might up the field without losing breath, and abil control the small black and white with me and 11 show you how to get Fac ball to go where you want it to

#### **KEEP CONTROL**

The first things you have to keep an eys on are your speed and the qualibes of the player you are currently controlling Although you can run as last at the players in either of the Kick Off games, I would strongly advise against it. It might be fine for charging all over the shop, but what happens when you want to turn, or avoid another player? Practise running at different speeds and stopping suddenly. See how far the ball shools off when you stop from top speed? Think how useful that will be in the middle of battle' Keeping your apeed down means more control over the bail, although you'll need to sharpen your reflexes as 4's much easier to be tackled at low speeds

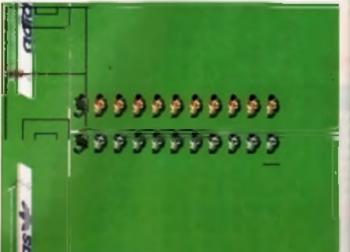
Examine each player and work out what their strengths and weaknesses are. If a player is particularly adapt at shooting, then iry to use him as often as possible when in the goal box. If a player is swful at passing, then run with the ball end pass to the nearest player as soon as possible

#### WATER SLIDES Bewere of sloing unnecessarily. Most players will state at the first put-

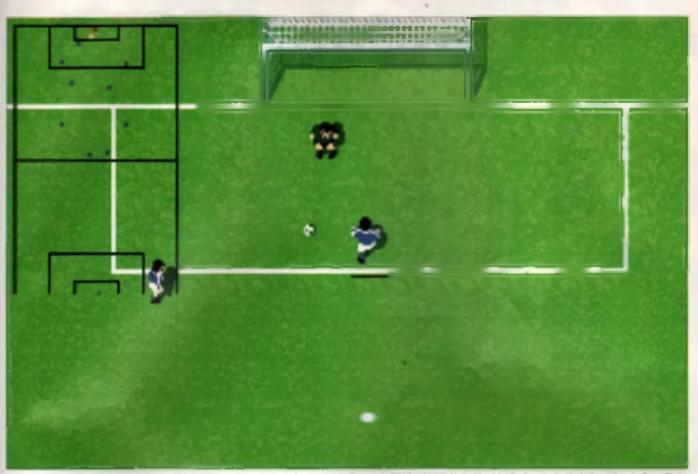
ton like maniect whenever the ball is anywhere near one of their players. Doing this will eave you with nothing but half your team lying on the ground - if you're lucky, if not, a toul will happen and players will be removed from the pitch, Seems like a stiff penalty for a little careless play.

Learn to play delensively, It might seem like a wimp's way cut. but there is little to be gained by playing Wimbledon style and hefting the ball three quarters of the way up the prich, only to have it intercepted.

Unfortunately, Dino didn't build in a 'nobble the opposing team while they're running out of the tunnel' option. Of course, it's fun trying?



80



by the opposition. Direction are created an ensure parameter system of parameter than the parameter the parameter than the parameter than the parameter than the parameter than the parameter the parameter than the parameter than the parameter than the parameter the parameter than the parameter the param

You don't always need to shoot the built to pass. One easy techinque is to run towards a player and wait until they are about a third of the screen away from you. Now stop dead and the ball will roll towards them. Control will switch to the new player, so be ready to pick up the ball, and swity you go!

If you have (rapped the bell and are writing to pass, check the scanner for opposing players coming in for the tackle. If it locks like you aren't going to be able to pass without being intercepted, turn your back on the player marking you – the means they can't tackle you. However, move and pass as quickly in possible, as after a while the computer players get a bit led up hystig to run around you and decide to run through you, and there is no guarantee that the referee will see the obvious foul.

#### READY, AIM ....

When shooting at goal, by to get within the nine-yard box. There's every likelihood that the keeper will just walk out and take the ball from you, but should you happen to have a spare tenth of a second, you might just get in a Super Shot. The is a shot calculated by the computer ip begt the keeper, with direction and height ligured out for you. It is only really worth inying the you are contributing a player

Learn how to do overhead tacks. Henders are tacky things, as your own direction and speed can grantly effect the direction the ball travels in after contact, but overhead tacks are a smart way of suddenly turning the tables on the opposition.

For those of you who have the beruper trigeeroi bna exceller after touch control le a godinand. For those who don't, all down and spend a law hours practising curving the ball to the left and the same Once you have it off pat, you'll be surprised at how many more balls stan hitting the back of the net. In the case of a corner, for example, shooling across the front of the goal, and then sleering the bell under the crossber is a sure true way of scoring. So is running up just on the inside of the pulse edges of the goalposts and shooting forward. The keeper will dive lowerd the bell and you can elser it lowerd the centre of the ocei, it. will either liv paet him, earning you some serious kudos, or will bounce of the legs giving you emple time to follow through and welk the ball imo the net 📼

All these hants should help you become a better Goal' player. If shey don't, then there really on't any hope for you, is there?

If you make it to the nine-yard box without the Goalie scooping the ball up, attempt a Super Shot. You don't really have to bother aiming it so long as your player has a decent shooting ability.



Ranging your back to the opposition will only prevent a tackle for a short period. The computer main taccomes borned with trying to run around you and will attempt a foul!



Remember - the scanner is there is a reason: Use it is medi to coming players as well you'll be ready when they try to tackle.

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COMPANY AND A DESCRIPTION OF A DESCRIPTI

Perhaps the how that you hear outside in the twilight is not the cry of an amorous hound. Perhaps that moan in the chimney is not the swirl of the breeze. Perhaps the night creatures really are closing in on you. Perhaps it's time you got the hell out of it, and made a run for the Troll's Head Im! TV

# SHRINE OF KNOWLEDGE

Draw near and ask your question. Don't be embarrament, even the most noble adventurer is sometimes stuck for a clue. Behind the valvet curtain is the Shrine of all Knowledge where the deepest secrets are revealed and hearts are laid bare.

#### LURE OF THE TEMPTRESS

THE ROLLS F

Atthough the whole world has finished this game, Jacon Peny is still in trouble – you just can't help some people. He has made it through the caves and now stands before the mighty dragon. One wrong move item has and it's barbecus time again.

The Shrine replies: Despite what that liar St. George told everyone, you can take it from me that fighting dregons is a no-no. Your only hope is to use a magic potion on it. Your companion is not just a prelly tact, why clidh't you get her to whip up something in her shop for this eventias its herow you ast out?

No doubt she won't have all the ingradients she needs, but you can find Cowbane in the ktthe garden just outside the Smithy.

Shorie and dragone provide heatachea galore for the pleyers of the Lum of the Taropoten. Most pleyers have susady mopped up this game but the strengthes the - add to these forging

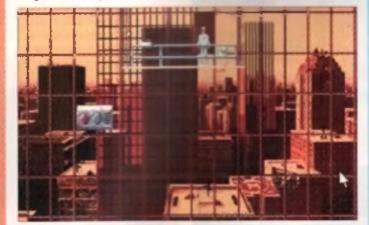
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#### **FUTURE WARS**

Future Wars is another game which asems to be anyoying a revival of interest is there someone out there selling off games which have gone past their asil-by date? Michael Watson of Coventry is inside the Crughon space ship weighed down with a pendaril, pill, germent, magnetic card, lance, key, documents and an argun. He has sneakily slipped the gament over the security video camers to hide his next cunning move, but unfortunately he doesn't know what that should be

The Shone replies. The next bit of the game requires you to have the

speed of a mouse. And your mouse needs the upant of lightning. Once you have graced your germent over the cartiers, get into the case (using the Process Operate the case and then have your game. Now we come to the move part. You are going to and the part which makes your ble for a www.shorthine.ond in Skal they you must get to a paint outputs the the wears you are headen by croses. More to the door and the first pill Aread the assess and exit the door. Neve soult then weet to get programs assess the cases. The manoese takes a bit of oractee. but that's all there is to if



Life as a window cleaner can be profity dull. For our here though things are about to elast looking up. A http://www.superschup.and.eases held mining accompany are not loo for every.

#### **BULES OF THE INN.**

 An of lookey, the Troli's Head los has been declared a Navinar Free Zone, daywe caught asyledicy nuclear devices in the hit with he animit to source. THIS MEANCH TRUE - Please don't ask los could as a headingwid botteness the symplection aftends. By Celes of The Inchespes.

#### POLICE QUEST 3

I have slways thought of Norway as being a land of prize-winning hords. beautiful blonds girls, and probably the best lager in the world. Yet Overein Kristiansen ignores all of this and spends his time grubbing around in the shady world of crima and drugs. Stuck somewhere in the sixth day of Police Quest 3 hom Sieme, our emeteur cop has been to 500 West Peach, found the pholograph and hair, driven to Oak. Tree Mail and given the photo to the U.S. Army. He then spent time. encoping in the Station Locker Routh where he discovered

sequently antiched on her to the Captain, But now what?

The Shone replies The locations to be visited on Day 6 size: Police Station - Flood the toilet using the paper rol. Find the coceine and regori to the Capizin. Take car to Coroners, Coroners, - Search cabinets and read labels unal the coroner pomes and speaks to you. Take envelope from desk. Hospital - Give Marie locket from envelope, Burning House - Take acraper and bag from car bool Talk to Fire Chief then enter house. Pick up photo and exemine. Get address on the porch. Get blood/hair sample from floor. Oak Tree - Show I D, and give photo to army officer. Take file and return to police station. Psychologial's Office - Hand over file than lasve Crack House - Knock on door, then drive to Courthouse Courthouse - Show judge photo of Bains and news dupping. Pick up werrent and return to **Grack House, Crack House** 

– Knock egain, then raturn to Police Station. Police Station – Book in all your evidence then drive to Counteem Courtroom – Speak again to the judge and she will give permission to use a ram to open the door of the Crack House. Drive to Crack House and the ram will be wating for you.



#### KINGMAKER

Here you are had the testing that while yog bey gargling in your crudie, the talaint enagesd yng with spennen nins? Di caught file means that commuters suit there is a faction examinit management who is paing to industry the biogenes, while you tag gingi bern in filt gud awini anininera Have you avai takes a since thek of Charlin and Resight, Bilmay I could have igne a better jub then him I would have bung m te Digun fer a start? U S. Gale enaged priorisonality or write the past, but Die Anierte Bay will gest von Die altrace is many that it all could have been so db innent Wingenator in a gang felowity interes and the film take birty generates line of gener during 21g Was of the Runar England in in terms!), marrier neil trench are abread, and in the corridors of person country galificings pro spill over where they should support as the next Ring. It is your task is gaiget a Protondar to the thenes any golds your pawn through the vienning of finat's big frembing to you danial of the Might's dess. Wars und antitunes per ing at the problems you mant survive in this hand-ingroup party a ann beiern juge sige becames the erdingeine bing of fugland i can barily mut & margel & mean gi My bingdorn for a mourse!

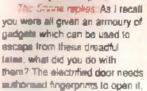
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#### » OPERATION STEALTH

A bundle of scrolls have arrived, all of them pleading for help with Operation Stealth In Huntingdon, Donald Campbell has slopped thundering around the lakes frying to break waterspeed records for a moment, and is instead trying to get that electrified door open.

Meanwhile Adman Sherifi from Woolwich is currently being lowered in a cage into a tank of pranhee who are wearing napking and beinging spoons on

their dinner plates. And knally, Stephen Planson from Peterborough the almost reached the and of the game, but instead of drifting happiy into the sunset he gets a bomb dropped on his head from Doctor Why's helicopter,





A similar bomber, invisible to redue, is the megan of intermetione, and orange that give not to be aging. This game has had renew that be always of the Strive a attention that month

so take the glass from the sink in the guardroom. Fill the glass with water and give a to the officer who asks for it. In the officer's room you can operate the glass on him to get his fingerprints. While he drinks, you can steal the stamp. Back in the Guerdroom you can use the stamp on the inkpad (found between the charr and the mess on the desk) and then stamp the orders sheet. Operate the organistic case, examine the blue organistic, then operate it. Use the paper on the gians and Bingol you'll have some Logerprints. The pen is just the thing you need to operate on the lock which is keeping you in the cage. Once the door a open you can use the watch to tell you that it's time you got the hell out of there, so use it on both sides of the screen to attach a write. Quickly you can move along the cable to the right and operate the grille. The answer to the bomb on the bonce' problem is equally simple. During the underwater sequence you will have spent some time dodging around lumps of seaward while avoiding sharks. In one of those seaweed clumps someone has dropped their knicker electic (probably had the gants scared off them), and the can be picked up for later use. Before your final death-defying leap from the helicopter you can use the electric band to secure the bomb release mechanism ensuring

# li Quality version Availab

#### BARES' TALE

tan Les from Monte d'un has written to ask dil would use my sage courset to good effort with the Shrine of Knowledge, and bring him some small relief in his cust. The the means, 'HELP!' Before venturing into Oscon's Formes have been an edge that he must first acquire an item of Karden to Port and the between Thessalphics and Colonse. Well, our friend od finite his wolf of which was a store man, but somehow the world crosses that we also select that even the kieses of our noble reader that to precedent

The same Solid peak the name KAZDEK and the stone man all rouse interval and a reactly you with all Ram which will come in useful Wake your way to Obcort + Postrate and move four steps torward. From hare on keep torone ages using your SESI or SOSI to detect a something special message. Which has I subers take a step backwards and cast PHEO on the right hand way. You will nee a room, and you should be able

(Hore)

So work out where the door is. Here you will be esked three questions ~ the answere are: Fire, Kell and Silence

The Surde Tale intege geogletime to detarie des more de son card ara. The fuera books sintegi just is equate someone sine to the band to solve acces of this geograp is sintedes

#### WRITE IN!

If you have a problem, a notice for the Board, or perhaps you have a preca of scandel which you wish to whisper in the line, write to Tony Gill M; The Trol is Head Ion, CU Amiga, Pricry Court, 30-32 Farringdon Lane, London FC1R 3AU.

#### KGB

Stuart Mawer from B F.P.O. 17 in Germany has written to say that he is. 'In the club' and what should be do about it? Now we are all very politically correct here at the Troll's Head innino we won't be making any sexist remarks. (Although that doean't mean to say we won't be linnking them!) Before you all rush off to inform The Sun that one of her Mejesty's soldiers has got himself in trouble, we should explain that Stuart is referring to the club in the game KGB from Virgin. (Now that sounds even more unlikely.)

The Shone replies: When in the bar you must not mention Hollywood or Buyer 2 to the gangster called Romeo. Talk to Yuri the barman and he'll fell you should talk to the people in the apartment block. Go around the corner to the mide-street and enter the block. Use the matches to see your way Take the cipboard and return to the atmet. Read the sign that directs you to the caretaker a apart-

ment. Tell the occupant that you are carrying out a poll. Once you reinside admit that you are looking for gangaters. Don't mention the KGB, or detectives. Zhanna will sand you to Belussoy. Tell him about Lefortovo prison and you'll soon be sent to Ryumin in apartment lour. Mention Wrangel Island at this point and you'll find out about Sytanko and spartment six. You won't be able to get in there so you should enter the club from the landing of the upstairs apartments. (Leave the clipboard outside and use the money from the drawer in Uncle Vanya's bedroom to get in). Wait till the punk visits and leaves the toilet before you rup in and take the drugs from the trash. Gel nd of the druge down the toilet. Talk to the guy named Video. Buy what he's salling to get some information. Once you are taken outside by the two heavies make sure you. overcome Lyonks and take the lock-pick from his clothes. You can now open the Meal shop by the side door.

#### DUNGEON QUEST

When they bought their Amigal many new owners found that they wonder machine carrie with a game called *Dungeop Ouest*. Peter Hook ns fimm Portsmouth must be one of the few who managed to battle his way to the final problem of this ward game before succumbing to its it ogical public in the far corner of the garden a searen ligure beckons. That is what the game says now what the final bad of the carrie requires you to book person, look person, look person, less computer, Not very smart is 17 Never mind, at less you can throw the game away now and get some well deserved person.

#### DUNGEON MASTER

Having tought his way through every 'evel of Dungeon Master, Edmund Weid from Solihui has finally united the Power Gem and the Fire staff into one mighty weapon. Now what?

The Shrine replies Well how about using this weapon to knock umps out of Lord Chaos? Unfortunatery you won the able to injure him with firehalls and the like, instead you must create a magical cage using the staff and then fuen it shut. Lord Chaon will take offense to your unkindly behaviour and he wor listano still for it. In this case

In the depths of the Durgeson Means halosmys claims another victim. It would append this down you have discouseed the phreats would be phreat problems see all not ended. Luckuty the Shrien has the sesses to their creates web you can use solid rock walls (Note, they must be two thicknesses to be of use) to form part of the levels suggest you move to the levels where the two-headed demons and the line monsters live and use the Grey Lord into the little room with the two doors in if. This room will cut down his ability to move around and make it easier to cage him.

As the magical glow trom the Shrine lades and dies, these final words of advice are heard fainity, When you've got your back to the wall, and it seems that things can't get any worse, just remember – that wall could fail on you."





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As you may have med in the June 193 CU AMIGA, Supersound is a generic sample editor, in other words, you can use it to sample and edit sounds in conjunction with just about any sampler cartridge. Although at first it might look tabler ordinary, Supersound has a whole burnh of tricks hidden up to sleeves.

Top of the bill are the effects in addition to the filters, reverbs and distortion routines of v3.2, the new release offers yet more new and original effects, along with more control



over the existing ones. Some of the best include the X-flip distortion option, which revenues afternate sections of the sample duty - good for adding a bit of grit to a baseline, for example

There are separate ineble, been and brightness boorters, all of which are adjustable, three types of noise illines, and a cunning crossfade mixer. The crossfader is beet used on instrument sounds that never settle down to a standy loop. By mixing a reversed copy of the sample back onto itself, you're assured a amooth loop. As well as the usual 'zero seek' method employed by the compension, there's an alternative phase loop' option, which analysis the start and and of the wave for a good metch. A spare buffer is



reserved for a second sample, which works just like the spare screen in DPavit.

The excellent real time effects program, TREG, is else included. Still at version 1.5, it offent it stock of quality real time effects, including delays, phenem, distortion and pitch-shifters.

Supersound is no longer licenceware, even though it is still dirt cheap. If you want proper instructions, there's is well-produced manual eventable for £10. If you buy the software and manual logistice, £10 only cost you £11. Now that's what I call is bergion!

Available from: KBE Software, 12 Selfers Close, Warrington, Stoke on Trent, Staffordahire ST9 008, Price: 24



## POWERFONTS

In theory, turning scalable fonts into 3D objects should be a breaze – after all, they're made up of vectors and points just like 3D objects, even if they are missing a third dimension. Unfortunately, reality is often a lot harder than theory. It would be great if there was a package that handled all the fiddly little calculations for you. Now there is – *Powerlonts* 

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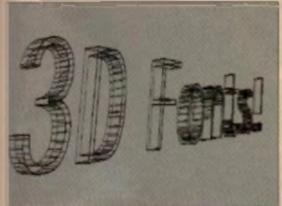
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It uses the AGFA Compugraphic Font standard, so you'll need Kickstert 2.04 or higher. A hard drive, and an accelerator are also recommanded. You'll also need 2Mb of RAM.

Turning a compugraphic tons to a 3D one to simple - select your font from the Market enter



your taxt from the kiryte and and then click on the 'Show 30' to first an 4 by magic, you now have a 50° ther you've spun it around 10° the generally admired 10° to 50° out as either a Res 30 object. Support to 70° 200 Imagine, Sculpt 30° to 50° Caligary 30, Lightwee 10° Professional should approve

Available from: RGB 1 Postbue 12028, 3501 AA 1 Netherlands, Price (and UX distributor): TBA.

# HOME MUSIC KIT



Based around the same components as GVP's DSS & sampler, the Home Music Kit is a new contender in the crowded 8-bit sampler market

As usual, it comes as a software and hardware combination. The cartridge is part for the course, just about as good as any sub-\$50 stereo sampler you could think of.

The software is *Digital Studio III*. It runs in a Workbench 2-style environment on any Arriga, but if in extremely slow at times, especially the mouse response and requestors. That aside, the program is up to scratch elsewhere. There is a software high frequency liker that takes out noise before the nound is sampled. Software input level sliders allow you to adjust the gain, and switch between MIC and LINE level inputs. A few basic effects are included, but nothing that's going to set the world alight.



In addition to the main program, there a Real Time Sound Processor II which imitates an electric box. There are 34 variable effects to choose including including a compressor, stereo AM modulator, phaser, stereo splitter, pitch shifter and funger. This is the saving grace of an otherwise unrunderable package.

As there are plenty of atternative sample editors around, and most trackers now have built-in sampler sections, it shouldn I be much of a problem if you don't get on with the software.

Available from: Power Computing, Unit & Ballton Road, Woburn Road Industrial Estate, Kampeton, Bedford MK42 7PN, Tel: 0234 843388.



etwa Paint is fine for serious artists, but it can be a bit fiddly for little kids who just want to make a mess. All those tiny icons down the side of the screan weren't designed for cack-handed four-year-olds, but Borealis Junior is.

There are no menus here. Everything is controlled from a screen of big coloured icons. Drewing modes, coloure and brushes are astected



from the icons, then the right mouse button swaps to the painting screen. It's about as aimple as it could possibly be - even the Ed got the hang of it after a while [You're final - Ed.] All the basic drawing functions are there - various brushes, colour cycling, line drawing, text entry, pattern fills and so an included on the disk are a text black



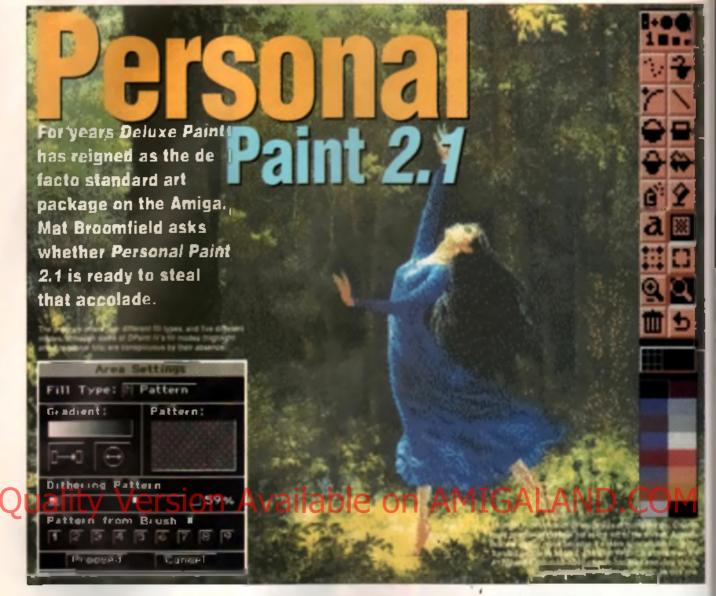
and while outline pictures - the idea is that you lead them up and colour them in yourself.

Considering the will only set you back four the and it could knop the kids off your back to hours on end. I d say it would be money well spent

Available from: Valley PD, PO Box 15, Peterles, Co. Durham. Tel: 091 587 1195. Price: \$4.00 (Including P&P).







B store i even start to describe Personal Parti a leatures, if a reportant to understand what the program is about - yes if a about drawing on your Arrupt, but what periodian area of drawing is it most affective m<sup>2</sup>

Over the years Details Paint (DPaint) has become more and more an enimators tool, with the origin skin feature and branch morphing, to say nothing of the animation menus. Personal Paint (PPaint) on the other hand, clearly stuns the area of animation at all What it dont have, however, are a large number of tools detailed by import and export ing and these are supported by import and export readules which allow you to convert from and to several other graphic save formate (such as GIF and PCX).

So, having established the program a raison d'ette, let a take a closer look at the leatures. PPant la supplied on two della and can be run from floppy or hard drive on any Amiga with at least 1Mb of memory. Strangely enough, no HAM screen modes are supported, but on the A1200 and A4000 you can use the new 256 colour across modes in resolutions up to 1472 by 253 presis Now, the puncte are doubtiese going to contain about the lack of HAM support but, to be homes, how often do you use if? HAM is slow to edit and unpredictable to use, so perhaps the omission is not so bad, sepecially if you own one of the AGA machines.

#### NO DPAINT CLONE

In a definee bet to detence multitrom DPavit, the program's main access a quite different in appearance to that of to rivel. For minimum the tool land is normally at the left of the access rather than the right, but more significant is the choice of tools available. Naturally many of the based are identical, efter all hiwouldn't be a perint package if it didn't have line, order and interfand tools! However, even these work in different ways to their DPavit counterparts. In default mode, they will simply work as usual, drawing their appropriate shape

using the current perior brush, however each tool also has the option to use the first row of any brush as a stylust, so you could, for example, define a complicated pattern of dote or deshes and use that, I suspect that this mode is going to be most useful when drawing contribuction lines, that is ince which (in this case) will extend

Personal Paint plans a grass magnify most severality yest complingly draw a host property its main to be magnified and the selected area will be displayed at maximum magnification.

#### OUTLINES

Please often two different ways of sufficienty a broth. The list, foregram wavely creation a new pixel horder in the correst tak colour. This bootst hugs the chapt holey activat associe, forware due the derive an Strapic, but sparses all the edges of the broch. Blackers does the correct of Strapic hol doe have the broch. Blackers does the correct of Strapic hol doe have the blackers of the strate of the lower and right adjest of the object. 3D in the strate statistic for it wavely and have gaps colour the the opper and toft of all the broch and the gapse colour the the opper and toft of pixel. With the correct coloury the state on the next in create a stabilities of an excession appearance.



from an existing object across the screen so that you can draw further parts of the same object in the same perspective and to the same scale.

There are also a number of completely new tools One of my havourites is the Bezier curve tool which makes the creation of smooth complex curves an absolute doddle. Simply define a start and and point for your curve and a line will be drawn between them. Attached to the line are two handles' which can be used to stretch it in whichever direction they are moved.

#### FILL INS

Another new option is to be found hidden in the fill requestor. When it comes to defining the way that an object will be filled, there are three options: notid, pattern or gradient. Of course, solid simply fills the selected area with a block of solid odiour, but the other two options are new and are very useful indeed. Pattern will fill the object with a user-selectable drither pattern. This pattern can be used to 'tint' the area being filled by between two and 98 percent. At two percent, a dot of the ink colour is placed every 10 pixels for example, whilst at 50 percent every 00 pixels will be the ink

The program free a useful new glastient fill mode that makes the breat use of a traited potentia. The option is particularly effective when used in high resolution



colour. The other new option is practicel, which is similar to *DPaint's* differ fill option. It has two ways of working, both of which are dependent upon the current ink and paper colours. The first mode simply fills the specified area with a differed pattern that graduates from the ink colour is that of the paper. Every colour in the palette between the two will be included in the fill if you have a well ordered patente, this mode is very useful, but it lends to fall down if, as sometimes happens, your palette is less well organised and colour ranges men't neatly and sequentially defined.

The other new life option attempts to overcome

Some of Personal Paint's more interesting Piller effects.

this in a very clever way, which is ideal if you are working with a very limited palette. Again it uses the current wik and paper colours at the boundaries, but lifts time unther then using lots of diferent colours to produce a transition from one colour to the other, it emply uses the live chosen colours and a selection of ordered differ patterns to produce the graduation.



Probably the most important new leatures that PPaint

offers, can be found in its First focilities. When this is selected a long list of Figs of the options appear ranging from Existing Colour Oblique. These options can be seed greatly after the appearance of all or part picture. To use them, simply selected option and define the area over whether a c case is to be applied. Unfortunately can only be rectangular, but it's the first the than nothing.

Some of the more interesting operation of the more interesting operation of the pixels around to make your image label to the was produced with coarse grain film). To the term (which adds a user-definable lexture to produce to produce to produce to produce (which adds a user-definable lexture to produce t

Better vet, the Filter selector men yes creme your or mice and the beginner to the beginner t

#### NOT ALL PERFECT

Unfortunately, Personal Paint = not af an entering and light, and one area that caused mit perfer. ---ennoyance is the errangement of the poiene in 256 colour mode. Now, if you saled Edli States of 256 colours of the palette are displayed at once nice orderly rows and columns with eavy to eath boxes. If you select Palette (which is the exciting where you actually create and edit the patents ( you get a stupid requentor that contains tiny lets colour boxes and, worse still, you can only non 28, colours at a time any way. Admittedly, the Palette requestor does contain far more tools than the Stencil requestor, but would it really have fort to make the requestor larger? Considering the matter tance of this section. I think that Cloanto could definitely have done a better job in its dampn.

On a chosey note: again, one teeture that I ebsolutely to reis PPaint 6 veneble magnify mode No I don't mean that the megnification level can simply be increated or decreased, although 1 supports that too What I m taiking about is the fact that when using the variable looi, you can draw a box around the riems

The filter requestor is where you'll find all of the trace procession options



Texture

you want magnified and the program will magnify them at the highest level that will display the melected erse.

Natercolou

#### CONCLUSION

Iter, such liked Personal Paint, and Lihnik that I be complian protectore to Delure Paint whenever protects. Its tack of HAM and animation support are not problems most of the time, but if you net only afford one art package then Deluxe Carity a more versable. I feel that Personal Paint is more user-friendly than to rival, although it's hard to define exactly why Perhaps it's because the options are more logical to me.

Some of the program's operations are indiculously slow, even on the 020 based A1200, and I could have been forgiven for thinking I was working

# At ourse that them. LAND by COM

and if used by an experienced artist or photographer, will save many hours of work and produce norme very original results.

At only £59 95 it's 40 pounds cheaper than DParat IV, and represents very good value 1 strongly recommand *Personal Parit* to anyone who can afford it. It won't completely replace *DParit*, but they are ideal companions to each other. (1)

MICROPA	CE £59.95
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EASE OF USE Even easier than D-Paint	**********
VALUE FOR MONEY	***********
EFFECTIVENESS Works very well	***********
FLEXIBILITY No FIAM and no animation	
INNOVATION Nathing new, but everythic	<b>*********************</b> Ig's done well.
Good value. panion to DP	The Ideal com- aint.
OVERALL	84%



100.1

Europress' new AMOS Pro Compiler promises to transform your AMOS creations into lean, mean machine code. Dave Smithson puts it to the test.

Bundled with the Compiler are a number of example programs including Galax, events cal scratting shoot em up, that demonstration the speed increases obtainable.

# ta been over eight months ande Europress launched AMOS Professional, the latest and,

launched AMOS Professional, the latent and, most curtainly the greatest incornation of AMOS yet. Boasting a plethom of new commands (over 200 of them!) and more knobs and whistles than a fairground organ. AMOS Professional has redefined the standards in Amos Professional has redefined attoms. Europteme have now leunched a companion product to AMOS Pro in the shape of the new AMOS Pro Compter, a utility that promises to transform your AMOS cruetions into lightning fast machine code. What a more, compiled AMOS pro-

chara rue concletely separate from the AMOS Pro unequer in the cors have cow been thrown open for AMOS programmers everywhere wanting

to distribute and even market their creators

#### TOTAL COVER

Even if you don't own AMOS Protessional, the new Compiler will be of internet to all AMOS programmare. Aktough AMOS Protessional users will reap the most rewards, the new Compiler will more than happily chomp to way through code produced by anything from AMOS 1 35. Easy AMOS and even a standard ASCII text editor, allowing you to use your favourite text editor. (TurboText, for example) in preference to the standard AMOS Editor should you feel the need. The Compiler automatically tokenites? ASCII source files as they are compiled, so it's actually quite possible to develop AMOS Editor, Obviously you'll still need the Editor in order to run AMOS.

The AMOD Pro Complex runs from within the AMOB Pro Editor allowing you to edit and complex without leaving the editor





Configuring the Pro Compiler to suit your own particular needs is simply a matter of clicking an icons. \*-

accessomes such as the Secrete Benk Maker and Object Editor but even these could be compried, too.

Installing the Complex depends entirely upon the version of AMOS that you own. If you're lucky enough to own AMOS Pro, than the Complex can be installed as an accentery program that can be run from within the AMOS Pro Editor. Before you can do this, however, you need to update your AMOS Pro program dats to the latent women using the update disk builded with the Complex. A lot of speculation has been flowing should claiming that this new update offers support for the AGA chip set, but i'm afreed that ithe um't that — Europress claim that an AGA version of AMOS Pro is in the poeline but you won t find it in the AMOS Pro Complex box!

#### INSTALL AND COMPILE

Once inmailed the Complex is instantly available whenever you run AMOS Pro. It can be brought into action in one of two ways. depending upon how you wish to use it. If you wish to comple in AMOS program to anything other then an AMOS executable (compiled programs that can only be run from within the AMOS Pro Editor), then all you have to do is to select Compiler Shell' from AMOS Pro's 'Light' menu and - after a few seconds. disk scoses - the Compiler Shell accessory aprings to the From here you can choose to comple on AMOS program on disk or even the program you are currently editing to one of three different formats - an AMOS execurable, a CLI program or a Workberich program. Alternatively, a program loaded into.

## **JARGON BUSTERS**

 Compliar - A programming load which terms source take leto a standalone executable grogram.
 Bob - A histor object, a facto of spette and extensionly by ANOS programm.

AMOS Pro can be directly compiled into an AMOS executable simply by hitting a holi key combination.

The overall speed of compiled programs is certainly an improvement over the original AMOS Compiler and they're many times faster than interpreted AMOS code. The increase in code performance depends entitely upon the type of program you're compiling – if your program performs a lot of maths-intensive operations. Then considerable improvements are impossible. Some aspects of AMOS (bobs and icons, for example) aren't effected that much, but even then these can be speeded up if the code that controls them is processor intensive The size of compiled code is much emailer than the original AMOS Compiler, particularly if you compile your code so that it uses a shared library called AMOS library, that contains all the AMOS rounces.

Europress bundle a number of example programs that demonstrate the speed increases obtainable from the Compiler. Amongst these is *Gatax* an avcellent *Hybris*-like shoot 'em up that – whilst playable when run from within the AMOS Editor – is totally transformed by compilation

#### CONCLUSION

The Compiler cartainly sin t perfect but, apan from the odd hiccup, it's a solid piece of software. Add to this the level of integration that is offered when running the compiler under AMOS Pro and you've got a utility that more than lives up to its professional' title Eventhyou already own the old Compiler radvice you'd buy a copy of this new one simply because of the speed increases and the smaller object code

that it produces. For all AMOS coders, the AMOS Pro Compiler is a recommended purchase

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toff, but a must have for all



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the ap samplers are everywhere these days. If you want to try your hand at a bit of music, or add some sound effects to a game, as little as £30 will buy you a sampler and the software to go with it. Technosound Turbo has a ready established itself as the leading bucget sampler, and now it's up to version 2.

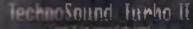
Instead of replacing the did Technoshund with version 2. New Dimensions have released this with the higher price of £49.99, and are continuing to supply Technosound Turbo 1 at its original £39.99 pricing. The idea is that you've now got the choice between an entry level or 'big brother' version.

#### THE KIT

Hi

It's business as usual with the hardware. The sampler cartridge hasn't changed from the orgnal, so you get a widget about the size of a Swan Vesta matchbox, which plugs into the permittel





cas come in very bandy

## NEW FEATURES

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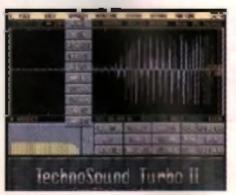


1881

AMIGA STEREO

Sampling Cartridge

Technosound Turbo finally reaches version 2, giving Tony Horgan yet another excuse to make some noise.



These are the main effects available for processing sampled sounds. Although there's nothing stunning on the menu, they take care of the basics.

port at the back of the Amiga. A couple of phono sockets tell you connect the cartridge to you abund source (record deck, CD player, tape etc.), A stated mini-tack to stared phono cable is included, so you can get started straight away.

#### THE SOFTWARE

The Technosound software has naver been inviting. If a one of those programs that use a customised system of icons and windows, which fails way short of the normal Amiga operating system in terms of speed and flat britty. What a the point? It just makes the program slower and more fiddly to use, TT2 now has put down manue, but even they're intenor to the standard Amiga menu system.

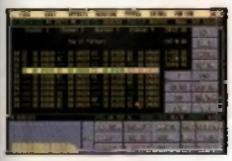
Once you ve found your way around the main.

functions (which are clearly documented in the manual), you can get earnpling. Setting the sample rate is a rather slapdash process. You need to move a slide, which elters the rate in rather large steps. There's no box to enter a precise value, and you don't get to see the equivalent period rating of the sample rate. This makes sampling instruments rether mcky, and when you go into your tracker, you could find half of your samples are out of time with the rest.

Setting the right input level is also more trouble than it should be. There's a Monitor builton on the main pane, which let's you hear the incoming sound. Normally, you d have some kind of graphic level meters at this stage, so you could tweak the volume on your source, in order to get a good recording without distortion. The trouble



Look or of those real store effects! Although there are some good votes changers in there, the sample rule is too from to reaks the phases and re-subs work using with music,



If you fast the organic lines out some of your reducity-grabbled samples, you can align screaks to the rangested tracker for a litits convolution.

(a, you only get the oscilloscopes when you enter the record mode, which turns off the sound monitoring until you start sampling, by which time the oscilloscopes have disappeared sigsin.

Once you we elened sampling, the software will go on recording until it runs out of memory. Atternatively, you can tell it how long to record – or rather, how much memory to use for the recording. It samples into Fast RAM if you ve got it so response to the Software recording. It so recording to the Software recording to the recording to samples into Fast RAM if you ve got it so response to the Software recording to the press area sounds.

#### EDITING

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One of the behar points of TT2 is that it can hold more than one sample in memory. This is hardy if you ve got a big sample, from which you want to extract three or four smaller samples. It also allows you to use the built-in tracket.

Most of the edding is fairly straightforward, There are all the cut and pasts functions you'd expect to find, but only a few effects. There's a delay, echo, phaser and synthesiser, all of which



HARD DISK RECORDING

Hard aligh operating as small in a lot of hig administrative peri-CD massiving. On high-and operation, you can digitally recent as estima aligns on the local data, and this perificate an arrange, EO there, provident there, and then perificate straight and is the CD member without any lots of heats straight and is the CD member without any lots of heats at a lot a straight gradient is rather more stabled, but it works. It's address the rather more stabled, but it works it's address members, and it stable as heating are low as a lower members. But it stable as heating are determined.

are variable. The acto and damy both affect the sample in memory, but the sufficient offices an incoming sound, then an incoming sound. The result is a wobbly vertice of a grant grant bound, caused by sliding the pair and append up and down. The only EQ affect is a first grant size.

#### REAL TIME EFFECTS

TT2 has one of the brother sector of real time effects on any tatting of the monu, we've got a phaser with the monu, we've got a phaser with the phaser we have unrearent, and loads of officer ; the second the phaser uses a very the second of second the phaser uses a very the second of second the phaser uses a very the second of second the phaser uses a very the second of second the phaser uses a very the second of second the phaser uses a very the second of second the phaser uses a very the second of second of second the phaser uses a very the second of second of second the phaser uses a very the second of second of second of second the phaser uses a very the second of second o

If you want to test cut to the state of the

One other new feature of the feature force on mode. This lats you control the feature of external MIDI device. with the feature stategies a four-voice sound module. The assigned instrument sample, provide stategies.



