LEISURE LINES

contents

Starlancer

The big news is that Freespace 2 has a challenger, and it's called Starlancer. *PCW* was invited to a sneak preview of the work in progress, and we can report that it looks worthy. Chris and Erin Roberts are part of the driving force behind it – the same people responsible for the Wing Commander series.

Although Starlancer is set in the future, World War II influences much of the storyline and gameplay. Earth has been split into a series of alliances vying for dominance over the planets in the solar system; so don't expect to be blowing away aliens for most of the game.

You are a part of the 45th Volunteers Squadron, an outfit that's considered expendable and tends to get assigned the most dangerous missions. This decreases your chance of survival somewhat, so not only will you have to complete whatever mission you've been assigned, but you'll also have to fight for your life.

The 3D graphics in the early code already looked stupendous. The cut scenes also look pretty good, and we expect a deep, well-developed story to emerge in the final version. There won't be a straight 'win or lose' approach to each level – instead a series of objectives will be present for you to complete. The more of these you achieve, the faster your progress up the ranks will be.

We're particularly looking forward to the multiplayer capabilities. Standard one-on-one deathmatch is promised, but much more interesting is the ability to team up and fight co-operatively over the Internet or your LAN. Starlancer is scheduled for an April release.

www.digitalanvil.com
JASON JENKINS

F1 2000

The end of March should see the release of a new official Formula One game, F1 2000. Developed by Image Space and released through EA Sports, it aims to be as close as possible to the hair-raising real-life experience.

The game will feature drivers, teams, car liveries, advertising and tracks from the Formula One 2000 championship and is timed to be available right at the start of the new season to maximise sales. A photo-realistic simulation is promised with emphasis on accurate car handling and pixel-perfect recreations of the tracks.

EA Sports has gone out of its way to sign some big names to voice the commentary. There's no Murray Walker, unfortunately, but Jim Rosenthal and his European counterparts Jean-Louis Moncet, Kai Ebel and Ivan Cappelli will make an appearance.

During races, your co-driver will relay information about the approaching track and also keep you informed as to the state of your car and the overall racing strategy. This means that there will be no commentary during each race, enabling you to concentrate on your co-driver.

The good news is that the PC version is being developed separately from the PlayStation version, the idea being that F1 2000 on the PC will be a full simulation, with the PlayStation incarnation more of an arcade romp. We expect there to be a massive number of options for tweaking your car, which should appeal to the hardcore racing simulation gamer. Doubtless EA Sports will ensure the more casual player is looked after though.

Full force-feedback support is promised, so start saving up for that wheel now as it's bound to be the best way to appreciate the full game.

www.ea-europe.com
JASON JENKINS

Delta Force 2

If you like your first-person shooters spiced up with a little strategy, then this could be for you.

The sequel to Novalogic's hit title has lost none of the gameplay that made the original so addictive, and fans won't be disappointed. For those who haven't played it before, Delta Force is basically Quake meets Command & Conquer, utilising the first-person view of the former and the tactics of the latter.

The great thing about Delta Force 2 is that it's playable straight out of the box. After installing, you can simply load up one of the quick missions, check out the keyboard plan in the manual and off you go.

The commands are pretty self-explanatory and the quick missions equip your marine with some decent weapons. Some of the controls could be a more intuitive, though. After placing a Satchel Charge next to a scud missile launcher and retreating to safety, there seemed to be no obvious way to detonate it – and no prompt was forthcoming. It was only by scanning the keyboard layout that we found the detonator, but this could have been toggled for us.

Graphically the game isn't the best we've seen on a PC. Delta Force 2 uses software drivers to run the 3D elements, and this leaves edges looking pixelated – making it look similar to a PlayStation game. There is the option to switch to hardware-driven 3D, but this seemed to make no noticeable difference using an ATi All-In-Wonder card in our test PC.

Strategy is a big part of Delta Force 2 and you'll need to choose your weapons carefully to match each mission brief. After receiving instructions, you get the opportunity to pick the inventory to accomplish that mission. This plays a big part in whether or not you succeed – if you don't pack enough explosives to blow up all the mission targets, you'll need to rethink.

Caution is usually the best option in the game, and the sniping feature allows you to pick off potential enemies before they become a problem. Bringing up the sight for sniping is reminiscent of the sniper rifle in Metal Gear Solid. You can't defeat everyone in this way, however, and there's still room for those death or glory runs – where you crank your M4 up to full-auto and run screaming at the enemy.

There are also times when you are put in charge of other units to help you complete a mission. Directing them to strategic areas, or using them as snipers to cover you as your forces move in to attack can give you the upper hand.

Logging onto www.novalogic.com to play online took a considerable time, much longer than to log onto a Quake III server using the same machine. This was annoying; the server wasn't full when we went to log in but had been filled by the time we'd loaded all of the map and equipment details.

