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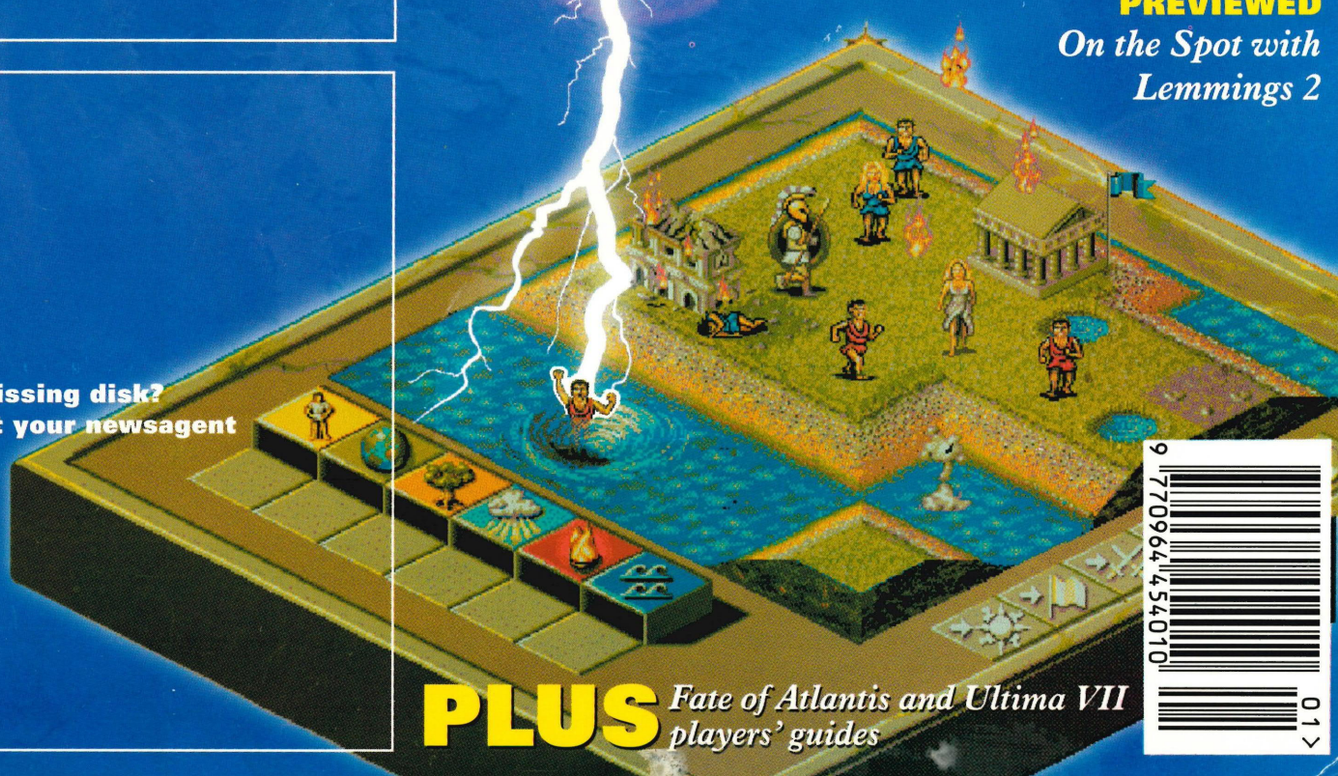
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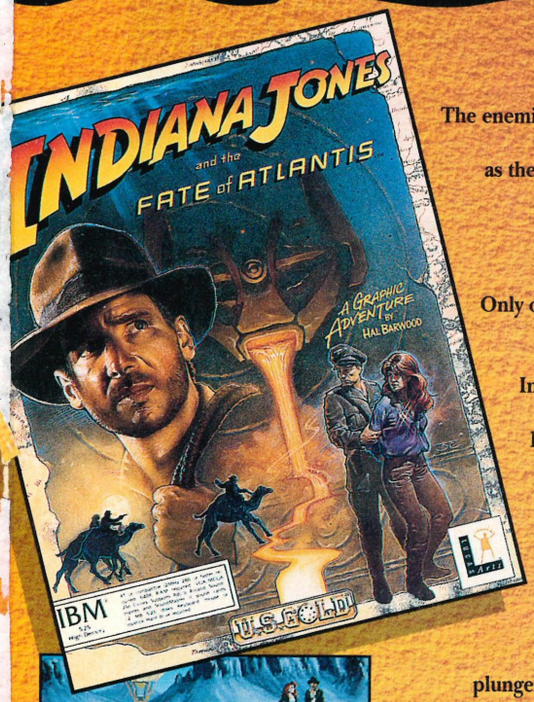
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