Variations on ins reni time effects can be seved with their own 'preset' numbers. You can then must some limits effect when ever you need it. emulates a drum map, with different sounds mapped across the range of the keyboard.

#### SOUND QUALITY

The most important factor is the quality of the sound, and on theil score, it's okay by me, it avoids the hum and hiss that worm their way into some samplets, and the frequency response is on a par with the compatition. You re not limited to using the supplied software – the cantidge works with most other sample editors, including *OccaMED*. If you plan to drich the software though, you may as well go for the original TT, which is a tenner cheapet.



Hard sigh recording good to be invited to Fighword are place, and TTE cam gives everyone the opportunity to use H

#### CONCLUSION

There are three basic greas which make or break a sample editor – sound quality, effects, and user-friendliness. Sound quality's no problem, so that leaves the other two

On the effects kont, d'a rather disappointing Even though there are plenty of restitime effects, most of them aren't too hol, and why is there no time-stretch feature? Options for putting effects

#### w samples are also a bit invited. Then there's the user transliness if a not so such a triend of

the user, more of a casual acquaintance, pleasant enough in small doses, but you wouldn't went to be stuck in a lift with it. The software is also evailable separately for £29.99, and TT1 owners can upgrade for £15 plus P+P. (1)

#### NEW DIMENSIONS £49.99







BUYERS GUIDE

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Few things will improve your Amiga's outlook like a monitor. CU AMIGA looks at a few

new options.



# GORDON HARDWOODS + £439.95 + TEL: 0773 836781

The 1440 is both the most expensive and the most highly specfied of all the mondors reviewed here. Although it only has a 14' acreen, it occupies a substantial amount of dask epace and weighs a ton, it comes in a cream coloured plastic case and teatures a lift and swivel base. Of course, all of that is simply aesthetics – the important bit is how well the monitor works, and it works very ricely thank you!

The 1440 is a true multisync. That means that it can handle input at any horizontal frequency from 15 to 40KHz. To put that in context, Amiga games are output at 15KHz, and interlaced and productivity modes go out at about 33KHz. Unlike the Commodore monitors which use a fixed frequency tri-sync scanning mechanism (which restricts you to three specific horizontal input levels) the 1440 can cope with anything between the upper and lower limits.

The monitor sports a doi pitch of 0.28mm, which means that even the highest Amiga resolutions look crisp and clean. The smaller the dot pitch, the higher the resolution. Another advantage of such a small dot pitch is the fact that the colour saturation is significantly higher than similar products with a larger pitch.

Like most modern monitors. The 1440 has completely variable screen set new - you can aller the Darm and worth of the discley, as well as the contrast and brightness levels. However, what sets it apart from the rest is a special feature called Digital Memory Sizing (DMS).

Whenever you change screen modes (say from low resolution



# ilable on AMIGALAND.COM

to productivity or from medium res to interface) the screen area can change. With as the screen ary monitor you would have to manually after the screen ast-up each time you change modes, but thanks to Microvited's DMS technology, 1440 commit area in things up once, after that the monitor automatically remembers your preferences for each screen mode and activates them as soon in that access mode and activates them as soon in that access mode and activates them as soon in that access

The 1440 has an impressively sturdy design, clearly built to last. At £438 it is not change that compared to Commodore's offerings you get a whole tot 899 more for your money.

#### TATUNG HI-RES VGA GORDON HARWOODS - £149.95 TEL: 0773 836781

With the A1200 and A4000. Commodors provided a whole new set of display options called productivity mode. Whilst this mode is almost as good as interlaced high resolution, it doesn't require likely itsing hardware to keep a stable picture. The only problem is that productivity mode generates on HGB signal, instead of the usual 33MHz output, and ordinary monitors are not capable of displaying it. Of course, you could always buy a multi or tri-sync monitor such as the Microvise model reviewed above, but it you've already spleshed out for an ordinary monitor, this could be a cheap way to make use of productivity mode.

Gordon Hanwood Computers are marketing the Tatung Mono as a cheap option that you buy to use in conjunction with an existing monitor. It only provides a mono display, but at £149.95 it's by far the cheapent way of accessing a high resideptay.

So why only mono? Well, the reasoning is that most users of productivity mode will be using it for desktop publishing, word processing or other serious applications. As 90% of these applications are on a black and white screen (and can work on a clustom acrean) there are no need to buy expensive colour displays in any case. At the price, that reasoning is faity polid. Definitely worth a look



#### >>

# COMMODORE 1940/1942 SILICA SYSTEMS : £299/£399 ·

The obvious choice for your Arrige would be a Commodore monitor. After all, Commodore must know the Arrige better than anyone eline, so europy they should produce the best manker for the machine? Thesis the theory anyway.

The 1940 and 1942 are identical, bis for the higher dot pich of the 1942. The 1940 has a 0-39mm dot mains, while the 1942 has a finer 0-28mm resolution, matching that of the Microvited 1440. As you'd expect, the result is a clearer picture from the 1942, although the difference is very slight, even in high resolution modes. Both monitors give excellent picture quality in all acreen modes, although as with the rest, without a flicker-fiber, interfaced graphics will still flicker.

Unlike the event Tetung and Microvited monitors, these offeringe both have stered sound. The sound quality is an improvement on the old 1084S mandor, although if you're into music, you'll self need a good hi-fl. Stiff, it's much better than no sound at all.

All the controls are located on the front of the mondor, concealed behind a flap just below the screen. There's a volume knob, over scen switch, versical size and whith knobs, plus contrant, brightness and honzontal phase knobs.

The 1940 is good anough for even the highest resolution graphics work. Whether the slightly improved picture of the 1942 is worth an extra £100, only you and your eyes can decide.

# PHILIPS MONITOR TO GORDON HARDWOODS · £239.95

Ves if it = TV, but the picture quality is so good that it's well worth considered, as a montar. Most of this is due to the scart input - The start TCV to bypass the normal AP TV connection / aPa run the start TCV to bypass the normal AP TV connection / aPa run the start TCV to bypass the normal AP TV connection / aPa run the start TCV to bypass the normal AP TV connection / aPa run the start TCV to bypass the normal AP TV connection / aPa run the start TCV to bypass the normal AP TV connection / aPa run the start TCV to be the start to be start to be the start to be the start to be the star

Mont acreen modes can be displayed, although Productivity is not on the monu. You won't get quite as good a picture as with a monitor (super-hillreen a virtually unreadable), but the lower resolutions come through vary clearly. Occasionally, when switching from one Arrige screen mode to another, the whole display goes out of sync, resulting in what looks like a screen full of garbage. It's worth binning the in mind if you're regularly going to be switching back and tonth through a law different modes

There are no positioning or sizing controls, and the left half inch of the standard con-overscan screen was lost on the model we tested. Although the sound output is only mono, the speaker out-partornes the stored efforts of the Commodore monifora.

This isn't a montor for the emous 24-bit graphic artist, but considering you also get a very good quality remote control TV for your money. It would make an encolent option for anyone who wants a baller picture, but doesn't need the precision of a dedicated montor



#### **DO I NEED A MONITOR?**

Well, of course you do. The question is which exemiter do you need! Different applications as a different screen modes, and different screen modes need different hardware to display them.

.

The most basic Arrige disglay it less via made, which requires a bag signified menter or TV to view it on. At only 15MHz the signal doesn't test the most for all off, and even on a feterision the display is passable. This mode is medified requires because it has the feet it as the most called for multicoloured primation. Medium is swith in eaching the same way as few res (but has twice the horizontal resolution) and this is used for the Workbeech display and many withing.

Productivity and double PAL modest (found on the A1200 and A4000) give for deglayer resolutions (but the previous (we, but require a model), but require a model, Nutteynes are the only 33MHz signal. A dedicated VGA model for the bandles to the PCs) is ideal for deglaying these modes, but can the dedicated VGA model. Nutteynes are the only mobiliers capable of deglaying all AGA modes. Numbers to any them are modeled for any the bandles of deglaying all AGA modes. Numbers to any the bandles which are capable of bandles a variety of scan relief including the Amily's 15 and 33MHz modes.

In any of the Amign's resolutions, interface media can be used to double the vertical resolution. However, this cousses the display to flicker on most measures and TVs in affect, the forme refusish rate in a cut to 25 per second – belt of the preternes drawe on the dominant form, and the other hold is the related between the existing lines on the return scene. This is a target work with PAL second a flow of the figure of the cut of a problem with NSC existence means, as the return scene in one trans, but the filter is very dividue with PAL second a flow of the figure of the cut of a problem with PAL second a flow of the figure of the cut of the problem is a flow of the figure of the cut of the problem is a flow of the figure of the cut of the problem is a flow of the figure of the cut of the problem is a flow of the figure of the cut of the problem is a flow of the figure of the cut of the problem is a flow of the figure of the problem is a flow of the flow of the problem. The cut of the problem is a flow of the problem of the flow of the problem is a flow of the problem.

If you're planning on uprynding ie n 24-bil graphics honrif mewng refe DTP, er if you nan your Amige fer ney sybstantial fangthe of Hene, a monstor is wilhout doublian assential upgrade to your current Amige system Dimputing's innovative 4MB 32-bit memory for the Amiga 1200 is now available. The code as these many features:

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Sime Bottery Backed Clack Allows or date stomped with the correct time and date you know exactly when they were created

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nal FPU Disable Switch - Disable the y for software that will not run with a moths soor installed.

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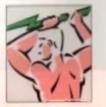
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#### XL Drive £99.95

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Power Computing Ltd Unit 8 Railton Road Moburn Road Industrial Estate Kernpston Bedlard MK42 7PN Tel 0234 843388 Fax 0234 840234 It's a video digitiser and it comes from Germany, but it's not VLab and it's not only a video digitiser. John Kennedy investigates.

#### **JARGON BUSTERS**

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nigent (reach an annul) (nig a digital tyres a sympatter can process. • Frame Stars - A piece of hardware that can living an

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thing really special and its without further add it reached for the acceveriver. Sony Armga, but your lid is coming off again.

#### FITTING

In order to use the FrameMachine you will need to be in possession of an Arrige with 2grop slots – in other words, en A1500, 2000, 2000 or 4000. I used the card in an A4000, and installation with – to put it mildly – territying. Tolerances in the design of either the Arrige or the FrameMachine card meant it wouldn't slot irrep place manify, and in the and I had to disassemble the entire computer, take out the doughterboard and plug in the FrameMachine before putting everything back together, I also needed to mean a shall of place between the SIMMs and the card to prevent any cross-connections. Outle frankly I was unstaced that nothing went pop the first time I powered up.

A1500, A2000 and A3000 owners won't have



Project Image Seg-Record Furnis HIPY Aperial Effect fri Krimk Of Scenerards fel. MOR 275 91 SULUE aratti FIRITY OF STREET, STREET, COMPESSION 515

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Bean il your Arrige donna i support AGA reader, you and en create l'àssi fas viewing pa roash som that do You wit need Kicket 2 anna above through and a machine with lots of manufacture a part drive.

such a bed time installing the herdware, so think is more room available in the case (no nexty SIMMe to get in the way), athough A1500s and A2000s will need an extra connection to the Denise chip in order to provide access to the necessary video signals.

The manual helps with lots of explanatory photographs, but the appelling writing style can be more of a hindrange - the German to English translation is provide that paor (response togetrap or on the Freeman and if the phot and if the on taken what have next, twould have used the effort required fitting the card water's worth it.

#### GRABBING

Sd, what was it? Full-acreant, monochrome 25 frames a second video on the Arriga a monitor, that a what its looked good, but there was much more yet to come

Delinely the most fungert of the FrameMirchine ers is poture disining capabilities. In specification is simplet dentical to their of the VLab system because, In both, the incoming video signal is digrised as a VC. waveform. In practice this means the grabbing can be done in real time, but converting the image to RGB. will take a few seconds. Grabbing is a mailer of watching the preview until the correct ascond, and then hiting a key. In an instant the preview stops, and the grabbed image is held on the FrameMachine a own memory. As is's stored in YC form, it's as close to 24-bit as makes no odds and, of course, this means the quelity is excellent. Whether you want the image In four dithered ablours, normal HAM or even supercluper AGA HAMB mode you dead only select. an option and the picture will be converted to your deered formal in seconds.

If the sounds too complicated, a useful addition is the inclusion of a LOADER for Art Department Professional From within AdPro, the images can be previewed and then grabbed and immediately processed before saving. In this stuation the AdPro JPEQ sever is perfectionly useful as if can squatch the huge new 24-bit images into something a little more menageable.

#### PRISM

The second part of the FremeMachine is an optional extra that's so good if's an essential extra. FM Prem24 is a full 24-bit colour immusions that connects directly to the FrameMachine card without

#### PRODUCT TEST CU AMIGA

Using an anternal Ganiark you can comblem them supports layers at video. The VCR source is re-acting by the Franchinghing actometry by and by Instiguegy/ghable from the Common wource in quality.

uang any axre Zorro sinis,

The preview digitizing mode now uses the Prism display, which means that images are in real time and hit-colour on the Prism new ay Again, AdPro users are catered for with a Prism saver, which means any image can be sent to the display card for a whichly instantaneous true colour display.

Prism has some extre capabutes up its digital sleeve — something that its is above being a mere tramasticle and will exm it a place in every desidop video studio. As I've already stated, the Prism can effortlessly combine Arrige video with incoming video but the hill implicetions of this are smazing.

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Instantity re-scale the video to one of an sizes, from B8 by 70 purels to 720 by 560 purels. The scaled video can then be overleid onto the Amiga screen, to provide a full colour. Picture in picture window No matter what your Amiga screen mode, you can watch rea. TV on a window anywhere on the screen, - it has to be seen to be believed.

Prism doesn't stop there, for the output connector of the hack of the card is fully capable of supporting a Genlock, so now we reliefly getting into the ream of the video professional.

Here s one application – an electronic newsmoorn The carriera is pointing at a newsreader, and this video hone is control the penicol read Memorities the restrictions from under read of the solid through the FrameMachine system and is scaled and positioned over the shoulder of the newsreader.

Finally the Arrige is used to generate sublities or even animations in the foreground. The compete graphic sendwich can be recorded directly to video tape, and depending on the geniada used, you can master the entire groject in S-VHS for near broad cast quality results.

As with any 24 bit framestore, there is always the possibility of a 16 million colour paint padrage, and although none are available at present the FrameMachine is to good someone is bound to convert TV Paint or something similar eventually.

#### MONITORING PROGRESS

As Prism has its own video output providing both tramestore and the Amigs output, you can get by







fine with only your matrice Howaver, if you the isology monitor (or TV with SCART an edvanced' FrameMatrice

#### ANIMATION

You can I have exceed the fact that a reall A large to the at the fact that a nder the new the her of the fact that a such as the FrameMachine

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bing sequences of video material and the sequences of video material and the frame! I have be said that the Frame! I have be a brute force method of video capture PS and the sequence of transmes and resolution PS and the video and hit start. The sequence of transmes and resolution PS and the video and hit start. The sequence of transmes and resolution PS and the video and hit start. The sequence of transmes and resolution PS and the video and hit start. The sequence of the video and the sector the video and the sequence of the video and the sector the video and the sector the video and the sector the video and video and the sector the video and video and video and the sector the video and vide

barfied up on out of momory' message. It was like curring a 2081 without a RAM pack again.

By comparison. Macrosystems realise that frame contribute takes time, so with curring software they use several paramet of the video to grab the frames. As long as you gave the hard disk spece, you could set the system to digitue an antire him overright.

Linit the Framehilishine software is upgraded to provide this facility, the sequencing grabbing option is mostly for amusement only. If you do like working with postage sized images, a cutting room schent will allow you to assemble the images into a new order before the entitle induced is converted to HAME or whatever.

#### CONCLUSION

OK, so the FrameMachine was well worth the effort of installation. The software is easy to use, and although it requires WB2 or above, AGA users gain support for the new graphics modes.

Although a last processor isn't essential as most of the work is done by custom hardware, it certainly helps when it comes to image rendering. Likewise you'll need a hard-drive and al least 3Mb of RAM before you can even start tinkening with the basst For serious use, swap your house for some SIMMs

When I come to remove the card from my machine I know I'll miss it immediately. The 24-bit display, the instant access to digitised graphics and most of all the promise of a terrific animation system – guess I'll just have to start seving ... Note For a limited period the FrameMachine is being sold with an Electronic Designs genlock for £999.

### ALTERNATIVELY

The Francellischive hydrowing a skirtileg risketsbizest to Manusquianes. Yi shi digilant and Bolica diaging card. Boli their with VI, video, bolk produce essentiant gentity results.

The Weak software correctly jurn by angle bacques of a concentration problem you bit of syntaxic, but the free fille and the mark contains totalism.

and Prime desplay card on as tightig control of the second is playing and left the digitizes and becaution. You can which assumes when being digitized in bell which we shall be a size of the first of the Prime control of the second second of the Prime from billion. The France Machine gain accord for

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Other systems which must be mustimed for the Ophistical card - none at a why there and in sub-2000 with - and the UNE 1924

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#### AL O FFER DISKS DSDD 00 CAPACITY BOXES PLU

AMIGA TO SCAR MOUSE JOYSTICK EKI JOYSTICK EXTENDER DISK DRIVE/MOD EX NULL MODEM ANALOGUE ADAPTOR PARALLEL PTR. CABLE AT OUR RETAIL OUTLET WE HAVE TONS OF SOFTWARE ALL AT DISCOUNT PR AMIGA A500 PLUS PACK £ 99 AMIGA A1200 STAND ALONE £384.95

7.9

9.9

10. \$10.9

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£12 |



TOP RATED

**Retina Update** 

John Kennedy gets an eyeful of the latest upgrade to a low-cost graphics enhancer.

Rena is a 24-bit graphics card from the people who brought us V-Lab, one of the best Amiga digitisers so far. We reviewed Retina thoroughly in the April 1993 insule, but since then the system has been given a bit of a spit and polish. Even though the update is via software only, it's shill gune substantial.

ΔT

\$6.95

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\$8.95

2.75

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Although it offers more colours than a elandard Amiga, Retina can actually speed up your graphics operations by a factor of 10 or more. Yet there en't a single Motorola 68-anything processor in reght, so how's it all done? It is due to the fact the Retina is a true 24-bit board, so programs such as Art Department Professional don't have to wade through hundreds of complicated pick the been colour palette' algorithms to display the image. Instead, the true colour picture is deplayed as soon as the 24-bit image is loaded in to Retina's own RAM.

Retina comes with a Harlequin emulation program which means it can run all sorts of exoting 24 bit convare such as *1/Paint*. The Harlequin enumeron is wonder of the example.

Real 3Dv2 comes with a Harlequin driver and when if and Relina are put log-ther, the result is one of the most powerful desktop 3D rendering systems available today. Picture if – on one monifor exists the normal wireframe editing screen, whilst on the other is a constantly updating frue colour rendition – if an ewesome combination.

#### SOFTWARE UPDATES

The software originally supplied with Refina included a monitor set-up program and a Workbench emulator – the latter provided a way of displaying the normal Amige video output through the Refina cam, which was very handy if you only had one monitor or you wanted to make use of a pericular Workbench program.

The emulator has been improved to cope with acreen depths of up to 8 brig-anes (256 colours), which means your Workbench can start to look pretty neet. It is not particularly test coping at these colour depths, but then neither is any AGA Amiga.

# **JARGON BUSTERS**

2460 colour - When an image in displayed in 24-bit thinks, most that 10 million shades are displayed on stream - angle in descent on image insist as statistic as possible if Art Department Pastessionsi - An image grassening program their as powerful and area in and tool it has more in law because the defacts sheety is use their it has more inlaw because the defacts sheety.

• AGA - The new generation of Actigon was the ASA aligned, which can provide up to 256 colours in any remaintion, give the new HAME stude.

In HAMM — A places of caloring trackery in stices the Amiga in Stephes persons 14-bit images co-excess. It is less a trainent age to fail the deformance between a bit ray HAMM (songe and a true 24-bit who



#### Speaking vi CA the Rep C Omilano can even taka e HAM8 display

be convinced as to why you want to Other improvements see the A sector providing -ARexy support, and the Refinition stand-slone image viewing program now supply images compressed with the JPEG formal

#### ANIMATION

By far the most important part of the source is the addition of some animation software. A RACE will take images of either 6, 6 or 24 the sole of and crunch them into a single armeans, for example, that the 16 million colour images produced from an *limiging* sole of sole sole sole sole of the sole of t

I was more than a little scaphoil about the proceeded to render 400 frames. In the coming, and after conversion by MakeRACE, I played block the animation with the companion program PayRACE. The result? Full colour, tast images that looked so real I could have picked them cut of the scheme. Even in low resolution (320 by 258) the true colour means the animation possibilities are remarkable.

#### CONCLUSION

The more I use Retina, the more I want one. As soon as I load any graphics softward, the Retine card is used and my computer system mystemously acquires an extra monitor, displaying my creations in full 24 bit. Being abla to edit files with one acreen, and which the finished appear marty instantaneously on the other monitor is amazing, it's like having two computers in one

Now more than ever, there is no memor why A2000/A1500 owners have to continuing to took at the AGA chipsel with envy. By plugging a Retina card into a free Zono stot, the graphic culput in even better than the A4000 '33'



Now the Arnest experiences the joyn of licken front, 256-colosa (morally stations) WayAdpanch (suplateops.

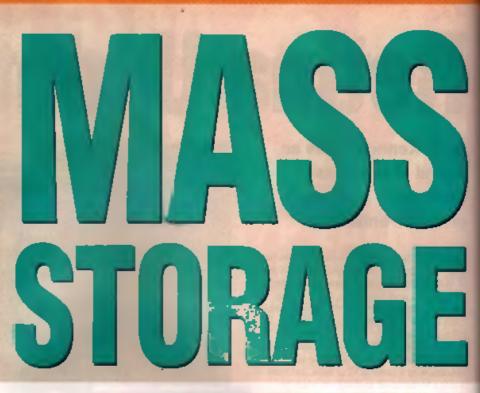
#### AMIGA CENTRE SCOTLAND £345/1MB



Sooner or later we all complain that our Amiga doesn't have enough memory. But with a massive range of hardware to choose from what's the best expansion for you? Jolyon Ralph looks at the options.

remember when I longed for the storage that a 3.5" floppy disk drive would give me - over 700Kb, on one disk and so faat! Nowdays, with modern games often taking up 2Mb rather than the 32Kb of 10 years ago, and even the emplesi of productivity programs requiring lots more still, the floppy drive is showing its age. Most Amiga owners now see the need for a hard drive, but hard drives aten't the only options for expanded storage

FLOPPY DRIVES



more on each 660Kb disk).

However, starting with later models of the Amiga 3000 end 3000Tower, Commodore started inting the 1.76Mh Hi Density disk, storing exactly double the data of the older model. It is now lifted as stancerd in the Amiga 4000.

Of course double sicrage doesn't come for free. You can't use normal disks as high density disks, so you need special high density disks (usually labelled MF2-HD, DS-HD, or 1 44Mb) which have a sxita hole outline and conner at the disk. You can be done not not since conner at the disk. You can be done not not since conner at the disk. You

to convert normal 880Kb disks to high density, but you if a most canainly tind the disks don't last very long, so i wouldn't recommend it

The other drawback to high density is speed. The Arrige couldn't handle high density drives previously because the custom chips couldn't hendle the data transfer rate from the high density disks

(couble that of normal disk drives). Commocore isolved this by making the drive spin

at helf normal speed when high density disks are used. This means formalting and copying these disks takes twose as long as normall Standard 860Kb disks can be

Standard 880Kb disks can be read as normal in these doves, so you will have no problems with software that is supplied on normal disks, and live not seen anything that isn'ill

This drive can be lined to any Amiga 500, 1500, 2000 or 3000, if you can get hold of it! The drives are vary rare, and are made especially for the Amiga 3000/4000. The model to look for a line Chinon FB 357A, rather than the more normal Chinon FB-354 monel, which is the 880Kb standard or ver. Fitting it to an Amiga 500/1500/2000 requires a title alteration to the drive, you may have to remove the outer casing and swep with your current 880Kb drive.

How a disk is formatted

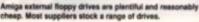




The A4000 was the first Amigs to officially support a High Density drive, which was included as standard.

The floppy drive is growing up, The drive supplied with the Arrige 600 and 1200 in functionally identical to the drive supplied with the Arrige 1000 back in 1985, his the same speed and the carrie 880Kb capacity (atthough now with Fast Filing System in Kickstart 2.04 and above you can store slightly





### STORAGE FEATURE CU AMIGA

For those who require more than just double floppy capacity, but want more flaxibility than a ungle hard disk can provide, the insite 21Mb Floptical drive may be the antiwar. Using special 3.5° hoppy disks that can alore 21Mb (the same as an A590 hard drive), simply buy another 21Mb disk when you have filled up the leaf one. You will need a SCSI interface to use this drive, so it's ideal if you stready own is hard drive which you have grown out of, asthough the 21Mb size may be too small if you are sensus about multimedia. 3D graphics or desk top publishing, which can often need large amounts of storage spece readity available.

## HARD DRIVES

It's now reached the stage where serious work on the Arriga invanably requires a machine httpd with a hard disk. There are identify thousands of combinations of drives and controllent systeps for the Arriga, so making the right choice is more difficult than it may seem.

Find, you have to chose the right interface. This will depend on what Amiga you have – see the explanation on page 112. Then check where you need to put the drive in. Check what drive beys you have available, if any, if you do not have any internal epice to put a hard drive, you will probably need an external drive, but beware – this can obta

## 1 ST RULE OF

EMICULATING BRACE Add og borower recey Vigerherch distri, dvin distr, og planting ministr men er ver over meller herdet som over meller og som for Andre and andre and for Andre and andre and for Andre and andre and for Andre and and and for Andre and Andre and for Andre and for Andre and Andre andre and Andre and Andre and Andre andre a anything up to £100 more than the equivatant memoria unit. Most modern hard

Anves are very test compared to drives of even two years aga, it's driver on the market Cuantum, Mactor, Toshiba, Dignel and Fujites all make drives that are gogular with

Amos owners, and

even Seegate and Western Digital who, two or three years ago had some decidedly robity drives in their range, now supply nothing bal excellent perfucts.

It used to be difficult buying hard drives, but now I can honestly say that unless you are

looking at specified applications (with an eligibil video adving or CD-ROM machinery) you mavid go for the most megabytes per penetid that you can afford, regardless of menufactures.

2ND BULE OF

HARD DISKS

YOU CAN NEVER HAVE TOO

Data will always expand to

available, a bit like Koi Carp

in a large lish pand, but not

ICH STORAGE!

fill the hard disk space

as colourful

The line important thing to concern show planning to buy a hard disk is namer additionalization the smount of space you will const

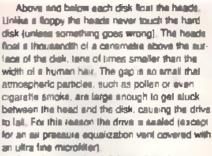
Unless you are really not economicated your Amiga. I'd suggest that any 2010 white table is too small whatever. You will not left-on the table space can go. As I write, the \$35% in 12 date in the hard date a \$2% full. Match y sets less, the 1 Gb (1024Mb) of hard dates I match of an -32m is also over \$3% full.

### PLEASE EXPLAIN

So, we know what not of set as a functed we know what size (both physically set in capacity) is required, we even know that -3 and the we get also be too amal as actively list what exactly 15 a hald drive?

Hard disks have developed in the First Time over the last 10 years, but all rely on the entry 10 certain to the nology. Inside the case of all ton's for the state clast, called a platter. See all ton's for the over or two platters, Large 1 2Ge develop to the over or more. Unlike the formy platter at the 2000 platters in popy, clast, the platters are tangle 2000 platters have been appendix to the platter at the 2000 platters have been appendix to the claster at the coarting, and an article the claster at the made at a much higher platters.

The platters up n at 2000 semi-scars per minute, when the hand disk is operative, it is a disk characteristic hand disk whomg resets the till madem drives rotate at 4500 rpm, or finite:



Apart from this, fand disks work in simplet exactly the same way as a Roppy disk, a mighetic read/write head movies over the surface of a spinning disk to read and/or write data.

## REMOVABLE Drives

A lot of people suffer from the the second law of herd divise syndrome – there's always too much dele and not ecough herd divis upace. What do you do? Well, if you're noh you buy a larger hard drive. But if you're clever, you buy a nemovable herd drive system. There are asveral now available, and they use a variety of different technologies to achieve the same effect.

### SYQUEST

The Syguent drive in the most popular of the removable drives on the Arriga. It works in a very simple way. Take the hard ngid disk from a hard drive, and mount it in a removable cartridge. When you have filled up one disk you can take it out, put hand the cartridge and you can take it out, put hand the cartridge and you can take it out, put hand the cartridge and you can take it out, put hand the cartridge and you can take it out, put hand the cartridge and you can take it out, put hand the cartridge and you can take it out, put hand the cartridge and you can take it out, put new 105Mb forms with both SCSI and IDE inter-

face versions. Slightly slower than a normal hard disk, but not something you d instea unlisse you were running a speed check program.

### MAGNETOOPTICAL

MagnetoOptical (or MO) is the big brother to the Syquest. This uses a combination of magnetic and optical technology (hence MagnetoOptical) to provide access to phenomenal amounts of data storage. Available in two forms, the more affordable 128Mb MO, evailable for under £1000, and the team affordable 600Mb MO, available for around £2000. There are several advantages of MO technology. First, the price of the carindiges, A 128Mb MO carindige costs less then a 44Mb Syquest carindige, and obvously much feets per megabyte. Once you have bought a driver and a few carindiges, the more expensive MO begins to pay for itself. The technology is size much clevergr, and I do file clever things.

Normal magnetic media works by dragging an electromagnet over a magnetically sensitive surface that changes state, or magnetic polarity (N or S), in a magnetic field. The problem with standard magnetic technology is making the magnet in the readivinte hand small enough that it only changes the date in the area uncler the head, and not the date in the area uncler the head, and not the date in the area uncler the head, and not the date in the area uncler the head, and not the date in the area uncler the head, and not the date in the area uncler the head, and not the date in the area uncler the head, and not the date in the area uncler the head, and not the date of the real interface in the head, and not the date of the real interface interface and part of decides to de their from Filings and Magnet separiment on top of your drive/cartridge, or some new shiny cartridges tabley on top of the hi-filings area. then it is goodbye date.

MagnesoOptical gets around this with 4 two stage process, it uses a material that is not mag-



A typical bare drive mechanism. Such devices are generic and will work on any machine providing you have the right interface



netcally alterable if room temperature, but only when heated up. Writing data to this type of disk requires both a magnitude write head and a laser, which is focused on a tiny area of the disk which then heats up to the required temperature to change. As the laser can locus extremely accurately, the area actually changed by the magnet is tiny, so you can get 128Mb of data into a cartridge only a little larger than a 3.5° disk.

The third removable hard disk option is by far the simplest Take a islandard 3.5" or 2.5" hard drive, and put it in a box that can be removed from

## I Control of the Environment of the and temperate

cheapest and not the most ideal option, but it uses real hard disks running at real hard disk speeds, and it is elso secure. Do your work at the office, unplug the drive at the end of the day and lock it in your safe, or you could even take it home and plug it into another Amiga



New becoming increasingly population the Amiga is CD ROM. Whether you want the tatest game, hundreds of form. Tokenes of 24-bit image files, or the entire Fred Fish Public Domain back catalogue, buying them on CD-ROM would save a fortune than it would otherwise cost in purchasing or cower cading the files from other sources. Currently there are three ways to link a CD-ROM to your Amiga.

## Asygilable on AM

can buy the Commodore A570 CD ROM. This is currently a bit of a bargain at £149 to fact, if-your A500 has been relegated to the cupboarc, or for the kids to play games or, now might be the time to swipe it back, just to use it with this worderful



Commodore's A570 gave CDTV compatibility to the A500 but, unfortunately, nothing else.

drive. You can transfer files from CD to the floppy drive, or you can use the Parnet parallel network cable (available for around \$20) to link your A500/A570 to your newer Amiga and access the CD-ROM over the network from your main machine.

### CDTV

With some places now selling the CDTV at under £200 or less, this is again a bargain that serious Amiga users should consider. Buy a CDTV, stick it under your monitor, and link it to your Amiga with the Parnet cable mentioned before. You can then access CDs from your Amiga with ease.

### SCSI CD-ROMS To Inge who were lopberion race the past way is with a real SCSI CD-ROM drive (such as

way is with a real SCSI CD-ROM drive (such as the Toshiba XM34018) linked to your Amiga You will need a SCSI controller and some special Amiga driver software (called a CD ROM filesystem), but you have the edvertage that it will run between three and similaries faster than



It are involutionary bin, unterburately, the CDTV laties is capture the invegration of the consumer at args - in upte of being black and expressive. Some proceedbracking actives a way produced for the machine though, and many discoveries will be re-implemented.

using a CDTV or A570 over a Parnet link.

CD-ROM drives are read-only. This means you can't make your own disks (unless you have lots of money and time to spare) but there are plenty of Amiga and CDTV discs out there to buy, and you can access date on standard PC CD ROM discs and, with the correct CD-ROM Riesystem, MacIntosh discs, too, You can even play audio CDs

CD-ROM discs look identical to the standard Audio CDs your Hi-li takes. The grant thing about CD is that there are no moving parts touching the disc, so they should, in theory, last an awfully long time.

They are made by laking a circle of clear plantic, stamping the CD data onto one side with a machine libst looks like a hi-tech printing press, and then coating that surface with an ultra-thin aluminium layer. This is lopped off with another thin layer of plastic, the label is stamped on, if in put in a box and wrapped up for sale.

Most CD Rom drives take CDs in a special case called a Caddy. It looks like an overgrown floppy disk with one transparent side. You flip open the top, insert your CD, and you no longer have to louch the actual CD, It's in its own protective case. Unfortunately, Commodore decided





As CD-ROM drives conform to the ISO9660 standard anyone will do, even those designed with the PC in mind,

to drop the caddy from the new machine, the Amiga CD32, but the A570, CDTV, and almost all SCSI CD-ROM drives still use the caddy it may be slightly more expensive, but it's worth it to knep your valuable discs safe.

Within 16 months it is highly likely that the majority of Amiga software will come on these elver discs rather than on Boppy. Not only can you get over 660 disks worth onto a CD, but it's cheaper to produce one CD than the low or five disks an average Amiga product now comes on.

### CD32

Although no more an Arrige computer than the CDTV, the CD32 is likely to be better supported and so may become a route by which Arrigan can access CD-ROMs in an Arriga sort of way instead of via a separate SCSI drive as they do all present.

Upgrades have been promised for the A1200 and the A4000 to allow them not only to access CDs in this way, but also to emulate the CD32 consols.

This could be more important than the A570 was, as the CD32 will shortly support an MPEG cartindge slidwing it to conform to the VideoCD standard of Full Motion Video. This is the standard which will also be supported by other CD consoles such as the excellent but overproved CD-i unit from Philips

### TAPE STREAMERS

The last group of storage deviant is gen a mention are probably the least antisis used on the Amiga.

Topestreamers are older than hard Collars incheology lemms. They gound prototion a datase

### Available on A

can be used as a storage device in This but right, taps streamers have become a couple will device , on modern systems, a role growed by far list many users' back-up

When 10Mb hard disks were the north if wills not too much of a hardship to back up pair drive to thopy disk once a day. When 20Mb hard douts took over, the once a day back up because every other day. Now I d challenge anyone with a topy other day. Now I d challenge anyone with a topy other day. Now I d challenge anyone with a topy other back-ups other than in dre emergencies Other these dire emergencies are immediately offer a sensus system crash, exactly the word immeted a back-up. Toposimemers provide a simple way to back up large amounts of date to taps in case of accidents.

There are several types of tapetitisement and able on the Amga. All the ones I have uppel are SCSI devices.

DC6000 TYPR: Standard 150 250kih segentree etc. such as the popular Archive Viper, teles industry-standard DC8150/6250 tapes to store either 150Mb or 250Mb of date. They can back vis at over 5Mb per minute and are ideal for small the medium sized hard drives. High density tape drive vehicles can use similar sized cartridges to store up to 545Mb on one tape.

**4MM ODS (DIGITAL DATA STORAGE):** 4mm Tagenimemers, or DAT (apestreament une the life tie matchbox-sized DAT (Digital Audio Tape) casastice to store obscene smounts of deth (up to 20b, or 80b with hardware data compression) at the incredible speed of (4Mb per minute, For imyone with over 600Mb of hard disk space a DAT back-up system is mimost essential. **GMM EXABYTE:** Smm is similar in principle and performance to 4mm DAT, except it uses 8mm tapes identical, at least in casing, to Hi-8 Video Tapes, About 1.5–2 times the cost of an equivalent DAT system, 8mm has the advantage of capacity. If can store 5-10Gb on a tape with ease, and future 8mm systems promise much, much more. Only for those with serious systems to back-up.

Whatever system you choose, you will need too back up coffware. The venue from the supple will be of PDAshnary (BTN upper and TAR as ) your back up combinized for top day to top.

quality packages like *Quaterback 5.0* and *AmBack 2.0*, both of which support all three types of tops drives well.

### DEVICE SIZES

Mont storage devices contern lighty clougly is not all feel should be

The star of the suminters have distant that the Annual States

Standard stant 3 5" land driven are 1 \$" high. Only larger capacity 3.5" drives new cause in this forwall.

II. C. Might do the scale designation for some as 2.07, had only 17 high (mean Repay dash drives are non-even Weingetion (do).

8.21<sup>10</sup> Factor will Graph Courter more than a subspace of the Graph of Graph and Tolkin and Tolkin have developed at 10 pattern pipe. Non-addy very large capacity have developed in the forward. With all Amogan downeys the Statistican and Amilia Tolkins will used in the Statistican and Amilia Tolkins.

**HAR MARS RELEAST.** The event curves on forecast for CO-WHM. Tapanetrasterin, Sympactic drives, etc. It a just what it tays, exectly built the helphi of the 5.25° Fail Halghe drives, had equal is other disconstance. The Artigs 2000/1000/2001/2000/20017 all have 5.25° Mail Halghe heys to add expansion devicts. It a new quite care to find have to this formula. Most drives are new 3.0° a catalies.

It's generation to recent standler hard drives in a key designed has a larger device, special standing frames are swelchin just for this pergram, and would Arriga 2021 controllers (a.g., 22011 ARR) 2021 HC2+) have recent on the cord for mounting a 2.5" device.

33

### CU AMIGA STORAGE FEATURE

## ALL ABOUT INTERFACES...

All the devices reactioned in this pricks will need news need of lotterines in connect to your Amiga. Some of them whetheres nee included to use adard to your Amiga, othern you will have to hup appreciately.

For those with Zeen capability finding an interface loss I kard - virtually every interface in available on a standalose card. Most of these cards actually combine from Poor and micrimes standard (dual IOE and SCS) cambine from one common) and may include pairs RAM capability of writ.

When changing up unterface is a supportant to been in mind fatare automa an up wait. You don't word to been your Amiga begged down with interinces with own drive alteria do and to Fee this reason many progle chosen a facilit drive, as it minors many many points to be connected to the more interface. Hereacher, there is no connected to the more interface. Hereacher, there is not on the beam of support distribution of the range of interface.