However, deathmatch games will provide enjoyment long after all the missions have been completed. There is much more of a strategy element to them than with Quake III, and the best ones involve teaming up to fight against other groups and complete a mission. The Voice-over-Net feature lets you talk to other players and keep in constant contact, so you don't have to stop and type a message.

Basic deathmatching itself is also different, with points being scored for how a kill is performed. A head shot will get you two points, while the real pros will be unsheathing their knives and looking for three points. In team death-matches you'll want to avoid killing your own soldiers and incurring the minus four points penalty – not to mention their wrath.

Novalogic has come up with a sequel that has developed the original in many ways. Although it has its minor problems, its now more playable and addictive than ever.

MATT CHAPMAN

DETAILS

★★★★★

RECOMMENDED
Personal COMPUTER WORLD

PRICE £34.99 inc VAT
CONTACT Novalogic 020 7405 1777
www.novalogic.com
SYSTEM REQUIREMENTS Pentium II 400, 64MB of RAM, Windows 95/98/NT

Imperium Galactica II

With real-time strategy, and eye candy galore, here's the next generation of space sims.

Imperium Galactica II sits somewhere between strategy and sim, hoping to be the real-time, 3D pioneer that bridges the gap between the genres.

Visually it's superb, sporting Digital Reality's powerful 3D engine, and the splendid cut scenes, coupled with a spine-tingling soundtrack, lead you to believe you're in for a treat of stellar proportions.

You take on the role of one of three races: humans, the war-like Kra-hen or the wily Shinari, and must explore and expand your empire throughout the universe, using a variety of tactics. Simply waging an all-out war won't get you far. You will have to become adept at diplomacy, trading and espionage, as well as researching new technologies and designs as you colonise planets and build your forces.

With so many options and variables, it's about as intuitive as being at the helm of a space shuttle, and we often found ourselves returning to the helpful tutorial to work out what we were supposed to be doing, and how.

Your main screen is the star map, in 3D and viewable from any angle, upon which are the planets of your empire, your fleets of spacecraft, unknown planets and any other objects, such as pirate ships or trade vessels, that enter your radar zone. You can zoom in and out on these which gives the worrying feeling that the universe is full of burgeoning empires about to encroach on your own.

The next step is to colonise a planet. This is where the 3D graphics really come in. First, you need to build a colonising ship and then zoom down to the surface to build a hub. After this, you're well in to constructing your space city.

All the usual sim stats are here – build parks and hospitals to keep people happy and squeeze them for tax, make

sure they have a decent power supply, and make them work in your research facilities and spaceship factories, increasing your military might. Don't forget to keep an eye on crime and build some trade and defence structures, as you won't want to be left helpless if you're attacked.

To interface with the rest of the universe you need to look at the various

video messages, telling you of developments that need your attention, such as a virus-carrying terrorist ship about to wreak havoc on your planets. Once you've decided on a course of action, you'll have to deal with the consequences. It might involve hurriedly-built hospitals and a respite in taxes, or it might be time to dust off the destroyer and have a pop at those pesky terrorists.

The space battles look great, but once you lock your fleet onto the enemy, it's sit back and roll the dice time. The game works out who's going to win, and you are relegated to a spectator – zooming in and out of some pretty 3D visuals of the skirmish, but having little control over its development. You don't get the feeling you've led your troops into battle, as with Command and Conquer-style games, and, once you've built up a formidable force, that comes as a bit of a disappointment. Victory ensures a pride-swelling video message, and maybe extra kit or another mission to undertake.

For those who prefer the underhand approach there's always the espionage option. Again, this depends on factors such as your spies' skill levels and the time you allow them to complete their missions.

Imperium Galactica II is beautifully presented, but it depends on what you want from it. If you're a fan of hands-on strategy, then those extra things to consider, such as your citizens' morale, probably won't make up for the loss of combat control. For those from the sim fold, it's a big step forward, the 3D environments are totally immersive and, if you're prepared to invest the time, it will prove hugely rewarding.

MATT WHIPP

DETAILS

★★★★

PRICE £34.99 inc VAT
CONTACT GT Interactive 020 8222 9700
www.imperiumgalactica2.com
SYSTEM REQUIREMENTS Pentium 233 (Pentium II recommended), 32MB RAM (64MB recommended), 3D card, Windows 95/98

Battlezone II

Now you can have the control of tactical commander, and still be in the thick of the battle.

The first instalment of Battlezone received rave reviews. It was a truly revolutionary moment – imagine a real-time strategy game such as Command and Conquer and then imagine being right in the thick of the action and you've got the Battlezone concept.