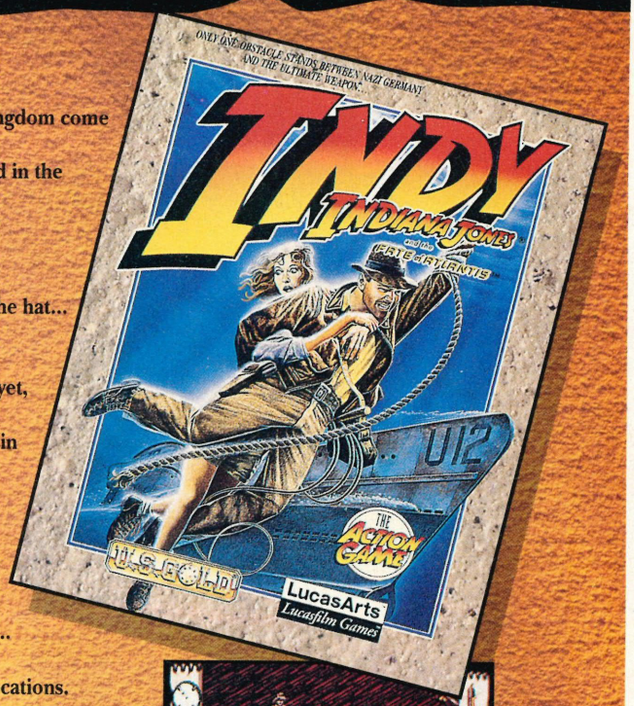
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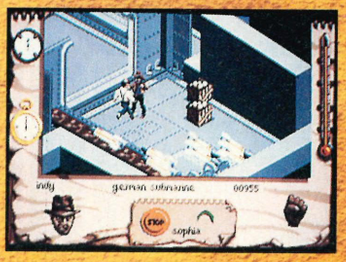
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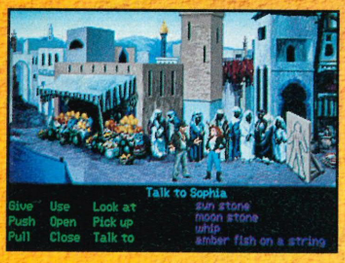