### FLOPPY INTERFACE

Enternal flaggy delves, bath standard (1896) and the neuron 1 AdMh bil devoity devoit bath connect in the standard 23way lioppy deal part de your Amiga, Sema autorent fagattenternam can connect to this part, inc.

### ÍDE

The AT-IDE interince in new included an element in the Amign 640, 1200 and 4600 computers. Optional AT IDE interinces can be beinght for all other Amign models. IDE, at integrated Orive Electronics, is used in the chang burd drives to the Amiga, back 2.8° in the ASB/1200 and 3.9° in the Amiga 4000. IDE is (initial of two desican, cutled Monter and Sines, and correctly only hard dash and removable driven (d.). Symmetry any hard dash and removable driven (d.). Symmetry including the for IDE bet, contrary to popular build, it is equally politic fart and gimitur in partners and a card SCS1-1 and ap.

IOE common with two differential types of interfaces: 40pts, which is used on the 2.5° drivest loand in the Arniga 4800, and 44pts, used on the small 2.5° drives for the Addit/2000, Although dis possible to get aduptory to con-

unei hatwann the fore alandaetis. Win not ansy and not highly recomntended, fi you have a 44pin commeter, alich to 2.8° drives, and fi you have a 44pin connector, and fi you have a 44pin connector, and 3.6° drives.

### **(OR SCSI-1)** The SCII marine is the favourite

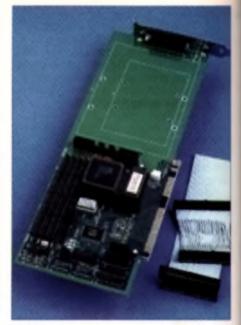
arranged filler party suppliers and protectional Avenue owners. BCSI clance for Small Computer Systems Informed, and offsen you to link up to seven SCBI taxings to gene comparts, including hard dealer, optical differs, reasons, Lage series are differed. SCSI-1 Interfaces are - GVP NC-L/HD & (For ASDR/1500/2006/488/0) Commotions A2051 (For

### SCSI-2

The new replacement for SCSI is culled SCBI 2. It is compatible with BCBI (SCSI devices will work with SCBI 2 controllers, and vice terms, but only at standard SCSI speeds) but others major parter manua Banaffin. There are Direc r Hanani variation of BCBI-2;

SCSI-2 (standard), This is just a new SCSI command set (a set of

Left: & manoard herd drive augene on for the Amige consists of a 2028R0 if eard containing the interface with the drive twochastern plogs-sected on log.



The SCSI-2 Interface for the Amiga has arrived in the shape of the ICD Tritecta card.

rules for data (runsmission) that makes more efficient use at standard SCSI-1-type cabling. Next new devices support SCSI-2 commands.

SCSI-2 FAST. This is the ninneard supported by the new Commodore A4001 SCSI-2 heard for the Amina 4001. It seas all 50 pies of the SCSI cable rather than the 25 wood provisionly, we astarnal SCSI-2 perturban a minimum 86way connector rather than the normal 25-pin connectors found on the A590. Amina 3008, OVP cards, etc. It can transfer data at outer double the agreed of interactor SC1.

SC61-2 WHOE SCS1-2 Wilds in Correntia deported-by ante we all thematiches worldwide, and no Armine Converter yet autyperi this: Interes SCS1-2 FAGT and insurface and 32-bits at a luma, devide account SCS1-2. Up to four times SCS1-1 viets transfer is available with SC61-2 wide.

### OTHERS

Variable other interfaces which were found on PC hand RLL dreg abouts interfaces which were found on PC hand drents whill about here in Train yours upon. They are difficult to said up, show and measilable, Bel about they have goed and at facilities they non-about were charp (which is one thing in their langur). The Commender A2000 and A2000A could these drives, as does the Commend Com-201 interface. Anothes PC interfaces that have 't specified in periods to SDI unified to SDI and IDE have taken the world by storm is ESDI Uniformized by a goe any could be SDI interface for the Arrige, and is norms any doubtes with the Arrige is we some bland of PC Bridgebard. (201

### WHAT INTERFACE BO YOU NEED?

Some Amiges have hard drive interiment built-in an standard, effetes de ool, Here ere not avagestives to expansion savin in our with these that do out.

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Amiga 38001	Amiga 3000 f	2ame card	litind	Tritezia	win SCSI	SCSI andy	Inste na SCEI
Amiga CDTV	14	Learn	Taxes	80	м	Attac	14
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Amiga 4866T	liti ad	Ritter d	EVP HCL.	AIR91	VIA BEBL/SERI 2	SCSI/CD32 sparade	Insite sis SCSI

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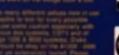
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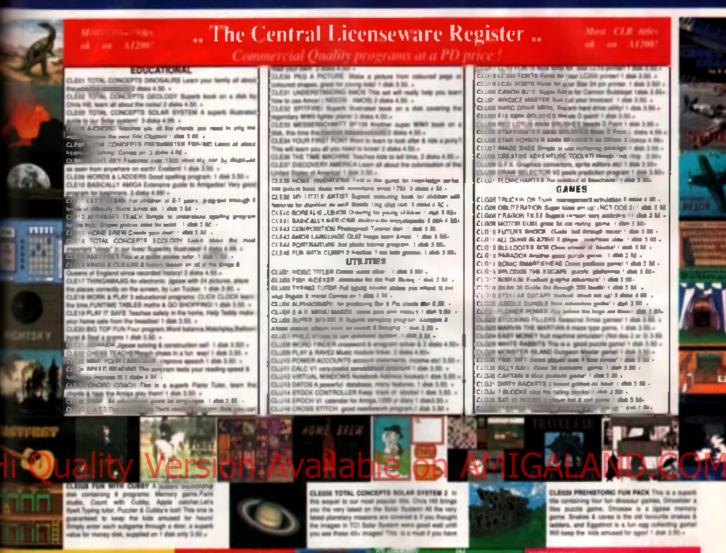
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## SPECIAL SPECIAL S

### This issue Art Gallery gets special as Mat Broomfield rounds up some of the best movie tie-in screens ever seen.

var the years we've received dozene of Art Gallery entries which take the movim as their inspiration. Virtually all of them attempt to duplicate the chemic poster or magazine ad that was originally used to promote the film. There same is to be two masons for the: 1. It's far easier to copy a poster or magazine page, and 2. If doesn't require my thought about how the scream should be composed, that part has already been done. Nevertheless, the following pictures really do represent the very best that Amiga and has to offer.

EREDDY

2

EPEDDI



### ROCKETEER

A lovely exemple of cartoon style an by Warran Oyen of Neerpelt, Belgium, Nice bold image with just the right emount of defail around the face mask. All the more effective backurs of the unobinutive while background, Although shouldn't the word. Rockateer appear in the green band at the bottom?



### ALIENS

Ray Parry of Norms Green in Liverpool demondrates that less is more in this reproduction of the Miens video skeeve. By framing the Alien in a flash if electric blue the picture is oven dramatic effect.



BATMAN LOGO Although drawn in 32 colour low resimode. M Pitcher's Batman logo is beautifully blended, and the gold has an almost tangible texture. The use of take heahtehts sets the image off well.

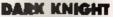


KILLER KLOWN Another good example of the cartoon style. This time by Chruit Very strong colours ensure that the central character of this black comedy stands out The effect is enhanced by the comic book style.



### HELLRAISER AND CHUCKY

Of all entries submitted, these text by Gordon Smith of Glasgow were the only ones this really demonstrated the artist's unique style, and I strongly suspect that Gordon is a dat-hand with all pairts. Notice the unusual way he represents shading, especially on the characters' toreheads.



As it to continue his mastery of shading M Pitcher has chosen to draw the cover of the Baltman book ... of the firm of the televation series of the book (sort of \_\_\_\_\_\_ Notice the way that electric blue in the form of lightning forms a very dramake toost device behind the main character.



### THE EXORCIST Warren Kelung has restricted himself to only 16 shades of grey for the mass states reproduction, yet in his more than capable hands the result is stark and impressive.



....

ROBBY THE ROBOT Robby the Robot. His use of reflection softens what would otherwise be a clinical ensure.

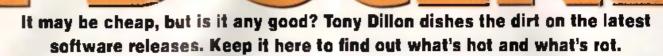


### TERMINATOR 2 Demonstrative rule preterior of the hand subject matters. Warren Kesten sil environter 2 screen matters become more sinister if it with blue or red light

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### BOUNDLESS VOID demo

As the years wear on, coders are having a hard time creating demon that contain anything new or fresh - some just don't have the imagination. One team that down, though, is Nenol from Sweden, its their Boundieus Void demo shows only too well. Sure, you start off with all the usual bit flage and atil image sideshows, but this single disk package does have a lew treats in its favour.

### Possibly the most impreasive routine is what I call Pinhard' You know hose enal boxes hiled with small metal pins, that people have end

less fun pressing their faces into to create an image (Midge Ure used one to great effect) - that's the image that this routing creates. Fast and effective, this is better than soluble aspinn.

Available from: 17 Bit, 1st Floor Offices, 2/8 Market Street, Wekefield, WF1 10H. Tel: 0924 366982, Disk No. 2601, Price: 21.75 (including P&P).

### TEKKNO-A-TAK

### music disk

This is what we want! Here's a disk full of real techno - not just your normal demo tunes with a few squidgy samples. These are vinyl-quality tracks. of the stomplest order.

There are live of the little devils on the disk, all of which are hard, but not hardcore. Kicking bass drums and explosive shares are the order, along with Joey Baltram hoover noises and incessant. bass lines. All you need now is a room full of sweaty bodies, a 2000 wati syobe, and you resoried! It a a shame there even't any graphics, cos that would really round it off in style. Even without vieuals though, it's well impressive, and should be enapped up by all tune-hungry tek-

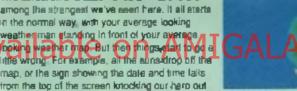
### VEATHERMAN

### animation

This collection of a dozen or so animations are among the strangest we've even here, it all starts in the normal way, with your average looking weather man standing in front of your average boking warner may But neg nings dat to or a little wrong. For exemple, all the sunstirop off the map, or the sign showing the date and time fails.

heads immediately. A spot-on debut release from D-Tone-Nation Available from: Cynosile PD, 85 Wyken Croft Road, Covenity CV3 2AD. Tel: 0203 613817. Disk no. S0117. Price: £2.00 00 (including P&P).





Strangest of all however, is the second scene, where he suddenly loses his belance and fails backwards towards the map, which now, due to the laws of perspective, doesn't look like a map any more. In fact it looks a lot more like the real thing. Very odd and very lunny.

Available from: 17 Bit, 1st Floor Offices, 2/8 Market Street, Wakefield WF1 1DH, Tel: 0924 366682. Disk No. 2652. Price: £1.75 (Including P&P).



729

### OND'S LAST STAND

### animation

This short an makon by Grove is based loosely upon the opening hilles of would happen if Bono missed? Essentially, all that happens is that Lames watks loward surrounded by the tamiliar black hole in this loward the cam ara and lives only this time the camera operator coeshit die. Rond fires a couple more times, gets a little desperate, and fires some more. Then the camera operator fires back, blowing Bond into hny preces. Short bill sweet, the artim is well worth a look

Available from: Cynostic PD, 85 Wyken Croft Road, Covenity CV3 2AD, Tel. 0204 613 617, Disk no. A0075, Price £2.00 (including P&P).





### PUBLIC DOMAIN CU AMIGA

### SERIOUS BACKGAMMON

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from

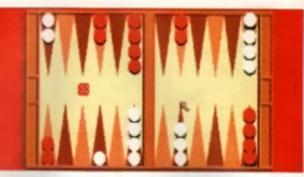
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tere are those who find Backgammon to be one of the most eaching boardgames. over - more addictive than Draughts and more tactical than Chess. For those people There have been literally dozens of computer interpretations, and this is a good one by any standards

The game of Backgammon is too complicated to explain in this small a space, so I assume you know the rules. What this version offers you a slavity competent. computer opponent, a full tutorial for beginners, help and analysis on your playing inchrigues and every other optional extra you could wish for

Available from: Cynostic PD, 85 Wyken Croft Road, Coventry CV3 2AD. Tel: 0204 613 817. Olsk no. G0143 Price £2.00 (including P&P).





## game

Yes, it does have a silly name, and it sions that in used throughout the piol, as the twuffy Fwuffs from The planet Fwufi Invito get home after getting stuck. I space. It is a also poor excuse for having characters who look like they should be running around in They Skweeks Bui enough on the less than wondentul graphics, what's the game like?

Well, it's Solitaire basically. The Fwuffs have been trapped in grids, and the only way to rescue them is to get them to jump over each other, in the style of that age old peg-board game. And that a about it, really.

Aveilable from: Poberts Smith PD 100 Failor Way, Peropeteed Galden Suburb London NW11 6JE. Tel: 081 455 1626. Price: £2.00 (including P&P). 

### BUNNY BLAST game

God, this is really, really sick. Ben Ashlay was obviously so bowled over by the idea that he just warled to get a finished rather than spend any time and effort on his program. Written in AMOS. this is a very simple shoot 'em up, where you use your mouse pointer as a gun sight and try to blow eway a collection of moving targets. CK, this kind of thing has been done time and time again, but has it ever been done with rabbits?

Yes, you did read correctly. The twisted little indvanture involves blasting a load of helpless bunmes as they leap around the screen. The graphics are awiur, the acund effects are pathetic and the backdrops ware drawn in about live minutes. Otherwise, guite a laugh.

Available from: Cynostic PD, 85 Wyken Croft Road, Coveniry CV3 2AD, Tel: 0204 613 617, Disk no. G6126, Price £2.00 (including P&P).





OK, so it might not be the smoothest or most realistic ani My only real complaint is the large loading times between It looking at a black screen the way:

Bit, 1st Floor Offices, 2/8 Market Street, Wakefield WF1 1DH. Tel: 0924 366982. Disk No. 2 (AIB). Price: £1.75 per disk (including P&P).

G D games

The 3D Construction Killwilli a very good idea, but if had two main problems. The first is that you can automatically spot any game ever written on it from a mile away. The second is that environg produced on it is far loo slow to ever he playable. Even as, someone has taken the time and effort to create three huge games for it and suck them on a pingle disk - poor tellows

Each of the games has a troud and exciting scenario, but they all boil down to the same game. Wander slowly and jurkily inrough lots of boxes shooting evidence and collecting things. Not particularly inspiring play by anyone a standards.

The real problem with these in that the designers have just been too clever, creating huge detailed rooms that look labulous on screenshots, but just give the poor old Amiga too much to move at once, leaving you with comething atmost completely unplayable

Available from: 17 Bit, 1ai Floor Offices, 2/8 Market Struet, Weketleid WF1 1DH. Tel: 0924 💋 368982. Disk No. 2608. Price: £1.75 (including P&P).



77%



The definitive guide to the public domain. More useful utilities at affordable prices, this month sorted into a strange semblance of order by Tony Dillon.

lonts

pack crammed full of 50 different Workberch fort liles, ranged over shout two nozer, different fonts ol varying sizes, if you re the kind of person who Néels to use a lot of NOVARIONAL INSUES ing they there a cool disk to get hold at mong with the two predeces

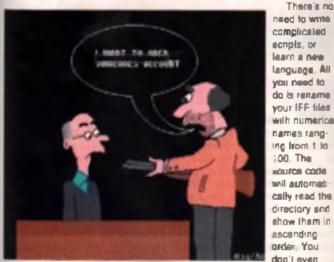
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tors each of which carry 55 different forts. There are standard lypelaces It's Country Topuz and Opaint on here, slong with more unusual lonts we Premiers and Goudyl and even the original Star Trek lion, for those of who just can I get enough of thick series. A good value peckage Available from: 17 Bit Sottware, 1st Floor Offices, 2.8 Market Strint Wekelield, West Yorkshire WF1 1DH, Tel: 0924 366982. Diek no. 2644, Brice: £2.00 (including P&P). Competibility: 📿 🕞 🧟 All Amigas

## SUPERVIEWER

### slideshow maker

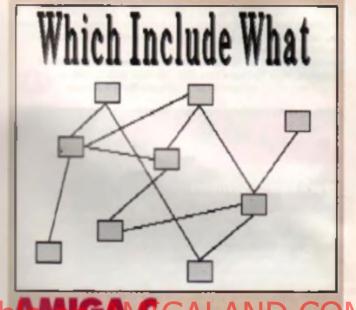
For an long as the Amige has been able to display IFF images, there have been sideshow makers available on Public Domain. Superviewer from Cynosis: PD has to be one of the most streightforward yet. A simple piece of code, it reads IFF images from disk and displays them for a lew seconds, and then loops the whole thing, if you want to have music playing, just stick a tracker module on the disk!



naed to write. complicated ecnols, or learn a new language, All you need to do is rename. your IFF files with numerical names ranging from 1 is :00. The nource code will automatically read the directory and show them in ascanding order, You neve l'nob

need to place them in neat increments - 5, 7, 13 will work just as well as 1, 2, 3. If you want a next, easy to use slideshow verwer, then the will do authine.

Available from: Cynostic PD, 85 Wyken Croft Road, Coventry CV2 3AD Tel: 0203 613617, Disc no. U0179, Price: £2.00 (including P&P). Memory: 512K. Compatibility: All Amigas.



### uning utilities

his wire be a godgand for anyong who a been following John Kennedy's recent C tulonala in CU AMIGA, It's a 13 disk set that arms to give you a complete guide to C programming on the Arrige

Datk one is an introduction to the workings of the Arrige. The cast lives

concurringie on insultion, diales five to server cover graphics, with chapters on sordes, the bitter, bobs, scraling

and collision detection, while disk eight is dedicated to the operating system, reliating sections on AmigaDos. A justifier three disks cover devices, and the inti coupie are all about sound.

Appendices

There's plenty of exemple source code to back up the tutorials, and appendicate are included for reference. The whole set is going to set you back a bit more then your average PD purchase, but when there's an much on offer. C programmers would be fools to mess out on it

Available from: Cynostic PD, 85 Wyken Croft Roed, Coventry, CV2 3AD Tel: 0203 013817. Diek nes. U0190 A-M. Price: £13 60 (including PAP). Hemory: 512K. Compatibility: All Amigae.





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## **\* MING SHU CHINESE A**

### chinese horascope

Although most people find horoscopes to be a pile of pap, there are far fewer who would connect the surprisingly accurate Chinese horoscope with the tosh that appears in the newspapers each day. There are hundreds of books on the subject, but all involve an afternoon with some headache tablets to figure out exactly what sign you are, let alone what's going to happen to you tomorrow. Unlike standard horoscopes, which assume that anyons born within two dates, regardless of year, time of birth, sex, race or creed are all planning a holiday, the Chinese take everything into accourt.

For those of you who can't be bothered to sit down and work if out, this AMOS program from 17 Bit is just up your alley. Enter your full date and time of birth, and this will give you your Chinese star sign and a personality description, and the accuracy with which it does this is staggering. For example, I am charming, witty and an exceptional conversationalist who doesn't like children. Uncamp!

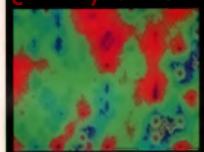
Available from: 17 Eli Software, 1st Floor Officen, 2.8 Markel Street. Wakatield, West Yorkuhire WF1 1DH. Tel: 0924 365982, Dink no. 2819. Price: E2.00 (Including P&P). Compatibility: All Amigas.

### ANDY'S WB3 UTILITIES

### workbench utilities

There are more and more of these comprations appearing all the time imeaning even better value for those of you with want to build a staggeringly high than they in as time time as possible. This one from 17.84, teatures no less than 17 complete utilities for you lucky AGA comers out there. From the top you have AGA Test, which displays every colour possible. Alert Timer adjusts the internal clock, Animan displays an inimated head, which reads system meshages to you wait the Amiga Speech (brery – not actually present in Workbanch is The ever present Bblank, which grups your screen a black border. The popular Degrader to be your machine to think it only has 512K of RAM, and

kaMammakas your machine preterestrationa preparati RAM are jest ma novy ku AGA is another way of pushing the machine down a lew Geps IC



make it more compatible with o out adiware. New Menuorves you new cold market and the the suggests and Plasma 256 gives you a screen of horrandously garish chicutes. What more could you ask for the Most of the devices on here armore turn than unitial. Work checking out

Available from 17 Bit Software, 1st Floor Offices

2 8 Market Street, Waketield, West Yorkshire, WFT 1DH, Tel: 0924 366982, Disking, 2622, Price, £2.00 (including P&P), Compatibility, WB3 Machines,





## D-COPY V3.1

For a long orne X-Copy has stood at the top of the mountain when it cornes to disk copyers, but D Copy has always been my personal favourite. Using a emilar layout to X-Copy, this utility combines pop-up menus and radio buttone to give you every lend of copy around, including three different DOS copiers, two nibble copiers and even an MS-Dos disk copier. There isn't a huge amount of difference between this and recent versions, save one or two huge being ironad cut. Even ac, it is still one of the most reliable and capable disk copiers there is. There copiers are for backing up your own false, not copyright software! Remember, pizacy is killing software development. Available from: 17 Bit Software, 1st Floor Offices, 28 Market Street, Waterfield, West Yorkshire WF1 1DH. Tel: 0924 388982. Disk no. 2834. Price: E2.00 (including P&P). Compatibility: All Amigas.



## EASY BENCH

### utilities suite

This two disk monster contains almost every program you will ever need in your Workbench environment. On loading, it effectively covers the Workbench system via a small Shari Cut bar. Workbench comiss with a varied set of tools, but there are often times when I wish they could have added more, such as a compression program, or a better disk copier. It's for people like ma that Easy Bench exists – one of the most impressive collections yet seen on PD.

For your two quid you get (large inteke of breath); SID 1.06, four different text and image viewers, it new icon generator, a calculator, the famous compressor Power Facker, Tetrs Copy – a disk copier that lets you play Tetris while the work is being done, Super Duper – a back-up program. Pop into – a small button that ets on your desktop and displays a short information file on your Arniga when selected, Sys into v3, a keymep adtor, Lest Hope – the recovery program for accidentially deleted files. AZ Spell – a spelling checker for text files and Multi-Flipper 2 for all your ripping problems. You've got to admit – it's a cracking buncle. Available from: 17 Bit Software, 1st Floor Offices, 2.8 Market Street,

Wakafield, West Yorkshire WF1 1DN. Tel: 0924 366962. Disk nos. 2624(A B). Price: £4.00 (including P&P). Competibility: All Amiges.





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### CU AMIGA BUYERS GUIDE

In the third and final instalment of our stick-tastic round-up, we give you even more waggle! So, sit back and plug in.

## BUYERS GUIDE

with reviewing (oyeticlus is that overyone 3 thates are dilevent. Some people really go for great, hulking deak mounted beasts with pleney of avering and more fine bottom than you could ever use.

whereas others prefer strainture pains held nicits with resnimum fills and maximum accuracy. With the in mind, each joystuck seviewed in the guide has been tested and commented in the a range of gittee players. You know you can true up.

### FLIGHTERNP 1 - CHICK-SHOT - PHOLE ES. 99 -TEL: 061 365 1983

Every so often, joynticks go through a bit of a redesign. They exem, like leahton, to go through periods when a certain style is in vogue. For it while everyonic clims out with helicopter grip' stocks, and then came the arcade-style shaft with a ball on top. At present, joypeds seem to be all the rage, and long standing joystick kings. Ouckahot, were the first to try to redesign the joyped, and here's the recuit.

At first glance, it looks like a very small pair of handlebars, with a small order and a red fire butter in the centre. Look again and you'll notice the small line butter on the front of the right bar.

Picking It up. you notice the

> big problem with this stuck – it's size. It's just bo email ib be useful to email ib be useful to email ib be useful to email ib children. Holding the stick is decidedly uncomlocable due to your wrists being boroed too close legether, and manipulating the cross-button with your thumb gives you cramp within seconds.

VERDICT: Nice idea, but not comfortable enough

### ble enough (45

### MAVERICK 1M • QUICKSNOT • PRICE: £15.99 • Tel: 061 365 1993

How many times have you played a com-op and wished that your joystick was as precise and sturdy as the

one in the machine? Now you can have one as good as the arcades with the Mavenck - one of the best joyshold we've seen.

Set on a wide base, with lour decent duckers, the unit is designed to be used on a tabletop – the erze of the base makes it impractical to hold. A large shall with an easily gropped plastic ball on op gives you will the control upu only environ. So the two argo of the the buttoms of the right of the unit pive as

access to timpower, providing you reinght handed

Full autofine is included in this superb piece of stock work, rounding off it box of inclus that is going to improve your game playing no end.

### VERDICE:

Smooth and precise - the kind of stick you've stways wanged.



• PRICE: 26.99 • TEL: 081 307 FUE

Like the Cheetsh 125 last month, the Quickahot II Turbo is one of the long standing lavourbas of both this office and the computing world in general. Successor to the infamous Quickahot 1 (no surprises there), the Turbo features as high quickahot 1 (no surprises there), the Turbo features as high quickahot 1 (no surprises there), the Turbo features as high quickahot receivisches, contoured helicopter style grips, a striking red base complete with dimpled rubber pade to improve grip, front and log mounted fire buttons and full exit in 1986 it was a bit of a laxurious stick, and noted in droves. Even now, if still samm to still well, remaining popular over all formats. But how does it compare to today's modern stuff?

Not all badly, to be honest. Even after eight years it shill handles as well as it always did. The rubber grops really do seem to add iraction which is exceltent for those sweaty shoot 'em ups While not perfect, it is a completely networkble stock with enough control to make it viable

### VERDICT:

An old invounte still shines through Good value, loo

to be practical.

### NTRUBER 1 • QUICKSNOT • PRICE: £27, • TEL: 081 365 1993

Most simulation players take their games vary seriously indeed. That's why there is a market for joysticke like the it may look like a vacuum cleaner gade wrong, but look closely and you'll see that it is in fact a joystick designed for use with helicopter light sims, and it's in this environment that it works best

Gimmick was the first word that sprang to mind when this was taken out of the box, especially after assing the autofirs speed controllers (disguised as helicopter trim controls) and the clear perspex cover over the top mounted fire button, their springs open when another, smaller button is pressed. Picking up the stick, and teeling the massive amounts of travel the unusually mounted shaft offers, I had my doubts. All those evaporated when I landed *Gunship 2000*, though.

This stick really does add a lot of amonphere to a gene. Helicopters can be sluggish in response times anyway, so the travel doesn't runly cause any problems. My only opnoarn is the suckers at the front of the base aren't too effective, and pulling back on the stick too hard can cause the base to pull of the table. Otherwise, what a stick!

### VERDICT:

If you like helicoptar sims, it's the one for you. Otherwise, forget it



The Python 1 is a partect example of when to leave well enough alone. The Quickshot II was a fine joyatick, but QS abil fined to before it with the Python – and failed

A lot of time has obviously been spent on the shape of the stock, as it fits very truly in the salin of the black of inner you a vicinity for the briading one. The term we putter (one on top of the main shaft and one in a legger position) are moulded to fit the ingers, and the whole thing feels right. Well, almost right. The plastic is light and feels is little too delicate to withstand any serious beaking, and the shaft itself neares to be only minimally supported, so the centre ratum is filmsy, and far too easy to move spanist. As a result, you'll spend a lot of your time trying to ritum to centre, only to overshoot and select the opposite direction. Even if you use the Python 1 M (the microsevitched model) you'll do the same thing, only this time the stick will click to let you know you've done it.

### VERDICT:

Nice shape, shame about the feel.

### It is blue, it has been a line buttons and it's styled like a Porsche - O TA Sign. Hay from Locic A and if A a hally rise liftle The numbed base allows it to be hald in the Hand, and the four base suckers let you attach it to a table. Either way, the

**L • PINCE: £13.99** 

Inve fire butjons (two mounted on the base and three on the moulded helicopter grip) provide enough firepower for even the most psycholic amenget us

The autofire switch can be easily found by the Humb at the top of the staff, and only affects four of the two buttions – a small stud button remains single shot

either way. The slick leels nice in the paim, and the amount of travel leels about right, there's no overshoot. The firebuttons are fairly responsive too with little or no thumb ache devaloping. It a cool looking slick, and responsive anough for anyone's needs.

VERDICT: A very comfortable stick to use.



FOOT PEDAL • SPECTRAVIDED • PRICE: £19.99 • TEL: OR1 900 00

81%

It had to happen at some point. After seeing so many moulded and styled joysticks for the hand. Quickjoy have come out with a joystick for the feet. Designed initially for driving games, the programmable nature of the unit means it can lend itself easily to many other games. For your 20 quid, you get a small gray box with three microswitched pedals, faid duit in the format of your everage manual car. Two leads extend from the rear of the unit, one which plugs into the computer and one which the loystick plugs into.

The Foot Pedal works by controlling up to three different joystick directions, each assigned to a pedal. You need to be careful when setting up your directions, as once one is assigned to the pedals if can't be accessed by the joystick.

The Foot Pedal is surprisingly effective for driving games, I have to say. Particularly those that require you to push forward to accelerate. For other games, well, if your feet are fast enough, why not?

VERDICT: A good idea that works well.



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The manual gives full details on how to use your printer with InterWord and even goes as lar as letting you deline new printer drivers using only your \_\_\_\_\_

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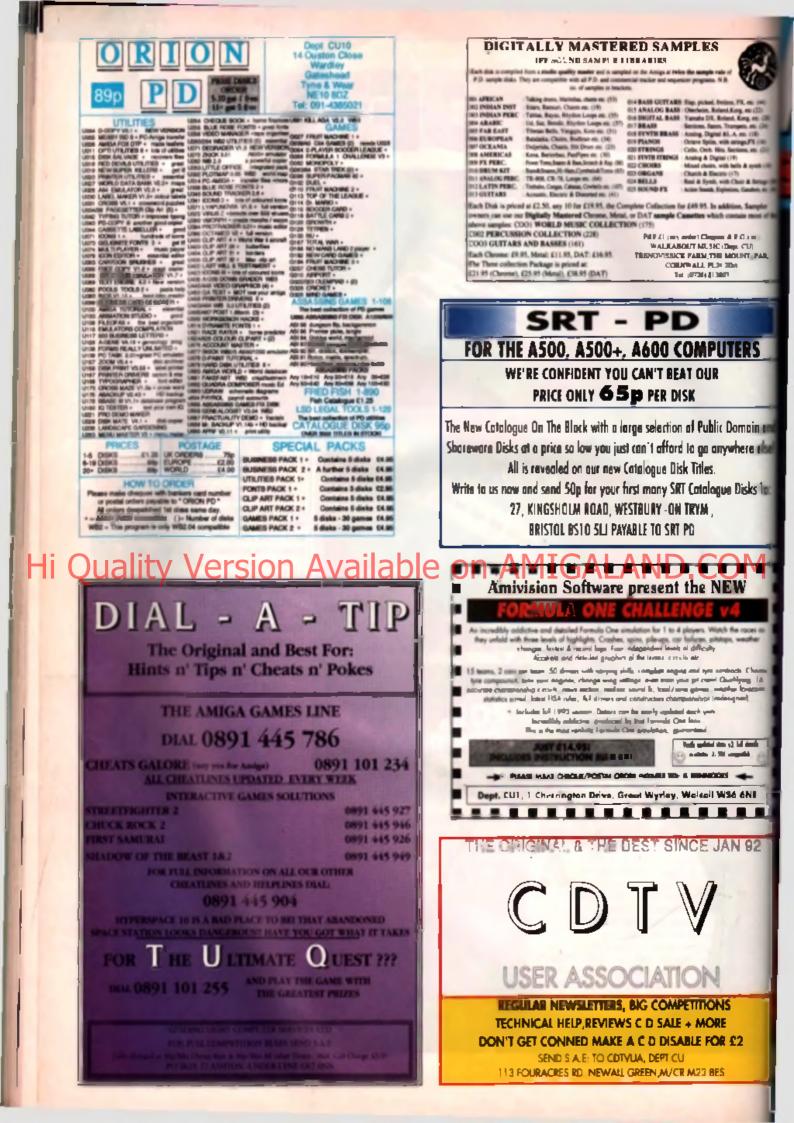
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## AMIGA CD32 Special

The launch of the Amiga CD32 console threatens to redefine games playing as we know it. With AGA graphics, an '020 processor and 2Mb of RAM, the new machine looks set to revolutionise home entertainment with its

ability to play computer games, music CDs and blockbuster movies.

To help keep you abreast of ell the latest developments, wa've put together this special Amiga CD32 supplement. Over the next 32-pages. we'll be taking a close look at Commodore a new 32-bit consola. giving our own trank opmons on whether or not you should buy one. Plue, we'll also be taking a look inside the machine to see what makes it tick and reviewing the first couple of CD32 games. As if that wean't enough, there's also a comprehensive listings section where we preview ell the up and coming games you can expect to be released over the next eight months. Enjoy,



The CD12 threatens to redefine gemesplaying as we know #.Stanc L, to be amazed.

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### 4 CB32 ON TEST

It might be a state-of-the-art 32-bit CD console, but is it any good? Jolyon Ralph examines Commodant a latest machine and puts IT AMI

### 10 INSIDE JOBI

We delve into the inner most recesses of the Amiga CD32 and show you what makes it tick.

### 1.1 WHAT THE INDUSTRY THINKS

So what does the Arriga fraternity think of Commodore's new console? We got on the bat-phone to some of the games industry's key figures for their opinions



What are these more sailing about? Well exclide 1 you to 8 you were leave bing the CDS2 consols?"

### **14 WHAT WE THINK**

After taking the machine apart and then gluing it back together again, we asked various members of the CU AMIGA staff for their opinions, warts and eff.

### 14 COMING SOON

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### 30 FUTURE DEVELOPMENTS - SINK OF SWIM

Is the Amiga CD32 line machine that will take Commodore to new beights or a white elephant that will be the final neil in their coffin? A developer offers his own personal opinions.

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### 4 CO SPECIAL

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REVIEW

## AMIGA CD32

Is the Amiga CD32 the future of home entertainment or a poisoned chalice that will be the downtall of Commodore? Jolyon Ralph checks out the new 32-bit Amige/CD conscient AV

Sega and Nintando said it couldn I be done, but Comintation have proved them wrong by bringing out the worldn linet 32-bit CD-ROM based consolit, and at an affordable price, 100. By comburing the 32-bit technology of the A (200 with a fast double-speed CD ROM drive in a small

### **JARGON BUSTERS**

• AGA determined Graphics Architectoris - The chips in the A1200 Addition and C032 that advances in 258 subjects to be displayed an exclusion of CD-Midle Compact Disc - Read Only Mernary - A CD, Identification approximate in system Direct Stratin disc, had containing computer data of CDT Communicate Operated Table Table - Constants of a previous principal at a CB-ROM based Arriga. Alread at the bases "education of the principal at a CB-ROM based Arriga. Alread at the bases "education of the disc."

market it was a slow soller and is so longer in production. • COM: • & former in longing particle screen mail an video from CD on • COM: • • Toring Code

CDTV and Amige CB32 FMV : Full Median Video - Using MPEG to play back 2mCarr lines VHS geneticy video from a CD.

S Jurannie Park: & Bin with some discovers in B

• MPEG: Mailan Parines Experts Group, Boy decided on a formatility highly compressed within Tablects symptote video to specifi anough 41 on to play from CO.

• MULTUS SSIGN Wirklahle CO disce can be written to reversi timen intere (bay are full (data can be added, but pravious data connot be alterni as removed). A multianestes drive is a drive capable of reading this type of CO.

NTSC: Nailoral Television Standards Councilses (USA): American Television (USA): American Television (USA):

 PAL: Phase Affarmula Linguism, which is the widen system used by your TV is you live in the UN and would of the mean civilized parts of Encode.

Megadrive-style box, they've affectively stolen a march over their comparison – but is the new machine any good?

It certainly looks unlike any other Amgs, and at first glance you could be longiven for thinking 4 was a Megacinia. Only the big 32 B4 and Amga CD32' logos point to the power contained in the dark gray box. One thing the CD32 len't, is the CDTV-2. CDTV was designed to do something totally different – a home multimedia system for entertainment, education, reference and productivity, and was never really given long

enough to crow-easil. The CD32, on the other hand, a putery a game, much net free neary made market and Commodore have come out

with the mechine at exactly the right time.

The CD32 is simple to operate Open the flip top lid to reveal the tray for the CD. The CD32 does not require the caddles that array most CDTV and A570 users (although I must admit I prefer the caddy system – discs are too easily ; scretched without caddys), and doesn't have a

built-in issa cleaner like CDTV, so be prepared to regularly clean the lens on the CD32 if you buy one, especially if you live ip a house with smokers. CD lens cleaning solutions or special CD cleaning discs are available from most HIFI stores.

Powening up the CD32 raveals a rather pretty lifte screen using 256 colours and colour cycling, along with an irritating and somewhat out of place musical dity. Both of these stop as soon as you load a CD and lawer the lid, What happens next depends an the type of CD you put it.

### NOT SO NEW

The first batch of CD32 titles will be enhanced versions of classic Amiga games (*Robacati, Pinbali Fantasies*). Thear will use CD quality audio and occles of animation, sound and extra graphics. Some will have extra levels, and a few, such as *Microcosm* from Psygnosis, have been developed inclusively for CD. No limished CD32 titles were available in lime for this review, although several (including *Deggars, RoboCod and Pinbali*  LAND.COM

3eblt

Fantasias) about be finished by the time you read this. (See reviews elsewhere in this supplement - Ed)

CD32 disks contain a data track which contains program data in exactly the same way that Roppy disks and hard disks do, and the CD32 will boot from a CD in the same way any Amiga will boot from a floppy disk. Unlike Roppy or hard disks the CD can also contain up to 98 other audio tracks. These are identical to audio tracks on a music CD, indeed you can play them tracks on CD32 and CDTV discs in a standard CD Audio player (although be careful, some players will try and play track 1 which can be extremely noisy!) If you remember what it was like playing Spectrum or Commodors 64 lapes in user bit foll polytone up of know what it mean

your hit at full volume you'l know what I mean Most standard CDTV titles will work in the CD32, although many require a mouse (luckly the CD32, unkle CDTV, has standard mouse/joyslick ports so you can plug in any standard Amiga mouse). Some littes, especially PD collections, require a floppy disk drive, and CD32, withough one should be available by the and of the year.

CD32 will also play your Audio CDs. Inserting an audio CD brings up a smart menu sumilar to



Quality Version Available

The one on the COTV, but in reacts faster and in import to use than its predecessor. Like CDTV you can control CDs from the joyped, but there stend any bottons on the main unit to control CD piny, CDTV had problems with a few audie CDs, especially extra long CDs with lots of tracks. All CDs I trud on the CD32, including a couple known to cause problems on CDTV worked kins. The audio guality when gut intrough an amplifier or into a TV with reasonable speakers, is excellent.

