

# LEISURE LINES

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## Oni

**O**ni, the third-person shooter, in development by Bungie, made a splash at this year's E3Expo. You play Konoko, a special agent of the Tech Crimes Task Force given the task of infiltrating a crime syndicate. With its linear plot, it might appear that there's not much to separate Oni from the rest of the herd. But it looks as if the similarities stop there.

For a start, you can forget the puzzle-solving antics of adventure: Oni will be all action. And whereas running out of ammo in Quake will leave you a sitting duck, having your hands free in Oni will allow you to practise your martial arts. You learn these skills, so at the beginning you may only have a few moves at your disposal, but when you hit the advanced levels, your full-contact acrobatics could

be your deadliest weapon.

The cinematic animation of Japanese anime lends itself perfectly to the fluid world of Oni. So, while in Tomb Raider, if you get Lara to hop, skip and jump, you have to wait for each action to finish before the next can begin, in Oni the actions blend together seamlessly. Also adding to the realism is the high polygon count of the character models.

The environment you'll be fighting in has been designed by architects, giving a sense of real space, and the AI of the non-playing characters includes moods and motivation, as well as cunning. For the true anime fans, levels will be book-ended by cut scenes and, finally, net play is also planned in arena-modelled levels.

Look out for a full review on its release this winter.

<http://oni.bungie.com>

MATT WHIPP



## Black and White

**T**here's been a lot of talk about Peter Molyneux, creator of Populous and the follow-ups of this genre, and his Lionhead studio's debut release, Black and White. It looks like this game will allow you to really stamp your personality on a world while stamping out everyone else's.

At the beginning you enter a perfect island world, where tribes of innocents go about their business, until you

arrive as a god and mess it up. The overall aim of the game is to get as many tribes to worship you as possible, giving you power and spells.

As the title suggests, there are two sides to this sword of government, and you can rule over your congregation with a reign of terror or by making everything nice and fluffy. Being too extreme in either direction will land you in trouble. The 3D environment will reflect the tone of your rule: the land will be torn apart under evil, for example.

You walk among your people by taking a Familiar – an animal that you nurture and train to do your bidding. As you grow in power, so your Familiar mirrors this, and you could end up in charge of a 400-foot tortoise. But this is

no puffed up Tamagotchi. The Familiar will also lead and defend your tribes when you come up against another deity.

The interface is almost non-existent, and you move around by simply grabbing a bit of land and cast spells by throwing them at your enemy.

The multiplayer capabilities look awesome, with chat rooms where your creature will speak what you type, as well as conventional server-hosted combat zones. You can also look forward to fully editable world and gameplay parameters.

Originally posted for a Christmas 1999 release, Black and White has been delayed by some last-minute tweaking, so we'll just have to hold on a bit longer.

[www.blackandwhite.ea.com](http://www.blackandwhite.ea.com)

MATT WHIPP



# Metal Fatigue

If you're worried the realtime strategy genre is **getting rusty**, try this game and think again.

These days it's difficult to find a realtime strategy game that stands out from the crowd and it's even more difficult to talk about a strategy game without mentioning the Command & Conquer series, which has dominated the genre for so long.

Any game that brings a new twist to an old idea adds a certain value and will be welcomed by gaming fans. Luckily, Metal Fatigue brings with it enough freshness to make it worth having.

The best aspect of the game is the combots you can build to do your bidding. These hulking forms are much larger than vehicles such as the tanks and missile carriers and are also much more destructive. They sound like Robocop when they walk and can be equipped with a number of different weapons, such as katana sword energy blasters, or legs and arms that fire missiles.

These combots will make up your main form of attack, but are most effective when backed up by other vehicles such as hover bombers, mobile artillery and the single-shot, self-destructing Nemesis. These smaller vehicles also cost a lot less to build and make good sentries for your bases, while your combots go off around the planet to take on the enemy.

This isn't just unexplained violence: the conflict begins when explorers, using faster-than-light travel in the 23rd Century, find alien technology. This belonged to a race called the Hedoth and is very advanced, but none of the equipment found actually works. Three CorpoNations – RimTech, Mil-Agro, and Neuropa – form an alliance and set off in search of functioning technology.