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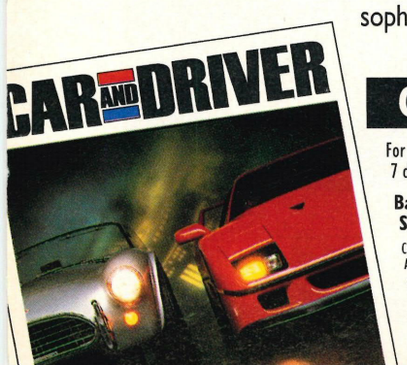
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PCreview

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Printed in the UK

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Quite overcome by Christmas spirit, we have disks packed to the gills with games this month. You can be one of the first to play Populous II with this extract written for PC Review by Bullfrog, and 3.5" owners can also try their hands at The Catacomb Abyss, the sequel to the acclaimed Wolfenstein 3D. On both formats, we have six other games for you to enjoy, and a version of that perennial favourite, Life.

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INCA

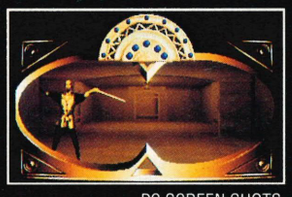


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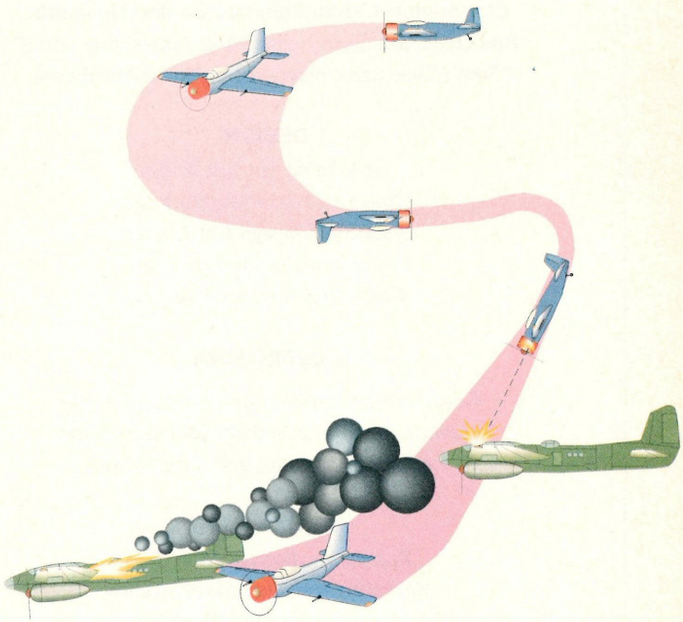
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ON THE **SPOT**

PC Review arranges regular visits to the UK's top PC companie taking with us a selection of readers who have filled in the forı below. This gives you the chance to talk to various movers an shakers within the industry: interview them, ask them about the PC plans, how they design, write, produce their games, what the hope to be doing in the future.

The exact nature of the visit, and the degree of formality, depenc on the companies concerned, but you usually get a chance to se some sneak previews of forthcoming products, meet the progran mers, and have a guided tour of company HQ.

A full report of the visit then appears in a later PC Review – usı ful for those who didn't go, because they'll read the answers to th questions you asked. In other words, the issues which you, the rea ers, care about, rather than we think is important.

Previous visits have taken place at Electronic Arts, Sierra, US Gol MicroProse and Psygnosis, and we'll try to fit a second trip to EA i early next year.

If you want to take part in an On the Spot visit, fill in th form below and send it to: On the Spot, PC Review, Prior Court, 30-32 Farringdon Lane, London EC1R 3AU.

Note: we don't take very many people at any one time, so that selected, you'll have every chance to have your say. Because of thi the places get filled quickly, but we'll be doing return visits to a the most popular companies. If you miss out the first time roun sit tight, because another visit to the same place will come up an we don't throw your forms away.

