

# LEISURE LINES

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## Rollcage II

**T**here are driving games that strive to be a perfect simulation, right down to the effects of different types of grit in the tread of your tyres. Then there are others that thrill to the joy of knocking weird autos into the middle of next week, played around surreal tracks that only the mentally deranged could dream up. Rollcage II looks to be the latter, and does what a sequel should do: it's bigger, better and slicker.

In terms of improvements to its predecessor, Rollcage II boasts a glut of playing modes. Anything from being first across the line, through Player Demolition, where you destroy as much as possible in the shortest time, to Scramble, where you have to get round 25 hand-crafted tracks in a given time, with medals awarded for bettering it.

Of course, the racing element is just the half of it, and Rollcage II will offer an extensive arsenal with which to burst the inner tubes and egos of your rivals. Most notable will be the Worm Hole that opens up a shortcut to the next position ahead; the Driller Rockets, which will make mincemeat of everything in your path; and the Stasis Beam, that sounds



scary because it is, and will leave your competitors clinging to the roof as you storm past, whacking them with rockets.

There is a wealth of cars to choose from, with special paint jobs available, and even default insults to throw around (you can program your own). Up to four can play on a split screen, and five over a network. The soundtrack will feature 12 tunes from artists including E-Z Rollers and Omni Trio. Keep an eye out for a full review when Rollcage is released at the end of April.

[www.rollcage-game.com](http://www.rollcage-game.com)

MATT WHIPP

## Lemmings Revolution

**Y**ou may be amazed to find that those tiny, mop-topped suicidal rodents didn't jump off their last cliff years ago, but Lemmings are back, this time in a new wraparound 3D-ish version and more foolhardy than ever.

Developed by Psygnosis and released through Take 2 Interactive, Lemmings Revolution looks like it will be very much back to the old school. But in the graphically-rich Revolution, you must help your green-haired platoon negotiate the traps and pitfalls of a 3D tower and guide them to the safety of the awaiting balloon. You can pan around the tower to view it from 360 degrees, and one thing you'll need to watch out for is that your little chaps might be plunging to their doom on one side while you're busy

pondering the obstacles on the other.

The lemmings have also evolved into three new species. As well as your common or garden variety, there are now water and lava walkers. And while the familiar sets of skills are all present and correct, there are also eight new ones to employ: anti-gravity, herder, lantern, rocket, slow down, speed up, trampoline and catherine wheel. The exact nature of these new skills was unclear from the preview code we looked at, as we were unable to access them. However – and more importantly – nuking the whole group of critters still results in a satisfying, rapid-fire splat.

With over 100 levels to attempt, it's as disturbingly addictive and frustrating



as ever, and you'll still find yourself trying to figure out how to solve a level when you're not even playing it. If you haven't already been driven insane by one of the game's earlier incarnations, you may as well get a copy of Lemmings Revolution and book a place at the asylum while there's still room. Lemmings Revolution is due for release at the end of May.

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

MATT WHIPP

# The Sims

Had enough of your own family? Why not **start another** from scratch and dictate its every move.

It's one of the strangest ideas we've ever come across, but if you've ever wanted to play God, now's your chance. We've seen games that let you build and manage whole cities and theme parks, but in this title you create and manage an average family. It may sound unusual, and it is, but it's also one of the most addictive games we've ever played. You are in charge of a family and have to manage every last detail of their lives from the job they choose, to when they go to the toilet.

You choose the family you want to play within the

opening screen. The whole game is run using a simple point-and-click interface, together with a help system that gives handy hints at appropriate stages. There's also a tutorial family, the Newbies, to help get you familiarised with all the various controls. After you've given them a whirl, you can choose to play with a ready-formed family, the Goths, or create your own. Each of the characters has a different personality that you can alter when you create your own family, but is fixed if you pick an existing one.

Once you've made your choice, it's time to pick a house. This is where you come across the most important thing in The Sims: money. You are given \$20,000 at the start of each game and with this you have to buy a house (or build one entirely from scratch if you so wish) and kit it out. Sims don't like to be uncomfortable, and you have to make sure that their every need is catered for. You'll need to build up a comfortable house with a good fridge, cooker and places to relax. \$20,000 isn't enough



money for this, though, so you'll need to get your Sim a job. You can find them in the local paper, but more opportunities present themselves when you buy a PC, although this does cost more money. Once you've chosen a career path, it's up to you to ensure that your Sim rises to the top.