You follow three brothers who start off life serving RimTech, but when an artifact is discovered, the alliance breaks

down. One brother fights for RimTech, one defects to Neuropa and the other is captured by Mil-Agro and forced to fight for them. This extends the playability of the game, with the ability to play each of the brothers and each of the factions, following a different storyline each time.

of some element to complete a task, this will tell you what is missing. For example, when you build vehicles or structures you need people to run them. If your cryo

farms aren't producing enough manpower you won't have drivers for your vehicles or combots and they'll be unusable.

One of the problems with games of this nature is that you can't just play it for half an hour as it takes so long to build up your forces. The designers have given this issue some thought and come up with a 'pre-build' system to put yourself in a strong position to start off with. When playing against friends or AI opponents you can set the level you want to start at and then spend a certain number of credits to get a foothold in the game.

You can also set the time you've got to spend this initial bonus, so there's no sitting around while your opponents painstakingly place each piece of armour or new structure.

Overall, Metal Fatigue is an excellent game and realtime strategy fans will be glad of a great addition to this genre. There's nothing better than watching a gang of your combots stomp their way across the screen and destroy the enemy, especially the smaller and weaker vehicles. Watch out for the attack of the Nemesis units though.

MATT CHAPMAN



These games tend to be fairly tough to get into and there's nothing to be gained by loading it up all gung-ho and ignoring the manual. There are a lot of aspects to master and to stand a chance of beating either human or computer opponents you'll need to know what you're doing.

A voiceover that sounds like the female commentator in the movie *Dune* keeps you up to date with what is happening in each scenario, prompting you when structures have been built or new vehicles produced. If you are short

## DETAILS

★★★★★

PRICE £29.99 inc VAT

CONTACT Take 2 Interactive 01753 854 444

[www.metal-fatigue.net](http://www.metal-fatigue.net)

SYSTEM REQUIREMENTS Pentium 200 (233 recommended), 32MB of RAM, 4MB 3D card, Windows 95/98



# Starlancer

Ever fancied engaging the enemy in a **laser-equipped starship**? Now's your chance – chocks away!

The year is 2160, and the Solar System is in the grip of a war between the old Cold War adversaries of the second half of the 20th Century. Your job in this conflict is to fly fighters with the 45th Volunteers, a rag-tag Alliance squadron battling the forces of the evil Coalition.

Chris and Erin Robert's Digital Anvil, along with co-developers Warthog, have gone for a total immersion approach with Starlancer and it works to great effect. A spectacular first-person, pre-rendered bunker area means that for the entire time you have the game loaded, you really feel part of the action – there is nothing to force you back to reality as you move seamlessly between the simulator and the briefing room.

This is only half the story, though. Once launched on a mission, Starlancer seamlessly switches between the action you are involved in to in-engine cut-scenes, adding a further cinematic feel. There is only one problem with this – after you are killed and have to redo a mission, you are forced to patiently sit through the cut scenes as there is no escape option. This small niggle aside, the scenes work exceptionally well, drawing you right into the narrative.

The fighters are excellent. They have a retro, World War II feel about them. Some even have a Gatling gun lookalike, along with a revolving turret like the kind on the top of Lancaster bombers. The markings are good, with the various nationalities reflected in the liveries. For example, the Japanese ships are adorned with rising suns, while the Russians ships have the traditional red star.

The cockpit view is semi-virtual, reflecting movements your head would probably undergo in space combat on the screen. For example, your head is forced backwards under acceleration and is also buffeted by the effects of missile blasts.

pilots. Liberal taunting from your opponents adds to your enjoyment as you twist and turn to get on their tail

before unleashing your guns. Generous use of the match speed control is a necessity here if you are to get close enough to pepper their hull with your weapons.

The smoke from a damaged fighter is a marvellous effect, blocking your vision as you manoeuvre your crippled adversary into your sights for the final pull of the trigger. The explosions in Starlancer are not as recurrently spectacular as they could be. This is a shame because when they're good, they're really impressive. Unfortunately, though, most of the time they are not much more than fireballs.

Starlancer is an excellent, plot-driven space simulator. The game is quickly playable and immediately absorbs you into the universe of the warring forces of the Alliance and Coalition in a very effective and cinematic way. Apart from the cut-scene irritation in replayed missions, this game is quite spectacular. You would do well to join the 45th and do your bit to aid the Alliance. See you out there!

SCOTT MONTGOMERY



As for playability, the in-game simulator gets you up to speed with the controls and Heads-Up-Display. This is good, as you can quickly get into playing the game instead of spending hours trying to get to grips with flying your ship. The controls are a little spongy in Starlancer and lack the response of the ships in Freespace 2. However, with a bit of trial and error, a ship that handles to your liking can be found.