You are in control of your troops as before, but you don't have the advantage of an aerial view. This means that not only do you have to worry about attacking the enemy personally, but you also have to concern yourself with developing your resources and ordering your teammates around.

Unfortunately, this concept didn't catch on, and the title suffered from poor sales. Despite this, developers Pandemic decided to push on with a sequel. The result is a game that has stayed true to its roots, but has enough changes incorporated into its structure to make it significantly different to what went before. The changes may annoy fans of the original, but they should also increase its accessibility to Battlezone virgins.

You spend much of the game in your hover tank, flying around the landscape issuing commands and firing at the enemy. You can also hop out of your vehicle, however, and roam about on foot where necessary. If your hover tank gets destroyed, you'll be blown out of it and forced to take your chances on foot. You can choose to jump straight into the action using the instant play facility – or take the more linear, plot-driven missions. The latter type of mission sees you take a position in the newly formed ISDF: a coalition force formed between the two warring factions at the end of the previous instalment. Your enemy is the alien race the Scion.

The first few missions see you following your commander around while you learn how to navigate the Battlezone II universe, how to issue orders and so

on. After this you get to control your own destiny, although if you want to concentrate on the resource-management side of things, you'll often find yourself called away on missions that require you to act on your own rather than order your underlings around. This could irritate devotees of the original, but is an example of the sort of changes that have been made to attract a wider audience.

One of the other most noticeable changes concerns the graphics. These have been improved upon dramatically and look stunning on a highly specified system. Another welcome change is the much improved user interface that allows you to issue commands much more easily. You can still use the old 'line-of-sight' option if you want, but you can also use the handy new series of keyboard shortcuts.

Pandemic has made much of the improved AI in the game, but there are still problems with it. One of the most irritating is that your units seem to be incapable of finding a sensible path through the battlefield. If you want a vehicle to come to you, for example, it will take the easiest, shortest route, even if that's straight through the middle of a battle.

To get round this, you have to use waypoints to guide it round the explosions. This would not be a problem if Battlezone II were a traditional RTS game, but when you are on the ground in 3D land, surrounded by loads of violent aliens intent on your destruction, it's not quite as easy.

Battlezone II also has the bonus of a multi-player facility. Our version of the game had some problems, but by the time you read this Pandemic should have completed work on a patch to fix them. The standard capture the flag and deathmatch options are here, and you can also play multi-player versions of the single-player strategy games.

Overall it's not quite the triumph we were hoping for, but despite its few problems it's good to see that there's still a lot of life left in the Battlezone format.

JASON JENKINS

DETAILS
★★★★

PRICE £34.99 inc VAT
CONTACT Activision 01895 456 700
www.pandemicstudios.com
SYSTEM REQUIREMENTS Pentium 200, 32MB RAM (64MB recommended), 4MB DirectX 6 compatible 3D card, DirectX 6 compatible sound card, Windows 95/98

Slave Zero

Mindless robot battles, as complicated as your metal-clad opponents, are still as fun as ever.

Forget your complicated, intelligent games that require you to read a manual five inches thick. Slave Zero is utterly one-dimensional, uncomplicated, arcade fun. The setting is the future where a city is controlled by an evil dictator who maintains his grip using a set of robots. The Slave Zero of the title is a giant robot that you control in an attempt to bring an end to the dictator's rule.

Essentially, this gives you an excuse to rampage through the city King Kong style smashing everything in your path to pieces. You have to fight against a motley crew of similar-sized robots, helicopters and annoying drones that you can simply step on to kill. The robot is truly huge, and to give you a sense of its scale there are loads of tiny cars and people moving about beneath your feet, which you can step on or shoot at if you're feeling grumpy.

The 3D environment is respectable. The game doesn't have the best graphics we've ever seen with some of the textures looking slightly blocky, but it's not a huge issue as the focus is more on arcade-like fun than on pixel-perfect realism. One problem, however, is the fact that the view automatically shifts from third person to first person when your back is against a wall. This is fine when you're just walking around, but it's a bit disconcerting when you're in the middle of a battle.

Each of the 15 levels unfolds in a strictly predefined fashion – there's no wandering off to explore the map in this title; you have to go where you're told. Each step you take is accompanied by a loud crashing thump that befits your massive frame. You have a choice of weapons that work best on different types of foe. We quite liked the rocket launcher to take out the similar-sized robots, but there's also a scattergun that works quite well on approaching helicopters. Sometimes it's best to forgo the weapons altogether and just stamp your feet – as you're so large this does quite a bit of damage to the surrounding area.

The best way to control the robot is using the mouselook function combined with the keyboard. You can then fire your weapons using the standard left and right mouse buttons for primary and secondary fire.