Each Sim has a number of skills. You can develop these through activities such as studying books if you want to become a better engineer, and practising speeches in front of a mirror if you're out to be a politician.

Money isn't everything, though. Sims are very social people, and it's important to build relationships with your neighbours or they'll start to get depressed. This is one of the hardest parts of the game, as you don't have

direct control over your neighbours, only your own family. All you can really do is get them talking and hope they get on. This is made doubly difficult by the fact that Sims tire very quickly. After they come home from work or school, there's not much time for social interaction. Ordering them to take a quick nap can help, though, as can cups of coffee.

Each Sim's status is presented in a set of indicator bars that show how they're doing. If a Sim starts to get hungry, tired, fed up with the room or suffers any number of other irritations, each bar gets steadily less green and starts to turn red. It's easy to switch between the various modes of play from the central interface: Live mode is the standard mode where you control your characters in real time. If you go into buy mode (where you buy items for your house) or build mode (where you add to the infrastructure of your house), the game pauses and

you're presented with a series of options, each complete with some handy hints.

All in all, this is an incredibly involved game. It's very easy to get started

and use, though, and we guarantee that once you've loaded it up you'll say goodbye to your mortal life for a long time to come.

JASON JENKINS



## DETAILS

★★★★★

PRICE £34.99 inc VAT

CONTACT Electronic Arts 01753 549 442

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

SYSTEM REQUIREMENTS Pentium

233MHz, 32MB of RAM, 2MB video card,

Windows 95/98



# Age of Wonders

A turn-based strategy game with a **retro look**, that will satisfy you if you're feeling good or bad.

When all the world seems to be going 3D crazy, the developers of Age of Wonders have taken a more traditional path, producing a turn-based strategy game that could easily have been released years ago.

The visual aspects of the game may be two-dimensional, but luckily the gameplay isn't. The storyline revolves around the introduction of humans to the world of the elves, which ultimately ends in war. The elven king is killed and his children, a son and a daughter go their separate ways, into darkness and light respectively. You must choose which side to join, The Keepers, who wish to co-exist with the humans, or The Cult of Storms, who want to destroy them in revenge for the elven king's death.

Getting started couldn't be easier, as there is a tutorial to take you through the basics of the game and help you get used to the interface. The player's manual is also a good source of information, and you may want to avoid too much trial and error when you're starting out, as you are rarely warned when you're about to do something stupid. For example, while trying to separate one member from our party, the word disband seemed to be the right choice, but actually this freed the hero out of our service and off he went.

When you start a game, you have the option of playing the full campaign as good or evil, or just playing a single map as any of the 12 races. All of the usual suspects from Tolkien's imagination are there, including elves, orcs, halflings and the undead. Each culture produces its own specialist forces, which makes for a diverse number of units in the game. Some are fairly generic, such as archers or swordsmen, while others are more unusual.

When choosing your race, you'll also be able to set the level of any remaining computer opponents. You can decide on the level of a race's leader and their tactics, such as whether they like to defend, expand or burn everything on the map. You can also choose whether turns will take place all at the same time or one after each other. If you choose the latter option and you are playing against your friends, you'll definitely want to turn on the timer

normal party members, a hero may occasionally join you. These are special characters that have a greater number of skills, including the ability to cast spells and pick up items. They are essential if you want to collect treasure that can be found when exploring ruins or caves, as you don't want to send your leader into

too many dangerous situations. Your leader's death will mean the end of the game, so protect them at all costs!

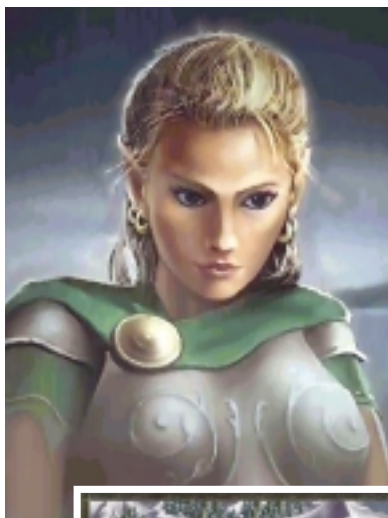
When you do get into a battle you can choose to have it decided automatically, or

fight it out tactically. If your leader or a hero is in the party, it's best to choose the tactical option, as they will be singled out for destruction in automatic combat. Tactical battles also allow you to make use of the terrain, such as hiding behind buildings to surprise your enemy, or setting up your archers to back up your swordsmen. Any spell research you have done will also pay off here, and magic can have a big

effect on battles.