The game's most enjoyable aspect is dogfighting with the evil Russian fighter



## DETAILS

★★★★★

PRICE £34.99 inc VAT

CONTACT Microsoft 0345 002 000

[www.starlancer.co.uk](http://www.starlancer.co.uk)

**SYSTEM REQUIREMENTS** Pentium 200 (Pentium II 300 recommended), 32MB of RAM (64MB recommended), 2MB or greater 3D card recommended, DirectSound 7.0 compatible sound card, Windows 95/98





# Tachyon: The Fringe

This all-action space sim is truly of the future, as you'll need a PC with futuristic specs to play it.

In a move away from traditional military combat simulators, Novalogic has entered a new contender for the coveted crown of best space combat simulation. The other recent contender for this prize is Microsoft's Starlancer (see opposite page). Starlancer is an excellent game with good graphics, ships and gameplay. In our opinion, though, it didn't prise the crown from the aging fingers of Interplay's Freespace 2. The question is, did Tachyon: The Fringe do any better?

Tachyon's instruction manual is innovative and well presented. It takes the form of a tourist brochure – complete with recruitment adverts for factions in the game. The information in it is substantial and helps to create an intricate picture of the universe you'll be immersed in.

In Tachyon you play Jake Logan, a freelance pilot who scours space station notice boards looking for jobs. It's a simple existence. You escort ships, you attack ships, you make money. Then you spend

it on a new ship that is better, faster and with a more powerful arsenal. From this perspective, Tachyon has returned to the Elite style, minus the trading side, and this is one of the best aspects of the title.

The story is novel and interesting. After a few jobs, Jake is framed for a crime he did not commit. He is tried, convicted and sent to The Fringe at the edge of the Solar system. It is here the game really begins as you decide with which faction to affiliate yourself, and which jobs to accept. These decisions dictate how the game will unfold. You

have the option of hiring wingmen to help you complete your jobs. These non-player characters must be paid a



percentage of the overall payment for each job. How greedy you are, or how much money you need dictates whether you use

them, although once you become affiliated with a corporation, a wingman becomes a necessity, because at this point your opponents become more accurate and aggressive.

Tachyon is no more complicated to play than other space simulators. There are lots of keys to learn to move shields, target enemies and a plethora of other functions. However, included in the box is a colour-coded keyboard map that eases the learning process. A half hour or so should see you up to speed with most of the functions.

Controlling the fighter is a fine art. The controls are extremely sensitive. This sprightliness makes it difficult to get the enemy in your sights. Additionally, the match speed toggle doesn't make it easy to stay on a fighter's tail, so dogfighting isn't usually a matter of blasting your way through an enemy a minute. Dogfighting is good, but it's just difficult.

At 1,024 x 768, the graphics in Tachyon are great. At this setting, the ships look amazing, the gargantuan space stations magnificent and the explosions spectacular. Unfortunately,

this resolution will prove too much for most people. Running Tachyon on a Pentium III 450MHz with 128MB of RAM and a TNT card, we found that the frame rate regularly dropped to a jerky, unplayable level. Reducing the resolution to 640 x 480 didn't help much. In the end, we had to switch off many of the features to keep the frames up.

So does

Tachyon get the crown? Unfortunately not. Why? Because a high-spec machine is needed to do it justice, otherwise it looks mediocre and suffers from frame rate drops that verge on the unplayable. It's a real shame, because it could have been excellent.

SCOTT MONTGOMERY

## DETAILS

★★★★★

PRICE £34.99 inc VAT

CONTACT Novalogic 020 7405 1777

[www.novalogic.co.uk](http://www.novalogic.co.uk)

**SYSTEM REQUIREMENTS** Pentium 200 (Pentium III 450 or above recommended), 32MB of RAM (64MB recommended), 8MB graphics card (16MB recommended), DirectX 6-compatible sound card, Win 95/98

# Lemmings Revolution

If your idea of revolution is **going round and round** then read on – the Lemmings need you.

This latest incarnation of the popular Lemmings game from Take 2 is, unfortunately, far from revolutionary. That's not to say it's not good or fun, or as addictive as the original, because it certainly is. It's just a repackaging and a technological update on the old classic, though. The biggest innovation is that the old wide-screen format has been replaced by a cylinder that can be revolved through 360 degrees.