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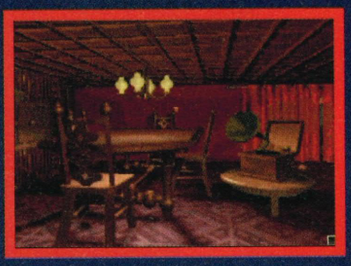
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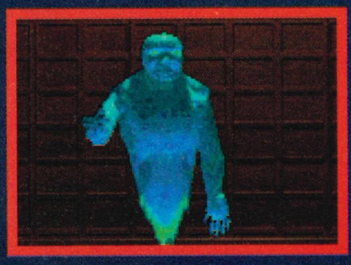
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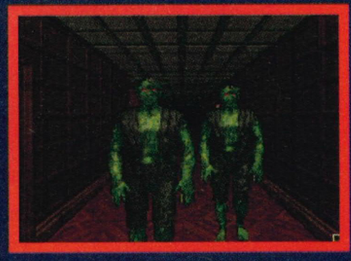
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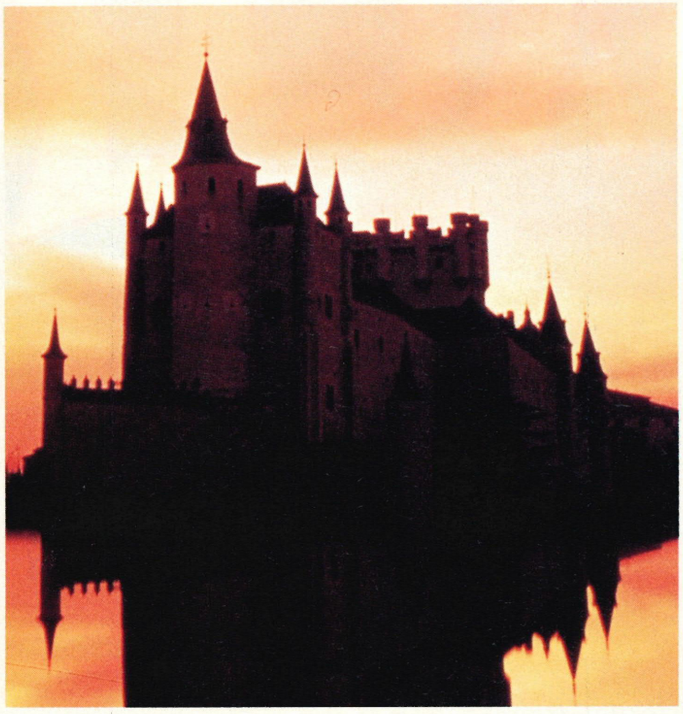




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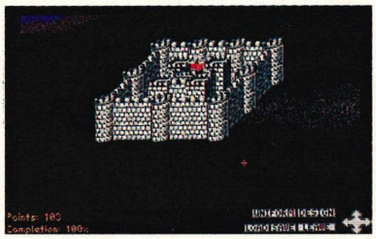
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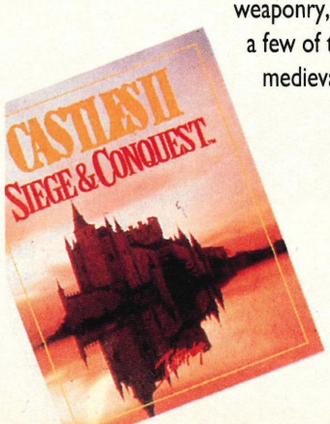
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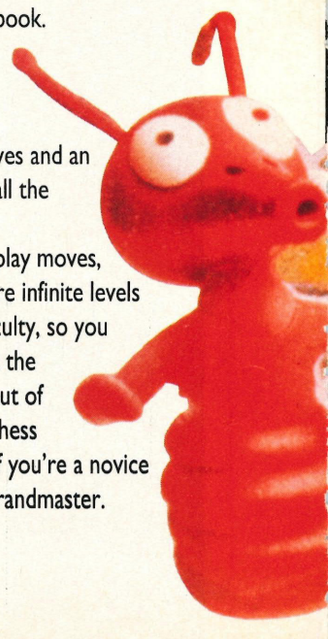
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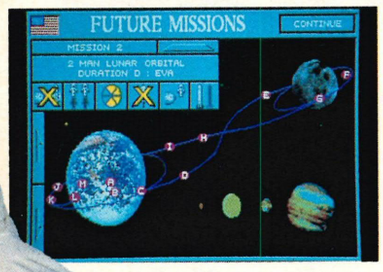
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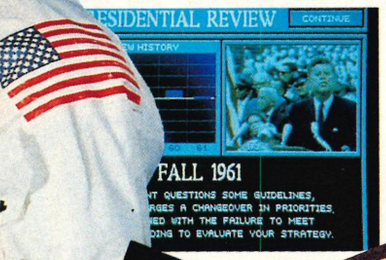