Each of the levels is typically divided up into three sections that you have to complete in order to progress to the next. Should you die, you go back to the start of the particular section you are on. You can save the game at any point though, so it's something that you can dip into now and again without having to spend hours playing, only to die just before you reach the target. At the end of each level is the arcade favourite, the big baddy. The more you progress, the bigger and 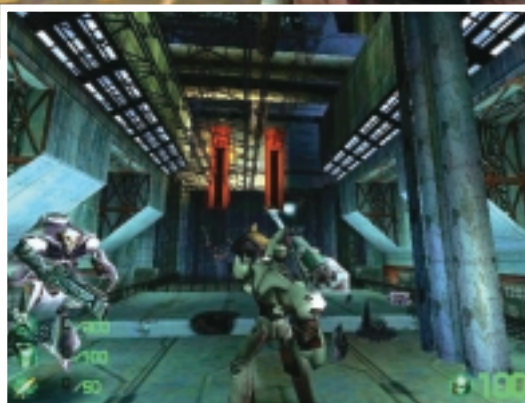badder they become until they completely dwarf you. Considering how large you are to start with, that's quite a lot of robot you've got to take out.

Once you've played it a few times, you'll soon pick up on the standard movements your opponents make and be able to wipe them out without too much bother. They are not particularly intelligent – it's normally best just to charge in and fire, and use the strafing controls to try and dodge any incoming fire. If you do run into problems, it will probably be more to do with the sheer numbers facing you rather than any devilish new tactics from your enemy.

All in all, it's not really a game for anyone who loves to spend hours working hard to get to grips with loads of hidden subtle options and commands. Although there are a few minor things wrong with it, if you feel like dipping into a mindless, fun, arcade romp, then Slave Zero fits the bill exactly.

JASON JENKINS

DETAILS

★★★★

PRICE £34.99 inc VAT
CONTACT Infogrames 0161 827 8000
www.slavezero.com
SYSTEM REQUIREMENTS Pentium 233, 64MB of RAM, Windows 95/98

☞ Legal wranglings

There were once two students of law, Jim James and Bob Roberts. Being students, it wasn't long before Bob found himself a bit strapped for cash, but his wealthy friend Jim James agreed to lend Bob £5,000, which he said Bob could pay back whenever he won his first case.

They graduated to the Bar and Jim soon prospered as a succesful lawyer. However, it soon became obvious that Bob wasn't doing quite so nicely. In fact, two years down the line he had yet to appear in court. This meant that Jim had not had any of his £5,000 loan returned. Eventually, things came to a head and Jim took Bob to court over the debt.

On the day of the trial they both met outside the courthouse and greeted each other warmly. Bob was convinced there was no way he would have to pay back the money, and Jim was equally sure that his money would be returned. How could they both be so certain?

Find the solution and you could have a chance to win a mystery prize. Send the solution, your name, and an address where the prize can be sent on a postcard to: *PCW* Prize Puzzle (April 2000), VNU House, 32-34 Broadwick Street, London W1A 2HG or by email to: letters@pcw.co.uk. Answers should arrive no later than 20 March 2000. Please note we DO NOT open attachments.

☞ Winner of January's Prize Puzzle

The usual easy number crossword attracted over 200 entries – mostly by email. The solution is given below and the winning entry came from Graham Rolph of Worthing, Sussex. Congratulations Mr Rolph, your prize (a beautiful Sheaffer pencil – for the benefit of all those readers who've asked what the prize is) is on its way.

Goodbye to all of you, especially the regulars – it's been 20 years of fun. And don't forget the website if you'd like to keep in contact: **www.jj.clessa.dial.pipex.com**

6	3	1	5		7	9	2	1	
3	8		3	6	5	2		7	7
7		8	3	1	3	6	1		6
	7	8		6	7		3	8	
	8	6	2	5		8	2	7	4
	7	9	9		7	0	7		6
5	5	4		4	1	5		5	2
6	7	0	5		8	7		7	2
5	2		6	9	6	5	5	6	
0		7	8	1		7	8	2	9