As anyone who has played the original will know, the game involves the suicidal long-haired lemmings' inexorable march towards certain doom. Your role is to minimise the death toll by commanding individual lemmings to perform specific roles. All the old actions are there. There are climbers, builders, tunnellers and bombers, all of which must be strategically used in order to save the group.

In the original game, a click on a mini-map in the corner allowed instant



access to another part of the widescreen. This meant that you could quickly check the potential traps in another part of the map before immediately returning to what you were doing. In Revolution this has been lost. It's debatable whether this makes the gameplay better or worse, but it certainly makes the game more active, because if you don't keep revolving round the tower, you might easily miss a group walking off a cliff out of sight.

Lemmings Revolution is just as addictive as its predecessors and the 3D

graphics look wonderful. The lemmings animation is excellent with their flowing green moppish hair and their giant feet. Unfortunately, it's just a reworking of the old idea. Having said that, if you don't mind this or didn't play the original then Revolution will certainly give you hours of addictive, time-consuming fun.

SCOTT MONTGOMERY

## DETAILS

★★★

**PRICE** £34.99 inc VAT

**CONTACT** Take 2 Interactive

01753 854 444

[www.take2games.com](http://www.take2games.com)

**SYSTEM REQUIREMENTS** Pentium 166

(Pentium II 333 recommended), 32MB of RAM

(64MB recommended), 4MB DirectX

compatible 3D accelerator card (8MB

recommended), DirectX-compatible sound

card, Windows 95/98

# Cricket 2000

Ah, perfect, the smack of leather upon willow and, **if action is your thing**, none of the boring bits.

Cricket 2000 is yet another incredibly realistic sports simulation from Electronic Arts. EA's attention to detail is meticulous and this will be the deciding factor as to whether or not you'll like this game. In other words, do you like cricket?

The game feels like any televised cricket match. It begins with your team line-up overlaid on the screen as the traditional wide-angle camera view

overlooks the pitch. Slowly, the players walk out and take up their positions, exercise, stretch and polish the ball against their crotch.

Playing Cricket 2000 is enjoyable, bowling being particularly entertaining. Using the mouse, the position of the bounce is marked and spin options are selected. Then it's a case of trying to click the mouse button at the right time to

achieve the desired spin and release the ball. It takes a bit of practice, but nothing is more satisfying than taking a wicket and watching the dejected batsman walk off slowly.

Another good feature is the commentary from Richie Benaud and David Gower. Seamlessly interlaced with the action, the commentary adds to the overall mood of the game as your good and bad moments attract a commentary

or a round of applause from the crowd.

The best feature, though, is the ability to skip the slower parts. This allows you to choose whether you watch the game in real time, or whether you quickly move to the next bit you're involved in. As a result of this, the slow pace that plagues real life cricket can be removed, making Cricket 2000 an enjoyable game for both the buff and the action hunter.

SCOTT MONTGOMERY



## DETAILS

★★★★

**PRICE** £34.99 inc VAT

**CONTACT** EA Sports 01932 450 000

[www.easportscricket.com/](http://www.easportscricket.com/)

**SYSTEM REQUIREMENTS** Pentium 166

(Pentium II 233 recommended), 32MB of

RAM (64MB recommended), 4MB graphics

card (8MB 3D card recommended),

Windows 95/98

**Alphabet soup**

In this month's brainteaser the numbers 1 to 26 have been allocated randomly to the letters of the alphabet. The letter values of the words have been added together to give the word values. For example, in VOLE, V might equal 16, O 6, L 7 and E 5, or any other combination of four letters totalling 34. What is the value of Z?

BOBCAT	47
CUSCUS	72
DONKEY	52
FERRET	38
GIBBON	57
GOPHER	58
GRISON	51
HAMSTER	60
HORSE	41
IBEX	48
JERBOA	49
KANGAROO	44
LORIS	42
MACAQUE	66

MARMOSET	63
MEERKAT	36
MONGOOSE	66
MUSKRAT	60
RABBIT	45
SAIGA	50
SERVAL	51
TARSIER	41
VOLE	34
WOMBAT	62
YAPOK	48

Find the solution to this puzzle for a chance to win a copy of Microsoft Encarta Reference Suite 2000.

Send the answer, along with your name and an address where you would like the prize to be mailed, on a postcard to: PCW Prize Puzzle (August 2000), VNU House, 32-34 Broadwick Street, London W1A 2HG, or by email to: [letters@pcw.co.uk](mailto:letters@pcw.co.uk).