Overall, Age of Wonders isn't a bad game, it's just not a great game. However, putting aside its retro appearance, the storyline is involving and the gameplay is addictive enough to keep you crusading long after your common sense has told you to go to sleep, and that will be enough for most.

MATT CHAPMAN



to stop anyone dithering for too long.

Once into the game itself, you'll appear in your home city with a few units and your leader. To start with you'll most likely want to produce more troops to add to your party, and this can be done using the city management interface. Units can be gained in other ways, such as when you take over an independent city by buying its loyalty and when rescuing prisoners. As well as these

## DETAILS

★★★

PRICE £34.99 inc VAT

CONTACT Take 2 01753 854 444

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

**SYSTEM REQUIREMENTS** Pentium 166MHz (P266 recommended), 32MB of RAM, DirectX-compatible video card and sound card, Windows 95/98/NT4



# Final Fantasy VIII

A classic on the PlayStation, this port to the PC is **lacking graphically** and doesn't do it justice.

**F**inal Fantasy is one of the few franchises to attract massive publicity with every new version. The eighth incarnation of the series debuted a year ago on the PlayStation in Japan and generated a massive number of sales. Squaresoft has finally got around to porting the mammoth game onto the PC. Unfortunately, although we liked it on the PlayStation, it simply doesn't cut the mustard as a PC game.

The first thing we noticed was the appalling graphics. PlayStation games are designed to be viewed on a television, not a monitor running at a 640 x 480 resolution. In the PC version, this means that all the backgrounds look fairly scrappy, as they were never originally drawn with the medium in mind. The characters don't look as bad, but they simply don't measure up to the high standards of today's PC games. The sound, too, was originally optimised for PlayStation sound chips and sounded OK. On the PC it sounds tinny and grates on the ears after a fairly short period of time. On the plus side, though, the cutscenes are great. The pre-rendered sequences have an epic, cinematic feel to them that gives the title some sense of direction.

But good graphics, or in this case a lack of them, don't make or break a game on their own. If Final Fantasy VIII was a joy to play, the fact that it is lacking in the graphics department would not matter. Unfortunately, the formula is starting to look a bit tired now: the series needs a serious re-vamp if it is to continue to compete. You control a team of characters, central to which is Squall, an upstart cadet sent to settle a dispute between two warring countries. There is quite a powerful story at the heart of the game, as with all the previous versions, but you're not really given the sense that you are interacting in any way and feel

more like a bystander. There are loads of characters – all of which you can talk to through a series of pop-up windows. Rarely are you given a choice over what



you say, however, so you have to watch and read as they drone on endlessly.

The combat system is also a bit old hat now. It is turn-based, but you have to decide on each move in real time. This makes it fairly hard to start with, especially as there are quite a few options available to you each time. It can be fairly tedious watching your character painstakingly perform each action you order it to do, and then watch the retaliation from your enemy. You have the option to summon your Guardian Force, a creature that enables you to cast magic, if you need a bit of a hand. Unfortunately this version has the same problem as the last: each time you

summon your Guardian, you have to watch a pretty animated sequence. This is fantastic the first few times but, as you can't skip it, it soon becomes wearing.

Each time you win a fight, you gain experience and power, but the enemies you face get progressively stronger at an equivalent level. This sort of defeats the point of winning, were it not for the fact that Final Fantasy games are more about the story than clobbering the evil enemy.

Another confusing aspect involves Junctioning. This allows each character to build up skills by Junctioning magic to them from a Guardian Force – in this way you can improve certain aspects of each character. It's very complicated to get to grips with and you will be forced to take the same tutorial several times to ensure that you know your stuff. It does add a welcome tactical dimension to the game, though – if it were better implemented it would add so much more.

Final Fantasy VIII is not a dreadful game, but it is simply much better on the

PlayStation. It will appeal most to those who are already fans of the series, and they will probably have already bought and played it on the console.

Overall, thumbs down for the PC port.

JASON JENKINS

## DETAILS



**PRICE** £34.99 inc VAT

**CONTACT** Eidos 020 8636 3000

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

**SYSTEM REQUIREMENTS** Pentium 200 (Pentium II 266 recommended), 32MB of RAM (64MB recommended), 8MB DirectX-compatible graphics card (16MB recommended), Windows 95/98

# Superbike 2000

A motorcycle simulator that's both **realistic and fun**.