prize crossword
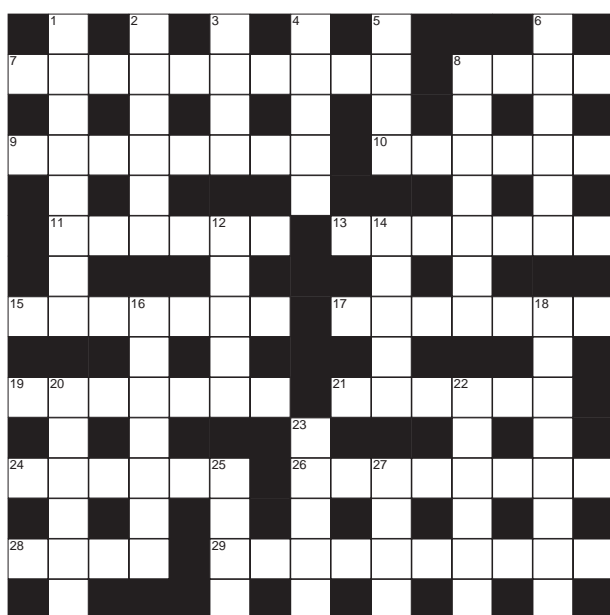
ACROSS
7 Reduced in memory size (10)
8 Online talk (4)
9 Period when a computer is unusable (8)
10 Bleeps indicate them (6)
11 Machine running a network (6)
13 Brings in data (7)
15 Common type of 17 Across (7)
17 Digital image device (7)
19 Actively deal with data (7)
21 Put files into it (6)
24 VDU (6)
26 An .ac suffix indicates this web status (8)
28 People who have visited a site (4)
29 The T of IT (10)

DOWN
1 Vast (8)
2 Bottle-top remover (6)
3 Abominable snowman (4)
4 Wedding official (5)
5 Lazy (4)
6 Orange root crop (6)
8 Drawn animation (7)
12 Short odds (5)
14 Old, little computer (5)
16 Entry vouchers (7)
18 Items of jewellery (8)
20 Shrink back (6)
22 Resides (6)
23 Spring month (5)
25 Memo (4)
27 Princess Royal (4)

Each month, one lucky *PCW* Crossword entrant wins a copy of the new *Chambers Dictionary*.
The winner of February's puzzle is: Alan Sherratt of Warrington, Cheshire.
This time, it could be you. Send your completed crossword to:
'*PCW* April – Prize Crossword', VNU House, 32-34 Broadwick Street, London W1A 2HG, to arrive not later than 20 March 2000.
• Please state clearly on your entry if you do not wish to receive promotional material from other companies.
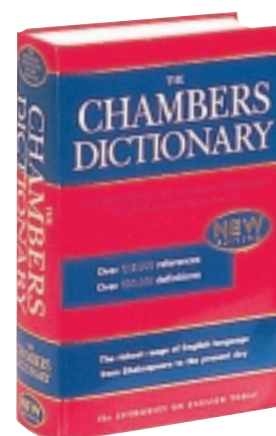
Solutions to March's crossword
ACROSS
7 Point 8 Chat 9 Open 11 Device 12 Floating 13 Home 15 Pin 16 Alias
19 Refresh 20 Corrupt 23 Basic 25 VGA 26 Font 28 Computer 30 Cursor
32 ADSL 33 Load 34 Reply
DOWN
1 Love 2 Engineer 3 Chafing 4 Stool 5 Mortal 6 Seen 10 Tempest 14 Opera
17 Aspen 18 Monarch 21 Referred 22 Overeat 24 Impels 27 Stall 29 Odds 31 Oils

WIN a great Carrera package

We're giving away not one but three fantastic prizes this month, thanks to multi-award winning PC manufacturer Carrera. Top prize is a 500MHz Celeron PC, with 64MB RAM. This compact machine is small enough to fit under or onto even the most cluttered desk, and with a 17in monitor you're not going to be squinting at your work, either. As you'd expect, it's fully equipped with a modem and Panasonic DVD-ROM drive, and a TV out port around the back to let you watch your films on a regular TV. There's bags of storage in the form of a 12GB IBM hard drive and on-board sound to keep your expansion slots free and maximise future upgrade potential. You'll get peace of mind, too, with Carrera's two-year parts and labour on-site warranty, standard on all PCs.

Each of our two runners-up, meanwhile, win an LG Phenom. This handheld PC has a 7.1in half VGA (640 x 240) colour screen, an 80MHz processor and 16MB memory, of which 8MB is given over to applications. It takes standard Type II PC Cards and CompactFlash memory, and will keep you in touch with your email no matter where you are through its built-in 21.6Kbits/sec modem.