Answers should arrive no later than 20 July 2000. Please note that we DO NOT open attachments.

**May's Prize Puzzle answer**

We were inundated with entries for the 'Figure it out' puzzle, the answer to which is below.

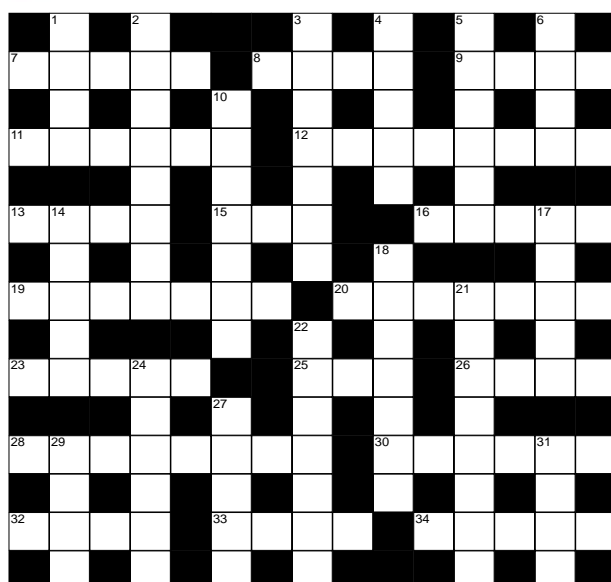
Gordon Baker from Kent was the first one out of the hat and wins a copy of

Encarta Reference Suite.

Congratulations Mr Baker, your prize is on its way.

9	-	8	X	3	=	3
+		÷		X		
5	-	4	+	6	=	7
÷		+		÷		
7	+	1	÷	2	=	4
=		=		=		
2		3		9		

# prize crossword

**ACROSS**

- 7 Programming language, often Visual (5)  
 8 Character's onscreen appearance (4)  
 9 Open and examine a file (4)  
 11 Get returned to email sender (6)  
 12 Protection against external virus threats (8)  
 13 Free and incomplete

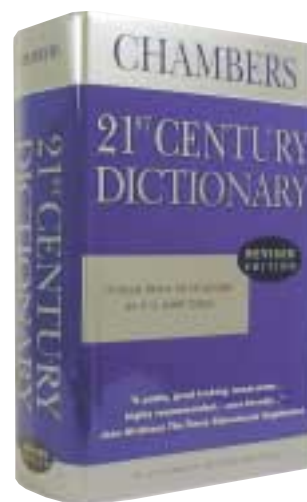
software version (4)

- 15 Net addressing system (abbrev) (3)  
 16 Processing mistake (5)  
 19 Explorer's recently visited option (7)  
 20 Attempted an operation again (7)  
 23 Spreadsheet boxes (5)  
 25 Common extension (abbrev) (3)  
 26 Unwanted email (4)

- 28 Accepted rules for communication (8)  
 30 Overall setup (6)  
 32 Net language (inits) (4)  
 33 Agreed operator (4)  
 34 Forms of carrying data, such as CD-ROMs (5)

**DOWN**

- 1 Saint's heavenly ring (4)  
 2 Journey indicator (8)  
 3 East Anglian county (7)  
 4 Severe (5)  
 5 Beer maker (6)  
 6 Cry like a baby (4)  
 10 Need (7)  
 14 Banish (5)  
 17 Musical drama (5)  
 18 Liberate (7)  
 21 Opposed fiercely (8)  
 22 Answered (7)  
 24 Small (6)  
 27 Wash thoroughly (5)  
 29 Speed (4)  
 31 Long film (4)



Each month, one lucky PCW Crossword entrant wins a copy of the *Chambers 21st Century Dictionary*. The winner of June's crossword puzzle is: John Ash from East Sussex.

This time, it could be you. Send your completed crossword to: 'PCW August - Prize Crossword', VNU House, 32-34 Broadwick Street, London W1A 2HG, to arrive no later than 20 July 2000.

• Please state clearly on your entry if you do not wish to receive promotional material from other companies.