CD+G cises, special audia CDs with simple graphics (not to be confused with the obscients CDVdeo discs) can also be used. These come up with simple graphic sequences. Most CD+G dece are karaolic discs, and both CD+G ciseg I lined in Amigs CD32 worked without problems, in fact the CD+G code has been improved mice CDTV. These are no more enters in the graphics deceding, and the control has been graphics deceding, and the control has been

### GOING, GOING, GONE

In profucing a low cost Arrige console it is intervitable that things had to go. The usual complement of expension ports found on every Arrige arrow the Arrige 1000 has been out down to the base minimum, and nows establishing below the minimum, required. The RGB port has been removed, although a S VHS output a new supplied which glubs an extremely good polium on S VHS TVg and monitors. With S VHS RF and Composite it is now possible to connect the CD32 to elmost any TV or value system and obtain support quality output. Many modern TVg

have S VHS inputs at the hors of the TV, so connecting the CD32 doesn't require all the balance meeting encoded with SCART eachest and cables hanging out of the back of your TV that previous machines reacted. Even the RF cusput quality is good no whetever TV you have your CD32 will work. The S-VHS culgut can also be connected to any monitor that has separate Chrome and Luminence inouts, such as the 1084S and even the old 1701 C64 monitors. Although a special lead a received The constel and same ports have been removed no you can't connect external moderns, gnetters, digitizers, And so on. Obviously most of these are rather pointiess on a genes console, but there are two things that some people will must. No perini portmeans no machine linked pames, and no pavallel port means the CD32 can't be linked to unother Arrivas with the Parnet network cebie to transfer. data from ED to Amiga (many EDTV owners use this to handows they CDTV into an external CD ROM drive on their Amiga;

Most supraing it the tack of a floppy disk drive port, expendently considering the amount of games already on Arrega disk format. It may be that the cost of adding the Roppy drive interface or outry was not much, or passibly it was precisioner from software publishing, sager to convert over to unprecision CD ROM and unwilling to see the machine able to run Foppy (and along with that pirate) software i.co. Wherever the manon it makes the CDD2 a totally closed system, You can't put data into it, except on CD, and you can't take data out of it onto disk or vis infort ports.

The CD32 also has standard mouse and possible ports, normativing screek missed from CDTV. The supplied ocratolier is rather tentendoesque in passan down to the bittom on the top leg and not used plus but the bittom of the top statuting buttom and an 4 way director part.

enough for the most transic of beat emug genese. The controller interior a scandard mouse or pysich port, and apparently will work with any Amigu when used with the right driver software, so you will no doubt see lots of software starting to support the new joypad.

The controllef comes with a new long lead, it a encouraging to see someons putting some thought into how the unit will be used, although thought into how the unit handed mistant designer at Commontons, as the possible/mouse going alte on the left hand sole (se on the A4000) to the mission of right handed people like myself.

Next to the Joyatch parts is a mysteriously tobulad aux model that turns out to be nothing more then a standard A4000 keyboard accles. Annoyregy, the black CDTV keyboards do not work, only the white A4000 keyboards which are not available apparticly. Commoders say that other approximations including visual reactly glovest are being developed for this poin, but to be homed. I don't believe them.



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### **REVIEW** CD32 SPECIAL 7

AMIGA CD32

Units the CDTV I'm CDDS colours with mouse and joyscick ports

### BOX OF TRICKS

CD32 does have one large monster-exact ion connector, which carries all the minimes to add all the missing ports is with indernal board. At the CD32 teach some loops is wate running from machines MBd i debug boards connected to the back inning all the messing intertwate. This will write boards and connected to the back inning all the messing intertwate. This will write boards are the basis of a Commodote unit, contening all the ports and the solid with Roppy disk and nam mounts, to make the CD32 into a true Amign moultar.

This expension also concerns the space for the estimated on FMV carendge. This will be out before the space of the space of the space of the space commoders of PR machine. Commoders are spaced to try to beat Philips to the market FMV (Philips are currently running over 9 months late). Until then the CD32 is capable of CDXL video, similar to the 1.4 screen video seen on the CDTV, but because of the faster processor, better chipset and, most importantly, the double speed CD ROM thive, it is capable of 3/4 screen full motion video purely in software, light years ahead of the attocious it colour differed video that the Sega CD inflicts on its users.

Untertunately, CD32 does not support the Kodak PhotoCD tormat. The hardware is ideal for PhotoCD support, all that is needed is software to display PhotoCD images, and if it had a floppy disk drive I'd write it lomorrow. It appears that Commodore have had problems loencing the PhotoCD rights from Kodak, or again it may have been a cert assue. PhotoCD costing too much to implement at this stage. Whatever happened, it's nevitable that PhotoCD will be supported sconer or later as the hardware is capable of supporting the multiseepoin XA format discs that PhotoCD

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### **NEW HARDWARE**

### Churcky-To-Planar

The new Arrega CD32 contains a rather special new pace of hardware called a churky to planar pate array. If you program games you Il instantly go wow?, but 4 you don't, here a how a works, and why it's no good:

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.

. .

One of the problems with the Arniga graph-calclesign is that 1 works on backerse. Each pinel on a 256 colour screen is backers into 8 bits which are stored on 8 different places in different snake of RAM, what the means is their to pinel on a 258 colour screen requires 6 separate writes to advantage of the system store from 75 objects the system maker is much assister for

bigtane system makers much estate for parallas acroi-og garnes and for many biner Incksujtat make Amga garnes unique, plut you can have as many bigbanes as you require (up to 8).

The PC VGA standard uses a different system called byje per pixel. Each pixel on the screen is directly represented by a single byte in the dupley memory. Writing a pixel to the screen requires only one write to remory, so if a much taske than bigians mode for most operations on 256 colour screens. The deach entages are that if a inferible (byte per-poiel requires enough RAM for a 256 colour acreer however many colours you want to use), and if is no use as all for doroling games, especially those requiring parallax type effects.

But for 30 games like fight simulators, or other games requiring test graphics scaling. Like *Wing Commander* the VGA system is herter. Wing Commander on the Amga draws thigraphics to an imagnary byte perpitel screen. The single perpite problem of the problem of the second state of the problem of the second screen. The is uniorburned of a reflect slow process and ussalts in poorer performance then the PC version.

What the Amiga CD32 gate stray does in perform the VGA style to bightine conversion externely fast in hardware, no your gene can spind more time doing other lings, resulting in faster and better game. When the hardware litters down the system to reach other Amiga models. If has enother stimedistic benefit. Current PC emulators car's emulate VGA ecourse guidely because of exactly this problem. This hardware combined with a PC emulator, should alway you to emulate PC VGA software for faster than a currently possible.

### **CD COMPARISON CHART**

	C032	COTV	CDi	Sega MegaC	8
Quality	/ Wei	rsion	Ava	ilable	or
Arcitecture	3280	1000	1652	1661	
0	a des desses a	A 6.444	ARR TRACKS		

Arcitecture	3210	1004	1668	1
Processer	ede Caza	65685	68870***	
Pigenear Spead	14Mbz	7.14Mbz	16Milz	1
RAM	200b	1Mb	150	1
CDROM Speed	Destin	Bingle	Single	
CO Andia Support	Yes	Tex	Yes	١
Colours Available	18Million	4696	15Million	1
Max on screen(*)	254	12	256	1
RF (TV) output	Yes	Yes	Tes	1
Composits Video set	Yes	Yes	Yes	Y
S-VHE extput	Yas	NTSC only	Yes	
Keyboard sacket	Yes	Yes	Yes	
Floppy drive part	Ng**	Yes	No	1
Etenderd Joystice				
consectors	Yes	No**	No	1
Regaines Caddies	No	Yes	No	
Photo GD sopport	No**	No**	Yes	
Movie CD appert	No**	No	No**	
COXL support	Yes	Yes	No	
Arcs de-guality				
games	Yes	Some	Some	1
Reierence/Seriam				
tittes evailable	Yes	Yes	Yes	
Espendeble la				
hame computer	No**	Yes	No	
Average title price	E30	£30	£50	1

" Max coloum on somen in standard mades for gennes at: "With optional add-on "" 68070 is custor 15-bit 68000 venant

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Units All Control (1997) 10 (1997) 1

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## AMIGA

mages come on, in fact the multi-mean ability is ritie use for anything other than PhotoCD.

On the top of the CD32 case there is a 3 5mm heacphone socket plus a volume elder for the headphones. As on the CDTV and A570 the volume sider only effects the volume through the baselphones, and has nothing at all to do with the volume levels through the Audio out or the TV output

Next to the are the power and disc activity lights, and a read buffon, although you op not need to use the all the time. Most deuts reset supmetently when you open the hip top id and take out the CD, but this can be prevented (when you have a product on more than one CD, or a product the Video Constor that a lowe you to use your made COst

The power on/off button is on the back of the CD32 rather than on the power supply, which means the power supply needs to be jurned off at the wail when not in use is evoid overheating. When does this new machine leave owners of other Amges? Wall, 1 you own one of the closer PT AGA (A1000, A500, A500+, A600, A1500 A2000 A3000; Amigar you will not be suprised to here that there's no way to get CD32 desce running on your computer, CD32 requires the

## AGA chipped undernone of these machines con the total of the second of the second of the second CETY can the upgradesist numbers at second

There is no way to upgrede a CDTV to the minimum standard recurred for CD32 as you would need to replace simpst everything. including the CD ROM, and the motherboard, that is of course if the replacement parts were available, which they eren't

### A1200 ABD-ON

With the Ames 1200 and 4000. Commodore have and they well support CD32 emulation on these mechines with add-on devices. The A1200 device will not connect to the PCMC(A port as previously thought, but will be connected via a trapticer expension (so simpsi cartainly won ( Fr d you have a 32 bit RAM card or acclerator in your AI 200) connected to an external expansion. If will also require replacement Kicketari 3 1 ROMS but thereiduly the ROMS are socketed on the A1200 so the isn1 a major problem.

The A4000 device may not be a true CD32 errulation at all, but will probably be a SCSdevice with software CD32 emulation, although even on the 4000/040 this may not be fam enough to emulate the Chunky-to Planar hardware (and box out on previous page). Most 4000 owners will probably want CD ROM more for access to multimedial, PD and PhotoCD discs, and third party CD ROM downs a lowing access to all of these are siready explanate for the A4000 (003A shi tigan sucept the A600).

All throat considered, the new CO32 console is a lot better then most people thought it would be. Corners have been cut, but we re still left with an ncred-bie machine and more importantly, it a last in advance of anything Sega or Nintanno have going offer. Hopefully, well soon start is see the release of ong nei product for the mechine, software that s twen especially developed to take edvartage of the console s architecture - (hen we'll really be in for a meal

### CD32 TECH SPECS

### Here are those technical specs for the new Amiga CD32 in full.

Processor: 68EC020 at 14Mits (same as A1200)

- RAM: 2Mb CHIP ram (serve as A1200) plus 140 of nervolatile RAM for storing hi accree. davaoumes, siz.
- ROM: K clistert 3.1 (Version 40.68) senser to the 3.0 ROM in the Amiga 1200-4000, but with new libraries and other support code for the CD-ROM mechanism.

Chipsel: AGA Chypert (es en Amige 1200) plus new chunky to-planar hardware (new below)

- Video Out: FF (PAL, NTSC, or SECAM units systeble) to connect to serial ecoler on your TV, Composite Video and Super-VHS outputs are available. There is no RGR monitor port. on the standard CD32
- Aux Connector: Standard A4000-utyle keyboard connector. Other possible add-ons inducte must revolut adaptore, virtual registe proves
- Joystick Ports: 2 standard Amigs joystick/mouse ports capable of supporting cigital and analogue joysticks, must, tracktistic and light parts as well as the new COSP multibuttor controller
- Expension bus: Full expension to a allowing possible further expensions including Parellet Sadal/Floppy/RG8\_Photo CD support; Full Motion Video (FMV) MPEG decoder bowrd; Raw Expension; Processor; Accelerators (68030/68040 etc). Hard disk mieriaces (IDE, SESI, SCSI 2, mc), Networking PCMCIA.
- CD-ROM: Top loaning double sphere (300/Qalase data rate) multihumpinn CD drive. Unide COTV Bu drive does not require cadoves and is not self-classific.

Compatible with:

CD Audie: CDTV briss prices seem to work , CD+G audio drice with graphics (ind) drig Kerninke distri; CD specific Ities, Movie, CO disce with optional MPE .

### CDTV TITLES

Commodors claim linet over 60% of CDTV Illies work on CD32, here are a low diacy we tried and the renaults:

Lemmings	1
Global Chaos	1
Fine Art Collection	V
Paygnosia 'AmigaCD' demo	1
CDPD	1
CDPD2	1
Demo CD	1
Battle Chees	1
Dinosaurs for Hire	1
World Viste Atlas	1
Fun School 3	1
Turrican II	X
Cures of RA	X

Fractal Universe -

Works here except fractal generators require mouse Xenon II

Appears OK. some problems with shap sequence 178H CD -

Requires Boppy disk drive

### AMIGA CD32 RRP £299

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be explored, but the basis for a mit system is there.
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ically.
world beater.

91%

OVERALL



## **INSIDE THE CD32**

Audio Left and Right. Standard RCA: Phono sockets supplying a balanced 1 volt peak to peak signal for an external amplifies. Video out. A composite video signal for connecting to monitore. S-Video out. A standard S-Video sockal for supplying component Y C video to suitable equipment, such as an S-VHS video or monitor. UHF Modulator which supplies a standard modulated signal for connection to a TV or Video. The channel can be altered via the adjusting screw which is accessible externally. Power in. This connects to the supplied PSU and accepts the voltages required to drive the CD unit as well as the main circuit board.

maidm

This card connector is the slot where the CD mechanism a data cable is connected to the main board,

The gumes ports are SIOI standard 9-pin D-type connectors, but they will now support 11 button controllars

> Armed with his trusty sonic screwdriver, Nick Veitch takes apart our beloved CD32. Will it ever work again we ask?!

> > The AGA custom chipset gives the CD32 the graphice power of an A1200, all in four surface mount packages.

Power switch. Cunningly allows you to connect or diaconnect the power supply at the filck of a switch.

es le the Expansion bus. This versatile interface part will allow the connection of a variety of devices, including the soon to be released MPEG board and the Convertor which will turn the CD32 into a CD-capable A1200.

The 68EC020 processor chip. This is the non-MMU version, but very tew packages on the Amiga require an MMU, and cartainly none of them are games. This is a surface mount version of the chip, so there is no way of replacing it.

## n AMIGALAND.C

This VLSI chip handles data transfer through the expansions and sisc incorporates the technology to convert between chunky and bitmap graphics types, which will prove very uneful.

The CD32 ROM, which includes all the standard Amigs kernel, plus the rivetting colour-cycling display which executes on startup. This is a 1Mb ROM, allhough there is a vecant socket to the right, suggesting that some versions may have hed 2x512k ROMe

This is the crystal which drives the CPU. Reted at over 28MHz, this will supply a clock trequency at about 25 MHz.

2Mb RAM organised as 4 x 512k packages. Any extra RAM will have to be added of the board.

### 12 CO32 SPECIAL WHAT THE INDUSTRY THINKS

# WHAT THE INDUSTRY

### Mindscape - Geoff Heath:

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1-3 (1.0) 6-14 (1.5) 920-4 (1.6)

NEZ

ua

Hi

I (nink if will do is kat for the industry if a signal marking Obviously if a bol marke strateging than a Megadine or a SNES but you do get a fail of technology to the intervely if a going to be a lough trawf for Commodore as they restaking on Nintendo and Sega, but the technology is so good that I think they if do well. I don't fixed the C will be affected as it's a different market, many simulation and odulariment products.

### Renegade ; Tom Watson:

There is every possibility that the write become the likel many market CD reaching but it is impossible to reach gay. Personally the believe that the versions computer introdes (Amiga, PC, CD, ROM) will be exist happing Commoding no bave is instituted advantage over the consplex with its proving, hold of the software houses support it early on their it enough to really weet."

### ICE · Stuart Bell:

We think it's a vary positive move for Commodore and we ta plassed in the supporting it is all dependent on traving the marketing muscle Contrandow gats behind it use Public stateds to regise what a great machine is actually is. They obviously need to spand a lot of money, enhough the machine is possibly good enough to see inset without much of a marketing spinol. It would be great though for there to be a ligt of money and a lot of weighting in the algorithmerely and a lot of weighting in the algorithmerely and a lot of variability in the algorithmerely bottler machine then the Magadinet, but look at the state Commadows and to They don't have the money to stand up to Sega. Reaction to the Amiga CD32 has been mixed to say the least. Here's a selection of comments from around the software industry.

> No Commoders machines has enjoyed such overscheidung support from publishers as the CD32



### BULLFROG - PETER MOLYNEUX:

"It's a bit of a shame that the CD32 is likely to be drawned out by markines like the 3D0. It shouldn't do as what you have to remember is that although those machines are great, they are very expensive. The CD32 should do well as long as the product comes out on time."



### **Jean 17 - Martys Braws:**

Th out opin on the machine is a tentastic addition to the Amiga family and one which we will be actively supporting. We will be exploring the factors audio and visual capabilities of the machine. We timly believe, however, that it is the gume treat which is important rather than its the gume treat which is important rather than its the formation of a support of the support of the support CD32 versions of our titles. There are a tew development priatils in that people will be trying to a samuch cight sed material as possible and the deschild which support of the support the deschild when the support of the support chart of the support of the support of the support the deschild when support of the support of the support chart of the support of the support of the support the deschild when support of the support of the support charts of the support of t

If the machine is a large scale success then I would imagine that the majority of software houses will pull out of the 16bh Amga floppy market, mainly because of one thing – piracy. With a machine the heat virtually non-copyable media, the users know that a source of teacheap software will be non-aristent. Software houses know it foo. People have to get 4 into their heads that copying games will kill of the old Amiga, the antware comparise don't need and the CD32 provides a blooky good one."

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## Thetion Faily time. Versio

reasons. Pracy is obviously a major consideration. It's also a reply to the dominance of the console markets. It proves that European menufacturers can all come out with innovative ideas and it's very important for this industry to mippon someone like Commodore, who has had a line perigree as far as home computers are concerned and is probably responsible for most of the expansion of this industry. Commodore is a brand that parents recognise from when they brough their kids AS00s and A1200s and they see if as a very good thing to step on to. Plus the price is nice.

The games that have appeared on the Mege CD so far all seem to be very servey, whereas with the CD32 people are thinking about all the new and wonderful tillings you can do with it it hope Commodore don't make the same mistake they old with the CDTV, trying to produce it as something exclusive to e-actrical and hitt abops. It should be a mass market machine and Commodore should attack the mass market, Not necessarily tilks Sega bus make in clear that a logical progression from an Arrige or a CD32, it a also important to make the younger age group evens of CDa and this should do that."

### Archar Macleon:

"I'm sensesty glad [Commodore] have finally got the risk legethes. The trouble is a tot of developing an saying 'Yesh, it is a very rich machine. CD-ROM and all that, but in a couple of years it'l be obsolets'. I don't agree with that is has the gotential to do some stunning stuff and I'm definishly looking at verting with t

### **Revolution Software - Charles Coak**

We (the industry) over a lot to Commodore, from the early days when the C64 was the primary machine through to the dominants of the Amiga. Nosi of us beneally built our companies on the Arriga, to i m pleased that Commotions are concentrating on the Amiga and not the PC. DI course one of the mean propleme with software is placy. Petty thevery her been so demaging to It a Arriga, as I applicate the text that CDs are not so easy to copy. Conscient are a different market to the CD32 Essentially Segn and Nintendo are juni markeling companies. Commodors need to go for a different market They really need to push the last that the machine is a computer not a complet it would be a bio mistake to take on Nintendo and Segn

### David Braben:

The product of the second the good wall at the good wall at the second s

### 21st Century - Andrew Newson:

"The key strength of the machine is the RAM, Consoles (Sega and Nintenda) and is utrapped for RAM, you can use it all the time in console games. They're stways tailing about Full Motion Video and everything but the machines don't have enough RAM for it enyway. That, in the long run, is going to be the trapped amongen if Commodore market it well, then it ought to we the floor with the complete memory if development that Commodore can put into it behind the scenes. The billies dotten't move any faster and they haven tuned any last memory in the right places, so there is will a generation of development (they can put into the machine."

### Grandslam - David Birch:

'h standa a great chance of being a success. The price point is great and [Commodore have] positioned it well. I think it will bring CD forward As a console device. It seems tike the Sega CD. a suffering slightly at the moment and i think the CD32, because of its once point and the list of software houses supporting it, has a greater chance of success. The public will probably it ink Wow a CD machine for £299 Maybe if a time to buy one", I don't think it will affect the console Market loc much, the base is a ready there. What I think it will do is open up the public to the CD game revolution. It is also a chance for all software developers to get in on it's CD market. Markeling is obviously the big thing. Take Sega. the sheer weight of publicity and spor sorship has pulled them through tremencously well Commodore will have to have that profile in the market place. You can I aunch the machine without beat no your chest."

### System 3 - Tim Best:

It is potentially the most exciting product we veseen for many years. I believe it's going to give a tot of developers a swift kick up the backeide as an easy entry in to what tomorrow a lach notogy holds. The problem the British have is they get used to a particular format and hang on to n like a buildog. Very often they re bankered as to what a happening in the rest of the world. It along been ecceed that we have the best programmers and the best artists by a long way, but the Americans ere the most innovative and this is purely because they are constantly locking at what's new in technology. We don I. We become content with doing something well on one format and stading of the other Set Pope Second theory in the support and the support of a lot of satisfies in other support of a lot of satisfies in others, corring of the price light and they get thout when they said

They dige in our Much can be earned for the marketing from Sega and Nintendo."

### Maeistron: • Mike Singleton:

"Well we ditovil to develop on it but we haven't even seen it yet! Eventually one of the CD formats will tatch on as the main prever, but whether that will be CD32 of CD ROM or CDtemains to be seen. CD as a whole size completely different ball game. What was once a programmerial notastry will soon become an lartyst's industry."

### NikroProse - Martin Math:

We will develop where leas be but certain games of ours are difficult to convert due to game saving considerations. It is about time we had a new piece of hardware to rejuvenate software sales, attrough the is a brave step for Commodore considering the bac press received by the CDTV However, there saems to be enough power behind it to make it a hit is saems to be enried as people who wen to get more out of the machine than just games."

### FLAIR SOFTWARE - COLIN COURTNEY:

"As with most new machines, for the first few months we'll probably just see standard port-overs from other plottorms. It normally takes a good few months before people start developing for real. We, on the other hand, are bringing in extra people to start using the machine's full capabilities right away."



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## WILL THE CD32 BE A SUCCESS?

Now that we've had the CD32 in the office for a month, we've all built up our own opinions about the machine. Here's what the CU AMIGA team think...

## LOughity ersion Ave

else to come up with the games that will self the machine in the first place. Limitly can t understand their stitution - and I bet Sega and Nintendo Alli having a queet chuckle to themselves, too, When the SNFS was launched. Nintendo bi indiac it with Super Mano World, an excellent platformer, and to help bonet seles of the Megadinies. Sega poured in Gone tasks of the Megadinies. Sega poured in Gone tasks of developing and marketing their Sonic games, a strategy which helped them craw lavel with Nintendo in the important US market.

Another minute point is the tacky lock and feel of the stacking. Even the Aten VCS looked befor Visionities the volume sales of his headphores of the tack of within the instruction of using

and the CD compartment is a native cumbersome top loader. After being used to front loaders on both my sucio CD and CDTV, I was a bit disapportied with this expectally as it is possible to open the casing while the disc is still sprinting around. Not a good idea. As for the control entholks more appropriate for an Early Learning Centre then a state of the an Early Learning System. The related pack which has replaced the more fraintional Arrage systek is pretty poor when compared to the oracitar receased pads found on the Megan value of SNES controllars.

On the positive size, beckwards compatibility with existing CDTV tries is guite good, probably even higher than the 60% quoted by Commodore s UK boss, David Pleasance. Most of the disce we will got lying around the office seemed to work okay, so there is a teasonahly ange back catalogue of entenainment software available, even if most aren't much cop. We I just have to sit back and wait, and wait, for the huly mind expanding shift to hit the machine.

It's also nice to be first. Both Nimendo and Sega have pictotype 12-bit CD machines in development, but they are some way off from full if scale production. Even 3D0 tooks like it if be another year at east before it's retensed in the

Another minus point is the tacky look and feel of the machine. Even the Aturi VCS looked better than this! The volume silder for the headphones looks like it'll break off within the first week of use and the CD compartment is a rather combersome top-looder. UK, and nill not have such a competitive price point a their. The flip-side to all this though is that first done not equal hear. Look what happened to the Atan ST or even the CDTV to see what I mean by that! STP, with an aggressive marketing camps gn. Commodors could probably hope to build up a considerable head of steam and market share before any competitors anier the market a though Commodore starget of 400 cold sales in Europe by January 1994 must be seen as pute fartesy.

Doch ger ma wrong. I'm not knocking the machine. Loanu nely wart the CD32 to be a subcuss Even since. Looyon my this Amiga, I'm been alle g commodare tan, but thing between got off to a good start. Then egain, the Amiga didn ( start making waves until well into 1987, and

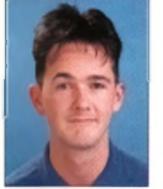
clich tistant making waves until weit into 1987, and from there it never looked back. Once the PMV card and keyboard floppy cesk drive Accessones are faur ched, i be tens the machine will start to teathy carve out a niche for itself. Here s hoping

### JON SLOAN



When I first heard about a 32-bit Amiga with a builtin CD drive I could have wer myself (it's a trick I earn't trem Dan, Just think cooks of new games with amiging papties and sound, as well as compliances of all those old (avourities - all on one disc.

Like any expectant, albeit sucrogate tether the itest sight i had of the baby held a mit of good and bad feelings. On the downside i locks ike a religies from a 70s sol-it series and could do with being more solid. Never mind the gap where a CD of these should be But, more positively, it does herein a new sus in Amiga gaming, it may sound



My main grips is the lack of software support Okay, there are a lot of titles in development', but most are markle using from release and others are metally CDTV in-releases or Arriga ports. Where's the buly revolutionary drop cease software that'll have you dribbling at the mouth? In short, is doesn't exist. Commodore spend millions developing a revolutionary consple and than sit back on they areas and expert someone. Ike a commani streight from Commodre s hypernechine but it is a genu ne bekef. There is no doubt that it will suffer a slight hickup on release due to the tack of jaw stropping software available but in the long run, we are going to be hundated with amazing trikes. And non i forget it is years the ad lany comparable piece of hardware.

Don't forget its MPEG capabilities either. The music and him industry will be playing their part in marketing the CD32 a success. The CD32 is currently the ONLY machine available at a costaffactive price that can deliver this kind of multi-format entertainment. Imagine this humble machine acting at the control centre torial available home entertainment system. Think about games publishers too – with less money lost to playground progravit have more to invest in new this indicates they it have more to invest in new this indicates they will they be able to accuse themselves from the Arriga market dia ming they lose too much moregin it.

Commodore have lacen many troubles over the past year and shill come out smithing. Alright it may be a fixed or in caused by a digestive aliment but its still a gain. Anyway, the point is they rareferring on the machine to be a success, in fact the company's way mistence depends on 1. This may seem that no great shakes to you but think about 1, the future of their Amiga is your bedroom motion the shoulders of this new machine (more importantly, so does my job!). We all have a duty to make the machine self. Look to the future

## TONY HORGAN

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So will the CD32 be a roating success, or will in sink without trace? I diove to see in beat the Sega and N menco boys at the nown game, but I must admit to being extremely doubling.

The CD32 is coming from a completely offerent angle than the Megedrive and SNES. For a start both of the established consolve name from companies with expensive in the home video game market. Sega and Nintende both know that software set a hardware. When you go into Divors and see an Amege displaying a boot up screen, and a MEGA CD running the full motion video "Gary High School S umber Party Adventure", which chais going to earch your eye?

Linlers the CD32 has strong countermeasures against photo real similatenage hymphos, no one sigging to give it a second glance. What we ve got so fair is *Diggers* a federals variant on the *Lemmings* theme. Even it it played well, it would do very title to self the machine – effect all a doesn't take a 600kb CD. 2Mbs of RAM and 256 co ours to draw a tew little men and a sunset backdrop. We reliate ng Commodore 64 stuff here. The important thing from Commodore 54 stuff here. The important thing from Commodore 5 point of view last to get a good base of users from the start. Chily then will it be financie by sites for third parties to spend money on developing software for the machine.

This is the most important area in which

Commodors differ from Nintendo and Segs. Whereas the big controls comparises made sum that there was a good exiscion of gob smading software available for the mechane from the work go, Commodore have done virtually nothing to essues the same advers base for the CD32. As intelligent chargeness could option on to this theory of "software safe functions". Commodore have been in the business long enough, and have sees arough demail failures them from literactives and them would to lines baller.

It the CD32 does bomb, Commodore have noone but thermalives to inferme.

## NICK VEITCH



I have no basel with Commadum and their vision of the future. I think just about everytody has realised by now that in the future CD-ROM will be important for gamma and application programs afree. As much we application programs afree, As much we application programs year, and a would be a forward of the CD32 didn't

year, and it would be a second in the CDTV, but it set in far larger numbers then the CDTV, but it could be this time near year before we are looking at a healthy marked which will returned not only the software houses but also the high street stores.

The strategy of releasing the mochine so early seems a bit trapped. There is an ed in the letest Graten's catalogue for a CD32, but there is no mention of what activity pay an supposed to use with it. Fre-ending the 3CD and the price drop of the CD-1 was a small move, but it would have been smarter to have had at least one outstanding the symbols at faunch. The lemptation for software houses to adopt a wait and see policy with the too strong. They are unlikely to put huge resources in to developing a life for an upprovin platform. Conversely, this is precisely what the CD32 reads to least size is

The machine statel is autounting good value - a 32-bit 020 based AGA capable machine for less than the price of the AS00 two years back, but unless this is utilised by, initially some great games there is no point. The CO32 has the right price, the right hardware and the right absude, all trackly needs in the right software.

> Commediate have been in the inviteous long enough, and have soon amongh diated follows in huma better.

## MARX PATTERSON



Excitement about the release of the CD32 is running high, and I m as caught up in it as anyone else. It was officially unveited to the world on July (6th, the same day as Spielberg s Jurassic Park opened in Britain, and for me the excitement surrounding both became inextricably intertwined. The hype in both cases was at an all time high (respect to that PR machine), and naturality i wondered whether or not it was justified. Both seemed to offer something new in their genera and it remained to be seen if wher could deliver the goods.

Jurassic Park - The movie lived up to the hype and more becades so it just remains to be seen how the CD32 will fare. Of course we will know its spece, and they re-impressive enough to beat enything else on the market, but will Controdore handle is properly this time? .

## i can thele but their about the CDTV. That loo was supported to be the new worker medine. bit after a protected aunon which during the

people's interest in it, and a total dearth of worthy software, the machine is only marginally more lively than the loss is in Mr. Spielberg a masteroiece!

After a 28 million pound advertising campaign. Sega's Mega CD has utterly failed to inspire on the software front. Despite the diathbe, the software to justify such an expense just hasn't appeared, leaving many people feeling jadad towards the entire CD games concept. I sincersity hope that the CD32 will become a runeway success, and I for one will be ready to buy one as soon as they're generally available. The market certainly seems more receptive to the idea, and 'the specs of the macking are impressive enough to attract the technology junkies.

In the long run, the machine's late rests in the combined hands of Commodore's marketing people and the game s publishers. Let's hope that they can get it right this time! 8

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## **BEHIND THE** Commodore's Head of Engineering, Lew Eggebrecht, gives us a behind the scenes account of how the CD32 console was first

A little over a year ago we had just finished lessing the new AA 32-bit of past. We now had a very cost effective 32-bit Amige compatible chigani that met all of our performance criteria. Our basic plan was to convert the entire Amige product line to the new 32-bit architecture as soon as populate. The AA chigant had been debugged using a high and system design which aventually became the A4000 tamity of deshiop video workstations.

conceived and then

developed.

## Those systems were infrocuced in the sarly developmental first at 205 pt parents becan the developmental first at 205 pt parents at more computer line to a full 32-bit system. The results

of the activity was the nine of participation of the A1200 slightly after the sunch of the A4600. Or next target was CDTV. Although CDTV did as well or even before than competitive systems during its informet, that not live up to our expectations. After analyses of the product and the market we concluded that a new CD ROM backet in ferencing multimidia player needed to address the following backet be auccessful

 The \$600 (\$400) to \$200 (\$550) price point was too high far the type of consumer product. A new price paint in the range of \$300 (\$200) to \$400 (\$270) was needed to area re-succass 2. Good multimetic applications mended a higher partometical special or before quality graphics to be succassifier.

3. VHS quality full motion video would have to be at least an option on any new system

4 To many customers if was official to axplain what CDTV was, it was many things but had no appeals focus, it did not play movies it was not outs a computer and it was too axpansive to be a games console.

5 The most popular tides on CDTV were gene or unterfaurment tides, not televence or educational titles

The decision was made to focus any new CDTVlike product towards games and entertainment and, secondly, to support a general interactive multimedia player capability. Amige genes software had been phenomenally succession in the UK and Europe, so we decide to play to our strangths in their market. This also would put us head to head with some pretty shift competition. The decision to focus on games and entertainment created a whole new set of quest one and issues which needed to be eddeessed.  Should a new game console be canadge based, CO ROM based or both?
 Should comparability with COTV be maintained?

3 Should compatibility with the A1200 be an

(a) a Since most general bypeared Amiga DOS, should sibe used?

5 What niertace ports are needed - composite video, S Video, RF, Sterro, etc?

6 What type of game controllers should be

provided R or witeo?

7 How expendable should the system be?
 8 How much memory a standard?

9 is non-volable memory required?

10 Should the CD ROM drive be double speec? 11 Should muk sees on support be provided on

It & CD ROM deve?

12 Should the power supply be megrated with

The main console or be a separate unit? 13. What processor and clock speed should be

14 What hardware least ten could be added to

mprove performance? 15. What issiums need to be added to Amiga-

DOS to support better games?

 What should the cost and price targets ba?
 Who will be our main competition. Sees CD. Nationale. 3D0. CD 12 The CD32 was participalities in record line. The project larger in October 1993 and was tinighed in May 1993

Of course, as with most new products, the more controversial issues concerned what the console should be called what the colour should be, and what type of packaging if should come in!

These were just some of the many questions we needed to address before a system specification could be completed and development started. Since the Amiga has en dyed very pool support from the UK and European developers, we dedied to sol of their input, in mid summer of 1992 we set up meeting with several of the key game developers who had strongly supported the Amiga. The basic question asked was i'rt you hert our 22 bit AA chipset technology in a game console what would you det inten die dimem machine games console! be?' As you might have guessed, we had a wide ver ety dimput and oprions. However, a basic trand did emerge from these meetings:

 A new system must be CB RON beand. CDs wate much easier to produce, least costly and were parceived as a befor derivery system than carridges.

2. A 32 bit CPU with 2 megabytes of memory was needed

3. The main competition would be Sega CD 4. The AA chigani and 32-bit CPU would provide

3 to 5 times the performance of the Sega CD

5 is we could produce a 32-bit AA system for the time price as 16-bit systems of today, we would have a clear winner.

 Full motion vicino was needed as an add-on lineture

7. Retaining compatibility with the Arrige would enable quick software development.

Next, we want back to West Chester PA , and began to write a pre-immary product specification. This was ad by Jeff Porter, our Director of Advancen Technology. After many long meetings with our development staft we instead the pullin nary specification. In September 1992. We took this product specification back to the developers to solid their input. The general reaction was 'You will have a winner 4 you can produce this product at the comparition s 16-bit process for a product at the comparition s 16-bit process the product at the comparition s 16-bit process the product at the comparition s 16-bit process the sector at the specifications and it was healised.

The project was now given the go ahand and burned over to our development staff, Jell Frank, Director of Systems Hardwain, Don Kaminak, Director of Mechanical Design and Dr. Alen Havemose, Dructor of Systems Software Development. By mid October the detailed specification was complete, a development stractive was in place and the project was bague in earnest, in the past, project had been started without detailed specifications resulting in significant delays. We were determined not to repeat this error.

The major development challenges were to meet the occil targets and stack to the reports achedule. A large part of engineering in the develop of the parts to meet containing the soften more difficult then the inchemet problems one mend. Also explaining components hom offside as against and major parts in the inchemet problems offside as against and major parts in the inchemet problems of the soften in the inchemet problems of the inchemet pro

development group were

1. Development of a new tow cost, high CD somerce, double speed multi-manage CD ROM drive and its electronic and more code. The drive mechanian was from Sony, with electronics from Sony and Chinon. The draw micro code was developed jointy between Chinon and Commodory, Chinon was to do the line! encombry one testing of the new drive before shipping if to our Philippines plans for assembly min the CD32 2. Development of a new VLSI (Very Large Social integration) gate erroy to support the interiore of the new CE-ROM drive, the two \$250 Amigs chips, the CPU nisrieux, the Glue Logic and the chunky paiel to bit place convention memory array. This new chip has over 37,000 pates and had to be right the first time. There was no ascord pees in the schedule!

3 Development of a new enhanced version of Amigs DOS, Support for the CD ROM He system needed to be added with multi session capability added. Support for the new game controller interface also reacted to be included as were support for the CD7V applications. Finally, special functions were exided to enable the spokes on in orderly close down portions of the OS to gern memory and cycles for the application. A A stabily new mechanical design was needed for the Amige CE32. Tools for over led new plastic tools had to be designed and lahrceled. The top, dedung CO, ROM arms created a very critical design problem between the top cover and chucking mechanism and the log of the case. A full 3D CAD simulation of this area was negrice to Achieve first time success. Again the achievel only permitted one pass on the development cycle lor the mechan mounted pleater parts. poling

5 Asia, manufacturing test procedures, programs

#### and text instance meeting to be developed in permitte to meet our achedules. Our target wee to be able to support productor, levels of 25,000 ands per week within four weeks of start up!

Of course, no matter how good the hardware platform was, if would not be successful without good approxitions that muly unitsed the 32 bit AA hardware and the CE ROM drive. Our CATS organization, lead by John Campbell, was given the task to solich ceveloper support and provide organization, lead by John Campbell, was given the task to solich ceveloper support and provide organization, lead by John Campbell, was given the task to solich ceveloper support and provide organization, lead by John Campbell, was given the task to solich ceveloper support of the ceveloper. Evan to the targe body of Amiga gene software almosty available on Ropp es and the developers' familianty with the Amiga and its development familianty with the Amiga and the development

times with each of the developers to encourage support. As you can see the response was outeranding as a evident by the many titles now available and under development for the Amiga CD32 Dr. Alan Havemons and John Campbel put together an early developer support package n mid-December to allow appi cation development. This package included documental on on the Aystem hardware and the пеж Ал 🍖 DOS isaluing ar anti-anno of the new Arriga ODS

and a special version of an A4000 system combined with a number of tools. The A4000 development system included:

 A special processor board with an 88ECC20 processor to annuiste the partermence and processor environment of the trait product on the A4000

 An early version of the new Arrige DOS with the CD ROM drive annulated on the head drive
 Support for writing CD gold durks
 Support for optimizing CD data timely layout for each application

A decision was made to limit the number of early developers in those that would control early developers. With our limited resources it was impractical to attempt to support a targe developer group emmeduating. As time went on was slowly added developers. Chris Ludwig from our CATS group spent many weeks in the UK and Europe supporting the developers and myself developer and the Arso John Campbell, Dr. Alan Hawmoon and myself made saves in lings to support them.