■ *For the chance to win yourself one of these fab prizes, simply tell us which of the four English words below is the literal translation of the Spanish word 'Carrera'.*
1. Flag
2. Race
3. Best
4. Computer
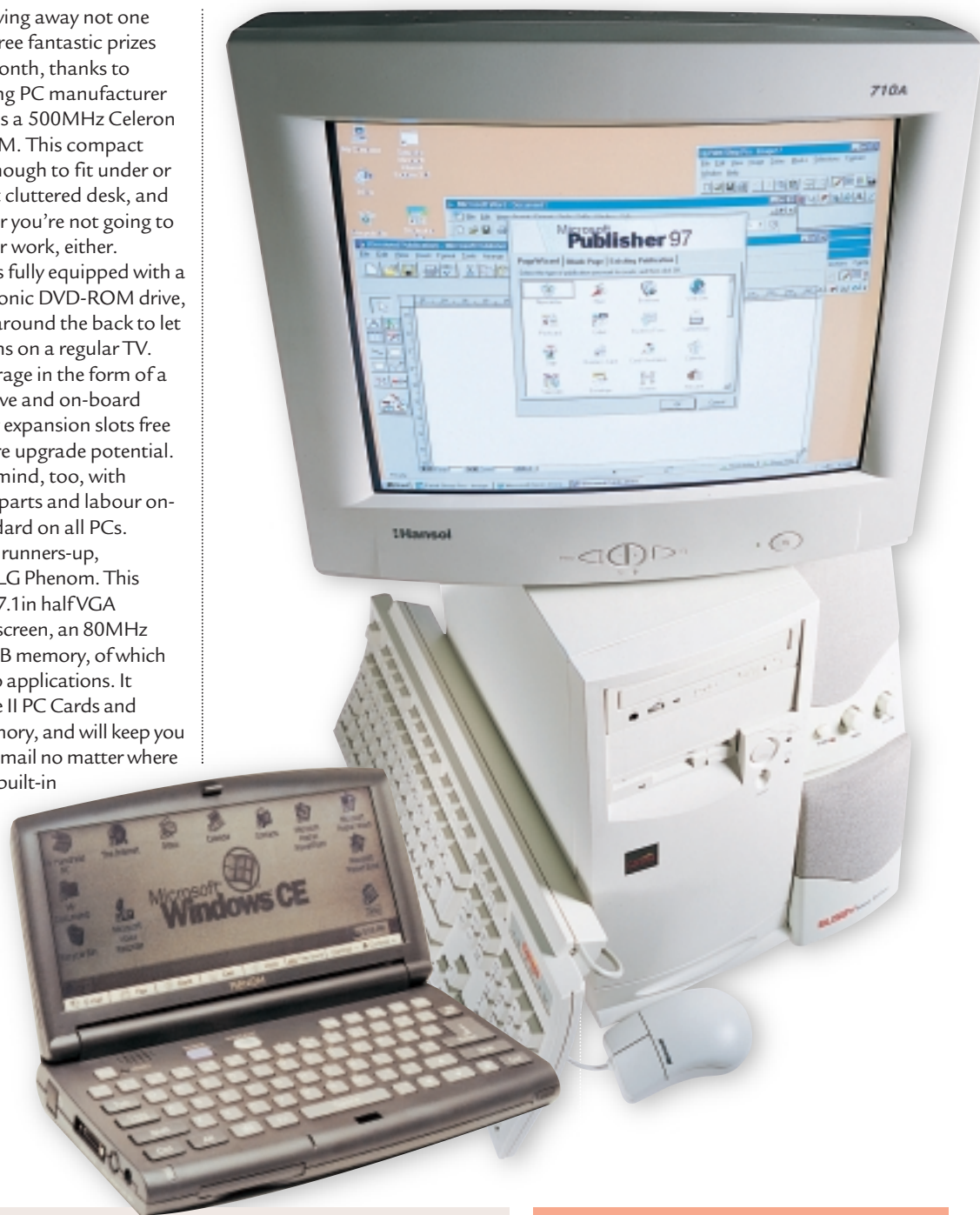
How to enter the competition

Write your name, address and daytime telephone number on a postcard or the back of a sealed envelope. Mark your card '*PCW*/Carrera competition' and send to the following address by 31 March 2000:

Personal Computer World
Building 960
Sittingbourne Research Centre
Sittingbourne
Kent ME9 8AG

◆ *Competitions are open to residents of the UK 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 Carrera. The Editor of *Personal Computer World* is the sole judge of the competition and his decision is final. No cash alternative is available in lieu of prizes.

A look back at the ZX80 debut, the birth of the CD-ROM, and Commodore's gloomy future.

20 YEARS AGO **April 1980**

The cover claimed a double first in relation to Sinclair's ZX80 – 'Sinclair makes it, *PCW* tests it.' Sinclair's idea behind the machine was to produce an easy-to-use computer that would run BASIC and break the sub £100 price barrier. The ZX80 was available in two flavours: £79.95 for a bits and pieces kit that you could assemble yourself; or for an extra £20 Sinclair would even screw it together for you. On top of this you'd also need a power supply, that would cost £8.95 if you wanted the official version. To get a picture from the machine you needed to hook it up to your TV set and getting data in and out was done via a standard tape recorder. Our reviewer David Tebbutt concluded that he 'hoped Mr Sinclair and his merry men of Cambridge can cope with the expected flood of orders'.