**Solutions to July's crossword**

**ACROSS:** 7 Full-duplex 8 Fire 9 Rebooted 10 Sector 11 Attach 13 Volumes 15 Decrypt 17 Hot link 19 Buffers 21 Kermit 24 Dialog 26 Transfer 28 Word 29 Mainframes

**DOWN** 1 Numerate 2 Almost 3 Rust 4 Glade 5 Axes 6 Groove 8 Factual 12 Capar 14 Ozone 16 Raffled 18 Nattered 20 Unison 22 Mislaid 23 Strip 25 Game 27 Alfa



# WIN

## fantastic Creative Labs DVD bundle

This month PCW has teamed up with award-winning manufacturer Creative Labs to give four lucky readers the chance to put our first ever DVD cover disc – or any other DVD – to good use, with a fantastic DVD bundle.

Not only could you win Creative Labs' PC-DVD Encore 8x to play your DVD collection but also its Desktop DTT 2500 Digital speaker system to bring superior Dolby Digital surround sound to your DVD experience. Creative Labs has also thrown in its Sound Works CSW200 speaker system for superb game playing.

The PC-DVD Encore has impeccable image quality, an easy-to-use control

panel and, in addition to its stunning video capabilities, the Encore Dxr3 board will take Dolby Digital content and feed it to the Creative Labs Desktop Theatre 2500 for theatre-like audio. The Desktop Theatre includes a powered subwoofer, two identical front satellite speakers, two identical rear satellites, a centre speaker and the decoder amplifier.

A welcome addition to Creative Labs' DVD bundle is the Sound Works CSW200 speaker system, which will deliver a crystal clear and realistic audio experience for playing games when plugged into your Walkman, TV or small hi-fi system.

■ For a chance to win one of these great DVD bundles, just answer the question below and follow the 'How to enter' instructions opposite.



### PCW August 2000 competition entry form

Name: .....

Email address: .....

Daytime telephone number: .....

Address: .....

**Answer: How many speakers does the Desktop Theatre 2500 have? .....**

• Please tick here if you DO NOT want to receive information about other products and services from VNU Business Publications Ltd ☐

• Please tick here if you DO want your details to be passed on to other carefully selected companies for marketing purposes ☐

How many speakers does the Desktop Theatre 2500 have?

1) Five      2) Six      3) Four

#### Canon winners

The winner of June's Canon bundle is Mrs C Mercer. The two runners-up, J D Scott and Tim Porter, each win a BJC-8200 Photo printer.

#### How to enter

Fill in the coupon and send it to the following address by 30 July 2000:

Personal Computer World  
VNU Business Publications,  
32-34 Broadwick Street,  
London W1A 2HG

Or email your name, address and daytime telephone number to us at [pcw\\_competition@vnu.co.uk](mailto:pcw_competition@vnu.co.uk)

Please state in your email if you DO NOT wish to receive information about other products and services from VNU Business Publications Ltd, and if you DO want your details to be passed to other carefully selected companies for marketing purposes.

♦ Competition open to UK residents only.

#### Rules of entry

This competition is open to UK readers of *Personal Computer World*, except for employees (and their families) of VNU Business Publications, and Creative Labs. PCW's Editor is the sole judge of the competition, and his decision is final. No cash alternative is available in lieu of prizes.

## Printers and Commodores steal the headlines, while Intel sets a challenge for Professor Nicely.

### 20 YEARS AGO August 1980



In 1980 a rippling Tarzan carrying a large printer adorned *PCW*'s front cover. This was not a tribute to the late Edgar Rice Burroughs but a reference to Mike Dennis' trek through the printer jungle. Too early for any sign of the inkjet or laser printer, it was the era of the dot matrix behemoth and we concentrated heavily on its mechanics.

Across the Atlantic Tom Williams reported from the third annual Rosen Research Personal Computer Forum in New Orleans. Here all the major players had gathered to contemplate the future of their companies and the industry as a whole. Apple's Steve Jobs envisaged that personal computers should be 'tools that amplify the natural capabilities of the human mind'. He said they should include general-purpose capabilities, such as data and word processing, and that the 'nuts and bolts' must be shielded from the user so that the machine itself recedes into the background. He could almost have been describing the iMac.

Moving on to software, Bill Gates was redefining the old slogan 'software sells hardware' into 'software defines the product'. Forward-thinking Tom considered how a major software house, such as Microsoft, could limit the possibilities of smaller firms trying to get a major part of the market.

Computer jargon was and still is a necessary evil, with more and more terms filtering into common usage. A new section, Newcomers Start Here, aimed to dispel the myth that 'microcomputing' was complicated. Thankfully some words are losing their relevance and most of us will rarely need to PEEK or POKE a memory byte these days.