We set an internet larget of being able to dentrificate a working system at the writer CES in Liss Vegas (2nd week of Jahrumy 1993). The development group worked around the clock and through the Christman holidays to meet this target. We rushed the gate array through FAR and it worked with only one minor problem. We got a prototype CC ROM drive working and had a hand made version of the case work (ablacted, We met the target with a working system and a simple running demo. A management decision was then made to show the system.

The first version of the new gets array in this first prototype was called at 2018 and was done in record time in was no organithe critical path in the design. After many discussions with our

Activities group we made a decision to further enhance Arizona. Much of the SD software and Full Motion Video activities generated churky poet data as their output, in the Arriga this data then had to be converted to bit plane mode for actual display. The process took allos of CPU cycles. We decided to add special hadwerk in the Arizona chip to assist in the conversion of churky pixel data to bit plane format. There were risks since Arizona worked and any changes could result in a bao chip impacting our schedula tight cantity. The change was made and again we had a linst i me success. The new chip was named Akiko

By mid February 1993 we were able to deriver 15 pictotype systems to our selected set of developers. They were mounted on plywood sheets with open wood isames but they allowed developers to run real CD applications on the actual hardware. These early systems had CD-

RCM otives that required manual CD precement and churking – which sometimes ran backwards old Anzona chipt rewrited Nintando game controllers and early versions of Armga DOS supporting the enhancements. Slow y we upgraded these systems with new drives. Aktic chips, new game controllers and the ater version of the new Armiga DOS EPROMS.

Our barget with to begin a pilot production run of 200 units in our Phupprois print in early May. To meet this

Schenule we had to lock cowr. Ine system selfware five to so warks samet to accommodate

mask ROM lead times. At this point we had very iffig test time on the new Arriga DOS and CD-ROM micro rade. To jurit ar complicate things we made the decision to test and support the top 30 COTV files on the new system. These now all had to be tasted and any problems resolved by early April. To accomplish the desired leating and reduce the system's technical refor we decided to delay the start of pilot product on by approximately three weeks. This turned cut to be a wase decision since we found a fate problem in the CE RCM drive's micro code which we were able to fix in the system software. During this June severe: other hardware problems were also discovered and corrected. In the break week of June we started the typic

profit chon run of 2000 p-tot machines. These systems were immediately distributed to our developere and cur own Quanty Assurance department for ingcrous accelsrated testing. We ogged over forty minor problems which were an a yead and corrected. No major problems were lound!

Test software and fortuning was in place thanks to our less engineering group. Munufacturing and procurement lead by Sleve Lang. our Vice President of Worldwide Manufacturing was now ready to produce the system in volume. In the second week of July, volume production of the Amiga CD32 began. From the project's stan in October 1992 to first production in May 1993, the console was completed in record time. This extractor ary achievement is crede to all of Commoders and especially to the depleated and la ented people of the development group. All contributed above and beyond the nail of dety. but special praise is deserved by George Robbins who lead the systems engineering development learn I have worked in this industry for over 25 years and have received seen the talent and decication if all was exhibited by this group.



# COMING SOON

Last month we took a close look at what floppy-based titles we might expect to see make an appearance on the CD32 console. This month, we're going to concentrate on entirely new games, designed to take advantage of the new console technical capabilities. Here's the pick of the new releases.

## VIDEO CREATOR ALMATHERA

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Hi Qi

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Almeshers is Video Craetor arms to give everyone the power to make their own psychodatic rave videos. Going on what's been shown so far, this could be pretty big. Thanks to the CD32's tack of a keyboard, everything in *Video Craetor* is perfortiant with everything in *Video Craetor* is constrained with a multi-coloured tomscompany.

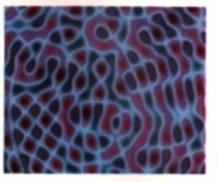
ward visuals. From an easy to use control panel, you can drop in, lade out, my through and generally meet up iff of these images at will Lat's way, for example, you've got a peace of

multic third big na with earne chords and a biespy loop. You could late in some slow colour-cycling, with maybe a links wibbly image over the top to go with the bissipal. Next you could overlay a tote animition toop as the rhythm picks up. Once the whole basis drops in , you could switch to some full-on strobes and leads of in-yer-tece effects. Well, you get the idea.

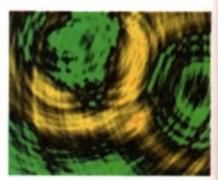
If you can't be bothered with all that live maing, how about getting the CD32 to do all the work? Random Raves comes with Video Creator, and does prelly much the same thing, but responds to different Indoencies from audio CDs. All you do a pop at your CD, and the CD32 does the next Period for the over stratched perty host come EJ come VJI



If you aren't blown away by these entrancing graphics you probably need to connect your brain to an electricity sub station and throw the switch.















With a dolf of the hat to The Last Action, the star of Oscar is sucked into the movies.

## OSCAR MILLENIUM

a 1d

Don I you just hate people who jump on bandwagons? I va seen more olnoeguis in the peal law weeks than most cavemen asw in their entire lives (all right, I know it a not a factual

enders avera per right, remove its hor a ractule enders what with chroselum entering millions of years before man and int het but out to prim each we your? Skill at least Flair con tust size

with Junassic connections. With Oacer they veplumbed the depits of ac-fi, westerne carloore and just about any other Hollywood genre you car think of.

The premies is that Oscar, a lovable ternaper its there such a thing? I thought they were all obnomous bags of hormones discovering gris and bunking off. achoo-) really enjoys going to the flicks I mean really enjoys it in an almost Last Act on Hercish act of rpecial effects, Oscar in drawn into the time for real and has to befor his way. through everything from Junasic Park (unofficially) to The Curse OI

Frankerstein (unofficially). This is all presented. naturally encuration the form of a super last super colouriul, suger absorbent

platform long with baddes, good ea, more take, bor uses galors and things exploding into a mass of sters whenever you hit them. We'l how ena would you get sever types of film genre into one game? A graphic adventure? I thick not

#### GUYS AND TROLLS.

You may recognize the style and nature of Oscer. Do you temember Trolls? The strangery compelling little platform romp of last year forms. the base upon which Oscar develops. Sever worlds (Certoon, Wild West, Dinosaur, Game Shows, War Gamaa, Horror and Sci-Fr), each with three evels, plus a couple of borus ansas, make up around thirty levels of action, with

graphics, sound and general effects being completely enhanced more the culoness of Trolts he our screent.

## One leafure theirs been received from the iginal game in the Yo-Xe of Desth A claver Awing from platforms eligning access to

previously unreachable mean of a level. Something elas you'll recognise is the level



With the success of Trolls, Field are hoping its something pratis bid trace. Genue Mayin they'll even win something!

select screen (almost a simple level in itse i). This time you're in the loyer of the local multiscreen prema with each doorway dacing to a different him devol

One of the key differences between this and Trolls though, is writer, Most of the lave a have what is called a waterine' beneath which the test of the level becomes agumic. Sudderly if e birds and dimonstruts have become pirenthe and starks and Oscar is formed to hold his breath. for as long as if taken to collect all that n necessary from beneath the waves. It acds a completely new stant to each level, at once. changing the graphical look of things and the control ayatem.

### MARKET TRENDS

With the basic game engine lifted from Trolls and since that particular pame did pretty well, you may be wordering why not call is Trolin 27 The thing is, Troits you see, tended to come across as well, a bri lemining. Now no offerice to our temale readership but it seems that the majority of Amica camesplayers are milect grap, boys So with the in mind, the game was designed with a mote masculine feer to di- action time ileviege boy hato atc.

With regards to cave opment of the game, the CD32 version is preny much the same as the A1200, with obvious improvements in the audio/visual areas (see Plastic Surgery panel). Both of these versions offer greatly from the ASC: game though, with added affects, bonuses and entres. Naturelly they elso run a lot faster and smoother (with the CD32 version playing like a completely different game when run rient to a standard mach.na).

Whether Oscar has the ability to compete with the thes of Robocod Putty and Superfrog (all of which are also being developed for the new mechina) remains to be seen. Early impressions seem to indicate that Oscer has all the speed, colour and variety eases in the big name games, i not more so. Plus it has the back of Troits to nds on, a game which were down practy wall with uni about everyone. It can only help

## PLASTIC SURGERY

PLASTIC SUNCERT is 5 American Laste, Rechmological advantages does the CE32 viention offer a case of enhanced destination situated have been working on improving the standard game to the extremiting of all the new technical parameters. That and the first from being put a standard for any order and episod up job. For the thing them shill be a wealth of tampled appendix the defight the ave things line the cervical character turning lowerds the prevent and chatting web you 4 you fease line alerted for too long

And to Stat a plathare of addetone and means on the horse state of the contraining region full MIDI soundhack, a because the regily uses the CD codubilities to the full to fact. Far taken to (2011) as gene completely overhoard with regards for improving the graphics sound and gerreptay so much so that provide taken

Improving the graphics sound and garageay, so much so that they've taken on two completely new programmers just to help develop the CD32 version. The main problem with developing Observice the new machine a thet work had similarly standed on the ASOD and A1200 version, it handlos thousing swary the designs and standing egen want to stall y an object it cartering egen want to take any motion of the machine a shall the test law motion of the machine a shall the test law motion of the machine a shall the test law motion of the machine a shall the test law motion of the machine a shall the test law motion at the test test test is a problem that Flats the very keeps to address. The main few products is fell Simeson formed gams and Surf Ninges in the based accord the technooring Casita Naked Gun Nielsan fam of the secon name) as well as appearing in ficiply form wit be developed particle wit contain mode in the way of photo realists contain mode in the well of photo realists contain mode in the well of photo realists contain mode in the well of photo realists contains and hal dights for a second in a fill which will be integrated into the dynamical

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# COMING SOON



# MICROCOSM ISION AVIALITATION CONTRACTOR AVIA

Just as The Zh Gues/recently showed everyone why CD ROM was worth the luss on the PC, so one game in particular is going in do the same for the CD32. When Microcosm was list proviewed back on the CDTV it caused such a site that people highlight to blue is second look at that new it-fatee muchine. With the unfortunate table of the machine as the game was shelved and everyone moved on to begar shift better things. Of occurs, when Commadons begar and benefiting turned out to be the CD32, comence at Psycholas suddenly had an idea. New work has nettaried and Microcosm looks like being even better than before.

To bring you up to date if you don I know about the plot, Microcosm is set half a cantury up of the future and relia of the bitter musicy between two large magazorgonations (everyone stways eleme to have this cark vision of huge companies running the world instead of governments Why = that?) and the lengths in which they if go to get the upper hand, in this case, the leader of one company has been intected with miniaturised warriors in order to be able to find out what he s up to. You mask, in a not too disarmiter way to Fantast o Voyage and Inner Space, is to be placed in the cockpit of a super lighter, miniaturised and injected into the boas a hinodatream. From there it's up to you to seek out and desiroy the bad guys.

At this is depicted by graphics that can only be described as subming. Certainly not for the squearnsh, Microcosm has photo realistic ensries of arteries, blood vessels and all the other foly things that you'd time reade the body. In fact it is hard to tell where the infre sequence ends and where the game stars.

## BEHIND THE BLOOD

Ray tracing is the name of the game, with three dimensional light sourcing being used to Index v sums while on rg created on get bet machines then dowrgraded to Am getCDTV compatibility. Unfortunately the meant a loss in detail, resuming in most of the screar's having a son of semi-monochrome effect. Effective use of shading counteracted this on the 16-bit machines, but with a 32 bit device to run the game on, the 24 bit graph as should be lose note of the quality or colour, in fact in some cases we confidently expect them to be even better than what you each faite.

True, *Microcosm* may furn out to be nothing more than a gioni ed exercise in graphic8, but then aren't all the big new games? Where *Microcosm* locks set to score is with the fact that, for most games, you only get the lancy graphics curing an en meted section such as an intro or end sequence. With *Microcosm* the whole game is virtually of ellong at mation secuence, an enimetion sequence that you are fully involved in. Can't be bad, Wistch out for efull review goon.



Populous started it all off. As soon as Bulting gave us the ability to see computer games as something other than one man in a desperate struggie against overwheiming odds", we gamesplayers have just cried out for more Bigger and better games cealing with ite or a general scale, not an individual one jumping arcund on platforms. We ve controlled whole tribes in Populous. We ve taken them to war in Powermonger and in their last outing. Syndicana, we gave them all very large grine and told them. to shoot snything that moves. So now the boys from Surrey give us the chance to redeem ourselves by creating new planets from old. The term is terralorming and the game is Brosphere Taking control of a team of specialisis, your task is to take a datag oranjet and set up a fully operational accessatem. This is achieved by heading down onto the surface of the planet and using whatever specific means are evalable to resemble Mother Nature

breaking habits (but nothing evaluations) is an in the nerve at science), altrough the use of the CDS2 will obviously in ear that these can be 258 colours and CD sound

## SOURCES AND RESOURCES

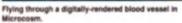
A question that is commonly asked of or ginal games like Brosphere is 'Uust where did you get the idea from?'. In this particular case not all the 'credit case go to Bulling as they didn't actusity come up with the orginal view. An American due by the names of Richard and Rando phicarre up with the concept of the game pute a while back Bulling simply added a game to it. 'Whist happened,' explains Peter, 'was that this was a project they were working on alone, which had been taken or by Electronic Arts EA dropped 1 thinking this wash's a strong enough game, so we took it on, redesigned it and put more of a game in there a'

As writ almost all of Bullitog s littles, Biosphere is as much a concept as a game, but early impleasions are that it's a concept that is just as intiguing as *Populaus* was when it this graced our screens.









# Ameagre Prices for Amiga Users

## Games

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# CHECKLIST

We've only screpped the tip of the iceberg in our previews section when it comes to the number of CD discs that are in development for the new CD32. Here's the full list as it stands.

#### ANIRA A REE

Cull Menge as License sneeped up by ICE\_CD nt to writely viden kended actional italianter havele

## ALFRED CHICKEN A MINDOCAPE

Daught low-rapids Chronichurch by election (Although it was a proby close for ling) Mathematics new clarierra per pirezzid lais remae e ha CD conversion

ALIEN IMPLED 2 & TEAM 17 Promises in its a much begins game then the origins After Stand, with loads more atoms is exception and huge levels to appleve

## ANIGA CO POOTRALL The COSE Prie has been pat

logation by more of the people before Community of TV Specie Frankel. The will have TV presenters, digitized players sampled assess and the presentative Laplace good

#### BIT PLANC FORTRESS < MCROPROSE

Described by one matter as 817 Byong Mathemas that fight pier seals 1 well restored on the Arrays. Lat a hope there are reduced with the the CDSS services

## BATTLEETCHN & TITLS A sub-merident oberti en up relevend on the Arrays yorks age Hopping we wan't have to end re

g piraught excession and the galed regels can be done to anhance area was a mediacro gaves is larger web-BODY IN OWE & TEAM 17

Teast 17 are promoting a revertiged game of the projector best are up, with late ware characters is phones from

#### BIOSPHEAP . ELECTRONIC ABLE

For the lowdown on this rare growth Irom Pulling, Jury to aut o more family re-

## CARE OF THE CAUTIONS CONDOR . TIGER MEDIA Daugets numerous phone calls and laters to them American Peedquarters, and is \$ 100 the

were about the one. Some people will can be an inspectionary farmethin to of publicating their last oreducati

CHAOR FNOME & RENEGADE incrementes 30 general nor up which never spon and features an same finan resume more a Limber raised or releases the deserves recented Dia vine

CIVILISATION & MICROPROSE Sid Meets a groundhreaking god son wit make to COSS debut near year Work your may through the different eren i stil ven bruth ranke i fo the Hart Superb

CONNOISSEUR OF FINE ART COLLECTION & LARCELLES Enjoy your very own art pattery on your TVI The encircles C/D/22 version should be a lot better quarty tions the COTM offering

DEFENSE OF THE DROWN 2 **BACHE ENTERTAINMENT** San Félgre-et re section for more

## DRACULA & PEYGADÉS Now this looks is a look to be to be

**Managina** 

### DIGGERS & MILLENNIUM

at electricity the dealer. The first CD32 the to make it to the ahahaa

#### DUNE & VIRGIN

Noi iha original Guos garra but Waawaada awangia Internap Noi in he released

#### FANTASTIC VOYAGE & CENTADE

Received a 70% rating array as reviewed it a year ago. Lopie thely it he is special with trul to Paygnosis Microcosm. But we might be pinearily surprised

#### GLOBAL CHAOS & HES Another former CDTV tills mekes if onic the CDXR. Reve music for

date in the second s GRAND PRIS & MCROPROSE Beeh Cremmone + polished Formula One receir has you to be confirmed for the CD32 but on a spins at the Turbi ry-Costant spinsors insping form in the life a shong possibility

#### DUNESS BOOK OF RECORDS 2 . NEW MEDIA Deen1 area much of ea

releasing 1 you re a records ale the to your bible. Now you'l the state to age the reporte being

#### HERCIC AGE OF SPACEFS KINT A TROINA

A former CDT's life which covers the heatry of MASA's engregation of a state of the second state of the second state of the second part with orders enge, campled sounds concerns with antiports is and fore more As this was simply one of the basis taken for the CDTV was Transf or one the grit

INTERNATIONAL GOLF & OCEAN ner fant in a crais in Operating Wolf DParts and a polygor generator elsewhere in the leaves the GD22 variage will have to be significantly reproved if it is to prove a comparise tos your peak

JURABBIC PARK - OCEAN cosicy binety in the growthat with the CD39 From what we ve seen of its toppy-based counts, into could be a biories of a current

LEGACT & MICROPROSE Set to a heuring New England menetori all'internet ol ghosta combras ghosta and other violani antidge are no your case. Already a his on the PC, this could lack and

Ding Hell a drawn or tria CDS2 Will Uwargoni hanad and Rony owned Psygnosis convertine Lemmings phagy one the CD327 Expectations are high are on is the probability of all three games being

### LITTL DIVIL . GRENLIN

included on one deal

Almachy desired to Philips CD maphine Greenin provide a CD reaching Greenin provide an oper converting it for the CDS2 Golds your little devi-round a make of perpleting ricks and api Grassian

### LOTUS TURING TRILOON

 OREMUN The Arrige's finest collection of naming garmat and is violat logitifies on one CD Eligent video sequences, plus a leve surgroups

## MICROCORN & PRYCHORS

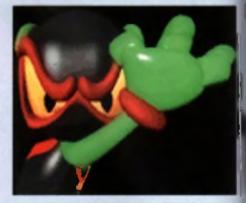
in development to well o catelony now. Paygrams look skely to show everyone e-se how a CO perce should be designed as you leden envient et di evenenengie spaceship and set of on a medical mission raids the human body.

NORTAL ROMBAT & ACCLAIM More popular than Street Righter 2 the stands total are up features a contential y introducto corve avera PL. CALINGONE AL ODDOUBLE spinel column. Should be a law spread international the contract

#### MUSICOLOR & VIRBIN Learn music sheary in you company and play your own music. For ages and up

#### NCK FALOO GOLF & **GRANDSLAN**

The of the freest golf generation the Andge will be regeliced by upgradied for its COSE release. Expect a new training mode teacarting Felds plying parton expert Parts port type plan even hoter encontines and vities clips Caddy will often constructive advice rather then elegand you all



Zool is destined to debut on the CD32 in the new year Gremlin are promising something really special

Teers 17

#### NORTH POLAR EXPEDITION A VIRGIN

k and a summer while machiners in the top of the World - the Nont Pole Combines need photographic boologie Marti Ric Ratgit Favoriae Matoric expedition

### 08C48 = F1 AIR

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ESSIBATORIC = TITUS I have administely or oten why Titus should ogt is convertione of instrbudges germes for the CD32 other then this they must be very elupid reduced Crew

## PROJECT 3 # TEAM 17 possivity of the second strict which are a s

PUTTY A RYSTEM 3. A pliable peace of purity has it to guided ever plattern paping levels Original Junny and Gener, Byster To boast

## ROBOCODIA MILI ENNIUM

Everyon is beginnin againing the second of the finance moments of the finance moment. PlaRoom has and game

#### **BOUGH & TUNILLE** # RENECACIÓ

Cute platform rowing with a little lad who is got a filming for B I G guret

#### RENDIELE SOCCER **A RENEGADE**

Possibly the test Arrays stores pro-Secultule Software g auculiero biokabout will debus or the CDS3 early next year

#### SHICITY A MATER.

It's not clear whether Maria will be re desurg they CDTV version of Sim Oily (bugs r all) or developme the uparate rig Sim City 2000 for the CD35 Late ringe kap the letter part

## **BLEEPWALKER & OCEAN**

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## SOCCER RID & NRSALIS

Americal a CU AMIGA Supertite Init month, the CE version Will reducte ar extra country - Breal which had it by left out of the lines.

#### STANPS OF FRANCE AND MOROCCO & SERIAT

You fire blie down achievy soull, and there are openibility of requiring the series of it proconstant Don't Apid your branch n gi

SUPERFROM . TEAM 17 Over chighed anglesfeleg jurispit for all he worth in this becau caused platform game irom cull publishers.

## SYNDICATE # ELECTRONIC

The Amigg a most violent game tax recent Reval egengic menalen tight if out with Lemsthemmer molecon cocktarie and machine gune Describes in some

### URIDIUM 2 & RENEGACE

Andrew Graytrook a back with a nequal to his seven year old CSH bia ana a

#### ZOOL & GRENLIN

The second of th they ins an / arrend A1200 version

## PORKY PIES

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Another rendered image from the upcoming CD version of Zool

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# PINBALL FANTASIES CD EDITION

That ball just keeps rolling, as 21st Century take the sequel to Pinball Dreams and crank it up a notch. Tony Dillon gets on his platform boots.



You must remain a more of these tables, as number of their favourits pinball machines. When Den reviewed the standard Arsiga version of Pinball Factasins, he wasn't too impresend. I, on the other hand, standutely towed it, and there the the problem with reviewing a game like this - you either love it or you don't. Pinball has always had a Cult feel about it, and if you re not in, you'nt dot. But enough of these clickes - down to brites tacks.

## 

crammed full of Reshing Ights, spinning bumphin, aprings, buttons, bonusses and brigs – bestonly everything you would normally read of a pin table. As always, you have to somehow guide a small potential deal ball through these health maten using only a couple of flippers at the bottom of the screen. To begin with, there a Partyland Bated on the ever popular Funtariales. We table is table potential couple of the start labels is table put with relief coasters and other lunch returning indet, and epocial ice cream bonusses. Next up

the ladder # 8 Hon Dolar Game Show, with your heat with the oversized arrise Keeth McTeelt, Win cash mann and a draam holiday in the Caribbean for two. Or you cam by your hand at the driving wheel with Speed Devis, complete with an of road area and pt elops to point. Finally there's the obligatory honor table. Stones And Booes, with more open then a Freddy 8m

an bousses Nation Reve a definite head, an

The biggest difference between this and Dreams is that you get more than two flipping on each table. At strategic points around the tables, extra flippers are placed, just to make thome with bonuses that little harder to catch. Some with mulcan only be reached by these extra flipping, and norm of the flippers can only be reached when the ball is whitz og about at high opend, so fast refer es we most definitely called tot.

Each table is guite long - over two ecreens high in fact, and the screen acrols to follow the ball. This might seem a ritle originaritating in

## theory experts hwhere the ball we will head of men behind in onesise though (works with most y after all, when pery right and provide your

eyes will to low the ball, so why shouldn't (the scream on this? That isn't to say that you don't lose sight of the ball repeatedly, but then egen who wants to play a store probail machine?

These have been many attempts of probat armutators, but none before these two have ever really anyoyed any success. Some tell because they pust even't realistic enough but most fail because they don't less right. Pinbell machines have a definite heat, and it isn't an easy one to

> reproduce Judging the angle the bell will come of the bumpers is a gk if that takes time to least, and can be very gratifying once. acquired, but most games just completely fail to emulate that, and and up heating duil and Malaza, Proball Faritagens is a compilially different kettle of fish, in short 4 a probail to a T. The ball is perfect in every way. Every angle

Over of the count revises the intervision in its the CDquality music and accord effects. These tables could aggred the the cost tabus

Graphic artist Marcus Nystram has had his work out out improving the look of the game, but you have to edmit it looks even more like the real thing now. wook and bump leaves it seeting exactly how you would expect if to, and the design of each mble is such that everything works as I would in realitie. Indeed, one of the things that Digital flusions stresses in their designs is that phything included in one of their lables must be has by ocsable in real life. Even if it a deciminagnetic mechanisms needed are to intricate to produce right now it must still work on paper, or the idea ins' i included.

## SINGING A SONG

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But what you teally want to know is how has the pame been improved for the CD32? Well, The main mittal difference is of course, the graphics. If you think the game looked good before, then take a look at the global 256 colour labies on these pages. Graphic Artist Marcus Nystrom has had his work out or L improving the look of the game, but you have to admit it looks even more like the real thing **JOW** 

Sound, too, has had a serious boost. Cic! Guntaisson has written completely new turns for the game, and recorded them protessionally to take edvantage of the CD32 capabilities. As a reguli you have some aturining mutic playing. while your channel stered sound effects too the dural expenses i have to say, if improves the game ever further, ariding to the errosphere and tension, the you would not believe

All is all though, Piobek Fantasies is much the same as the standard Amiga version. This a no bao thing, of course, if you happen to ike the original. Even so, this isn't a true anample. of what the CD32 is capable of it would have been non to have seen more tables, perhaps both Pirabal games rolled into one package. SA TUR men out of a say massing and 4 white

## SECOND CENTURY

The man at the top of the 21ml Cectury lucide bee just published he 200th gene and is tealing pretty happy about the whole thing. Andrew Herean to seed of Heweon Consultants and one lime insisters writer for the ending defund Sinder Line matching inter been in the indusity onger then most people Intriamber there. baing an industry Memoraha mounds in their grand to carear include the stackies i tratium and Berevirred and wide car larges the usbrigenbe Southern Bet a tertifiel eleculation al the London to Brighton train rds



We asked project manager Fredrik Liliegren of Digital Blumons what his thoughts were on Commoders a new deeling.

Basically, it's the ben' available console Yis a law gence much better (navi me loo, as that means lease paracy 4 the comes are the request. On the other side inclução a CD leases a long 1 me to 14 - 1 with different music. Because it wit take so long to bit a dec. If eve will be inwe releases, but they will be boiler parment Commodore should have hread it with Nece as last as a normal Arrigationth FastRAM I could have run tive times



The best thing about Pinball Illusions, and indeed its illustrious PROPERTY AND A PROPERTY Organia, in the philip th accelling 1 casily is the best we ve ever seen in a probail came on the Amica. And, Indeed, or Any other type of platform.

It would have been nice to have seen more tables, perfuges both Plabali games rolled into one package. Still, it's a great game by any measure, and one of the most addictive the CD32 will see for a while.





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RELEASE DATE	SEPTEMBER
GENRE	PINEALE SIM
TEAM:	INGITAL ILLUSION
CONTROLS	JOYPAD
NUMBER OF DISCS:	1
NUMBER OF DEAVER	10 A

## 26 CD32 SPECIAL GAME REVIEW

# DIGGERS CD EDITION

Lemmings meets Boulderdash in Millennium's new mining game. John Mather grabs his bucket and spade and digs for victory.

Bet on the minimal rich planet of Zerg, Diggers is a low level strategy areads game where the idea is to strip the planet clean of any valuable. deposits while competing against these tival mining operations. This is done by guiding your race of slige diggers around a series of mines using a point n click interface and a bank of icons to issue your orders. Standing between you and a bank ecosual with more noughts then Lord Emerg's weekly ber bill are three rivel mining companies, plus essorted ghoule, zomblet, triftid-like plants and the odd discussion of the literation for good manifula On the of the text the hines of mining accilement has to be paid out of your profits and the Zerg Block Exchange is neithiously unstable, so prices for the various game you mine will go up and down like a yo-yo. Then there a your own workforce to consider leave them alone for too long and they li go off on their own and either wander tround

## RACE WARS

Hi Oua

11

You can chose to control any one of four elven races who have been granted mining licenses by the Zargon Authorities. Each have their own pertoxian shifts and shifting as it swan to take your twee choosing a learn, as you re sluck with them for the remainder of the game. The Habitsh ere an often-secretive race who potential kanopertational powers and are an extremely reigious lot. They constantly down tools when you least argent it and go off to worship they god, knowing down and praying, While the le happening, you loss all control over them, so just hope that there are no rivel money around at the irre. The Grabias are excellent degrees up to 25% (as)er then the other races in the game, but ers complets wimps when it comes to funding off attacks from rivel pange. These electrons is called

similarsiv or fail down a bottomissa pit-



Armediwith shows and pice-ane, our industriant wine w get to work at the pit taxe

good, though, so this tot will quite happing dig for long pencies of time writesuit getting bored or exactly, are slow degare and lack intrative. On the plus side, they fell is weather race and can be many duff up anyone who gets in their way. The last race, the FT args, don't excel in any one area, they rejust pood at everything. They we also get arraging recipierative powers, so their energy stores degree in a cover race plant bother races and are replanethed more quickly, too

Once you've chosen your workfords it's straight no the action. There are a total of 33. areas to mine, although only two of these are accessible at the start of the game. Once you ve successible at the start of the game. Once you ve successible mines for each larvel or by woing out your opponents), you can choose to mine any adjacent areas. Each ets is minds up of a number of semens and packed to bursting point with hidden game and minesial wealth. By clicking on the venous score, you control where your five miners dig, with what equipment, and when they trade their booty on the Zing Stock Exchange

Each area is different and thrown up its own obstacles. Some excernitions take place in desert

Each stime 's recoverable controlled by a set of loose these can be called up by press of one of the joyped Boltens, but of the getterned a person



AND A REAL PROPERTY AND A



a proving sands and cave ins proving a while others are located in granslands. Init are made up of in penetrable rocks, caverns plan his stange mutant plant his Ther, there are mine shafts that have been surk arche regions or over an archigelage of islance. I near taking a segrer sustain auga dua she i encough each mine a sec populated with a incline mature of choris and phosis, and contact - hany of these reauts in certain death.

Ship mining is the easiest and most productive method to choose early on -just set your mineral agging in a straight line and eave them to it. Later on, you'll become more advecturous and mari lo engineer quite elaborate enuctures, es smilles corre into context with avail gange of means. This is when things start to get Exercising, Depanding on your miner siderargy unmi, and a baltery of statistics that detail their mamina, mangih and agiiny, you il other acc of your strackers or disappear in a pull of smoke. It's possible to buy back a lost miner at the end of mark level but it it cost you an arm and a leg to 10 10

## DIAMOND DEALING

As well as keeping careful labe on the wellare of your two miners, you need to sell your miners. deposits to earn a profit. The Zargon Stock Exchange lets you deal in only three randomly milected minerals at any one time. By clicking on a particular dealer, you can sel your booty to him at the price he is currently quoting, or come back later and see if the price has usen at all. Flood the market with log much of one ore. though, and the price of that particular commondy will collapse.

Once you've waved up enough cash, you can staff by ying resurg education in or the Zargea Micro Stone Gerhanicato ggate or arrite and

integerts are gvs lable, slong with irits and bridge building material. All of this adupment goes a long way to making your mining operations run more emoothly, and gives you time to plan a more effective strategy, 4 lunds become loo, ow, it's possible to re-sel your equipment back to the bank at 75% of its value.

Everything in the game is either mouse of joypad controlled. Which one you choose depends on personal preferance. The mountaila laster across the screen, but the joyped a buttons allow eas at access to the game a many icons and can

## SO WHAT'S SO SPECIAL ABOUT THE **CD VERSION OF DIGGERS, THEN?!**

Well, for electors, it's the first version of the game to be released - an A1200 version will follow later in the year. Then there's the 100-page animated manual 've mentioned elsewhere in this review. These are also five dedicated munic tracks and several audio segure digitally mixed and musicred by Richard Joseph. the talent bohind the James Pond and The Chase English soundiracks Next up are the huge' enimeted intro and and acquinces which, quite trankly, are strictly estateur siteirs, consisting of system entration, little sound, and an and another annount of magination. See Diggers is the first CD game is be released, so is something of a m A not a resounding success.

flip between your five miniers much more quickly. Unfortunately, if a the scon-driven control system that lets the game down. To pack up a gam requires no less then eight expende button clicks and econ becomes incredibly techous. It is the same for almost unything you want to do in the came, from buying mining equipment to simply guiding your man about the screen. Having to constantly re-lasue orders to your wayward miners is another drag - I really don't care it they have their own generations or not, when I issue an order I expect them to carry the state of the suddenti state to a bear or

## FILLING IN THE DETAIL

The game's graphics are also unwapped. The muscula more are and blobby effairs with little detail, it DMA could match some character into their equally small Lemmings. then I'm sure Melermum could have done batter than this. Even the mine workings and enemy sprites are chosen in a rather Laciduatre (ashion - if a something you would have expected to see in a C64 game eight.

years each And then there s the sound effects. The Mining Store uses some nime variated sounds to convey a busy industrial workshop. with crashing hammers and saws being used. but the rest of the in game sound effects are poor and linity.

Sadly, Diggers doesn't do anything that takes advantage of the CD32 a capabilities. As if to prove this, writiely the same game will be coming out for the A1200 in a matter of months. As there's no existing benchmark with which to judge If s game, it s probably best to treat a st an ordinary Amiga floppy release - if cartainly doesn't do anything which couldn't have been seen on a bog standard A500 live years agol The accompanying press release talks enclosely about the stunning 256 colours used in the game. excuse me, but a few nice copper effects for the sky and some muddy brown and greed colours doesn't really have me stooking at the mouth.

I would have liked to have seen the game a stategic elements emphasisted a little bit more, especially the trading sepects. A two-player splitscreen mode would have been fun, too, it's would a weder lange of mining equipment. If you know there are mail garge working in the area. Aurity you re going to want to supply your man with the latest in anti-personnal mintel and weaponry?! As it stands, everything seems a bit dull and boring. with long penods of time spent switching between miners well to check it envoye a decided to throw themselves of a ledge or have a fee break

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Diggers could have been a real gern of a game but instead it's more like an uncut diamond. The wouldn't hack h on the ASOO, let alone It a new CD32



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## MANUAL CONTROL

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Unite Reapy based games, its CD version of Diggers comes son its success coducted of TNT (Textorized Riners' Promotors), it i satisfiering of Mitch Helder Hen tearing ago Rented the Great Hall of a Theorem nations intermote an the planet Carabable -Takao of the Procedurate state he cannot will be a dit të kathar kesa Kungi de Mility email an explore and graphics depicting res in the party



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At the stort of the getes, a stint-brankterer of each race a vestimeness and strongths is detailed to heig you decide which and at minere to choses

The Zorg on Mining inte compile a integrate from all tability on in old your in your mining operations Unfortunately, fearry Polytic di ana di altra

HOUSE, MILL COURT, GREAT SHELFORD, CAMBRIDGE, CB2 5LD, TEL: 0223 8448 SEPTEMBER RELEASE DATE GENRE MINING SIM IN HOUSE TEAM CONTROLS: JOYPAD, MOUSE NUMBER OF DISCS: NUMBER OF PLAYERS:

GRAPHICS \*\*\*\*65% \*\*\*69% SOUND \*\*\*\*64% LASTABILITY PLAYABILITY \*\*\*\*65%

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Poor quality Lemmings cions lacking excitement.

OVERALL 67%





## 30 CD32 SPECIAL OPINION

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# THE FUTURE'S SO BRIGHT

## Do Commodare have a winner in the aggressive console market?

Continuations containly think they do and they have meringed to common a most at the key software developers in the UK that it a worth developing (cmomething they were never while to do with COTV.

With a inue 32 hit mechine and a task CD RCM at under C300 (the Magaorive Maga CD bundle costs) FNG and that is only a 16 be machine with temble (C) the quality; at Commodore have to do is get for inverteining right isomething they have had temble profiles with in the peak, and they are on to a certain and they are on to be a certain and they are on they are on to be a certain and they are on they are on

The big question growth the Kick switch to Ampai CP32 how the Sega and Nutlendo? Lester Coron reg 10 year old brother and ponismed Super Nintensto Imale what he though of 4. Mega CD is a rip off, this is much changer and better. The the controllar and the CD32 looks decart. 'So there you have it is genes like Jurasev Park and Mortal Komber make in out on CD32 mon them is going to be a more the bit the Changes

Should you huy 4? If you relinto Arrige games then yes. Within a year lloopy disk could be deart as a game detribution formal. Publishers are arged to ultime the huge potential that CD gives them, and at the same time patt as and to preced that has caused ao much demage to the industry.

And at 2298 it is sweetly the sema price as the A1200 no which a the better buy? Viet I you want CD general than the CD32 is currently the only choice. The CD once for the A1200 mistin not available, and I doubt I withby released the note of Christman, it is highly skely that the computer imparison box for the CD32 without washave fing before the A1200 CD ROM drive (which self in untilkely to cost much less them the CD32.

As more publiches take the plurige and like Miller no m with Diggess release on CD trait and a cutdown licepty mak whitten lake. It makes little sense to rely on licepty disk worthers

The potential of the C022 is managive. The hardware is excellent, there are a lot of programmane who know how to develop for the Amaga and the development costs are relatively amail. It will take a few good quality trians to make C032 a success, and there are delutately on the way.

there are detectedy on the way. Law connectly institute my lost title on CD32, called Weley Constor (described elsewhere in this issue) and I'm confident that CD32 is going to set well enough that I it be able to develop more titles in the lating

Ital I is able to develop more stag in the lution of thest all popy drive connector and PhotoCC support, then it would be excellent, efficient in spect it would there been able to have these and solt come out at under ESOC.

Would I buy one? My own CD32 is stready on order, and I can't warf for it

And is it going to be a success for Commodors? Well put it that way. I we bought shares in them! You've heard what the industry thinks, you've read the opinions of the CU AMIGA staff, now it's the turn of a developer to have his say. Jolyon Ralph offers his own personal view on the CD32.



Yes, here a another increalibly interesting phot of the CO32, but only because Johym in increalibly any



Publishers are anger to utilize the huge potential that CD gives them, and at the same time put an end to pleasy that has caused so much damage to the industry.