**S**uperbike 2000 is the latest in a long line of motorcycling games, stretching back to the very earliest days of home computing and arcade gaming. None have managed to raise the pulse much, with the possible exceptions of Castrol Honda and Road Rash. EA's Superbike series has only ever enjoyed moderate success to date – but that may be about to change with this installment.

EA bills SB2K as a 'high-end motorcycle racing simulation' and this speaks volumes about where the developers are coming from. It certainly has the feel of a serious simulation, rather than an arcade dash and crash. As with most offerings from EA, the full complement of licences is here, and the game includes Superbikes from Ducati, Honda, Kawasaki, Suzuki, Yamaha and Aprilia. Perhaps even more importantly, we've also been dealt a full hand of tracks, including Germany's Hockenheim circuit and the mind-boggling chicanes of Monza in Italy.

Gameplay is about as realistic as can be expected given the limitations of a PC and keyboard. Computer-controlled riders shift their weight authentically, requiring you to do the same if you're to avoid a close encounter of the tarmac kind. With a decent 3D card, the graphics are excellent, down to the decals on a rider's leathers. The aural experience is suitably robust – just don't pump it up too far if you've got sensitive neighbours. When it comes to the nitty gritty, you can choose to race a full weekend, including practice, or just plump for a quick fix on any circuit.

Like all decent race games, you also have a degree of control over the realism of the sim experience – if you want a full-blown crash, you've got it. We preferred to cheat and have our pixelated Carl Fogarty magically remount his steed, without the tedious six months in hospital between spills. Overall, SB2K is



a blast – much better than just watching the real thing on telly.

J MARK LYTLE

## DETAILS

★★★★★

**PRICE** £34.99 inc VAT

**CONTACT** Electronic Arts 01753 549 442

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

**SYSTEM REQUIREMENTS** Pentium II 300, 64MB of RAM, 8MB DirectX-compatible graphics card, DirectX-compatible sound card, 400MB hard disk space, Windows 95/98



# Beetle Crazy Cup

A **wacky and wonderful** racing game with enough options to satisfy even non-beetle lovers.

**B**eetle Crazy Cup sports one of the most unlikely gaming concepts this side of the loony bin. It features 45 different kinds of Beetle, including mutant Bugs that crush other cars and leap tall buildings in a single bound, a host of bizarre race locations and all manner of weird and wonderful characters – hardly your average racing game.

In BCC, the bottom line is fun and that's precisely what's served up. As a novice driver, you are called upon to compete in five different types of event, with the simple aim of besting all comers. 'Speed' is a pretty standard road race without any of the *Herbie Goes Bananas* nonsense; 'Jump' sees your Bug doing backflips; 'Buggy' lands you on a challenging beach circuit; 'Monster' features a giant monster-truck-type Beetle; and finally, 'Cross' has you wheel-



spinning mud in the eyes of your opponents on a rally course.

Clearly, variety is on the agenda here, and although some of the variations sound spurious to say the least, it's all good, clean fun. In spite of the frivolous nature of BCC, the cars are actually all well modelled and show realistic handling and damage, making driving a challenge throughout. The graphics are splendidly rich and colourful, with lots of

detail everywhere from the cars through to the scenery and lighting.

Throw in a great soundtrack to keep things moving along smoothly and multi-player support – either on a single PC or over a network – and you've got a potential cult classic. We just hope not too many gamers are put off by the retro image of the Beetle.

J MARK LYTLE

## DETAILS

★★★★★

**PRICE** £29.99 inc VAT

**CONTACT** Infogrames 0161 827 8000

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

**SYSTEM REQUIREMENTS** Pentium II 233, 32MB of RAM, 4MB DirectX-compatible graphics card, DirectX-compatible sound card, 450MB hard disk space, Windows 95/98

	-		x		= 3
+		÷		x	= 7
	-		+		= 4
÷		+		÷	
	+		÷		

=      =      =

2      3      9

**Figure it out**

Our brainteaser this month comes from Tough Puzzles and should put your mathematical ability to the test.

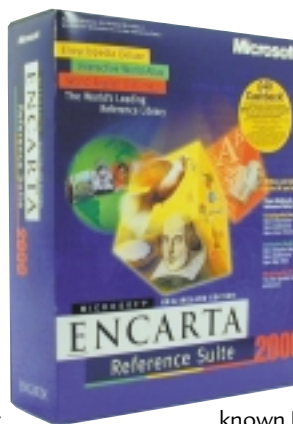
Each of the nine empty boxes in the grid above contains a different digit from 1 to 9. Each calculation is to be treated sequentially rather than according to the 'multiplication first' system. Can you fill in the empty boxes?