### 15 YEARS AGO August 1985



As the Amiga A500 takes centre stage in August 2000's *Retro*, 15 years ago *PCW* first lifted the lid on the \$1,500 Amiga A1000. Hovering on the front cover above the line

'The Biggest Splash Yet?' the Commodore Amiga was a prime candidate for our benchtest exclusive. Judging the magnitude of said splash was

an excited Guy Kewney, who found at its heart an 8MHz Motorola 68000 supported by three specialised chips, intriguingly named Daphne (or Denise), Portia (or Paula), and Agnus. All had shared access to the Amiga's memory as well as split responsibilities. Daphne did the display animation and sprites and Agnus the animation graphics, while Portia was a peripheral scheduler and interrupt handler that also took over disk control. Guy concluded that for a machine running 10 times faster than any of its rivals, it was the first low-cost, multi-tasking computer to introduce a new price level to business computing.

The 'windows' interface was becoming increasingly popular back in 1985, so Nick Walker decided to put the main contenders, GEM, Windows and TopView, through their paces. TopView lost the battle because it was the most expensive and needed the most power. GEM and Windows, however, were difficult to separate as the latter was multi-tasking and had a virtual memory, whereas GEM was the most user-friendly. Nick predicted that it would be some time before a clear winner emerged.

Accompanying the year of the 'window' was the inevitable year of the 'mouse'. After reviewing several mouse-driven graphics programs we were still debating whether the mouse was just another superfluous peripheral.

### 10 YEARS AGO August 1990



Five years on, Commodore was again on the front cover. This time it was the £699 Commodore Dynamic Total Vision or CDTV. Aimed at the mass market this 'precursor'

to the DVD or laser-disc player, was supposed to set the home-entertainment industry on fire. In fact it was a dressed-up A500 (Agnus, Paula and Denise included) together with a CD-ROM. Limited by the 150Kbytes/sec drive and decompression processing power, full motion video playback was not possible. Instead the CDTV's marketing concentrated on what Commodore termed 'Edutainment' where navigable static images and text were mixed together with audio. Sadly it didn't really take off, with problems in defining a software standard and the advent of the Internet not helping.

As today's technology includes new applications for fractal compression (News, p39), a decade ago Dr Nick Beard was taking an in-depth look at the emerging fractal and chaos theories. From exploring the possibilities of predicting future behaviours of chaotic systems by using 'taught' neural nets, we could also learn of the alleged application of fractal mathematics in generating realistic scenery in *Star Wars*. By far the most impressive application of fractal theory was a demonstration of Michael Barnsley's compression system with a 45-second video sequence packed onto a 1.2MB floppy. The applications of such technology were obvious and it consequently had a massive impact on the video and imaging industries.

### 5 YEARS AGO August 1995



Taking a five-year stroll down memory lane, we find that colour printers were flavour of the month. After testing 20 models, it was the Kodak XLS 8600PS that ran away

with the best print quality accolade. This was to be expected, as it was far from cheap. At £6,995 for the Postscript version this thermal dye diffusion printer could also add a laminate coat after the CMY process to prevent fading. For those who didn't have a few thou' burning a hole in their pockets, the Lexmark WinWriter 150c was the Editor's Choice. It produced astonishing colour and mono output at impressive print speeds – all for £299.

Four months after the last CD-ROM round-up, Gordon Laing took another seven quad-speeds for a spin. With IDE the *de facto* interface it was hard to filter out a winner, and it was more a question of brand loyalty and availability.

As for PCs, the Pentium 133s were the latest speedsters to hit our Features section. *PCW* tested five models and we were impressed by each of the entrant's overall performance increase compared with the 120MHz Pentiums of old.

Speaking of older CPUs, remember the Fdiv bug? This was the flaw in Intel's Pentium that occasionally affected its ability to work out sums. Discovered by the unforgettably named Professor Nicely this issue's Newsprint told how Intel had retaliated by challenging the Professor to find fault with the new P6 chip.

JALAL WERFALLI



# Commodore Amiga A500

The first computer to **truly match the coin-op kings** of gaming has had a rough ride over the years.

Those who grew up in the 1980s and loved video games were truly spoiled. They had a heap of machines available to them, including the Sinclair Spectrum, BBC Micro and Commodore 64. However, while the efforts of coders were commendable, the games on the market were limited by the hardware available and were hardly arcade perfect. Limited animation and colour clash were annoyances that had to be tolerated, that is until the entry of the Amiga A500 in 1987.