And is it going to be a success for Commanders? Well, put it this way, I've bought aboves in themi

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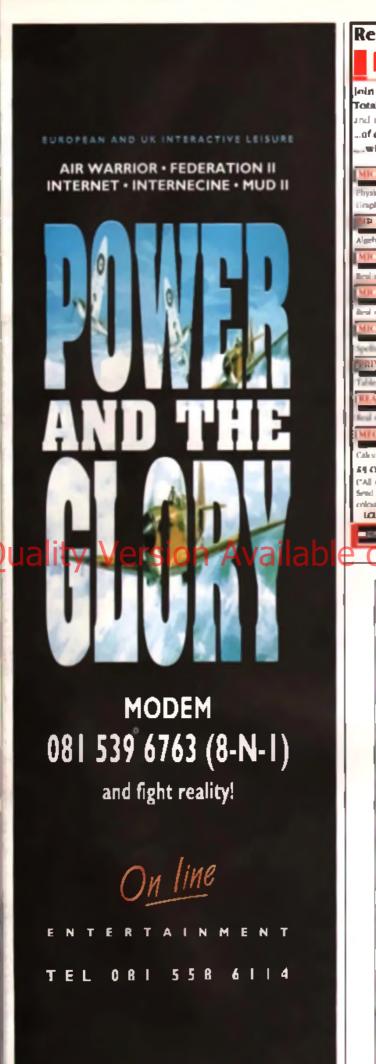
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## 165 BOOKSHELF

Mat Broomfield gets file meeting head on for September a book selection. This month - Teach Toursell Computer Graphics, and Breaking Through Technical Jargon

## 167 COMMS

John Armitage returns with another does of Comme who Many of us don't realize the value of a good Bulletin Board, lusidy John's here to put us right.

## 168 EVERYTHING YOU EVER

in the first of a regular sense of beginner's guides Tory Horgen uncorks his overflowing knowledge of Amiga music (or something)

## 172 VIDEO TITLING (PART THREE)

Continuing his video titing series, CU AMIGA's tribuler to Slaven Spielberg, Jim Sirulion, centres on animation

## 175 UPAUNT GUIDE (PART EIGHT)

If you've been following the series, you should have meetered the basics of *Delcas Parnt* by now Delving deeper into the workings of the augerb package, Paler Les Ifs the lid on another tree sure intervention advanced triple and techniques.

## 178 AMOS (PART SIX)

Moving on Wom the finally-completed Paoman project. Dave Sevenan embering on a new venture - a shoot am up! Find out everything you need to know about stens, largers and appear **strice** 

100 GUESTIONS AND ANSWERS Captain G&A (A.K.A. Mat Broomfield) comes to the rescue of another batch of perplexed readers wrestling with the Ansiga's more technical aspects Printer problems, memory muddles, disk drive dilemas and monitor mix-ups - nothing is too much for the Captain, PLUS - Tony Dillon, the boy blunder, gets to grips with a mailbag's worth of AMOS conundrums

## 186 HYPEREOOK

So you've gal your tree Hyperbook della trom the June make of CLI AMKSA, and worked your way through last month's introduction. The month Jean Hotern moves only some more powerful features of this versality program.

## 188 DN

SEPTEMBER

BOOK SHELF

CLUB CALL

1993

CU AMIGA S very own med ecientiel, John Kennedy, has been tel loose in the leb again. The time he's gone and built an Amiga-controlled robol, and so can you! Go get your soldering iron, then turn to page 156 to find out how it's done.

## 190 BACKCHORT

Drawing the abort sinew this month. Yony Oilion Here her best to keep his cool in the lace of a neckload of inste reacters letters. You horrible loff

Never one to keep his opinions to himself, Mat Broomfeld late off some steem about sloppy gemes programmers. Och il melus me med-





Feeling hungry for enlightenment? Mat Broomfield takes a look at a few more morsels for your eyes to feed upon. TEACH YOURSELF COMPUTER GRAPHICS

Computer

Graphics

To most home computer uners, the quality of their machine's graphics – its resolution and the number of colours 4 can use – is one of the more important factors that influenced them when they bought it. Along with processor power and such abilities, 4 s one of the key features that define how powerful a home computer is.

Sconer or later, most Amiga owners get out their obpy of *D-Paint* and spend some time drawing their own graphics. A far smaller number may also, learn how to programme contexter, and they be corrected with

a visitly different understanding of the way graphics work. This book is arread towards the latter type of uner.

It's not simed specifically at Arrige users, yet everything within it is equally

relevant to us. It begins by defining exactly what computer graphics are and some of Bwir uses ranging from Rim special effects and Computer Axied Design applications, to games and purely seathship purposes.

After input devices ranging from the keyboard or mouse to lightpons, pucks and graphics tables, John explains output devices and this is where things start to get interesting bacause the author goes into detail about the way that monitors work, and the relationships between association and interfaced and non-interfaced deplay modes. For the potential gamest programmer, it is important to appreciate the relationship between association and restor econ time, and this subject is succedify explained – in fact a great deal of information is given about the inner workings of computer monitors and televisions in general. The chapter state describes laser privars, plotters, LED deplays and a variety of other devices.

From the following chapter onwards, the tutional proper begins, starting with the way that coordinate systems can be used to model objects, first in two dimensions and then later in three.

The tutorate are accompanied by programming examples in pseudo code Rather than being written in a specific language, pseudo code is a kind of generic language where the reader can easily see what each instruction is danged to do, and adapt it to his own requirements. At the end of each section, there are a sense of self tests where you can evaluate your knowledge by attempting to enswer quantions.

The book continues to explore ways of moving and animating graphics, and how to present them within the visible acrean area (the wavport). It even given some finite on using anti-almong to emooth out jagged time.

Towards the end of the book, vector and maths algebra is briefly decussed, and these can be used to create some very impressive enimation routines

Overall, surprisingly readable, and suitable for anyons who can already program moderately in any language.

IBBN 0-340-40819-7, 232 pages, EL91, Sherret & Hughes, Waterstone, or any other leading book store.

## **EREAKING THROUGH TECHNICAL JARGON** - A DICTIONARY OF COMPUTE AND AUTOMATION ACCONTAGE Merk & Merkaw

As our daily life becomes more and more titled with technical devices, our vocabulary elso changes to include the new technology. In the older days firm term man served to delight is going things long solaritic sounding names so that they councied impressive and their humble origins were disguised. Therefore a shoe bacame an organic peremoulatory protective sheeth and price of paper would be called a compressed fibre impression rebining accessory i

Novedays the powers that be seen to have gone to the opposite extreme, abbreviating and accommitying (i) everything. What with RAMs and flops, bits and bobs, Titls and Targa, you could easily be torgiven for thinking that our new language has atil been devised to hide the true meaning of just about averything.

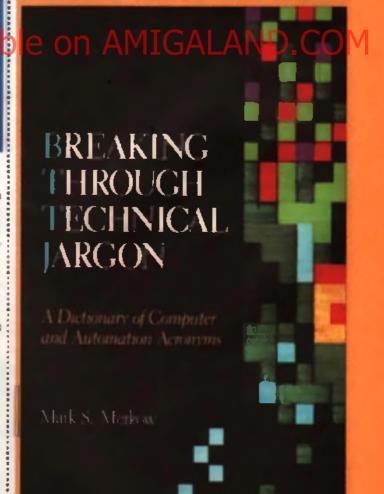
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Put enceher way, Breaking Through Technical Jergon is a book that expleme the meaning of every technical advorym and abbreviation you've Ruly to encounter.

The book is divided into several sections, the largest of which is arranged in subhibitical order, the abbreviations and accoryces, and these are then given a bibli explanation. Also at the back of the book, the explanations are abbrevisited (VI). Actually it is not is explicit as it sounds. The accoryce, etc. are listed and then just the flamit word for word definition is given, rather then an explanation of what it actually means. Unfortunately the section is subdivided according to the suce of the computer system being referred to (mean fasted, protonal, nime, etc.). This means that you need to broke the system to which an according to the suce of the computer system being referred to (mean fasted, protonal, nime, etc.). This means that you need to broke the system to which an accorym partners, which is a bloody sity way of doing things if you ask me<sup>1</sup>.

The book also starts with an explanation of some commonly used terms and prefixes, such as startings, megaaphanes, etc.

Cuts a useful book If you find yoursell befind by the tech pages that aurounds as



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Hi C

It's back! The return of the column that connects you to the real world. Join John Armitage as he makes all he right connections.

pps/ently you aren't interested in the subpect of this article. In fact, interested in the subaren't even reading the sentence. Why? Because all the answern to our madership surveys show us that Comme is a subject of 'minority interest', and besidely no one could give a monkeys about it.

I find this very strange, because if you are reading this magazine you have at least a passing interest in the Amiga bayond games. You may be interested in graphics, programming, sound and music, the kind of stuff that makes the Amiga diferent from a Section Nimeron of S. 100

of the falses name on your specialist subject? Well, there's CU Amigs of course – but unfortunately, we can only produce one magazines a month. Apparently there are other Amigs magazines available, too, but the less said about them the better.

What you need is an up-to-the-second source of news, a wealth of tree softwars and a forum where you can meet other like-minded Amiga users in short, you need to get into comms.

## COMMS

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Comms has a strange aure about it - comething dark, mysterious and probably hestung a lot of anorake. Perhaps there was a time when this was true, but now anyone who knows how to use a telephone can get on-line. In fact getting on-line is even easier than using a telephone, because you don't even have to diel a number by hend.

There are two things you need before you can join the hidden world of Arrige comme – software and hardware. The software you need is all in the Public Domein or is Shareware, so next time you order some disks from a PD library, ask for a copy of NComm or JRComm as well.

Besides the Amiga, the hardware you need is a modern – the device which interfaces your Amiga to the telephone network. Practically all moderns connect to a computer via the senal port, and as the Amiga uses the RS232 standard you can be sure that any modern will work, be it for the Amiga or a PC. But before you open your wallet, perhaps the best way to get started is to borrow a modern from a hiend. Once you get hooked you can buy your own, and you'll be pleased to know that the empleat units cost little more than external floppy disk drives.

Figure 1: Allowing the comme exiteren to use a suitable flood rate is only a maller of using a pull-down memo. Here the ratio particulation value of 2400 her been selected

## NUMBER, PLEASE

Want to try out some rears Bulletin Roards? Here's a list all other boards for you to try

DAME FOR EVEN AND EX	
Manis	081-715-6477
Cartano	081-317-3158
Eastern Net	0953-851-351
Europe ZonaGole	0294-395935
Lightingurs Place	0202-485-723
London Nei	011-316-7402
London North Heb	001-445-6514
Availat	
MicroMola	001-316-7402
Midnight Resistance liks	0482-749-43
Northern Nel	091-254-6019
Quantum	021-707-0681
QueST BITS	0422-381164
Sounds Digital The Dorkside	091-204-6019
The Domisian	061 591 8826
The Towern BIS	081-445-6514
Track 63	0953-851 351
Turballet Centra	0296-395935
Western Lift Mat	0222-341713
Yukan No <sup>l</sup>	0232 768 63

## DIAL IN

So with the hardware connected and the software in the drive, what next? Nothing could be simpler – run the software, and you'll be greeted with a standard terminal-like display. Try typing ATZ and return – if your modern is operating correctly if will reply 'OK', if it doesn't work, try altering the Baud rate satings from the Comme software's pull-down menus.



Now you're ready to try a Bullatin Board, For this example, I'm dialling a board called 'Lightingers Place', I've never used this board before. I simply picked up the telephone number somewhere and decided to give it a try.

First instruct the software to dist 0202 485723, then after a few seconds and nome strange whining tonas you'll be greated with a display like Figure 2 bits from a biological sector.



Figure 2: After logging on to Lightfingers Place, your terminal antheres will hopefully produce a graphay such as this.

Lots of lext and instructions will appear on the screen. Don't panic, think logically and you'll be able to answer all the questions (about the most taxing u "What is your date of birth?"). The information you enter is for the Systems Operator's syste only, and by providing it you are registering as a potential user of the board. Don't worry - you won't receive junk mail or bills, it's nothing more from a precedien.

You'll also be asked to pick a password - pick an obscure one, but don't forget it. This Bulletin Board will also provide you with a special log-in number. Make a note of it, and use it next time you of in to upped up the process.

## IN THE SYSTEM

Now that you are inside the system, you should new your options displayed on a menu acrean, like the one in Figure 3.



Figure 3 Each feature of the Bulletin Bound is reached with a single keypman from means acreans lake this one.

As you are a first time user, you will not have been registered and several important options will not be available to you. However, by the same time the next day you'll have been given your security desrance and will be granted access to the deeper areas of the board. OK, so now you can access a builterin board. Next month we'll look at what kinds of into and software you'll be able to grab whilst you're in there.



ALCINNERS CUIDE AMIGA WORKSHOP

## TED TO MAL ARC ih

So you want to get funky with your Amiga? Tony Horgan, noise-maker extrardinaire, gives you the complete guide to starting out in computer music.

## **Hi Quality Version**



he best thing about making noises with the Amiga is that absolutely anyone can do it, and once you've got your Amiga, it needs 1 cost you more than a liver to get started. Whether you're a budding Beethoven, or you just ferroy a linker, it's all there waiting to be campled.

## SOUND AS A POUND

Before we dive into the moky bits, here's a brief introduction to the Amiga's sound a maximum of four semples simultane-

pusity, but you're not imited to holding just four samples in memory. 2. Two of the channels are output through the left phone socket, and the

other two through the right. Proper stereo samples can be recorded and replayed, but they occupy two tracter.

Stendard Amiga samples have an 8-bit resoluion. Most protessional samplers use 16-bits, but when used well, 8-bit samples can sound just as good - good enough for professional use in fact. 4. Samples sat memory very quickly. In a 1Mb. machine running OcteMED, you would be left with room for about 30 seconds of samples recorded at around 16Khz. Remember that s only the length of the samples - your tracks could be much longer then that

WHAT YOU'LL NEED

Got the basics then? Okay, here's the shopping list. Don't worry, it's not all essential.

AN AMIGA You can use any Arrige from a 1.3 A500 upwards. The ideal machine would be a 4000, or more melanically a 1200. The 1200 has



Don't be put off by all of this techno-be for the r

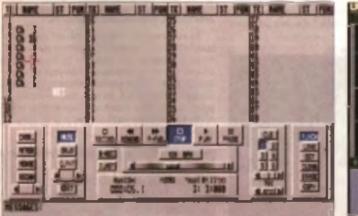
2Mb of lovely Chip RAM (see the genel on Chip ve Fast RAM for more into), and It's faster than the older machines. If you're using a 500, you'll need at least 1Mp of RAM (the will be half Feel and half Chip), A 600 her a standard 1Mb of Chip RAM, no there a no need for immediate expension there. Any other model in between that lot will do fine

• A SAMPLER Unless you're going to rely on semplas from the public domain, or go for a MIDI-only setup, you'll have to get yourself a sampler. You

## CHIP VS FAST RAM

The Amiga's built in sample replay restines can only access Gap RAM. If you had a machine with 20th of Fest RAM, and 10th of Gap, you candi only use the 10th of One to store your sample. It's handy in have some fest RAM too, is it speech up the moving of your sampler and nor prepare

There are samplers and sequencers to suit every size of wallet, and every level of musical ability.







## WHAT IS MIDI?

VIIII stands for Massach Instrument Digital Interface. It's a system that was enabled by designed to control system can there wais, anterested mixing design and other hits of effects weis, anterested mixing desits and other hits of VID SHOW

410 separates don't record second. Instead, they record note date - in other words, the order to which the notes are played from your muster keyboard. Computerand sequences ellow yes to allor the masic on-screw, alling things into size and deleting measured rates. pulling this The sequences can then replay the corrected version of your performance through your synth.

can expect to pay around £30 for one of the chasper carindges. Some say the more expensive units are worth the extra cash, but I'm not entroly convinced, i disay the difference in sound quality is nominel. With practice, excellent results are possibis from samplers at both ends of the price range As they say, it a not what you've got, it's what you do with it.

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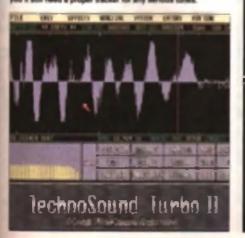
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When you buy your sampler cartridge, you'll bies get some activary. The will let you record sounds into RAM, then save them out to disk for use to other proprems. Some of the software that comen with the cheeper sampler can be a noncan always match your hardware with a different proce of acting activities and there are a few to choose from in the public domain

Check out the Samplers panel for more specific into on what a available.

 A SECUENCER The sequencer is the entirized you use to record your music. Some deal only in Amiga samples, others are totally MIDI orientated, and a lew handle both samples and MIDI. When a comes to deciding which to buy, it's matter of horses for courses

Prices lange from around £2 for PD trackers, to C300 for the big MIDI sequences. If you want to make the most of the Amiga's sampling abilities. stater clear of the MIDI-onentated sequencers and to for OctaMED or a tracker metand. On the other hand, if you want to record in real time from a key ne sample editors come with handy built-in trackers, but w'll still need a proper tracker for any serious tunes.



## SAMPLERS

you go for? Take your pick from this let.

## TECHNOSOUND TUPRO 2

menanara (0271 070933) 229.93 New D One of the most widely used samplers, TechnoSound Turbo has just been uppended to workers? The headware is up to scratch, but the 

## AMAS II

Mitronderol (0726 68020) E99.95 If a more than twine the price of the entry local complex, but with 2005 If younget a first or With star form the price many, it is a the second start of the second start of the second start of the second start of the viewe prime all and Well and Demogram the setting is pewerful (17 year of the best player and vevery effects of any Amiga storplet) but has adding is clears i expressive due to the pair wave display — you'll need to use it in comparison with our editor if you want to be sure of light timing in your laces.

## AUDIO ENGINEER PLUS 2

## Diamond (071 580 4355) £219.99



This is the best around — whether it is worth the ordinat price in up to you. The herdware connects to the Amigo via a cable so it doesn't heng avalvatidly out of the back. As for sound quality it has a slight advantage over the rest, grab-bing a touch more bass and top and. The softward late year rectard and playback or stered or manie into both Fast and Chip RAM. It is the anti-point and the notice of time stands from a distribute it by for the most even diversely added available. The software is available sopercludy under the more of Automatics W proced at \$43.

## MEGAMIX MASTER

## Romba (0506 4) 4631) £39.95

Another cheap samples. Megamin Master also affers proty good value. Like TechnoSound Turba II, it uses a custamised system of icons and menus, which tends to confuse things a liable. When it comes to features, it scores parts will, with late (flacts and a tracker sachar) The sound quality protty good, far

## STEREO MASTER

iandeal (0726 64020) E39.95

Yery same to AMAS II. Stered Master is unlimet the combined MOI unterface. Agent from that, there is not much differ are between the two accept that Since Master is less than half the page, making if gote a steel

## CLARITY 16

Microdeni (0726 68020) £150 Dan I be feeled by the promise of 14 bit sampling. Sure enough it does sample in 18 tets, at rates of up in 44 1 the but you can I use it with any trackess or sequencers running on the same machine. Samples can be triggered from mether MIDI device, but then piny back quality is vasily radiated when you play more than one cample. In fact, it's very hurd in think of any situation in which it would be of any use, apart from as on editor for an external MIDI sampler, in which case it would be purie hondy



## DSS 8+

Silica (08) 309 1111) C60 One of the more user friendly sampling DSS 8+ is a minor upgrade on the original DSS 8 The software doesn't heve much in the same of effect, but for book sample grabany, it's a nice program to use. One unique feature it has is the software high frequency filter. When switched on, it filters the incom-ing sound before it's sampled. It's very effective at secondare borner with the effective at sampling borries without the noise that nerveally craage in an very simple. 3 bit waves, On the other hand if you south the filler carl, make appears from mere. Used in conjunction with proving sample activer, it should satisfy your reads



## QUENCER

Nero so rundown of the main contenders in the sequencing held

## **PROTRACKER 3.2**



## OCTAMED V5



17 Ilii Software (0924 366982) £2.00 (aduding P+P) Di of the track or permutations available, Protective is probably the most widely

used All trackers work in much the some way, but some have more leatures than others instead of music national the nationary displayed as lefting and numbers So long as you can get your head ground that, you'll have a powerful liste

sequences at your forcertips. Try to get sciencera is show you have it works, as they

nerms include general operating instructions The downsion is that it's very difficult to use. The interface is full of negating it the instations that can ready wind you up. That shouldn't put you off trying it out though, as it's virtually have, and can pump out some means sounds from even the smallest machines

Seasoft Computing (0903 850378) £30.00 Even more popular than Protecture's OctatiED. The Octa fit carries from its abiliity to play aght samples at once, rather than the standard low. However, there are a terminator disadvantages at using the eight channel mode, such as reduced aund quality rearise temps adjustment and a general lass at features.

On the other hand in loss chosed mode it is a lette gene it is invention the

having system but has a fat more to They, Thora's a built or sampler, precise temps control, laads al effect commands and MIDI sequencing for OctoMED treats remptes and MIDI sounds in much the

some way, said you start and with just the Arraga lif's no hossie to add a synth or down. machine et a latin data Octabil@ VS maals a Kickstart 2 er baghes, but 1 3 weers can use cary Ortabil#D

release up in version 4. If you want a taske, OctoMED VI and the four channel MED 3.2 are both public domain. For combined MIDI and sample sequencing. OrieMED car's to beat. Charle the review on the July '93 CII AMIGA for more details.

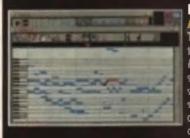
## RAVE

## The Software Business (0480 496497) £49.95

Although it is one of the chargest MIDI sequencers accural. Any also happens to be one of the versit. It's been parted from the angenet Ason SI groupeen, and interest of the store, conformed and fieldly espects of the user interface. If you don't read discharg Arrage samples in levour of MIDI instruments, have the patience of a saint, and don't want to do anything too advanturous, *Rave* may be worth a look.

**SUDDER LE DA 1 1 Marjulium Destribution (001 S43 3500) (299.95** There is a diffurence of aproien where Superjum is concerned Serve like no for example, say of a realess by that sounds like a S3 0 house keyloand. Others san it as a hundy compose like a S3 0 house keyloand. Others san it as a hundy compose

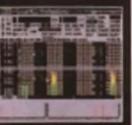
tional tool that an help gut the construction part in the property is an automatic backing truck generated, along the lines of the Atal S1's damit in a data. Comparing orything original with the atal impactible, as it's and could a proper sequence.

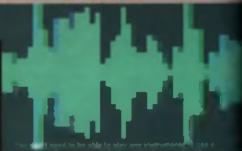


#### KCS 3.5 finn (081 766 6564) E279 Zone Distrike

This is the other bog Arrage sequencer, as you can probably tell hom the proce. Like Bars and Apers, it is intended her use with racks of MDI equipment so if you we just got a small set up, you won't need hall of the lumitions. Again, you may be able to pick up, older, charaper versions of KCS if you shop around









to board, complete with all your virtuped fourithms and expression you's have to go to the more For MICI and sample sequencing in one

OctaMED's your man. See the Seguencers panel for more about OctaMED and the rest.

MIDY GEAR When you're starting out, MIDI gear ian'i essential, but when you can afford some, it's well worth shelling out for.

The range of MIDI instrumenza on the market is huge - you should think carsiulty before spleshing out on your first box. I can't tell you which bits of kit to get, because everyone has different mende. Even so, here are a lew enneral tion

1. If you want to make techno, acid or ambient stuff, a MIDI-compatible snalogue synth is a sale bei. A Chestah MS8, or a MIDI rairo fified Mood would both serve you well.

2. Drum mechanics can be just the thing to expand your set-up, but you'll be limited to using the same sounds in all your tracks. Bear the in mind if you're easily bored by hearing the same samplas.

3. If you don't want gutgling bleepy lart noises leke a look at Yamaha I SY range of multi-timbrai synths. They'll give you a good selection of planes, sings, basses and all those other bread and butter pop sounds. Roland's JV range is also well worth checking out.

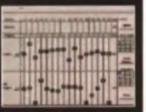
4. More and more effects units are supporting MIOI linese days. Get a MIDI compatible box, and you'll have lar more precise control over H.

· A MIXER II you're writing music for games or demos, you won't need a mixer, but if you want to moord your tunes. It's a must. You probably don't went to go splashing out too much on a box that dogen't uctually make any noise (apert from backpround name that is), so I'd advise you go for a simple, chesp option. Probably the best place to look is Tandy. Look out for their and-of-line models and sale offers, and you should be able to pick up. something Ingril do the job for around \$20-650 🧒



## BARS & PIPES PRO 2 Meridian Distribution (081-543-3500) £299

This is somed at the musicion with everything — you could quite leasibly con-trol a whole studio from this one sequences. Previous versions of iters and Pipes one still evaluable used would be barner suited to someone who's post starting out. Like most of the MICE sequences, there is very lefte samp soggent but it bondles MICE with onse. If you wont a usur treamly sequences, this is probably your liest option. Laying down tracks, quantising, and then overductiong is a simple process, and step ediling on the graphic display is no problem



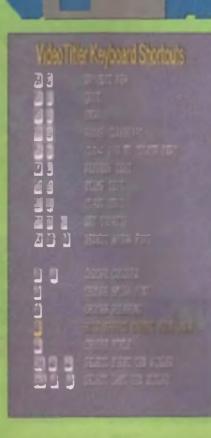


RT

AMIGA

**Jim Strutton** continues his auide to getting the most out of our VideoTitler giveaway disk.

VIDEO TITLER Hi Ouality Vers



ou may recall that in my first butorial on-Video Titler, I suggested that you made a note of the short-cut keyboard commands for the various features of the program. Well, just in case you longot to write them down. I have included a useful table of all the keyboard shoricute in the pic below left.

As you get more adverturous in your use of VideoTitier, you will find the use of the keyboard is the only way to achieve some effects. Try this guick experiment; select the option to enter text in a normal Amige Font - use Text>Entry' from the manu or click once anywhereron the screen with the right mouse button to bring up the text. entry crosshairs - now before you push «Enters", use the "«Amiga» «F1» to «F10» key combinations to cycle through the various longe you have selected for use in the program. When you have a font that you like, use the "«Alt» «F1» to «F10»' and "«Ctri» «F1» to «F10»' keys lo cycle through the 20 effects. You can also use the F1 to F5 keys alone, to change the colours of the various elements as you go.

## AVANA DE ON MA

will find this is best way to use Video Titler, You can ewitch the loni, the colours and the effects to get the most pleasing result. The same lifehniques will work for the Polylonts supplied with Video Tider, These fonts give you the option to change the size and distort the lext as we have done over the past two months. What you can't do la to change from a Polytont to an Amiga font. or after the lext once it has been rendered. If you want to make a change like that you must erase. rt and start solar.

Video Titler came out before Deluxe Paint III, so the animation feetures are basic by comparison. There are no automated

effects to create spinning titles, or any of the speciacular effects you may have seen with Delune. Paint Having said that, the basic animation in VideoTater works, it just means that you have the effort of creating the trames manoally. But, it can still be useful to create a smell animated effect for a short irile seguence. An examole would be an animation where the text grows over time.

## **GRID EFFECT**

To ity this effect out, start off by creating a Grid as we have done before, using the 'Edit>Clear Ta>Blacks' puildown, You will use the Grid to position the lext as you go through creating the animation frames. Once you have created the Grid, open the animation file by using the Project-ANIM menu. Give the

## THE ANIMATION GAME

If you can't wait to get started with you If you can travel to get started with presenting around then and you have a cape of Diniet lying around you can get started straight www. Simply save stat your files as described in the totacial, but give them as most ending in numbers, the "descript" over these can then be founded directly into Different Double click on Different's ican in our the program.

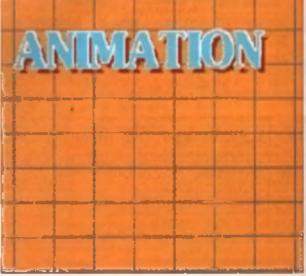
Using the mene bottom select load picture and the usual loading requestor will appear. Select the first of your sequence of files and then acture the summer of lotal files into the text geoget at the bottom of the requestor. All the files will now be bended to sequence and made into an animation. This means that you can now stree and your animation as an anim big from Minim, so just use it from within Maar Iradi.

## fie e name like 'CUTEST ANIM'

Now create your lexi using a Polyloni as we have done before. Do not alter the wzs. just position it in the top left of the Orid, as shown in the example below. Click down with the right more button when you are happy with the pas tion New the the Right Amiles Z key

combination to clear the Grid, which should leave your text on a plain acreen. Now press the «Enter» key on the numeric pad or use the Projects ANIMs Add Frame' from the pulldown The mouse pointer will change to [WAIT] for a lew seconds while VideoTitler saves the first Warne sway. Now use "«Right-Amiga» C' to clear the current lext.

Recreate the Grid as before, and effer the same text again, being careful to use exectly the same spacing and font as you did before. Now pull out the text to make it a bit bigger, position the lop right carner of the lont in the lop right



Harp's the sect of a shart gripping angu py in case in Maloo Titler Pirel, we create a phi is this to show up prefer the test if will be delated later

## AMIGA WORKSHOP VIDEO TITLING

porner of the Grid and stamp it down as before. Erase the Grid, save the trame and repeat the operation, making the text a bit bigger each time. To get a decent animation, you will need to make about 20 trames, to this will take a bit of time. When you have timshed, go to the "Proyects-ANIM" pulldown again and close the minimation tile. Once you have built the animation, the best way to see it to using *Delcase Paint*, or another animation version. You could use LCA on the Video Titler dek, but the tutorial for that is next month.

## **EXPERT MODE**

Moving on to the more complex areas of Video Titler now – it's possible that the following type may seem like double-dutch to less expenenced Amiga users. I'm not trying to sound concerted but to get the most from Video Titler you'll need to have a fairly well-developed understanding of the Amiga.

Video Trijer comen with 20 text effects built in Some of them you may like and others you may teni are a wante of space. Well, Expert Mode allows you to get at them and change the effect to your liking. Start of by making a back up copy of your Video Trijer diek, by that I mean the mein pro-



Figure 1: Here's the part of execute for VideoTitler. To get into Expert mouth an 1 mail is sell it



Figure 2: Clary, the line we could be add in Expert. Place () in the position trategori in the pic.

gram disk not the extra data disk. Using the copy, open the file called. VideoTitler', using a text action, in the same way that you would add your start up asquance file or any other text file. The file is quite long, but the change their you need to make is right near the start. Look at Figure 1, that shows the inifiel state of the file. After the word LIST, frant a line and other file. After the word LIST, frant a change, your file should look title Figure 2.



Pigura 3: In Gegari Minda you can get a datallari arrean atom Ing the land style that you'ry galange.

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ACAULT:	
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SPERT M	DE HITH OLL

PTIONS ACTIVE

Available on Al

## LOAD IT UP

Now load up VideoTriver and enter some text. Use any ioni you like and select the 'Pieln' effect from either the pulldown or by using «Citi» F1' keys. Now before you render the lexi, hit like F9 key. You should then see a screen like Figure 3. Close the requestor using the gadget at the top right, select a new effect using "<Ctri> F3' and then hit 'F9' again. The acreen will now look like Figure 4. To see how the effects work, cycle through the 20 pre-set. effects and note how the parameters are changed for each one. Some of the option boxes one you a menu to select from and others need a value typed in. You can bring up the new requestor box at any time by pushing the F10' key, he-lighting an effect and then clicking on the new Edit Style' box that will now appear at the bottom of the Taxt Styles' acreen.

## TEXT EFFECT

At the top of the requestor is a box for you to anier a name for the effect. Down the left hand acts of the requestor are four based labelled Cop', Raise', Letter and Drop' These boxes ere all switches, click on them with the right moune button to activate or deactivate the option. The box is hi-lighted when active. The lour Pent' boxes, give you the option of selecting one of the four preset colours for that part of the character. The Cap effect only applies to capital letters, whilst the Letter effect acts on the whole (on) by default, unless the Cap' option is set. You can set the Letters' to one effect and have the capitals in enother by use of these two boxes. Raise' is a 3D effect that Appears to come lowards you and "Drop"



Figure 5: Taxal effects are many to sufficient with Video Titles Here we've associated a raised text option.

appears to go away. You change the size of the effect by giving a Depth.' and then a Dat and Dy!' offset. The Face.' boxes bring up a requestor as in Figure 5 above, whilet the remaining three boxes bring up the requestor in Figure 6 below. Most of the options are set explanatory, but a little bit of thell and error will enable you to get a pleasing effect. Finally, any changes you make, will only be valid for the current session of *VideoTitler*, unless you save them in a settings file. You can either make the your default settings file or save it under shother name and food it as required.



Figure 6: To change the text effects, use one of the options insted here.

## UNDER WRAPS

That about wraps up the tutorial for Video Titler for this month. For creating basic text title graphics it gives you all the looks that you need. But, it is my personal view that you also need a copy of *Deluce Pant* to add a bit more linesse to your titles. As *Deluce Pant* has been included with most Amgas sold in the last few years that should not be a problem. I also feel that a program to create a side show and play animations is also a gualul addition. Well, this is where *Lights, Comment, Action, of LCA* comes in, Fortunately, this was included on the Video Taley disk.



That's all folks. But don't worry, next month Jim will show you how to take your graphics and animations and create a sequence for outputling to video.







DELUXE PART 8

A setti fecer a lamater anticolazzaria, fecandara a johne federa antica a antiching pravi fondazzaria. The tantituaria a single's properties for a setter in the setting of a site and there tangeters a setter of the setting of the site and the setting profession of the setting of the site and the setting profession of the setting of the site and the setting profession of the setting of the site and the setting profession of the setting of the site and the setting profession of the setting for a setting branch, which was given be a discound was a feel of the setting branch, which was given the a discound of the setting of the setting transmitted the setting as the basis on the Site and gentles it up scheme after anoth the setting of the setting to the setting setting the setting the setting of the setting of the setting to the setting the setting of the scheme setting to the setting the setting of the scheme setting to the setting the setting of the scheme setting to the setting the setting of the scheme setting to the setting the setting of the scheme setting to the setting the setting of the scheme setting to the setting the setting of the scheme setting to the setting the setting of the scheme setting to the setting the setting of the scheme setting to the setting the setting the setting to the setting to the setting the setting the setting the setting to the setting the setting the setting the setting to the setting the set the setting the setting the setting the sett

ant issue we looked at simple effects using the move requestor. This is Mission Control for automatic animation, and once you re really familiar with it. If I area you hours of work and make you look brillant with the bargain. Let's pick up from test time, will examining that email bit perfectly formed requestor.

# Characteristic Dever later Constitution of the second seco

animated object to follow it, but by building up your enimption 10 or no frames at a time, then starting the next step where the first one left off, you can create complicated direction changes – for instance a beli bounding across ell four corners of the acreen. The program will do this semi-automatically for you. As long as you leave

c

Getting more animated by the issue, Peter Lee keeps things moving in this month's *DPaint* tutorial with his no-frills fills approach, and builds up momentum with ease. The metaphors keep rolling like rock slides too...

the Go Back button sione (i.e. off). DParti uses the screen position where the last bruch draw took place as its starting point. It takes some fiddly leading to get the position exactly where you want it, but thanks to the Preview option you can watch the projected movement being played out before committing the program to stamping down the animation by obtaining on the Drawbatter.

In the real world objects don't just sent moving and keep going at a constant rate. A car, for example, slows down after hitting something, and likewise a ball losse some of its momentum after colliding with another object. You can actually simulate changes in the speed of an object in two ways within *DPartu* – the clumsy way at to create



an animation of aavaral sections where the moving object (ravels different distances in a given number of frames. For example, an object which 'tails' -100 Y units in 10 trames will appear to move more quickly than one which travels only 50 units in the same number of insmes. But instead of having to work out momentum on a hit and more back. Dearth hit a built in function on the block sequence which calculates at the to you. It's called Ease Out and Ease in . Any number of names you enter in the Ease box will be

ber of trames you enter in the Ease box will be used by *DPent* to calculate momentum at either the beginning of the sequence (Ease IN), or the end (Ease OUT). For any animation smaller than 20 Iramen the effects are minimal, but for longer stuff they can add realism to movement

## HAPPY TRAILS

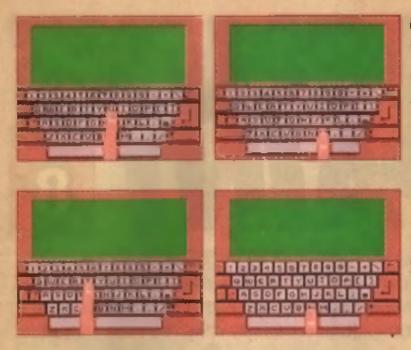
The animation requestor also offers a sugerty function called Trails. Activating this box will ant DPaint enemating your brush according to the figurse you've put into the Angle and Distance. boxes, but instead of drawing a new brush poeltion for every frame, it 'remembers' the earlier positions and includes them (co., Sounds like a recipe for a total mess, but you can make it work to your advantage, in my example i've used a deck of cards fanning out, as the card brush is rotated in the Z angle the previous certis stay put, and the new brushes are drawn over them at increasing angles throughout the 20 frames of animation. So by frame 20, what began as one brush has built up to a whole pack, which has been fanned out on top of itsell. The effect e excellent for titing, where text can be made to come out of the screen of the viewer (by use of the zooming Z plane move control as outlined last month) as it rotates to a standatill.

## FILLS

The final tool on the Move requestor is Fill, if you had a brush and left all the Move parameters at zero, clicking on fill would be identical to using the main Fill tool from *DPane's* drawing screen with From Brush extended, only over as many entration transes at you requested. The real power of the function is that it can use Angle and Detained igures too, and the real gem is that it you you

Laft Easy does 1 - the form requestor allows you in effectively very the operation of our object of the start and and of the movement. This gives a lower defens of relativity.

## GRAPHICS DIY AMIGA WORKSHOP



2

## MANUAL ANIMATION TECHNIQUE

Sometimes the connection is seen a complex than the Different Move requestor conhandly. Sometimes it's basis does recreasily. This sequence is from a 30-transestimation which has an animpted finger pressing the relevant keys to spall out a measure on the display screen. First animate the finger, I draw the Finger extended in frame 1 at a 2-trans connection, then capited the finished drawing to form 2. A law minor observations to the top joint and rail gave the impression that the finger had flaxed. I copied both drawings of the finger to the spare screen, ready for cutting and passing onto the animation. I delated the two traves l'd used as my scratchard, and draw the keyboard screen. I added the text of this point too. Once this was finished I control 20 new frame and all the text, but with re-movement at all. But by switching to the spare screen and picking up atthem the straight or created forger as model. I placed the brack as the relevant key 1 worked hadowing to all that by switching to the spare screen and picking up atthem the straight or created forger as model. I placed the brack as the minotementation, showing the keyboard and text for an extended particle as the animtementation, showing the keyboard and text for an extended particle as the animtementation, showing the keyboard and text for an extended particle as the animtementation, showing the keyboard and text for an extended particle as the animtementation, showing the keyboard and text for an extended particle as the animtementation, showing the keyboard and text for an extended particle as the animateting in forward mode year have a finger passed even a letter in traves 21 and the text of the scenario. The on frazes 22 the finger flaxes and parts, the M appairs. You have to do this right back to know and, remembering to areas more letters as yoe up until leaves 1 has an finger over the letter (, with a blank display.