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

Send the solution, your name and an address where the prize can be sent on a postcard to: PCW Prize Puzzle (May 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 April 2000. Please note that we DO NOT open attachments.

**February's Prize Puzzle answer**

February's 'Hidden cells' brainteaser was tricky – a bit too tricky perhaps, as no-one



was able to solve it. If you remember, there were five sets of 25 cells (below). Each cell contained an identical formula, which, once found, would give you the key to the contents of the hidden set, revealing the name of a well-known IT company.

The top-left visible cell in our diagram was located at 8B and the formula in that cell was: =5+A1+C3-C1-A3. All the cells contained the same formula, copied with relative references. To generate the results shown, the hidden cells (located 6 lines above) would display (using ones and zeros) the characters E, P, S, O and N.

5	4	5	5	5
5	5	4	4	6
5	5	5	5	5
5	5	6	6	4
5	6	5	5	5

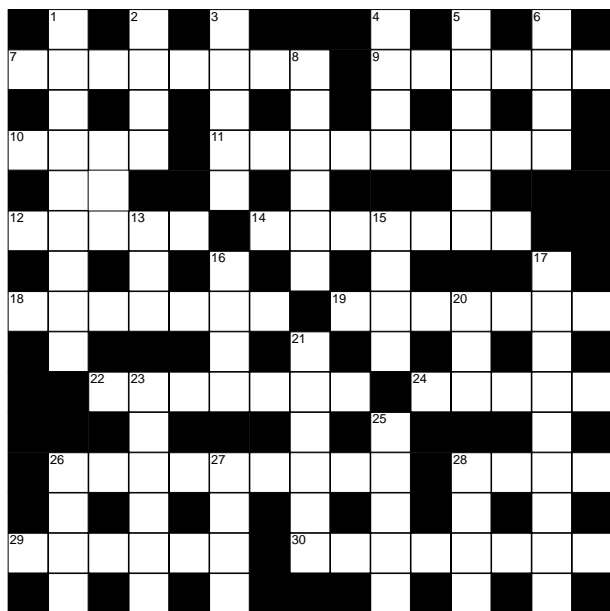
5	4	5	6	5
5	5	5	5	5
5	5	5	4	5
4	4	5	6	6
5	6	5	5	5

5	4	5	5	5
5	5	5	5	5
5	6	5	6	5
5	4	5	5	5
5	5	5	4	5

5	4	5	6	5
4	3	5	7	6
5	5	5	5	5
6	7	5	3	4
5	6	5	4	5

6	4	4	6	5
5	6	5	4	5
4	5	7	5	4
5	4	5	6	5
5	6	4	4	6

# prize crossword

**ACROSS**

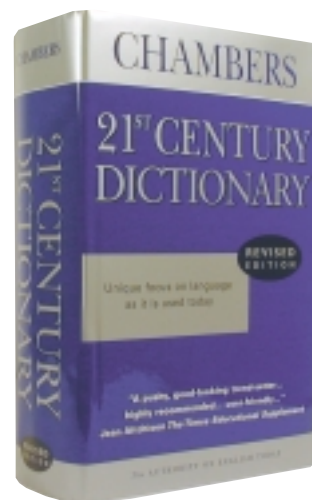
- 7 Put into unreadable form (8)  
 9 Deleted completely (6)  
 10 The D of DTP (4)  
 11 Virtual talking places (4, 5)  
 12 Non-logged-in user (5)  
 14 Image-to-paper peripheral (7)  
 18 New-born internet

company (5-2)

- 19 Battery component element (7)  
 22 Screen's image-change speed (7)  
 24 Digital 'letter' (5)  
 26 Closed internets (9)  
 28 Paper-carrying part of 14 Across (4)  
 29 Portable machine (6)  
 30 The P of ISP (8)

**DOWN**

- 1 Cleverness (9)  
 2 Long walk (4)  
 3 Dot (5)  
 4 Dread (4)  
 5 Provisional release (6)  
 6 Disordered state (4)  
 8 Indoor steps (6)  
 13 Knight's title (3)  
 15 Metal fastener (4)  
 16 Cat's sound (4)  
 17 Disinfected, purified (9)  
 20 Pig meat (3)  
 21 Slumbering (6)  
 23 Object, being (6)  
 25 \_\_\_\_ Villa, soccer team (5)  
 26 'Terrible' Russian tsar (4)  
 27 European mountains (4)  
 28 Threesome (4)



Each month, one lucky PCW Crossword entrant wins a copy of the Chambers 21st Century Dictionary. The winner of March's crossword puzzle is: Terence Miles of Bury, Lancashire.