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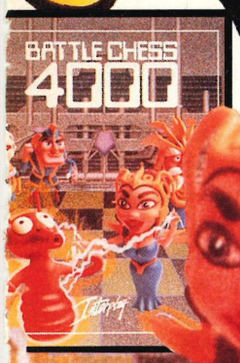


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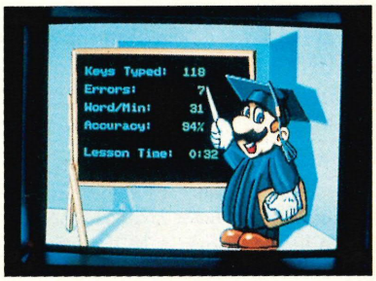
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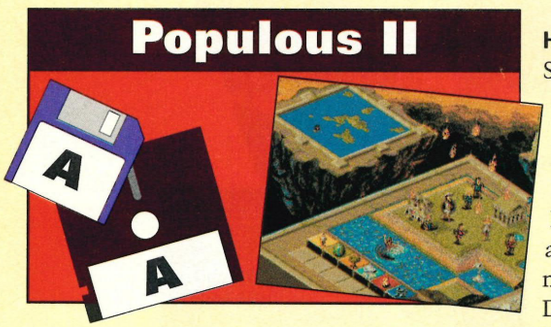
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Cover disks

What would the Christmas and New Year celebrations be without a few goodies? In the spirit of the season of goodwill and general all-round yuletide pleasantness, we've found a bumper bundle of games to go on this month's disks. Not only can you sample the delights of Populous II, in an exclusive playable demo, you can also get stuck into the sequel to Wolfenstein 3D and a selection of some of the best shareware games we could find. There's something for everyone, so grab a turkey sandwich and a slice of Christmas pud, get your joystick out and have a jolly PC Christmas.







This is a unique chance for you to try the stunning sequel to Bullfrog's original world builder, Populous. Populous II is set in the mythical world of the Ancient Greek gods and heroes. You are one such hero, a son of the god Zeus, out to prove yourself worthy as a god by battling each of the inhabitants of Mount Olympus in turn.

This demo gives you the opportunity to pitch your skills in a specially created world.

How to start

Log on to the directory in which you have installed the Populous demo and type **Pop2 [Enter]**. At the main menu click on 'custom game' to begin play.

How to reconfigure the game

Start the game as indicated above, then click on the globe symbol at the right of the screen. From here you can change the game's speed and choose whether to play good or bad.

How to end

If you are in a game, click on the globe symbol at the right of the screen, then click on 'quit map'. From the main menu, click on 'quit to DOS'.

What hardware you require

Any PC (although a 386 machine or better is recommended); at least 1Mb of RAM configured as expanded memory; a Microsoft compatible mouse

Control

Populous II is controlled entirely using the mouse. Refer to the description below for details.