Hilds Ogden would have been proud of our flying ducks animation. Actually this walk-through doesn't look that impressive but the animation is actually vory good and many importancy, is way aimple to create. It's nothing more than a brush that has been told to move in a certain direction. For the full info check out the text below.

have previously allored the perspective readings of your brush (April issue, futorial 3), it will base the fill enumation on those. Above is a walkthrough of a simple flying ducks walloaper animation I created as the background for a title sequence. Once you've drawn your design, cut it out as a brush and register it in your chosen starting position by clocking the left mouse button and then Undo-log it from the foot menu. Set the number of animation frames you'd like – 20 is a good starting point in my class I wanted the ducks to fly upwards, so I set the position in the lower right of the acreen. Now call up the Move requestor (capital M). The figures you enter in the X and Y distance boxes (on the top row) to a large extant depend on how big your brush is You need to alter the figures and Preview the animation several times to make sure your brush just goes off the top left of the acrean to create a seamless loop as the acquence is played back. In our direction, we need to decrease both the X and Y measurements by at least 200, so I started with a -200 value in the X distance field, and 200 in the Y, until I hit on the right figure. Once you're happy with the preview, just click on the Fill box, and watch *DPaint* work its magic by filling auccessive screens with multiple vanions of your single brush, all moving in unison across the screen. Another use for the Fill option is acrolling landscapes or cloud scenes. Using the same lechnique live been able to simulate a plane flying over the ground as clouds streak by. Why not try in now you know how? T/P. To have two screen fills working after each other (sky and land) you will have to use the Stenci function to protect the already drawn sequence as *DPaint* tills in the other. Or, you could wait until next month when we'll be unwrapping the secrets and uses of Animbrushee.



STIRIFE IN

## Shirifeinin the Gulle

## Quality Ve Sirrielin No*Gue*



# MAPPING IT OUT

# STRIFE In the GULIF

This animation allows you to small a background work longer than your current street — so for instants you could have a detailed wap of the British Isles two streams with and pure animati it during the animation. Genery the effect is easy, if repetitive fast it works well and can be used to microwite purellax perspective shalling using multiple images. The image you want to use for scralling should be drawn in Dham's High Besolution made which has 16 colours and a scream size of 640 by 400. You can draw a register perform an ange of the locality. The used a satellite image of the Middle fast 11 you re drawing from stretch save the high restimute to do for safety their change Streen Mades to for use White Dham's High restimutes drawing from stretch save the high restimute to do for safety their change Streen Mades to for use White Dham's High person stretch save the high restimute to do for safety they for the strenge streen Mades to for use White Dham's High high restimutes for streen streen to assess the person of the strenge streen was and person of a longer person that is the two to the two effect. If you rest the forme streen streen was also been and the provide streen are person that is the two to the outer offect. If you can be formed as the streen streen of the two rest was an experiment of the forme streen are defined as the two two to be a fort. If you can be the forme streen area to the formed streen area offect in the streen area to the streen area of the provide streen area for the provide the streen area offect.

Use the classe keys to social example the patient. It is this definity to show on your momitor a portion of a larger particle that is the key to the effect. If you make the space screen non (keyboard j) you will find the poor size is as here as your observate social example by the screen is a go to Screen Mode menu option and set the size to Stondard (370 by 200). This was it effect your space page, which still contains the whole original image. Now create a number of frames — 15 or so is in good starting point. The repetitive stuff begins now — Switch back to the space page (with your big image on) and screen with the tarsor keys until you get to an image you want as your first frames. Now Copy the screen onto the Space screen the screen is copy a screenful of image from your big private into a screen size forme of guernation. Use the space screen screen and one more any our targe to the network the space screen with the space screen of your big image you want as the network of the space screen with the space screen screen ful of image from your big private into a screen size frome of guernation. Even with the space screen screen is copy a screenful of image you can advance the network the opportant will be prive to guernate screen your big image with the space screen with the space screen with the prive we done is copy a screenful of image you can advance the network the observation frome. Swell the space way as the first and it has never the remove keys to move your big image with screen with the space screen with the prive targe the screenful of image on your big image shiftly in ske discusses in the screen screen to the space screen with the space screenful of the screen and with the space screenful of the screen start in advance to the neuronal or the animation will be never to screen with the space screenful of the screenful of image with screenful of the screenful of th





Left; Second roots a 20-itema arguingly which allows how the single Black Trul agains in the Assessment represents on preducts an introducting effect. The dash of areas from and of the preof the access together the 2 of the first filters the could be will set by 120, and Trule and accessing in feedback the could be will different angles on tag of Shell. The Sigging could use factrights discounted in an aution factorial and some available distraction.

**NEXT MONTH** it's time to let your anorthoushes do the walking with some experience of the source on motion techniques ground espe acity of lucky *DPaint IV* events. Till then keep at maxim





## Hi Quality Version

With PacMan now complete, Dave Smithson reveals a few games pro-



gramming secrets. This month – how to produce a continuous screen scroll.

Ever wanted to write your own scrolling shoot 'em up? Well new you can with this month's handy scroll routine!



he Amiga may be a versatile business machine, a state of the art graphics workstation and it may even pack a punch in the DTP market, but no one could possibly doubt what type of software the machine a designere built it for – yep, for playing games As an AMOS user, you undoubledly already know that AMOS provides all the commands that you could ever want

for writing games software, but what you may not have realized is that AMOS ower much of its power to the Amiga's hardware designers. Although AMOS provides us with the tanguage to address that hardware, what other computers ofter hardware sprises, an ultratest birther and hardware acrolling as standard? Certainly not the humble PCI

## SCROLLIN THE PARKON A

Hardware scroling is undoubtedly one of AMOS' most powerful facilities. With it you can create ultrasmooth acrolling effects that wouldn't look out of place next to the very best that if the console manufacturers have to offer. It's explained clearly in the AMOS manual – which is a very good reason to actually get hold of one – but for those of you without a manual if's explain more about hardware acrolling next month. This month's 'Games' Programming Made Easy' is devoted entirely to a scrolling effect that is used extensively in shoot 'amu up games – continuous background acrolling.

If you have played around with hardware acrolling, then you'll already know that although ' hardware acrolling is powerful, it does have a number of disadvantages. For starters, it can eat up a great deal of memory simply because it scrolls entire acreens. This ten't too much of a problem it you're writing a game that uses a very small scroll area (say, for example, two low resolution screens). But what do you do it you want to write a shoot 'em up (or whatever) that needs to acroll an ever-changing background? Take a game such as the classic Scremble, for example. If you ware to hold just a single level of *Scremble*'s background graphics in memory as a continuous brimap, you'd soon run out

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of valuable Chip memory. This then, is where my little routine comes in.

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## MEGA MEMORY SAVER

The code published this month demonstrates how to produce a continuous acroll without eating up massive amounts of memory. Our demonstration graphics generate a level that – 4 if were to be stored as a continuous bitmap – would be 1280 by 200 pixals in size. When you consider that the graphics use 16 colours, this picture would set up a measive 128k. My routine, on the other hand, is just 15k long (including graphics) and even when run, it only takes up 64k. Okay, so we've only managed to halve the amount of memory used, but the graph thes about the routine is that no matter how much you extend each schem, the amount of memory used will only increases by a couple of k! Now that it impressive!

So how does it work? Well, believe it or not, it is actually exactly the same technique that is used by most commercial games programmers to produce a smooth scrolling background that appears to epsil many acreens. A similar technique, for example, with used by OMA Design in Dave Jones (he of

Lemmings lame!) on his first game, Menace (remember that one!?). The basic idea is that the screen display is built up as you progress through the game instead of loading in a gigantic bitmap at the start. If you think about it, this is actually a more logical way of working – after all, if your game runs in low resolution, the player will only ever be able to see a maximum of 320 by 256 pixels at any one pme, so there seems little point in keeping

the rest of the background in memory. Instead, by using a combination of hardware

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scrolling and AMOS' ability to pasta down graphica at high speed using the Amigs's bilitter, the scroll area in drawn using a set of graphic blocks called loons', Don't conture AMOS' icons with

## Workbases care, however - an con in AMOS is write a rectangular graphic block hat can be commed with others to generate a larger image.

Anyway, back to our scrolling routine. The beat way to demonstrate how it works is to break it down imp a serier of steps, but a take a look at each step in turn.

## **BLUE HEDGEHOGS**

Let's get sluck into the source code which incldentally (for the bone idle amongst you), you can find on this month's coverdink, I have writlen if in such a way that it can quickly and reasonably easily be turned into a fully-fledged game – indeed, I've even marked the section of code that should contain the rast of your game code. The graphics I've used are based around the classic Scramble snode game that used to be popular in the ancades before the world became swamped by blue hedgehogs. If you're lealing edventurous, why not have a go at turning if into a game.

The two Important routines are INITSCROLL and SCROLLSCREEN, but you should also take a good long look at the INIT procedure. Within this expertly crafted embodiment of the programmer's array containing all the information controlling the layout of the entire scroll area. Note how the screen is split into six strips, each of which contains 40 numbers. These numbers refer to the number of the icon to be pasted at a particular polition. A value of 1, for example, designabes a blank icon and 15 is a missific launcher, Each strip holds all the information for a horizontal section of the screen – strip 1, for example, is for the top

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INCO. NE : GEOL

NOLE PERSONNEL 0-71030

SCROLL DEMONSTRATION

For \$40 To LEVELATE

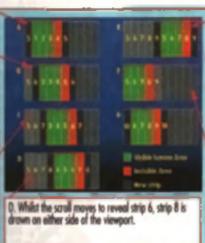
## THE INIT PROCEDURE

No it's not sume distant relation of The Andromedia Strain, rather II a part of this AMOS program that sub-up on array which, in jury, contains of the enformation needed to control the lowout of the entire screen one.

A. Before the scroll begins, the initial screen area is initialised by drawing the visible screen area, the scroll area and the two boundaries on either side of the viewport. Note how the screen viewport is initially affset so that there is a invisible area to the left of the screen — this will eventually be displayed when the scrollroutine reaches step 1. At the moment, strip 5 is drown into it.

B. The scroll is then storted and whilst it scrals to reveal strip 4, strip 5 is drawn an other side of the resupport Al the inner, that must be drawn to complete both strips are drawn at once to keep the strol speed up.

C. Whilst the scroll moves to reveal strip 5, strip 7 is drawn on either side of the viewport. Note that we will need too particles to keep this reactor propers up - one that keeps track of the screen altight jobi-tion and another that indicates which strip is to be drown.



line of graphics and strip # is for the graphics this will appear at the bottom of the somen

Designing accesse of the sort of size is beat done using a paint program such as DPaint Al I did was to load up DPant in low resolution formal. set the page size to 1280 by 200 and then I used the Grid tool to create a grid of 32 by 32 proces. And then, simply by cutting the yone out as -brunker, lives this tot/aw ope most other for are which then converted to the data you see here, I found it best to feed the data in a screen at

a time and if you want to create larger scroll areas; draw them up in gmeller chunks remembering to cleanly link each section.

## SPEED FIEND

Moving on, the INITSCROLL routine is essentially the code version of step A' detailed in the diagram above, What it does it to open up the acream, size and position it using Screen Display and Screen Offset respectively, and then draw up the mitel deploy using the first set of icons. Once the isdone, the game effectively starts and the scroll commences with a cell to the SCROLLSCREEN procedure, i had a lot of speed problems with this

within the same array that holds the **OPpint** Here's the next line of mont to be down int map for and SPOINTER holds the our demonstraon liating! current acreen officer 5 5 3 position. 14 14 14 14 6 2 14 16 16 10 14 1-4 14

## IE. Looking at the diagram, you will notice that the screen contains two copies of the same deploy which, in turn, is salit into five strips -5, 6, 7, 8 and 9. At this point, we result the position of the viewport so that it now displays the first half of the screen.

F. With the viewport position reset, the whole scrolling pro-cess starts opain by scrolling the viewport to display strap 9 which drowing strip 10 onto which drowing strip 10 onto which drowing strip 10 onto Once this is done, the scrull routine that jumps to step T.

routing simply because although AMOS can draw the acreen score very very last indeed, 4 token time to set up the Arriga's birder, an I spent more then a couple of hours optimizing this routine as theithe new since of score were drawn in less than 1/50th of a second, Even once completiusing Europress snazzy new AMOS Pro Complier, this problem still garanted. I had origi-

blank, but this method actually lumed out to be much slower time drawing all of them at onceil The SCROLLSCREEN procedure also makes

extensive use of a veneble called "COUNTER The variable is very important indeed as it is used to keep the screen redraw process in sync because the new stripe of graphic date only need to be drawn every 32 pixels of herdware acrol, the counter is used to let the SCROLLROU-TINE know when it should start drawing again All. does in to continuously count from 1 to 32. When the counter equals 1, the strips are drawn but for the rest of the time, the redress code remains dorment. Three other variables are very important too. - XDATA, IPOINTER and SPOINTER XDATA

points to the position within the MAPDATA() erray that contains the first strip of data for the visible screen area, IPOINTER points to the position

## 38, 34, 14, 34, 34, 4, 4, 1 11.14.14.14,14,14 St. 14.14.14.7 4, 14, 14, 3, , 34, 14, 4, 34, 34, 3, , 34, 34, 4, 34, 34, 3, , 34, 34, 34, 4, 34, 14, 3, , 24, 34, 34, ET-40 or Juy (1)-16 7 K., 192. 16, Louper 7 K., 193. 16, Louper -10--L I XXXXX new main display a scroll buffer The Arts beauties a statement AND A DESCRIPTION OF THE OWNER O BUTHLE , M' LL MARGINE & A. TOURS ANY PERSONAL

Tour game code goes heavel! DOWNS-COMMENCE · STOLLOTION ·

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Mat Broomfield is here once more to answer all your technical problems and gueries

## SECTOR OR BLOCK?



After reading your article in April's edition of CU AMIGA I was particularly interested in sour version of disk organiesion. According to you, diske are spin into sectors and any parkally used sectors cannot be

accessed, I was wondering if you would clear up a problem for me. I thought that a disk is split into 80 concentric rings or tracks and is then apili unto sectore. The number of sectors depending upon which machine you are using (PC Mac, or whatever!

access the disk in blocks (usually 512 bytes) as you can give it an address of surface, track and sector number. According to you, if you write to, for example, surface 0, sector 1, you can no longer while to that enclor to therefore you can only write to 11 different addresses, which i think is wrong.

You can access each block of data on the disk in the way I have mentioned, giving you a maximum number of disk eddresses of 880. It is (rue that each file requires a different block, thus resulting in partially empty blocks. When a piece of data is written to a file, it then begins at the start of the next empty block and occupies as much space as it requires, resulting in partially filled blocks on the disk, i think that this is most important se il (again according to your example) a file is written to a complete sector at a time, the head is continually moving up and down the disk hardly an efficient way of operating.

Having re-read this letter, I hope it doesn't sound too nasty, I'm genuinely interested to know which is correct, or even if my explanation is what you mean! (in which case can I have your job!)

Mike Keveillerou, Bogner Regis, Sussex

My little disk diegram in the April Issue clearly shows that every one of the 60 tracks is divided into 11 sectors. This is backed up by the little equation at the bottom of the diagram which says: 2 sides x 60 tracks x 11 sectors x 512 bytes = 901,120 bytes uncompressed capacity. I spent a while checking reterences in books before I wrote the piece, se I know that it's correct. However, just for cigrification I offer you this entry from the Colline dictionery of Personal Computing:

Sector or Segment a portion of a disk

TRACK. A disk track is a circle on the disk surface, and the circle is magnetically divided into a number of sectors, often 10 sectors per track. Each sactor will then store a set number of bytes, often 258. Programs or items of data that need less than a sector will nevertheless use the complete sector because the disk system does not work in units of less than one sector.

Just remember that an Amiga disk track is epilt into 11 sectors not 10, and that each of these contains 512 bytes of data not 256.

## 1200 QUESTIONS



lown an Amiga 500 with 1Mb of RAM and an external drive which I use mainly for games Now, however, with my GCSEs upon me, I find that he abilities are rather limited and I'm considering upgrading to an A1200 I know that the A1200 comes with 2Mb of

RAM as standard, which should mean that my DTP and word processing packages are less likely to creat, but is it actually faster at loading programs such as Pagesetter, which currently takes quile a while (after crashing several times)?

Will my external drive (a Rocted RF332C) ba compatible with the A1200, and would an A500 compatible hard drive also work on the A12007. **Alchard Levinson, Westbury-on-Trym, Bristol** 

in the first place, a lock of RAM shouldn't make your programs creak it they're well written. They should simply not perform up to their best abilities. I'm very surprised to here you say that Pegesetter crashes often. and wonder if it could be your computer / that's of fault, or are you perhaps using a copied version of the program? Because the pirales the keen to 'release' programs as quickly se possible, they often swap versions which are incomplete, and to the inexperienced user it could seem us if the program was simply not very stable.

Anyway, the A1200's floppy drive is no feater than the ASOC's, but if the speed at which a program loads is also determined by the rate at which the computer can process date as it's loaded (as in the case of gome ... DTP packages), then the program will appear to load more guickly because the A1200's processor is many times leater than that ofthe \$500

Yes the Roctec RF332C is compatible with the A1200, but a hard drive designed for the DMA port len't, as the A1200 locks this interlace.

## MONITOR VS TV



What's the difference between a monitor (Philips 8833 Mk II) and a SCART TV (Sony KVM1410)? I've asked in all the shops and they all say that a monitor le better chan e SCART TV, which is better

than a normal TV. Can you be more precise piesse?

I want to writch television in the privacy of my own room, but I'd also like to see my work (DTP, elc ) more clearly.

Richard Levineon, Westbury-on-Trym, Bristol

A television or monitor screen is created by beams of light shot by guns at the back of the tube. Naturally, the amount of detail that can be displayed depends upon the size of these beams of light - the smaller or more focussed the beam, the more detail is possible (the higher the resolution). The resolution of a screen is known as its dat pitch and monitors have a significantly emailer doi pitch then TVs. in isci, Bony refuse to give out the dot pitch for TVs, claiming that such information would turn TV marketing into a "straight numbers battle with no consideration for other features.

As for the difference between 'normal' TV and SCART, the circulity in a TV is designed to display a composite video signal. The Amiga outputs such a signal, and using a SCART connection this signal reaches the display circuitry with virtually no degradation at all. When you connect the computer via the seriel (RF) socket, the signal must first be converted into Redio Frequency (by the computer's modulator) and then this RF signal is converted back into a video signal by the TV. These conversions exact a heavy toll on the picture quality.

## VIRUS CHECKERS



I'm writing to you to vent my frustration which has been caused by some slupid bas8\_81' deciding to code a comething called the Byte Bandil virus. This obviously ingenious piece of coding hee

just robbed my 11 year-old brother and sister of 260 worth of software that they saved for a hell of a long time to buy. What do such people gain from this? Can I they find some useful way to

## use their obyous programming talent? Is these any reason why the mejor software houses can't put virus checkers onto perme

disks in a similar manner to that which PD suppliers do? We are one of the supposedly dying breed that still buy original software, and as we pay £20 to £30 a time, don't we deserve some protection against this menace? Seen Clarke, Bielns, Gwent

I agree with your opinions about the morone who spand their time writing viruses. I disagree that they must have programming ialeni - to a remotely competent programmer, Byte Bendit virus and its endless derivatives are a simple matter to create. It's just that 'real' programmers don't waste their time and energy on such mindless junk. It's clearly not worth trying to appeal to virus creators' sense of decency - they haven't got one.

Unioriunately software houses can't genentily include virus killers because they will not work in hermony with the copy protection evelopes that most commercial companies use. Furthermore, new viruses are being created on an almost daily basis, so any protection system would be out of date long before it resched the shope.

I hale to say if, but your brother and eleter must bear some of the blame themselves (and maybe you as their mentor) for the damage that the virus has caused to their software. A virus can'i infect a write prolected disk, no matter how clever' it is. Therefore, the very first thing that you should siways do with new software is move the black write project tab into its upwards position (so that you can see through the hole).

Furthermore, unless you have a hard drive, no virus can survive in the computer's memory if you turn the power off for 30 seconds.

#### PC FILE CONVERSION



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Is there my (preferably champit) way of loading PC of files (for use with HiSoft Preson) onto the Amige Naturally the disks will be DD rather than HD. I would also lifter a way of saving Amiga files

in such a way that the PC can read them. I'm desperate to do this because part of my

(mainly boring) university course involves writing Pascal programs on the PC, and as I own an Amiga, I can't currently do any work at home. Seen Clarke, Blaine, Gwant

There are lots of programs for converting tiles between the Amigs and PC. Some of the more upmarket ones such as *CrossDos* and *Dos 2 Dos* will even stiempt to do some limted data conversion as well so that stuff written os an Amigs package will retain all formating information when loaded on the PC's equivalent package.

Provided your Pascal program is merely ASCII files (which will presumably be complied later) you can use one of the numerous PD programs that allow you to read and write to PC diaks, I personally use MessyBID 2, which is svaliable for a couple of pounds from NBS PD (disk number U019). The disk contains a program for formatting low-denaity PC diaks on an Awigs, and a version of SID which is capable of reading and writing PC diaks.

If either of your Paecal programs are not capable of reading of writing in ABCII format then I suspect you won't be able to create runnable PC programs on your Amiga. Though you can always use your proof procharge of the can always use your proof programs at home.

#### PRINTER DRIVERS



i reense that you must get printer driver enquines overy day, but my IBM is driving me to premeture baldness. I have contacted IBM, CBM and saveral PD houses but no one can supply me with the correct

driver for an IBM 3852 2 w/ jnt. Please don't get me wrong, i can get lexi cut of it, but ne colour or graphice.

One last thing, I can't find any DIP switches anywhere on the printer.

I hope that you or one of your ace readers can help

Carl Austin, Stanwell, Staines

I personally know nothing about this printer, but as you say, perhaps one of our many whizto readers can offer some solece?

Of course if's worth mentioning that most printers are able to estudie at least one other printer, and this is especially true of the colour link jets which usually have some form of Hewlett Packard or Integrat emulation.

I spoke to Jeff Walker at JAM shout your problem and he sold that there may be a PD driver evallable, but that he doubted (Fit would work. He further optined that (I's never worth buying an obscure printer (especially from auction) unless you are certain about being able to acquire a driver for It first.

As for your printer's tack of DIP switches, this is not necessarily a problem. Dust in-fine Programming (DIP) switches used to be found on virtually all printers and they were used as a means of specifying things like the paper size, the emulation mode, the character set to be used, etc. Nowedays, many manufacturers prefer to use Electronic DIP Switches (EDS) which perform the same function, but the usually accessed by preseing a combination of buttons on the printer as you turn it on.

#### MAKING DRAWERS



Freed CU AMIGA every monthbut live never seen anything about creating drawers on a formatical deals to gave my DPand things on to this possible? If no, how do I do it using Workbanch 1.2?

Dale Buckerlon, Fliniham, Notis

A drawnt is basically a sub-division of a disk or even of another drawer. It's generally used to store related like sit in the same place, and a disk can contain dozene, even hundrade of drawers.

To create a drawer under Workbench 1.2 you must duplicate a drawer which sireedy exists. This is the reason for the 'Empty' folder on the Workbench disk. Simply select this icon and choose 'duplicate' from the Workbench menu.

If you are still running under 1.2 though, i would strongly suggest that you upgrade.

#### BECOMING SELF EMPLOYED

I have been interested in writing

computer games for a living since I was small. When I light offeren i was small. When I light offeren i was small when a start and software which suried me at

lirst, but recently i have had the urge to leave and become a professional freelance games programmer specialising on the Amigs. This would allow multi develop wy creative and artistic skills which are not being indiressed in my current job. If would also give me the time to study other areas of kits that interest me.

The reason for this letter is to set about the practicalities in realizing such a career move

Will I need to declare myself as a sole trader or limited company or anything kite that if I em working from home? How will income tax, National insurance and VAT silect me? Assuming i wrole cite saleable game each year to the standard of Geoff Crammond's Grand Proor the Shadow of the Beast series, how much could I expect to sam each year?

I realise that sales of a game are not guaranfeed, but I need to know the general seturies that can be earned games writing to that I can decide upon the feasibility of such a move. Teleran Arrowood, Bensham Grove, Burrey

I congratulate you on your enthusiaem and drive, but i suspect that you need to understand your market s lot better than you currently do. I know of no commercial games programmers who are doing so without the linancial backing of a software house. Bupposing it takes you 18 months to write your tirat title; how will you support yoursaif during that time? What about graphics and music, are you competent at creating them or do you hops to imudde by? And game design; most activary companies employ people purely for this aspect of things, and programmers usually do just that.

Anyway, to answer your questions, no you

don't need to declare youraali as a sole trader or anything like that. As soon as you start work you will be considered as selfemployed. This means that you become responsible for your own tax affairs, and are liable to purchase national insurance stamps on a weekly basis. These entitie you to unemployment benefit if you tait out of work. If your income is low enough, you can apply for exemption to national insurance, although you will then lows some of the assoclated benefits. To find out more, you ought to speak to an accountant, and most will give their first appointment free of charge.

As for the returns that you can expect on a top quality game, this depends totally on who distributes and markets it and how. Try to do the job yourself and you probably won't are much of a reward, get a professional to do it and the rewards can run into siz ligures.

You've also got to think shout conversions to other formats, copyrights and a whole bunch of other considerations.

On balance I think that you re probably bent advised to try for a job with a notiwere publicities whilet you fearn more about the industry. Salaries range from tess than \$10,000 a year to over \$30,000 sithough \$13,000 is probably nearer to the average.

#### STAR LASER PAPER

I have a Star Lever 4 III printer Al present I can only print on A4 paper (the thickness of this sheet) and I want to print on card and paper of different user i that it will cards, but it will hot go through the printer

and when I set a different paper size if requests 'tray refill - A3' but I only have one tray.

I wrote to Star but they didn't respond. Can you help? Incidentally how much will it cast me to add it hard drive to my A500+? Derran Mennix, Butwell, Notlingham

Like most laser printers, the Star machines are very specific about the weight (thicknees) of the paper on which they will print. The reasons for this are twofold: firstly the paper has to be moved around inside the aystem, being wrapped around rollers and so forth. The internal machanisms are not airong enough to handle card or thick paper (which in any case tends to crease so it in fed around the rollers). The other reason is that the system used is deliver int to the paper is very sensitive and card simply upsate this system.

If you want to output on card you would be much better of getting a print shop to do it., Black and white artwork can even be photocopied onto card with reasonable results. As for an A3 paper tray, this is an optional extra and can be ordered directly from Star. Phone them on 0464 471111. A hard drive will cost you 2160+ unless you buy a second hand one (which i don't recommend).

#### NEXT MONTH

Mat will be rushing back on his trusty white steed again next month. In the meantime, if you have any problems with your Amiga, write to him at CU AMIGA, Priory Court, 30–32 Farringdon Lane, London FETR 3AU.



AMOS SPECIAL

'We aim to please' has always been our motto, and so we do. Get it while it's hot, here it is, for one month only – a Q&A special on our giveaway AMOS coverdisk, number 56.

#### **STANDING ALONE**

In reference to the AMOS coverdiaks, please can you advise entries tableand problems ISIO

1. I have tried to make a standalone disk as per details on page 20. However, I am unable to load any items from the Extens disk. I have tried using the load option and call up the directory using the requester. All that happens is that the program repeatedly prompts for the AMOS program disk. Flease could you give me an idiote guide to the proceedure?

 I have nine find to make standalone programs by using the complex to compile with a Workbanch icon. This has also failed to work, is n possible for you to define this procedure more clearly?
 Finally I have complex my program to run from AMOS, or find to that is I keep getting the mesnege. Not lested. I have leated the program so it and a bit confused.

I would be grateful for any practical help that you can give in this area as all my programming efforts seem a waste of time and effort as I don't seem to be able to do anything with them other than run (hem from the AMOS Editor. Pete Wood, Newport

Compiling can seem a little compilicated, but is is actually guite simple. But let's desi with your inifal query first. What I guess is happening is that you are inserting the Extran disk and then selecting Load. The internal directory is still looking at the AMOS program disk, and so looks for it as soon as the file requestor appears. What you read to do is insert the AMOS program disk when prompted, and wait for the directory to appear. Once it has, remove the disk and insert the Extras disk. Now click with the right mouse button on the small circle button in the top left come of the window. This calls up the devices lat which will include the name of the currently inserted disk, the Extras one in this case. Now click on the name of the disk and the Extras directory will be revealed in all he glory!

To make a standalone program that runs from Warkbench, this is what you do. Firstly, load the complier sean accessory using "Acc.Load" from the menu bar. Now load your program to be compiled and run it, to test it. Once it has liniated running, run the Compiler eccessory and wait for it to finish logding the appropriate data. Set the first two options (o your style of compilation, depending on your own set-up (two drives, extra memory, etc.) and sat the third icon to Workbench. Now click on Compile' and it should all work. If it doesn't, check that the first line of your program opens a somen for the program to work with, as programs compiled to Workbench don't automatically open a screen

For your third question, running the program is the only sure fire way of testing it. ( hope that all helps.

#### LLISTOMANIA

I have been tearing my her out for the last week, and I only hope you can help me before I have to bin my computer and go to live in the mountains. I have recently moved to AMOS from STOS, and have ported some of my programs from STOS to AMOS. I have, however, come across a problem when it comes to printing out my listings. Being a careful coder, I always like to keep a hardcopy of anything I write, just in case. The AMOS manual refers to an instruction called LLIST, which is also present in STOS, and allows you to print out your listings at will. However, whenever I by to use this command, both in direct mode and edit mode, it refuses to work. What am I doing wrong? G. Crookes, Winchester

You even's the only particle to the top of which have to be the magin most requested problem even. The fact of the matter is this: The LLIST command does not exter in AMOS. Yes, you're right in anying it was part of STOS, but that was where the problem originated. Most of the AMOS manual was copied from STOS when the program was written for the Amiga, and although LLIST wean't included in the package, it was kept in the manual. To print out your program, here's what you have to do. First, select the whole listing as a block by pressing Control and 'A'. Once the listing is highlighted, when the Block Print' option from the blocks menu, or press apologies for any inconvertimes caused.

#### MENU MASTER

Wow, I though as I grabbed CLI Amigs off the shell. A complete guide to AMOSTI couldn't believe my luck. I've hed the peckage for quite a while, but have never really spent any time with it – it all seems like such hard work! Tearing home and flicking through your guide I spotted the section on Menus (page 15). I have a couple of ideas for programs that need menus, so I quickly mad through and typed in the listings. This is where the touble started. No matter what I do, I can't get the long listing (Table 11) to work! What do I have to do? Joe Abbro, Finchley.

Gramina got to that listing between it being written and being laid out, and unfortunately one of the most important lines went walkabout. All you need to do is add the line. ON MENU ON' immediately after the MENU ON' line. Just to clear things up once and for all, here's first fligting as it should have read.

Menu\$ (1) ="Mouse "

```
Manu$ (2) = "Quit "
Menu3 (1, 1) ="Arrow
 :Menu$ (1, 2) = "Cross":Menu$ (1, 3
)="Clock"
Menu$ (2, 1) = "Editor":
Menu$ (2, 2) = "Direct"
Nenu Co
On Menu On
On Menu Proc MSE, QNIT
Rem: Do Somethino
Do.
  For X=1 to 100
  Print X;
  Next X
LOOD
Procedure MSI
  If Choice(2) then Change
Mouse Choice (2)
End Proc
Procedure QWIT
  If Choice (2) =1 Then Edit
  If Choice(2)=2 Then Direct
  On Menu On
End Proc.
```

#### FOR THE UNDER FIVES

Often I read of programmers using a set of 'building blocks' to build up backdrops for games such as shoot 'em ups and platform games, and I am very interested in doing the same kind of thing with AMOS. I have tred drawing two screens and putting them together, but that just uses loads of memory. Is there an easier way of doing h? Louise Runner, Birmingham

The simplest way is to use something like TAME (Total AMOS Map Editor), which is a seperate-program used for generating map-base beckdrope. If you don't want to shall out for it. here's a way of doing it just using AMOS and a handy art package, although this way is a little trickler. First, you need to decide what sorts of blocks you'll need, and what size to have them - the employ the better. Let's any you use three different blocks for the sky, and three for the ground, and you have them sized as 32 pixels by 32 plants. Draw your blocks on a single screen with your ari peckage, and load them into the Object Editor in AMOS, otherwise released to se the Sprite Editor. Now eave them out as an icon bank.

Cut out your blocks and save them as a memory bank. Now comes the hard part – mapping them cut. Get a sheet of paper and mark out your blocks. Don't worry about drawing – just note down the numbers of the blocks as you mark them down. If you have a screen 16 blocks by 8 blocks, and the top line is sky, you might and up with something like: 1, 1, 2, 1, 2, 3, 2, 1, 2, 1

What you're going to do now is turn these numbers into a screen. Go back to the aditor, and load the sprite bank, New use the commapd "Pasts icon" with a For...Next loop to draw the acreen. To show you what I meen, create three sky icons and three ground icone, awing them in a single bank in that order, and then try this program.

```
Screen Open

1,300,200,32,Lowree

For A=1 to 5

For B=1 to 5

Read C

Paste Icon B*32,A*32,C

Next B

Next A

Wait Key

Data 1,2,1,3,1

Data 1,1,2,1,1
```

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#### **COLOUR TROUBLES**

int= 1,3,2,3,1 Data 4,5,4,6,5 Bata 4,4,6,5,4

huld you please tell mu how to correct the ours on my sorites when I load them into MOS? Every time I create sprine using the suplied scrile editor, and then I create my backdrop Ting Delute Paint III using the same polette, but than I load them both into AMOS, the sprite burn comupliquite badly. I have fried using the Del Sonte Palette Instruction, but to no eval uid you please help?

Tem Logen, Abergavering

Your problem ranks guite highly in the 'most immon problems' list. Essentially, what hepgens is that the sprite colours are held higher up in the palefix then the program is actually oking for, so here's what you have to do. Enter this listing, and all your problems will be polyed. Well, this one snyway.

For X=0 To 15 C-Colour(X) Colour 15+X,C Baxt T

#### **3D FEAR**

Does AMOS 3D actually work with the A12007 You may wonder why I use the word inclusity'. This is because I have already made the mistake of rushing out and buying a copy, only to find that the object modelier conjugit as soon as it boots. The actual AMOS extension works fine, and I can load and deplay objects to my hearly contact out i can actually define any of my own. What co to Caroline Aidle, late Of Wight

Europeans are constantly expanding and updating their modules as well as the original AMOS, so if you are finding compatibility probtems, then make sure you are using the latest version. Contact Europress Software on 0825 858333 and ask about the intent undater. If you don't went to go through the headle of sending your program disks all over the piece, then check your local PD library, to see if they have the updater disk in stock!

#### L-PLATE HELL

I am a total beginner to computers, and admit now that I may have jumped in at the deep and when I purchased my Commodore Arrige 500. I have to admit, I ween't expecting to be quite as perplexed as I was! AmigsDOS? CLI? Then a wonderful package by the name of Easy AMOS caught my eye. Learn to program and create in an easy environment? Sounds perfect to mel I runhed frome, loaded a up and began to work my way through the manuni. Al was going well until deaster struck on page 16 The lating just doesn't easy to work! The probion seems to slem from the WAIT VB1 instruction. Borry I can't give you more information than that! Mrs. M. Caballero, Swaness

There are a couple of points in this program that people need to have problems with. The first major problem appears with the first two load commands - Track Load and Load, These have to be keyed in exectly as printed, otherwise they won't work. It genme in this case. Stough, that your problem is that you haven t read the listing carefully enough. The commend you are reterring to is actually WAIT VBL, not Welt Vb1. The VBL stands for Vertical Blank, and talls the computer to wait for the next screen cutriesh.

#### STICKY MOUSE

I have been working on a card program for the leaf couple of months, and now that I am almost finshed, I am finding that I can't reach all the areas of the screen with the mouse pointer. I have enclosed a copy of the listing, and as you can see am using a larger than usual acteen area - could this have anything to do with it? I have tried repositioning the acreen using the Screen Duplay. command, but that doesn't work at all Brian Hoften, Weiling

Il sounds lo me like you've forgotten to set your mouse limits. The area the mouse is constrained to is marked out with the instruction Limit Mouse X1, Y1, X2, Y2, Have you used this? If you use the instruction without any variables, it automatically opens the entire acreer to the mouse. So, after your Screen Open instruction, enter the line: Limit Moune : Walt Visi and all should be well

#### PRO COPY PROBLEMS

I have a copy of AMOS Protessoral and an Amice A1200, and am having terrible problems copying duly using the dak manager, Sometime data will work fine, other proce is won't read them at all. What am I doing wrong, and is there any way of faing this problem?

Kenny Gribbin, Colchester

Well, I'm not loo aure that you have a problem at all You don't state in your latter what sort of disks you are trying to copy but if it's are form of protected commercial activers, then the Disk Manager will not copy it, it is only to be used for backing up your own files or AMOS Pro clats .... and similar activities. Modern software can be heavily protected to stop more capable copiers ripping through them, and diaks like these just won't be read by the disk manager. If you are having problems with copying unprotected diaks, then make sure you have the latent version of the software. Contact Europress on 0825 859333 for details of the tetest upgrade.

#### TRACKING TROUBLE

I am currently trying to write an arcette game similar to Project X, but am having a lot of insuble with the mater. In the AMOS Pro menual 4 talks about the Track Loop instruction, whereby you can below a engle tracker motule and loop it to make it leaf much longer. As the easter a sanable way of zaving on memory, I incorporated it into my listing. I ren the program and all ran fine, until if carrie to the point where I mented in state the muter, at which point AMOS Pro relused to recooning the instruction. Do you know what the problem is? Semuel Beavie, Grimeby

indeed i do. There is nothing wrong with your listing, or the way you have used the tracker modules. The lault must fall at the feet of none other than Francois Lional himself who, while coding AMOS Pro, lorget one of the Falls like Instruction So, to get TRACK LOOP OFF to work, you actually need to enter TRACK LOOP OF. Strange, but true!

#### LOOP LOOPY

Sometimes when running a program in AMOS Pro that contains campled counds, they loop

continguely. As you can imagine, this is causing my arcade games to end up a little noisy once. the sound effects start. How can I stop this from happening?

#### William Mediren, Bradford

Well, William, I'm gfraid that there is no cart in yet for this problem. I have to admit that it let't something I've come across before, but after checking with Europeans, i've been told that this is something they are looking into, and hope to release an Updater disk soon to solve this problem. Watch this space for further details.

#### UP TO DATE?

I have often read of AMOS Updater Date: but have a couple of questions for you concerning them. I would be very happy if you could find the time to enswer them for ma-

(1) I have seen them advertised in Public Domain libraries. Are these the full things, or just demonstration versions?

(2) When exectly does the disk do?

(3) Will my existing programs still be competible. with the updater in action, or will they have to be rewritten?

Nick Train, Angue

The Updater diaks were brought in initially to implement a couple of routines that AMOB preator Francola Lionat left out, sa well as fix a couple of bugs still present in the system (remember, a large bulk of AMOS was written on a French army tollet!]. The original AMOS system has since improved dramatically, with new commands and routines being created all the time. The only way to keep all existing upon up to date is to mission these updater disks as public domain, so the versions you see an the rest McCoy. They work by runsving your old system files and replacing them with phiny new once which will do a lot more, as well as work the way they ears intended to. All your old films will still be competible, as old commende en never removed.