This time, it could be you. Send your completed crossword to: 'PCW May - Prize Crossword', VNU House, 32-34 Broadwick Street, London W1A 2HG, to arrive not later than 20 April 2000.

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

**Solutions to April's crossword****ACROSS**

- 7 Compressed 8 Chat 9 Downtime 10 Errors 11 Server 13 Imports 15 Flatbed  
 17 Scanner 19 Process 21 Folder 24 Screen 26 Academic 28 Hits 29 Technology

**DOWN**

- 1 Colossal 2 Opener 3 Yeti 4 Usher 5 Idle 6 Carrot 8 Cartoon 12 Evens  
 14 Micro 16 Tickets 18 Earrings 20 Recoil 22 Dwells 23 March 25 Note 27 Anne



## Backtrack to times when we thrilled to Amstrads, sub-£800 modems and speeds of 120MHz.

### 20 YEARS AGO May 1980



20 years ago, events across the pond were in the minds of our writers, as Guy Kewney added a *Stateside Supplement* to his *News* section and we had a report from the 5th

West Coast Computer Fair. The latter had drawn 20,000 computer buffs, all looking for the next big thing, and there were plenty of contenders. Microbot had a computer-controlled robot arm costing £1,062, that – while no match for the cute, ball-chasing Aibo – could handle weights up to eight ounces. Perhaps the most notable attraction was a forerunner to the PDAs seen in this month's *group test*: a handheld computer that could be programmed in Basic, and for the sceptics out there who didn't believe us we proclaimed 'here's a picture to prove it'.

In one of our more instructive articles, back in the days before *Hands On*, Don Finlay showed users how to use sine waves to help with music creation or acoustics. The piece included instructions for programming the sine waves into software, as well as pictures of what each wave looked like. These were oddly reminiscent of the screenshots in this month's *Sound* column where, 20 years on, we've moved onto the ins and outs of editing music.

It was a busy month for our reviewers, as we ran three separate benchmarks – taking in the Texas TI 99/4, the Altos ACS 8000-2 and Hewlett-Packard's HP85. To help readers decide upon their ideal machine, we also trawled through our past issues to report on all of the benchmark results since the previous September. Running away with the top spot, based purely on results, were the TRS 80 Level 1 and the EBHB version of the Heath WH89.

### 15 YEARS AGO May 1985



Back in 1985, Amstrad's latest release captured our attention and graced the cover. The company previously had only one model on the market and had

berated journalists 'for calling the machine just "The Amstrad"'. Guy Kewney was proud to be the first to get his hands on the CPC 664, which – for all its hype – was essentially the same as its

predecessor, but with a 3in internal disk drive replacing the cassette deck.

Commodore must have been peeved at the timing of Amstrad's release, as it had finally decided to join the market for IBM PC-compatibles and would otherwise have been a strong candidate for the cover story. Despite being relegated to a tiny square at the top corner of the cover, we featured one of the IBM clones in a benchmark test to see if it had any chance of rescuing Commodore's fortunes in the business market. We were sceptical of the machine's chances, the problem being that the market was already very competitive. As he noted in his summing up of the product: 'What can you say about an 8088-based IBM clone that hasn't been said a hundred times before?'

Those checking out our contents page would have seen the *Networks* section billed with the words 'Hack away, courtesy of Peter Toothill'. But before you start to think *PCW* was a more subversive in those days, it was actually an explanation of commands for bulletin board systems. As the forerunners to today's websites they let users leave messages, download files and pick up electronic mail, and we had a comprehensive list to help guide users to new BBS sites that were springing up.

### 10 YEARS AGO May 1990



The PDA market is currently booming, as our round-up showed, but if we told you that back in 1990 you could buy a machine weighing 558g, 22cm wide, 11cm deep and

3cm thick, running MS-DOS 3.30, packed with 512KB of RAM, 640KB of ROM and powered by an Intel 80C88 processor clocked at 7MHz, you'd think we'd mistakenly picked up the wrong issue. The Poqet PC was clearly ahead of its time, squeezing up to 100 hours out of a couple of AAs, but so was the price – a whopping £1,350. The machine was obviously powerful, but at that price there weren't many who could justify the cost.