The story of the Amiga, like most of the great products that made their mark on the history of computing, is long and complicated. Some would even argue that it's a bit early to be covering the Amiga in a *Retro* column.

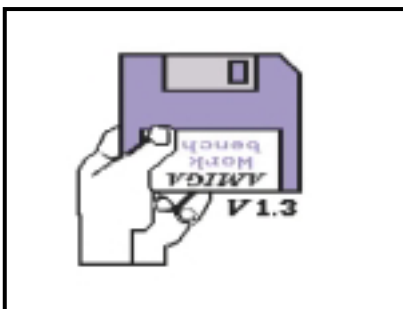
The Amiga legend begins in 1980 when computer design guru Jay Miner decided he wanted to create a next-generation games console. Miner had already developed the Video Computer System (VCS) for Atari, which had ended up in millions of homes.

However, it wasn't until 1982 that the team behind the Amiga really started to come together. Larry Caplan, who was working for Activision, but had previously worked at Atari as a programmer, called up Miner and suggested they start their own company. Miner had previously been friends with Dave Morris, who was now running his own company called Hi-Torro which made games and joysticks for the Atari 2600. Miner got in contact with him and told him of his plans. Morris was keen to get involved and the three agreed to look for funding.

It was the investors who weren't keen on the Hi-Torro name and, seeing as they were stumping up £4.375m, the name was changed to Amiga – meaning 'female friend' in Spanish – a moniker that Miner was not originally keen on.

Miner then recruited three more engineers to help him with the design of the Amiga – RJ Mical, Dave Morse and Carl Sassenrath. The Amiga team was now complete.

By 1984, the company was fast running out of its reserves of cash, even though the machine – which had been codenamed 'Lorraine' after Morris' wife – was almost ready. The custom chips weren't finished, but the team built



*The Amiga was supposed to take on IBM and Apple, but it really excelled at games*

hardware simulators called bread boards to handle the functions of the custom hardware. It was in this form that the Amiga debuted at the CES show in Chicago. The reaction was amazing as the crowd was wowed by the bouncing red and white sphere demo now famous as the Amiga logo. After an initial loan of £625,000 from Atari for further development, it was finally Commodore that stepped in, repaid the Atari loan and then bought the company outright in August 1984.

By this time the bottom had fallen out of the games market and Commodore decided that the Amiga should become a fully functioning home computer. The product debuted as the Amiga A1000 in 1985, but it wasn't until the cheaper A500 was released in 1987 that people started to take notice.

Priced at £599, the Amiga A500 featured a 16bit Motorola MC 68000 processor clocked to 7.16MHz and 512KB of RAM. It could be connected to a TV, so an expensive monitor was not required, although the modulator did stick inelegantly out of the back of the unit. Despite Commodore's aspiration to take on IBM and Apple, the Amiga's arch-enemy became the Atari ST.

The Amiga's power came from its custom chips named Paula, Denise and Agnus (named after women to prevent them being leaked during development). Paula controlled the sound and input/output, Denise was the display controller and Agnus was the address generator. The Amiga could display 32 colours at 320 x 256 or 320 x 512 and 16 colours at 640 x 256 and 640 x 512. There was another display mode, using a technique called HAM (Hold And Modify) that allowed the Amiga to display a static image utilising the full 4,096-colour pallet. The device had impressive sound capabilities, too, with its 8bit, four-voice, stereo sound.

The Amiga captured the imagination of games developers, as its hardware let them do things only previously possible on expensive coin-op boards. Notable games of the time were Shadow of the Beast II (featuring 13 levels of parallax scrolling), Bubble Bobble, Pang, Flood, Beach Volley and Speedball II.

The A500 became the most popular of the Amiga product line, winning the award for computer of the year on more than one occasion. Unfortunately, none of its successors was anywhere near as successful and by 1994 Commodore's luck had turned and on 29 April it filed for voluntary liquidation.

Hopes for the Amiga were raised in 1995 when PC retailer Escom purchased the rights to the Amiga. However, a little over a year later, after expansion of its PC business into the UK market, Escom filed for bankruptcy. The Amiga's fate was once again uncertain. Until as late as last year the rights to Amiga were held by Gateway, but on 31 December 1999 it offloaded the Amiga brand to Amino for an undisclosed sum. Whatever shape the next Amiga takes, it will have a tough task living up to the success of the A500.

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