F7	Toggle between normal screen and full screen view
F10	Pause

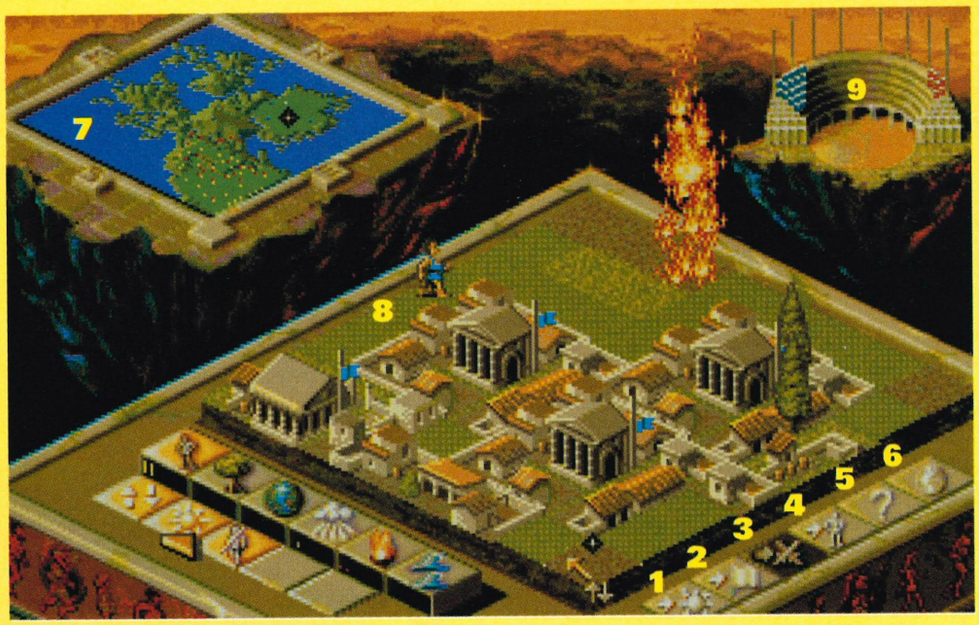
How to play

You control the good people (blue), while your opponent leads the bad people (red). Your objective is to help your people wipe out all of the bad people and take over the world. When the game begins, you're looking down at your worshippers. The small map in the top-left of the screen is the world map, and it's a view of the entire world you're currently on. See the picture opposite for screen details.

There are several ways to change your view: the easiest is to scroll with the cursor keys or numeric keypad. The world map can also be used to change your view. The area you're currently viewing is marked with a black diamond. Point to the world map and click a mouse button. A right click jumps your view to the spot you're pointing to. A left click moves your view one increment in that direction.

Your followers need flat lands to farm and settle on, so the first thing you should do is flatten the landscape around their settlements. The lay of the land is on a grid of squares, so you'll raise and lower land square by square. To raise a square of land, move the diamond cursor to the centre of the square and left-click. To lower a square of land, move the diamond cursor to the centre of the square and right-click.

Settlements grow according to the amount of farmland around them — the more farmland, the bigger the settlement. As a settlement fills



Populous II: icons

1. Go to papal magnet — influence your people to find their ordained leader and follow him to the papal magnet. You can always find the leader by right-clicking on this option. When your leader is at the papal magnet, he is surrounded by a blue flame of holy fire and is invincible.
2. Settle — influence your walkers to build new dwellings and your people to reproduce.
3. Fight — encourage your walkers to attack bad settlements and worshippers.
4. Gather together — encourage your walkers to walk toward each other and combine into one stronger walker.
5. Access information about items on-screen.
6. Access game options.
7. On the world map, far left:
Blinking white dots: good settlements
Blinking yellow dots: bad settlements
Blue dots: good walkers
Red dots: bad walkers
Green dots: plagued houses
Black diamond: position of close-up map

A tour around the Populous map

The large area in the centre of the screen is the close-up map.
8. Walkers, the figures you can see on the screen, need shelter against the climate and they'll settle on any piece of flat land that can support them. When they settle, they'll create dwellings.
9. The Colosseum in the top-right corner of the screen, is a population indicator for both good and bad worshippers. As populations change, the Colosseum fills and empties to reflect the fluctuating numbers of dwellers. Good populations appear in blue — bad populations appear in red. The Colosseum can also be used to track walkers and settlements and get information on their strength and inventions. Track a walker or settlement by clicking on the query icon to the right of the screen and then clicking on the walker. A representation of the walker or settlement will then be shown in the centre of the Colosseum. The flags around the top of the Colosseum show the strength of the tracked object. As the walker gets stronger, flags towards the left begin to rise slowly.

The walker or settlement's technology level is shown to the left side of the Colosseum. This begins as a fist and gets progressively more advanced, ending as a sword.

with people, its flag rises. When its flag reaches the top, the settlement is full. At this point, a walker will automatically leave and go in search of a new place to settle. Sprogging is another means of spreading your population. To sprog a walker from a dwelling, point to the centre of a dwelling and click the right mouse button.