We also looked at viewdata, which offered 'the means of bringing into every home remote access to a large information retrieval database with interactive facilities'. Dr Adrian Stokes explained that the Post Office had trademarked 'Prestel' as the implementation of viewdata, since 'Viewdata' was too descriptive and a trademark could only be applied to a generic term. Viewdata worked using a telephone and television in tandem. The phone connection would request the information which would then be displayed on the TV, transmitted with the Teletext information (in much the same way as satellite delivery of Internet content is available today).

15 YEARS AGO **April 1985**

The Acorn Business Computer (ABC) graced our cover in 1985– and we had one of the first machines to put through its paces in our benchtest. However, the ABC was under much greater scrutiny, following the news that Olivetti had bought 49.3 per cent of struggling Acorn, with an option to increase its share to 50.1 per cent. Faith in Acorn was non-existent as far as the city was concerned and its machines – including its flagship product the BBC Micro – weren't selling well.

The model we reviewed – the 310 – was top of the ABC range and based on the Intel 80286 processor. Our reviewer, Peter Bright, found it to be 'technically fine' but the large machine and monitor made it a real desk-filler, and it was exceptionally loud ('it drove me mad').

Elsewhere, excitement was growing over the possible use of compact discs to hold computer applications. Audio CDs had been on the market for four years, but so far no-one had taken advantage of the 540MB of data storage. Even the drives themselves, currently under construction by Sony and Philips, had not been seen yet and as Paul Groves admitted: 'Here we enter the realm of speculation'.

These still being the days when you could type in something for your entertainment, program of the month was Ice Cream Vendor for the BBC by Jes Phoenix. A game masquerading as a way to teach kids about business, it was billed as 'a good way to bring out the capitalist in your child at an early age!' With almost six pages of (very small) code to type in, it must have been a nightmare to find any mistakes that kept it from running.

10 YEARS AGO **April 1990**

In addition to boasting about being the 'Technology Journal of the Year' April's *PCW* looked at TextPro, a hypertext system, ReadRight, an OCR package that could recognise fonts, and Nick Hampshire had a dig around the computer graveyard at PCs that failed.

Ever since Vannevar Bush wrote an essay entitled 'As We May Think' in 1945 describing a machine he envisaged called the Memex, people have been trying to realise this machine. One key feature of the Memex was that it allowed you navigate through a mass of information. Hypertext, now seen most prevalently on the web, took us one step closer to this vision. In 1990 there were already many established hypertext systems available although they were very graphical in their approach. TextPro offered a more simple textual format. While TextPro was easy to use, Nelson Taylor noted that: 'One basic problem with hypertext is the tendency to get lost within the maze of text layers… a graphical mode reminding the user precisely where he or she is located at any one time would be a useful addition.'

Down in the PC graveyard, Nick Hampshire mourned the loss of the Altair, Commodore, Tandy and Apple. Of course, as we know now, Apple is making a good comeback with the iMac and G3/G4 range. Commodore, on the other hand, was not so lucky; after the demise of the PET, C64 and C128 Commodore looked like it had something with the Amiga. Unfortunately, this was just a minor blip and Commodore never really recovered. The Amiga, though, looks like it may have a brighter future. Until recently, the rights to Amiga were held by Gateway, but it failed to really do anything with them. Gateway has now sold the rights to Amino, so as to whether the Amiga can rise again, only time will tell...

5 YEARS AGO **April 1995**

A decade on from a time when CD-ROMs were mere speculation, the technology entered a new era, with the birth of quad-speed drives. We had eight examples going head-to-head in our group test – and with high-street prices as low as £135, these early models were as tempting for the average consumer as they were for techies.

Ironically, our news section profiled the struggle to find a successor to CD-ROMs, in a story headlined 'Giants fight over CD's undug grave'. Sony, Philips, Toshiba and Time Warner were all looking at ways to extend the 640MB limit of a CD, in an effort to carry a full-length feature film. The successes they had already shown were undoubtedly the first working examples of DVD technology.

The *Sound* column made its debut in *Hands On* five years ago this month (happy birthday!), and Steven Helstrip was captaining the ship to give the low-down on Goldstar's Procyon sequencer. He was also on hand to give his opinion on 15 sound cards in our group test. Currently an office favourite for sound technology, Creative's offering was the AWE-32+. This was beaten by Aztech's SoundGalaxy Waverider 32+, but 'came close, offering slightly more features, but [was] costly in comparison'.