#### PUBLISH AND BE SUED?

I have written a brand new multi-user wargame on AMOS, and I leel it is strong enough to be published, Whei can I do that won't have Europress' awvers crewing all over me. My manual states that I have to include the AMOS loop within the program as well as credit it in the menual, but I lear that the will cause software houses to ignore the program. What can I do? **Geraid Benson-Smith, Leeds** 

Geraid, your prayers have been anounced. Bince your version of the manual was printed, Europrees have changed their policy concerning published software. You now no longer need mention AMOS in any form when publishing, but you do need to let Europress know in writing what you intend to do, so well as supply a copy of the finished product. Europress reserve the right to announce that it was crealed with AMOS after the game has been on asis for two months

#### NEXT MONTH

If you have any more AMOS related guestions ease send them in to Tony Dillon at CU AMIGA, please send them in to vary private a Priory Court, 30-32 Farringdon Lone, London ECLR 3AU. We II run another AMOS help column in a lew month's time.

If you want to appear in the Sell O

If you want to appear in the Sell Out page please call Chris Perera on this not 071 972 6700				
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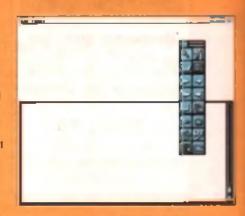
In Part Two of his tutorial **Jason Holborn unleashes** the hidden power of HyperBook with a little help from HML, its built-in macro language.

eloome back to CU Amige's guide to HyperBook, the great Gold Disk multimedia applications generator that we handed out on the coverdiak of the June issue of CU AMIGA. If you've been following this write of tutonals, then no doubt you've already discovered how easy HyperBook in to use. Unlike a traditional programming language. HyperBook allows you to create some quite powerful applicatione, utilitian and even full-blown interactive multimadia intormation systems without ever having to worry about syntax and parameter formats

#### GADGET DRIVEN

Obviously sil these gadget-driven delights are all well and good for rodent lans, but to really meater the true power of HyperBook a many delights. you I still need to indulge in a bit of programming don't worry, programming under HyperBook an't as her realing as 'real programming using tanguages such as C, assembler and even 'beginner Inandly' languages like AMOS. Built Into HyperBook is a very well-endowed mecro-based language called HML which - for those of you who like to know the meanings of such acronyms - stands for HyperBook Macro Language Before we go any further, however, it's important to note

10



**U STARTING WITH A LIST** 

Our short tutorial atack comprises a single button. their - when clicked on with the mouse - will bring up a requestor allowing you to enter a string of characters that will then be entered into a list gedget in its basic form, our HyperBook demo doesn't actually do anything more than this, but even this most basic HML example could be extended into a full-blown database. As they say, the sky's the limit!

Alghs, the first thing to do is to boot up

1.14131



that HML is led in very closely to William S. Hawas' ARexx language, on I'm straid you won't be able to take advantage of it unless you have ether bought a copy of ARexx or you own an Amiga equipped with Workbanch 2.0 or better Commodore (in a rather uncharacteristic show of foresight) bundled ARexx with all Amigae when it introduced Workbanch 2.0, so enyone who has bought an Amiga since the release of the 2.0-

based A500 Pics will be able to use HML HML is really only a collection of functions that are built into HyperBook to allow you to extend your HyperBook stacks' (or should that be books'?) immeasurably in order to access these functions, you have to write what are known in Affairs terms as macros' that are bealcally short AReax programs. If you want to see a demonstra-

tion of HML in action, why not take a look at the write range of demos included. with the HyperBook program - the Calendar and Calculator demos

are particularly good

examples This month's HyperBook guide provides a short introduction to the HML programming lenguage. If ARexx len's automatically installed when you boot up your Amigs, then click on the RexxMast' program on your Workbench disk in set it in motion. Anyway, lel's get stuck in.

HyperBook (not torgetung to run ARexx first) and once it has loaded, create a list gadget by dicking on the Greate List button that can be found in the HyperSock loolbox. The mouse pointer should then change to the shape of an upturned 'L. Orag out the shape of the list box so that it fills the entire bottom half of the screen. When the 'Edit Liet requestor pope up, don't change snything - just click on the OK gadget to accept the list as it is



#### ADDING BUTTONS

Next we need to create a button that we can click upon to bring up the lext entry gedget. So, without further ado, click on the Greate Button tool and drag out a button of the same kind of size as the one shown in the picture above. When the Edit Button' requestor pops up, heal tree to change the appearance of the button to suit your needs. For the sake of this tutonal, however, we re going to leave it as it as Click on the OK gadget it accept the button,

#### You can miss a look of the assempte database, recisided with the Hyperbook Exemples dist. Of sparse car detabase will be a lot more powerful them this!

- "Dentente"			
Nage 11 list ight	;152 Cyclopeen Terram		WI 7330
fartmos Berryeare	(22) Rather Juisty No.		CF 773보
Cynthia Brith	(6315 All ups the fam.		CT 31.55
Nortes Canterbury	334 Fradigians Dr.		PH 29748
lda Caprice	14856 Redsubitable Cr.		E (3 65
Taxa I Casarnary	212 Average 91. Unit 8	(Filasna	DA HIY DO
Dea Directrix	10 ten 49		E 17192
Penny Dropper	(911 Flifteh Read	a general reg	:CN 01393
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cild inde

So far our button doesn't have a label, so we need to add one. Click on the Edit Object' tool and then click twice with the left mouse button on our button and a cursor will appear in its centre. Type Enter Record and then click on the Edit Object' tool again to exit the button editor.

#### Later General Manage

neuropy = hopological (and an anno 11 anno 11 anno 12) Annound Anno (11 an 12) (annound 11)

**0 INTRODUCING BUTTONS** Believe it or not, but the front end of our HyperBook stack is now complete. Now we need to write a mecro to control the Enter Record button. Select Create Macro' from the 'AReas' pull down menu and (as if by magic) the Macro Editor will appear. Unless you've aiready played around with the menu items in the AReco menu, chances are the many leature of the program you've never seen before. Don't let the part of the program bother you - the Macro Editor is really nothing more than a giorified lext addor designed epectically for the task of creating and ediling ARexx macros which themselves are really nothing more then ASC/I text files indeed you can even save put meets of to disk and add it using a standard ASCII tent editor such an Organ Et Sing lowing ARexx script.

#### /\* Inter Record Macro for SyperScok \*/

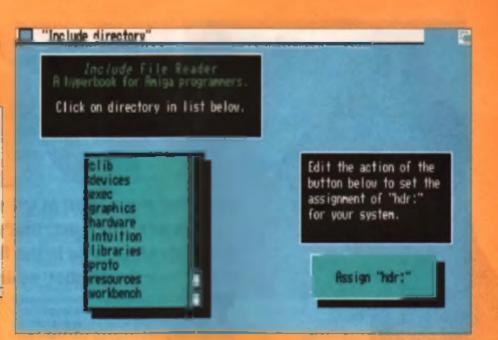
second = inputform('Enter your name
please', 'Name:')

appendites('listl'().record.1)

Once you've done this, click on the window close gedget. Unless something unexpected happens (ilice a prevents) or the outbreak of World War III), a requestor should appear taking you what you would like to call this macro. Type in EnterRecord and then click on the OK gedget. You have now entered your first HyperBook HML program – now that didn't hurt a br. now did it!

Before we go any further, however, let a take a look at exactly what our acript actually does. Well, the first part of the acript is nothing more than a commant that reminds us exactly what the script does. Unlike a full-blown AReas script, AReas macros don't have to have a comment preceding them, but it is a good programming habit to get into, especially if you're writing larger or more complicated macros. The comment can be identified by the two ARease. The comment can be identified by the two ARease, the same as those used by the 'C' programming language, so all you C programming many should leal right at home here.

The script then starts by calling a function called 'inputtorm' that is built into *HyperBook*. This rather inconspicuous little function allows you to bring up a requestor that asks the user to enter any number of lines of text. In this particular case, we only need one fine, so the formal of the commend is very simple indeed. When we start playing around with destanses within *HyperBook*, the forment of this command will become considerably more complex. As you can ass, two persmeters



are passed to the function – 'Enter your norm please' and 'Namet'. The first of these is used as a life for the requestor so you could put just about enything in hare. The second, on the other hand, acts as a sort of label for the string gadget that will be displayed. Once again, you can enter just about anything, but the label must and with a color ( ) symbol. The string that you actually enter when the HyperBook stack is run is returned by the spothom()' function and it is captured into an AReas variable that we've called 'second'.

The final command in our macro is the appardiam()' function which, not surprainty, is used to add the fault that we entry of one in which of our to add the fault that we entry of one in which of our to add the fault that we entry of one in which of our add the fault that we entry of one in which of our record (in this particular case, we've used the default name first) that *HyperBook* submetically given the first lim padget you create), the variable that contains the data to be appended and line colour that the laxt a to be deplayed in (a value of 1, for example, will force *HyperBook* to display the new entry in black).



#### O CONNECTING UP

Now that we've created our mecro, we need to attach it to the 'Enter Record button Select 'Edit Object' from the HyperBook toolbox and then click on our button once with the latt mouse button. The 'Edit Button' requestor even with the latt mouse button. The 'Edit Button' requestor abould now appear. At the boltom of this requestor are eight action' buttone that are used to attach actions to buttons – click on the ARexx macro' button and when the 'Select Macro' requestor appears, click on EnterRecord' and the name of our macro should appear at the boltom of the Edit Button requestor. Click on the OK gadget and we re ready to test our HyperBook stack! Tage There are every since unable spinoreday, handling inside that Algorithmic are be applied to Automating programming inside to just one of these Takes a back of the sprovplus mapping on the second data has physical plan.



#### 1 TESTING, TESTING

Right, now let's put our HyperBook stack to the bell Click on the Reader' tool in the HyperBook toolbox and then by olicking on the 'Enter Record' button. With any luck, a text requestor should appear prompting you to enter your name. Type in anything you want and then click on the OK gadget and – if everything goes well – the text that you entered should appear in the first line of the first gadget. Try entering a couple of exter lines and you will see how successive lines of text are automatracity appended to the end of the first gadget.

There's virtually no limit to the number of lines that you can enter and what's more, you don't have to worry about eaving the contents of the tim gedget apparately – because they are effectively pan of the tist gedget structure. *HyperBook* saves everything you enter into the test gedget as part of the stack! All we need now is a 'delete', add' and search' function and we we effectly got the workings of a detabase!



HyperBook's built in programming language, HML Next month we take our HML tutarial a step turther by applying what we've alkeady learnt to an all-singing, all-dancing database program<sup>1</sup> ality Version Availab

### Soon the entire staff at CU will be replaced by androids... at least, that's what John Kennedy aims to do in the first part of his 'Build Your Own Robot' series.

BUILD YOUR OWN



he world is full of robots — if they're not starting on the TV, they re working in car factories or handing dui money on street we comers in the guiss of automatic feller machines, yo All real world robots work on the same timple principles, and his surprisingly early to build your own mechanical market and use your Adapt to

control n. In this sames of DIY features we are reading to explore various aspects of robolics, including with interface electronics, the control activities of actual hardware involved. At the end of it

reincuit is fairly easy to construct, so and

# WARNING

#### READ THIS FIRST

We want you to anjoy building your project, so please take the time to read these warnings.

Although the project described here has been built and tested, mailtain the author nor CB AM/GA can be hold responsible for any damage which may be caused to either yourself or your computer as a result of using it. As no mains valuous are required in this circuit it is extremely unlikely that you could electrocate yourself, but you should still take care. If your computer does not behave normally when the project is commond, seitch off introductely Check the circuit carefully for short circuits and wing deficiencies. Always add or remove the parallel port connector with the computer switched off

Nover leave the soldering iron exactended, and always switch it off when it's not in use. It is all too easy to forget about it and then pick it up by the wrong end waveral hours tate. It possible, were protective eye-gene when soldering and use a vice or down to hold the circuit in place. Nove splash hot solder around. should not only have a better understanding of how robots

work, but by following the simple instructional you'll also have built a semi-intelligent robot of your very own.

#### INTERFACING

The month we'll examine how the computer is some sed to the real world, and can both give on the signals and receive inputs from its surrections. We'll also look at a practical circuit that accomplish these goals very chaaply and easthe better, you won't have to build it yoursail to roboth are driven by electric motors of verand provide feedback by means of light of the surgestra. The brain behind it all is and can be there be as imple to as complicated as is needed.

builing with the output of control signals first, it is control that somehow the electric motors of the robust must be switched on and off under the control of the computer. The ease sat way to do this to means of a relay – an enclosed switch that at be operated by a small control current. The small control current causes the relay switch to close by means of a bity electromagnet, and the switch contracts can then cause the more current bungry motors to operate. The controlling current comes from the Amiga via a transition switch, and the is where an interface circuit is required.

If you examine the back of the Amiga you'll find several useful looking interface connections. First of all we have the printer port, which offers 8-bits of data together with some strobe and contrel signals. This connector is also known as the parallel pon, and it's very hearly exectly what we are after. When data is sent to the printer for output the pins of this port will swap between high (5 volts) and low (0 volts) levels. If we sent these signals into a latching circuit to lock them in their high and low positions we would then have an 8bit output port – perfect for controlling relays and thus motors.

#### SPEAKING SERIALLY

Although completely isasible, there are drawbacks to this idea. Fina of all, without resorting to a slightly more complicated or cuit, the port would be solely configured for output – which would leave us with the problem of where would we attach sensors? Secondly, using the parallel port would require about 10 wires connecting the computer with the robot, which could be a bit unweldly and restrict movement. Thirdly, parallel output isn't very good at traveling long distances.

#### AMIGA WORKSHOP DIY BOBOTICS

The other useful port on the back of the Arright is the serial port, which can transmit and receive inte in serial form only, using two control lines and aground. Serial transmissions can travel quite trige distances, and writing software which makes the of the serial port is quite easy. Therefore which we would ideally like is a circuit which can receive and transmit serial date and translate it into deveral maste and outguts.

#### MAPLINS TO THE RESCUE

While leafing through my Maplins catalogue I hand this very circuit in the Projects and Modules faction. The RM9011 is a medy built module which provides any RS232 (serial) equipped computer with an 8-bit bi-directional (input and output) parallel port. It's even got a little red light on II, and hast of all it costs less than \$20.

The RM9011 operates all up to 1200 blaud, and will connect almost cirrectly to the sentel part of the back of the Amiga. You can drive it with nearly any programming language, and even use your

PAR	IS LIST		
19856	4 m 1/0 + 15232	E11 95	
10410	25-way D-type Socket	£1.20	
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Casa lar p	a and some part of the second	1. Sec.	

Invounte COMMS software to do the job for you.

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As you can see from the photograph, the oncuit is very small, it is look beins the facil that it is an incredibly fiscible crosst, which can be used for all some of purposes. Over the next month of two 11 mention any uses other then Robotics which come to which

# Quality Version

To add an RM9011 to an Arriga, you'll need some connectors – namely a 25-way 0-type Socket to connect it to the serial port, and a 23way D-Type Plug to connect it to the Roppy-disk expension port

Why the Roppy-disk expension part? Good

Survey: Yes/10 years to years have accounting in the Amigo a party in get the FMB011 billing Remember in street 8 to 20, and 4 to 6 at we partial part, the short harpite of why which are be communal tools for makef 8 band. How a robot works. The robot contains motors and sensors, which cause movement and rolliam information. Triess document are onverted by the interface into a form the computer can understand, and a piece of control software makes the decisions on what happens next.

question, and the answer is power. The RMS011 needs a 5-volt supply, and there entit a suitable connection available from the sensi port. There is however a good 5-volt supply from the Roppy port, originally provided for external clek drives. If you almedy have an external drive with a clearychaining through-port, you will be able to take power from this socket instead.

Afternatively, if you have an externel 5-volt supply you may want to use the metaod. At least 100mA DC must be available, and remember to use the ground from the supply as well.

The diagrams show the cornectons you'l need to make. Notice that

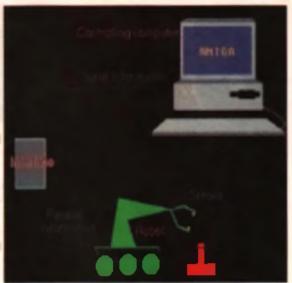
for correct operation you will need to connect pin 6 to pin 20, and pin 4 to pin 5 on the 25-way serial socket.

You can make the connecting whell as long as you think you'll need the circuit. Remember that the module will probably be shutted inside the robot, so if you want it to be able to move fruely around the room you'll need a good law matrixs of the sum of the RM9011 also make an adapter which offset you when up to 2 6Kms long, but with the basic circuit you should still have no problem with 10 matrice or so.

If you're the futsy sort, you may want to buy miniatuse connectors to clip onto the input and output pins of the FIMS011. If you're like me, you will acker the wires, circoty to them. For total overbogics you cauld mount the charit in access to use alge? Some people to provide access to the input and output connections.

#### POWIE UP

With the oncust wind up and checked, switch off the Amiga, plug the connects to the serial and flopy ports and switch on, if the usual bool-up enquence desen't happen, SWTCH OFF IMMEDI-ATELY and re-check your wring. It all goes well, the LED on the circuit should be it and the Amiga should boot-up as normal.



Now you're needy for testing, and the first thing to do a to boot Workbanch and run the Serial Preferences program in the Prefs drawer. All the detault settings will suffice, except the baud tate which will need to be changed to 1200.

Now open a whell, and type: ECHO "IWO" > SER; and the red LED on the unit should flash. With some COMMS software (such as NCOMMA) you'll be able to hold a folle conversation with the circuit will respond with the current state of its inpute - which will be 255 at present.

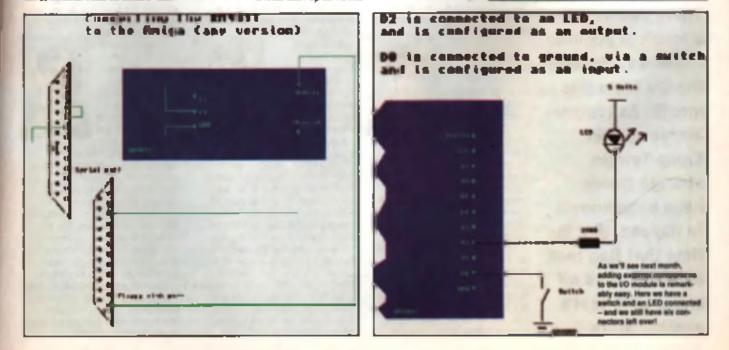
The documentation which comes with the RMI011 comes with a full BASIC listing, which should work with more alterations or versions of AmosBASIC. We il look at much better varys of communicating with the clear is in mention to come. but you should be able to use the sweet LE back and on from within any COMMS program by means of batters RMI and RMS55

means of typing IW0 and IW255. The diagram shows some circuits you may

ward to experiment with until next month, when we'll took at adding some motors and sensors. 100

#### NEXT MONTH

Next time we Il look at adding some more electronics to provide motor control, and how to add a few touch sensors





lous outpourings from the CU mailbag. This is where you have your say. This month's letter answerer is Tony Dillon.

THE FAR SIDE By GARY LARSON



I am writing with regard to your Pandora's CD Review in the July Issue, I wouldn't normally respond to an article in such a lashion for two reasons - I doubt you would print it, and it nearly, always sounds like sour grapes on the part of the company concerned. In this case I have to make en exception.

The CO in question was clearly produced to show how multimedia productions could be used in education, business, the home, at work, at play and in various areas of production. It is the concepts and techniques present on Pandora's CD which are just as important as the chosen. content.

I appreciate that CU AMIGA is primarily a games magazine [?? - Ed] but if you are going to try to attract an audiance of serious users via Get Senous' sections, you will need to review products from the perspective of the serious user, not the gamer,

The review did not mention the diverse applications on the disk including the juke box. motion video, textures, insight; technology sampler, etc., etc. and neither was this reflected in your poor choice of screenshots. It should be noted that the multimedia productions are NOT examples of using the photograph. lextures and clipart libraries as not a single one is used, not do these libraries contain business and building shock that was in the productions which the not distributeble!

Pandora's CD has achieved good sales, into four figures, within six weaks of release with-virtually no advertising. So far we have not had a single negative response but we have had many positive ones. I fael so confident in Pandora's CD that I am willing to make this piedge; if any

## INSIDE INFORMATION

Good never for all you non-A1200 owners not there, who want to get hold of the new machine charghy, but dan't want to give ap your old forwards. The A1200 received an unexpected price drup machinely from £399.99 to £299.99 with an trade is necessary. Win/2 Wite one can different tream in macassary, Winy? Whe can say, atti-sant quarters are blanking Count for heling in aggregator in the market, play the remove the response to the trade-in dual was discovered Even so, Comot's Canak Robel pech is still 30 lass then Commodere's new price point. Code ha a preseditated surve?

individual buys Pandora's CD and feels that they have not had excellent value for £4.99 they can return it within seven days for a full returd, no questions asked.

I feel Pandora's CD has been misrepresented and hashly reviewed. Maybe the time has come for CU Amiga to GET Serious'

Lee Gibson, Managing Director, Optonica Ltd.

Over to Mark Patierson, who wrote the review: "it's siways nice to get feedback from companies, in whatever form. Of course you re entitled to your opinion. Develoy when a producer justifies their own product you can't expect a wholly unbiased opinion. However, it isn't the case here, and I commend you on your money back guarantee. As for myself, I've been using computers for 14 years and have been writing for magazines for seven years, which I think is a creditable enough background to draw on when review

# TEAM TALK

There seems to be a touch of summer madness affecting the CU team this month. As temperatures soar in **Emap Towers** strange things have been known to happen, like the time that Dan took all his clothes off and... well, that's another story.

#### DAN SUNGSBY

The heat seems to have affected Dan so bedly this month that he's been unable to make it past the front door. Sadly his

absence was not noted for many weeks, which says a lot about his haode-off manage ment style. In all honesty though Dan s absence we down to the fact

that he's been away on his hols the lims one that Lord Emap has allowed him to take in three years!?! Taking advantage of this much reacted respite Dan jetted of to the USA where he vehicly exempted to lo remme a lo serioment el eviler lustful lun he had at Ocean City. Unfortunately, the babes racogreged him from his last visit and he was inuncialed with patemity suits and iots of little kids celling him Deddy Mumbing something about an important meeting in England he quickly boal a hasty retreat. Next year he plans to holiday in Bournamouth.

#### JON SLOAN

After lest month's ascepade with the rolling pin Jon's been sporting a lovely lump on his head. He claims he walked unte a-

tree but we all know better. Despite being able to single handedly mem 50 knite welding mentales (with one arm tied around his backi), his martial skils

seem somewhat lacking in the maritel department. He didn'i fet this minor physical impediment detract from his anjoyment at finally been given control of the mag (even if it was for only two weeks). The learn thought that Dan was bed with his physical jerks in the morning and company speech in the aflamoon, but that was nothing compared to Jon and his ruler! Yes, now that Heather's departed too he turned into a real fiend. Fortunately Dan was away for just two weeks so he was able to leash Jon before serious injury was caused.

#### TONY DILLON

With Heather gone and Dan away we were in a bit of a fix, so we called on Dillon Man to come and rescue us. Detrosted after

a 10 million year eleep Tony finds II hard to adjust to lefe in the 20th Century, still when we want a review all we have to do is point him in the the right direction then



undo the chains. After ageing Juranic Park, Tony was overcome with emotion, apparently one of the Velociregeors looked a lot like his dear old mum (yes, we know that there's millions of years aspaneting Dinosaum and Man but, hey, if it worked for Spielberg., ). The summer weather is just right for our favourite knuckle dragger 'cos it gives him the chance to shed all those inhibiting clothes that modern He forces him to weer. Unfortunately the resulting eight is no disgusting. that women have been known to run away acreaming in larror.



LETTER OF THE MONTH

of to see

ing a product, I also trust that you will appreclaim that you can't produce an in-depth review of a product in 500 words, which is why not all the features were covered.

Just to add a lew points to Mark a reply. CU ANIGA la not primarily a games magesine, we try to give full coverage to all aspects of the Amige. To that and you will find that we dedicate a greater number of pages to technical serious products then other aspects. When we are producing a magazine of this size and trying to cover such a diverse market it is inevitable that nome products do not always monive the amount of coverage that they marit.

#### THE CASE FOR THE DEFENCE

I have read with internal the latent concerning the new A1200 and how people their that Commodore have done them an injustice. Well, 1 would like to give my opinion.

If people bought a new car next week from Ford and then a car was released the following month which was the name price but with extra according, would people expect Field to inde In their old car for the new ent? My guide would being and that is exactly how we have got to see the situation with the A1200 II Commodors didn't release new machines they would be accused of leaving / migs owners behind, but when they do release new products at low prices they are secured of channel computer buyers! They cert't wini

My opinion is that people muy something for a purpose and if the product faille the purpose in a year's time then a has been value for money, but if not then why did they tay the computer in 

upprate. It's just hand lack if you buy something and a befor product is released the following week but it is the earth adjuster with cars, softwere, music et al. This may not be a popular view, but instead of mosting, people should be thanking Commotions instead **Bcoll Wright, Wreshull** 

#### TONY HORGAN

The coolest man at Emap, Tone has no problems with the heat. After many years attending raves that bear more resem-

blance to saunas than dance halls he is in his element in the summer. We were a little surprised then when he arrived one morning all hot and flustered - it

wasn't until a comme lettere man of staff arrived in the same state shortly afterwards that we realised the cause of his current hot flush. But as this is a family mag it would be imprudent to detail his exploits in these pages. However, send £50 to the usual address and we will return in a plain brown envelope, full details of H's adventures, plus the photos we took with our hidden care era. Unless, of course, Tony pays us that eminently reasonable amo unt of cash we requested. I mean it's a small price to pay to maintain your dignity isn't it?

#### NICK VEITCH

Summer machines cartery seems to have effected old Nick more then anyone. He's actually considering milling from CU to

D FRENZY

to you about what Commodore show you Christmas. I think many people w

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I have just finished reading July's CU AMIGA

and their compellect to write in you about it in Direct to the source of the source of

simulator Airbus A320 USA 1 know everyond is

entitled to their own opinion of every game they

play and that these will vary wildly, but I do test that Mr Dillon has totally missed the point and

has not done justice to probably the most techni-

la Lander's Events & west PD 1 372-bit marchine with 16.7 m

AIR SICK?

available for the Amiga

me's not too

the has never really at it deserves, and a ing about the conso

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ep in the right direction wi

a Canbbean island for a change of scenery. That's his story anyway. On a different teck (and trecki), still unable to Bod his lost motorbike Nick v recently spotial as

a certain high speed Go-Karl track in West London, Frystrated at being denied the pisceures of the open road for as long he took the opportunity to vent his rage on all the other poor unfortunate journalists on the same course. The marshells wanted him about dangerous driving effective managed to run everyone of the road, but it was to no avail and he continued to do a fair impression of a road hog. By the end of the right the other journos got ao fed up with him that they had him to the track and proceeded to drive over him at high speed.

cally advanced flight simulator currently He guite rightly points out that the s not a fast action shoot 'em up and the external cockori graphing leave a lot in be desired, how ever he fails to grasp the coint that it is tis of strew private to sit. beacons as you fly to ILS glidescope to do absorbing. If he does program, and judging and words crinted he else to review the more technically

nat of 27 k per main dig A1200 (spit g hit resp compared to

in the & 200 selfware bandles - I want by say much es here. Since Ocean nearly always supply ig | would like to see the Starwing-beater ( 

CII 50 (

#### wor, Birmin

d gets a kick

demanding simulations? Instead of resigning the A320 USA program to the scrap heap. Theiron should be commanded to producing such priv liant colours in the ASRI games lain Bracegirdie, Lince.

Beyond Mr Dillon? Whelever do you mean? H you read the review, you'll see that it clearly states time and time again that A320 is an excellent elimitation of real flight, at one paint describing it as a near periect simulation. The problem lies in the subject matter. To flight elmulation tens, and I am one despite your comments (I have been for many years) the navigational aspects are merely the base of flight. Once you have worked out where you are flying and where you are getting to, there is little else to do, save the odd course correction. This, as the review stated, has the capacity to be very tedious.

#### I'M NOT LEAVING

Since I had my lefter published in May s Backchat, I've been surprised by the number of people who ve bothered to get in touch with me taking me to task after I threatened to abandon the America

Well, let's get one thing straight: I will NOT be abendoning the Amiga and buying a PC or an Atau Faloon. When I penned my lefter to CLI AMIGA I was feeling let down by Commodore and I just had to get it off my chest. I never really thought that CU AMIGA would see in in publish my letter. This was back in Jenuary and I had just heard that the A4000 and A1200 had the same sound capabilities as my old A500 from 1987 while the new Faicon had a DSP and 18-brt sound.

Aiso, CU AMIGA had edited my letter to make it sound even more angry than it was They only printed my strongest views and cut





designed for the perdown and plan his light. Planning your erway's routing using the maps and your destination dirfield to internent the a manual landing may be beyond Mr Dillon, but some of us find it very not understand the by the ecreenshold doesn'i, why don't you get someone

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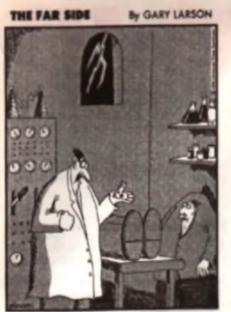
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#### ABIGA WORKSHOP BACKCHAT



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5

"for crying out loud, igor! Final there's that screw-up with the wong brain busines and now you've let his head go through the wash in your pants pocket!"

our most of the arguments i d included to beck them up. Okey, i did write thei I would drop the Amiga and luch ig Alam or PC, but, well, I didn't really mean it.

Since then, I've learning graat deal more about the Atan Falcon and the A1400 that will come equipped with its own DSP. The laci is that the DSP in the Falcon is a great processor, but unfortunately if is lef down by the poor machinery in which it is trying to do its job. To tran an armony Trans and Parcel State are crep! The Aten Falcon might have a DSP. but it is placed in an environment where it can t do anywhere near what it should be capable of

Another thing has also chosend me up no and. In the interview with GVP's Vice President in CU AMIGA's July insue, the mervewer eaked what he was plenning to do with the A1200 s PCMCIA slot. He was very secretive but seld something along the lines of: "Whet would you say to a 18-bit sound sampler for under £200? Keep your eyes out for it...' These few words were the best news I've heard for a long time. This means we could see # 18-bit sampler for the A1200, not just the A4000, and sils reasonable price, tool

So, take it from me, I have no plane whataoever of abandoning the Amiga. Even though Commodere's done some very rotten things to us users (especially the musicians), the Amiga dealf and the network of users that have grown up around it, are just too colourful to walk away from,

## INSIDE INFORMATION

Il proce report is to be believed. Peering up with faits prediction company Triton Interaction a ma cashy m write production company Triton Informative relates, the keys from the fast and are proper al people play their process over a live (device rings. To play, people will use their team plane entrelies for the utilise of street. Tel to let pe a controllers for the stress of others viscourt shalls proved from Gates (Joyl others viscourt shalls proved from the solution filed party spatiality. The proved from the protocol will be Alask formers force Brit person to get this treatment will be Alapic Particip, and Research plan to get Sacratic Second and The Class Second and some investment



They're sprouting up all over the place. Yes, there are now more Amiga User clubs for your inspection than ever before. Obviously we can't feature every single one, so here's a list of some of the ones we've missed so far.

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Bjorn A. Lynne, AM/FM/Editor and professional musician using the Amigal

#### ARABIAN DELIGHTS

I have read your recent review of the game Arabian Nights and have noticed several mistakes which I would like to correct.

1. How could you hat the hero's name wrong? Sinbed is originally Simbad

2. Calif is originally pronounced and written Khallis and certainly wouldn't be the ruler of a small country. The Khellies where the people who took over after the prophet Mohamed and they ruled the entire islamic nation.

S. The so called Ofini is originally pronounced and written Jinni and are what you probably know se Genies, And no, likey don't come out of magic lamps, but they are involved with magic. A Jinni is almost a spirit but one that has rever had a body and certainly an't evil

4. The Vizier is supposed to be a Wazier (or a wears in Samhil) which, m turn, is a minister,

Hope that a cleared up a law pointe. Seleh Al-Kindy, Omen

 AMIGANOUCS CLUB. 49 Courts Name. Charles. Lonion \$\$7 7 KS. Tel: 071 500 2000 Eec 240.

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What on earth was that all about? I'm confuned.

#### YOU'VE BEEN SCOOPED

You might have been the tiral Amige magazine to publish pictures of the Amiga CD32 (well done), but you weren i the limit to show us what the mechine actually looked like at The Gratian s catalogue beat everyone to the punch. In their most recent catalogue they had a picture of this new mechine linked up to a TV with the CD logo in full view. They even had the price (about £100 more expensive than buying if (brough a shop) with some of the tech spece, too. So your World Exclusive might have been the case in terms of beating your rivel magazines, but you certainly didn't beat Gratian's Sid Devine, Brent Cross

You're quite correct. Grafian's did best us to the punch. We were emazed when a reader sent us a clipping through the post. We'd seen the machine in the flesh by then, but we were embergoed from revealing any details or publishing any pictures until Commodors gave up the go shead.

We live in a world where the lowest common denominator is catered to the most. Mat Broomfield wonders if it's fime for software publishers to raise their sights.

Quality Versic

Med di-convitations a final-arrive Technical Activity is CRI Addited. He is constantly conspected in this criticism of poor genetican activity final and/wave industry. Hist waves do not nee adams to realise three all final regularity. rom a commercial viewpoint most of us and find The Sun a stimulating read. As kids we attend comprehensive schools and se adults we'll get s job, a mortgage and have 2.2 children. Men will die at age 73 and women about five years later.

We live in an environment almost exclusively governed and shaped by statistics, and none are more influential than those used by marketing men to shape their products, and the way that they sell them to us. Although the numbers used may provide incredibly accurate statistics about the laster and preferences of each one of us, their purpose is not to seek the individuality in us, but rather to find our common ground – the mea where our tastes are most likely to converge.

The same thing is true about the computer games industry. When a game may require many years of man hours to create, and hundreds of thousends, if not millions of pounds, the software house has to be sure that if will reach the largest possible audience. Unfortunately, this means that innovation and originality are often casualities. As bed in my opinion is the platform that the games are written for. There's no point creating a game which will appeal to 50% of the buying public if it requires such up-market equipment that only 10% of them can actually use it. This means that virtually every game is designed for a bog standard machine with one disk drive and amaximum of 1Mb of BAM. ers the light flashes on and off forcing you to change disks in time to the flashing. Software houses plasse note – disk changing was never supposed to be a test of athletic ability or reflexes! How are people supposed to enforce the message about not changing disks while they re being accessed if you force them to break the rules?!

#### INSTALLATION

Another question that I put to the notiware houses were 'Why doesn't your notiware install on hard disk considering the fact that so many people own them nowedays?!

This provoked a much greater and more plaunible range of answers, the most typical coming from one notable PR executive representing a well known independent publisher. He used 'If there was a way to offer hard drive installation for every title without reducing nates due to piracy, we would take it in an instant. We are constantly examining new ways of combaling this problem, but it can be an expensive misteke to get it wrong.

The theme of piracy is a serious one. I wondered why it was that most PC games are hard drive installable, but was reminded that the PC market is 100 times larger than the Amiga one and therefore 50 percent piracy still leaves healthy game sales. Nevertheless, many publishers still leave their PC conversions until feat so that a game has pleatly of selling time on

## Available on AMICALAND.COM

#### **MULTIPLE DISKS**

This situation becomes increasingly frustrating , when software is published on three, lour or even more disks. True il's more difficult to write software that detects and uses extra memory, and it may take longer for such software to load, but if this means that my games playing isn't constantly interrupted by requests for extra disks, then the price is right.

And what about extra drives? I just can t believe the number of two or more disk littles that still don't recognise, much less actually use an extra drive. As a magazine journalist I constantly advise my readers to buy an extra drive and memory as seen as they can afford them. 'It'll transform your life't say. What I don't mention is how fructurated they'll get when, despite having forked out 50 or 80 guid on a drive, they still frequently and up disk swapping over and over.

So why don't companies write software which recognizes their drives and RAM? Plain bloody laziness theirs whyl live phoned dozens of activere companies and programmers over the last few months, from the greatest to the smallest to ask why their activere doesn't support these extres. Not one, not a single software company even ventured to offer an explanation. One company actually went so far as to say that it was down to laziness or incompetence on behalf of their programmers. That's an incredible attitude to take – if you realine that your coders are not doing their job property why aren't you correcting it?

On the subject of floppy based software, I'm constantly taking phone calls from readers who are confused by games that tell them to change disks while the drive lights are still on... Sometimes the disk is still epinning, and on oth-

#### **PIRACY RULES?**

I fully accept the software housen fears of piracy. A game that can be installed on one hard drive can be installed on many at virtually no extra affort. Of course there are protection syslems such as referring to a code wheel or using a key disk or dongle to validate the version being used, but most companies are aceptical of such methods. I don't know why considering the lact that they're widely used with other floppybased software.

This may have appeared to be little more than a mean but it does have a purpose. I think it's high time that we were served with coffware that utilises the set-ups we actually have, not just some everage denominator. If it's a case of laziness, make the effort. If it's a lack of expertise, find someone who can in the meantime ifit continue to do what I always have - vote with my wallet!

#### HONOURABLE MENTIONS

Ecouldn't brish this section without mentioning some of the companies who do produce hard drive installable games Here's my coll of honour in no particular ander: Microprose, Lucasfilm/US Gold, Team 12, Millermann, 21st Century, Impressions, Electronic Arts, Psygnoss (eventually!), Blue Byte, Dynamix, Yingin, New World Computing

Top of the list for customer service must definitely go to 21 st Century who not only produced a special hard drive version of their Finball Fantases game — they even rewrote the game so that a one handed purchases could play if! Well done. A shuning example of good rustomer service

# Den't you think these images speak for themselves

Jason Hullinger, Antiger Format December, 1992 Issue,

"Vidi Amiga12 ... The best value digitiser on the market !"

Vali 12 goors unequalled results for anothing within £200 of in price. Forget the competition. If you can afford 12 bus it. If you afford it, borrow it from someone who can



January Construct. "...I compared Rombo and Digiview digitisers extensively. To summarize them....I judged the Rombo results to be more consistent and have the edge on quality !"

CTUAL SCREEN

er Int.

Alan P

If you want the ultimate quality images at a price you can afford then there is only one choice...Vidi Amiga 12. The Video Digitser that all others

# i Quality Version Available

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For more Information call: (44) 0506 414631 or Fax (44) 0506-414634 Rombo Productions Ltd. Kirkton Campus, Livingston, SCOTLAND, (UK), EH54 7AZ. ,...a soccer simulation that combines realism with fast arcade action! Check out just some of the many amazing play features:

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\*ACTION REPLATS - Select to replay in either GRANDSTAND or TOP-DOWN model. Featuring FLIL VIDED CONTROLS (rewind, tost lohinard, treese frame, slow motion). You can even chonge the camera angle during a replay to lind out what was happening exercised in the plicht



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