There are two papal magnets in the centre of the world. The good papal magnet is a spiked ball with smaller spheres orbiting it. The bad papal magnet is a Medusa head (a woman with snakes for hair). These are the icons of worship for good and bad. You can move your magnet to bad territory, then influence your worshippers to go to it and invade bad settlements. The first of your walkers to encounter your magnet becomes your leader.

Use the 'influence behaviour' icons along the right side of the screen to influence the behaviour of your followers. The influence behaviour commands can be used without cost to mana.

Once you've increased your mana you can use some of the six effects available in the demo. To switch between people effects, air effects, and fire effects, click on the appropriate icon.

Divine intervention effects, which are selected from the two rows of icons at the bottom of the screen, are an arsenal of awesome powers. There are six categories or elements, although only three of them are active in this demo. Each category has five individual effects, but in this demo world you can use just six effects in total.

The mana gauge is a moving arrow at the bottom of the screen, which indicates how much mana you have. Mana is a reservoir of power you can use to do effects. Mana comes from the pious worship of your followers — the more worshippers you have, the greater your mana. The pointer indicates which effects you can currently do (those immediately under or to the left of the pointer).

The three categories available in this demo are people effects, air effects and fire effects. To select a category, click on the appropriate icon from the top row. To select an effect from within a category, click on the appropriate icon from the bottom row. These are the effects available:

People effects

These commands allow you to affect your population.

Raise/lower land

This is the default effect. Select this before raising or lowering land as desc ribed earlier.

Place papal magnet

You must have a leader before you can place the papal magnet. Click on this icon, then on the location where you wish to put the magnet.

Perseus

Change your leader into the hero Perseus by clicking on this icon. Perseus is a strong and skilful soldier driven to destroy bad settlements. Turn as many leaders as you want into Perseus, but remember that each time you turn your leader into Perseus, you'll need to establish a new leader by selecting the 'go to papal magnet' command.

Fire

The fire elements are doubly potent because they burn up enemy settlements and worshippers, and ruin all the farmland they contact.

Fire column

Start a towering column of flame randomly burning across an area with this effect. Left-click on the icon and then left-click in the approximate area in which you wish the column to appear.

Rain of fire

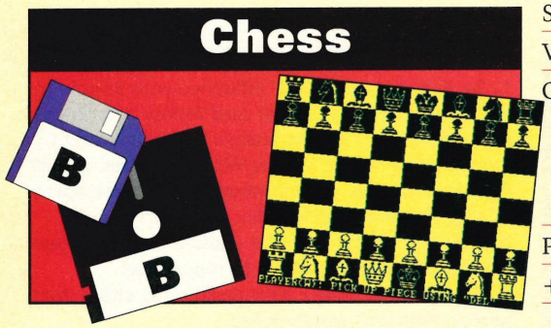
Start a devastating rain of fire over enemy territory. Left-click on the icon and then left-click on the area in which you want the rain to appear.

Air

This category uses the ethereal elements for devastating the enemy.

Whirlwind

Start a whirlwind spinning through enemy settlements for maximum devastation. When a whirlwind goes off land, it creates a land-eating whirlpool in the water. If an armed worshipper gets sucked up by a whirlwind, all his weapons are flung out of his hands, and he is reduced to low intelligence. Anyone sucked into a whirlwind gets flung to the ground when the wind stops. Left-click on the icon, then on the spot where you wish the whirlwind to appear.



Stuck for a chess partner? Then try this great shareware version.

How to start

Log on to the directory on which you have installed Chess and type **Chess88 [Enter]**. Press W to play White, or B to play Black. (You must type a capital letter, not w or b!), then press 1 to 6 to select the look-up (difficulty) level.