The issue also saw *PCW* going Steve Jobs crazy, with not only the Macintosh IIx and Mac System 7 featuring, but also an in-depth review of NeXT running on a Motorola CISC-based 68030 chip.

Also of interest in the *News* section was a state-of-the-art V.32 modem, the Fastback by SEG Communications. With the ability swap data at speeds of up to

9,600bits/sec in both directions, over a good phone line, it was cutting-edge technology. 9,600bits/sec is currently the most you'll be able to squeeze from your mobile for data communications, although a 14,400 standard has been proposed. Given that it's hard to purchase a PC nowadays without a 56,000bits/sec modem thrown in, the claim that it was the 'first V.32 modem to cost less than £800' shows how mass Internet usage has pushed down the price of modems.

### 5 YEARS AGO May 1995



Anyone who's been reading *PCW* for a while may have noticed a few recurring themes, and May 1995 was no exception. Not for the first time and certainly not the last, our cover

screamed 'Fastest PCs Ever'. This time 120MHz Pentiums were the flavour of the month. We looked at two systems, from Gateway and Viglen, costing £2,849 and £2,999 respectively. Despite the high price tag we were blown away by the speed and they were sadly missed when they left the *PCW* office.

Perpetuating another theme, we looked at 'PDAs: the Next Generation'. This time the round-up included the Motorola Envoy, Sharp Zaurus and the Sony Magic Link. The Sony and the Motorola were based on the Magic Cap OS, whereas Sharp opted to use Synergy for the Zaurus. Some features, such as pen support and built-in modems have percolated through to the current crop of PDAs. There was also speculation about WinPad – a Microsoft and Intel initiative for Windows-based PDAs; can't think what happened to that.

WAP, as this month's feature shows, feeds the need for information while on the move, but even back in 1995 there were a few, hardened road warriors. We took a brief look at what was available, such as the early Nokia data cards for use with a notebook (or laptop as they were then known), and for a truly mobile solution there was even a data card bundle available for the now defunct Apple Newton. Even after five years, despite the high costs and slow speeds, people want to access remote data over mobile devices. Whether WAP is just a stop-gap solution or a resolution to the problem only time will tell.

WILL HEAD AND MATT CHAPMAN

# Commodore 64

The Commodore 64 arrived on Spectrum turf, **upped the ante** and so began a clash of the Titans.

**Y**ou flicked the switch, tuned the TV and suddenly the brown beast from the US proclaimed '64K RAM System. 38911 Basic Bytes Free. Ready'. It was a battle cry that signalled the start of the war between Sinclair's ZX Spectrum and the Commodore 64.

The Commodore 64 officially made its first appearance at January 1982's Consumer Electronics Show in the US, selling for a not-inconsiderable \$595. It reportedly arrived on UK shores later that same year for a whopping £350, almost exactly double that of its arch-rival to be, the British ZX Spectrum. How dare the Yanks even think they could snatch a piece of our precious domestic home computer market with their overpriced rubbish?!

Well, ahem, they did. Admittedly it took the sensible price drop of Christmas 1983 to a far more reasonable £199, but from that point onwards, the CBM-64 sold like hotcakes – allegedly more than 17 million units were shifted worldwide during its decade of sales.

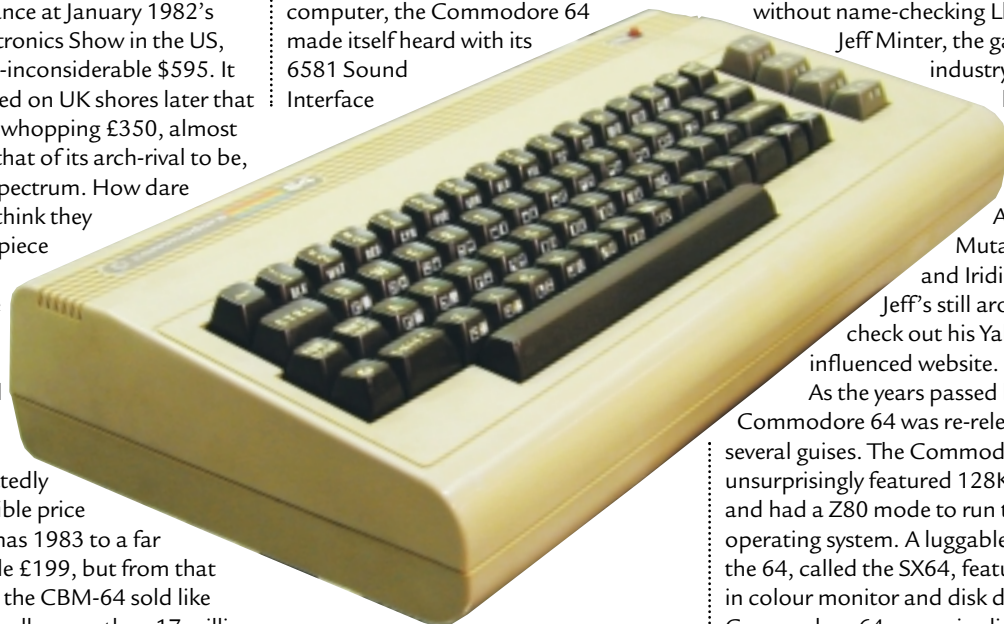
The acronym CBM stood for Commodore Business Machines, but after the success of the earlier VIC-20 (see last month's *Retro*) as a home-gaming platform, Commodore didn't really try that hard to push the corporate angle. Serious users may, however, be interested to learn that later CBM-64 models could be persuaded to run the GEOS graphical interface, along with flavours of CPM and Unix.