PCW was also doing its bit for 'charidy mate', with an encrypted Comic Relief screensaver on the cover disc, that could be unlocked for the very generous donation of £7.99.
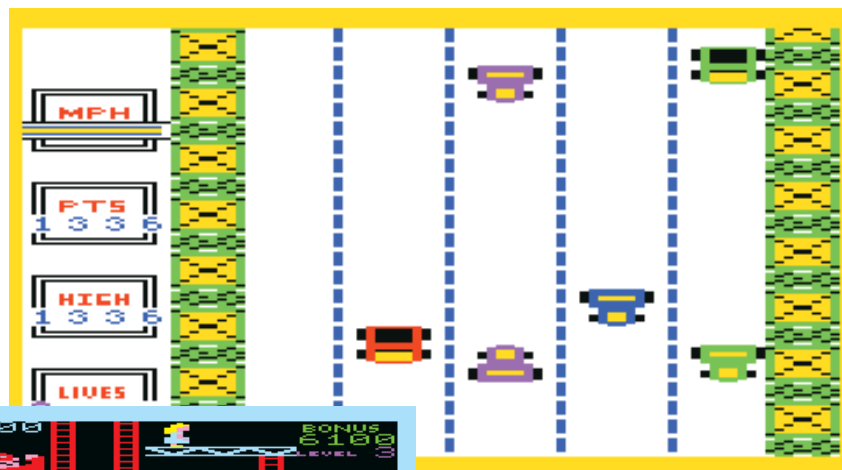
MATT CHAPMAN AND WILL HEAD

Commodore VIC-20

Don't hang your heads in shame, VIC-20 owners, you had a computer with specs to be proud of.

With the sheer volume of Sinclair and Acorn computers sold in the early Eighties, you'd be forgiven for remembering UK manufacturers as dominating the pioneering years of British home computing. Think again: hailing from the good old US of A, Commodore Business Machines, CBM, was also a force to be reckoned with.

Commodore was originally founded by Jack Tramiel as a typewriter repair firm in 1954. Tramiel was to become a huge name in computing, but his company was also home to another legend: Chuck Peddle, designer of the 6502 processor and the Commodore PET that first housed it. We reviewed the £700 PET 2001 back in the second issue of *PCW* in 1978 – the machine boasted an all-in-one design, incorporating a 9in display, cassette drive, keyboard and

The blocky graphics may look second rate by today's standards, but the VIC-20 was home to some great arcade conversions

between 8 and 32KB of RAM. The PET was very much a personal computer, designed for business and, like the Apple II, enjoyed the success of running VisiCalc, the world's first spreadsheet application.

But this tale isn't about the Commodore PET; it's about the VIC-20, a machine designed for home gaming. Legend has it that Chuck Peddle expressed surprise that Tramiel wanted to

The case boasted a full-size keyboard and the specs were just a bit superior at the time

make a colour machine as, after all, the B in CBM stood for Business.

Stories as to why Commodore went down the consumer route vary, but many are based on its Video Interface Chip, designed in the late Seventies for use in third-party video games. It is said that lack of external demand persuaded Commodore to design its own computer around it. Thus, the VIC-20 was first unveiled at a 1980 US computer show as

the MicroPET, but hit the retail shelves on both sides of the Atlantic in early 1981, sporting its new name. The VIC took its name from the Video Interface Chip, but no-one seems certain where the 20 came from. Unlike its later brother the CBM-64, the number 20 had nothing to do with memory. For the record, the VIC-20 housed an 8bit 6502A CPU beating at 1.0227MHz, a 16KB ROM, and a mere

3.5KB of user RAM (expandable to 32KB). The VIC-I chip (labelled 6560 and later 6561) drove the display at an impressive 176 x 184 pixels in up to 16 colours. Audio was particularly well-handled with one white noise and three tone generators.

Unlike the British-made home computers, Commodore's VIC-20 and CBM-64 weren't interested in talking to just any old cassette deck – instead you

were forced to buy a dedicated model, but at least the host computer had basic control over the transport. The VIC-20's 6522 Versatile Interface Adaptor (VIA), handled external peripherals, including a proper Atari-style joystick port and the Datasette tape drive. A disk drive and printer were also available as options.

With the technically-superior CBM-64 just around the corner, many people later mocked the VIC-20, but if you put it next to, say, its Sinclair competitors you could instantly see it came from a serious background. The 404 x 204 x 74mm case boasted a full-size keyboard, and the technical specs were just that bit superior to many other systems at the time. Okay, it cost around £200, which was more than double that of Sinclair's ZX81 released in the same year, but the US system was almost incomparable. Just looking at the superb arcade clones revealed VIC-20 software to be much richer than anything else at the time.

Alas, for the VIC-20, Commodore released its technically-superior CBM-64 in 1982. We didn't get to see many 64s in the UK until the following year, but the VIC's fate was sealed. As the 64 went on to battle the ZX Spectrum in the school playground, the VIC-20 became an embarrassment to kids whose parents were early adopters.

Well I'd like to set the record straight: I too may have mocked the VIC in my schooldays, but if it hadn't been so quickly superseded by its parent, I truly believe it would hold a very precious place in the hearts of retro-philes.

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