The 64 may have originally worn the unmistakable combo of light-brown shell and dark-brown keys, but within beat the heart of some serious hardware. Its 6510A 8bit processor (a 6502 development) ran at a fraction below 1MHz for PAL systems, and a smidgen above 1MHz for NTSC models. The paltry 3.5KB memory of the VIC-20 had been upped to a whopping 64KB of RAM.

The new 6567 Video Interface Controller (VIC-II) chip drove TV sets or

composite video monitors at 320 x 200 pixels in 16 fixed colours. Most crucially for games players, the VIC-II chip featured no fewer than eight hardware Sprites with collision detection, great for fast-moving cars, bullets and space aliens.

Unlike the original VIC chip which handled the audio of the VIC-20 computer, the Commodore 64 made itself heard with its 6581 Sound Interface



Device – the legendary SID chip. SID was a three-voice synthesiser with three independent oscillators, each with ADSR (Attack Decay Sustain Release) control. Four waveforms could be mixed, as could high and low bandpass filters.

Numbers, however, are meaningless without creative talent, and for that we can thank, nay, worship at the altar of Rob Hubbard, musical genius, who created the masterpieces for Monty on the Run, Commando and many more. Indeed, such is the continuing influence of this man and select others, that websites have been set up just for reminiscing about CBM-64 games music.

On the subject of games, one cannot forget Andrew Braybrook of Hewson, who programmed the legendary Paradroid and Uridium games. Ultimate Play the Game (see March issue's *Retro*) developed products alongside the Spectrum, with Commodore 64 titles including Staff of Karnath and Entombed. The American influence arrived with US Gold, distributing games

from the other side of the pond, including the digging classic Boulderdash and Leaderboard for golfing fanatics.

The 64's pair of Atari-style joystick ports made two-player gaming a dream, with split-screen classics such as Pitstop II and Spy vs Spy. Finally, no CBM-64 games paragraph would be complete without name-checking Llamasoft's

Jeff Minter, the games industry's token hippy, who penned such classics as Attack of the Mutant Camels and Iridis Alpha; Jeff's still around, so check out his Yak-influenced website.

As the years passed by, the Commodore 64 was re-released in several guises. The Commodore 128 unsurprisingly featured 128KB of RAM, and had a Z80 mode to run the CPM operating system. A luggable version of the 64, called the SX64, featured a built-in colour monitor and disk drive. Later Commodore 64s came in slimmer white cases with metal screening, which prevented many peripherals from plugging in properly.

Nostalgia nuts should happily recall these golden years of Commodore with the CBM-64, and later, Amiga computers, and perhaps should best forget the problems which beset Commodore in the 1990s.

It seems appropriate to remember the Commodore 64 in its rare special edition, which was issued for the millionth sale in Germany. To celebrate, 200 golden CBM-64s were produced – kinda makes the rubbery Spectrum seem a bit passé.

GORDON LAING

CBM 64 emulator:

<http://ccs64.fatal-design.com/>

Games for emulator:

<http://arnold.c64.org/>

SID music: [www.c64audio.com](http://www.c64audio.com)

Jeff Minter: [www.magicnet.net/~yak](http://www.magicnet.net/~yak)

If you would like to get hold of a CBM-64, call the Retro Computer Exchange on 020 7636 2666