How to quit

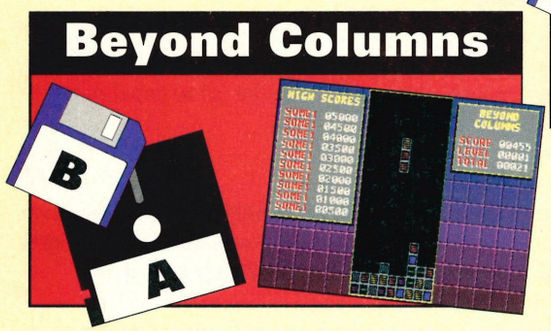
From within the game, press Ctrl-C.

What hardware you require

Any PC with 640K RAM; CGA graphics or better

Controls

Cursor keys	Move cursor
Del	Pick up piece
Ins	Put piece down



If you've yet to acquire a Tetris or Columns type game then you'll be pleased to find this shareware version on the cover disk.

How to start

Log on to the directory in which you have installed Beyond Columns and type **Beyond [Enter]**. From the options screen press 1 to 5 to start a game with required difficulty level.

How to quit

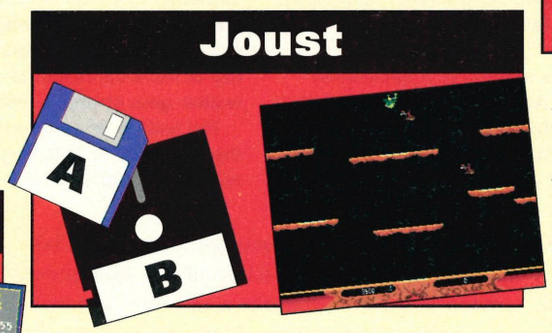
From within the game, press Ctrl-C.

What hardware you require

Any PC with 640K RAM; EGA graphics or better.

What controls to use

J, 4 or cursor left	Move block left
L, 6 or cursor right	Move block right
Spacebar or cursor down	Drop block
K or 5	Rotate block
S	Toggle sound off and on
V	Increase volume of sound
Q	Boss key (apparently quits to DOS, but game can be restarted from same point by typing **Exit [Enter]**)
P	Toggle pause
+/-	Cycle through block types



This game was one of the quirkier arcade hits of the 80s, and this shareware version captures the atmosphere and spirit of the original perfectly.

How to start

Log on to the directory in which you have installed Joust and type **Joust [Enter]**. From the option screen press the spacebar, then press 1,2 or 3 to start the game with the specified number of lives.

How to quit

From within the game, press Esc to exit to the options screen. From the options screen, press Q to quit.

What hardware you require

Any PC with 640K of RAM; VGA graphics or better

Controls

Alt	Flap wings
Z	Move left
X	Move right

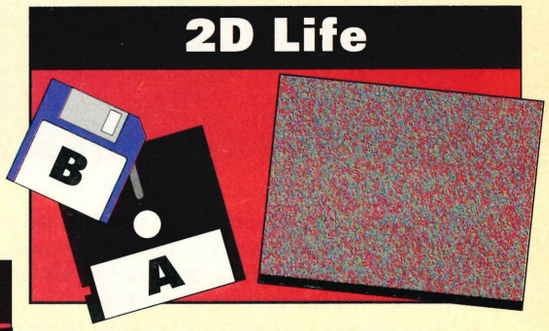
How to play

Your mission is to stay alive and joust as many gladiators as possible. This is done by flapping to get your lance higher than theirs. The faster you flap, the faster your ostrich will move up the screen. After you joust a gladiator he will mutate into an egg, all you have to do now is finish the job by touching the egg. You get points by performing the joust itself and by picking up the egg. Warning! If you let an egg sit too long it will hatch into another gladiator, usually a meaner one!

For more detailed instructions, log on to the directory in which you installed Joust and type **Type joust.doc | more [Enter]**, or, if you want hard copy of the instructions, prepare your printer for printing and type **Copy joust.doc prn [Enter]**.

How to play

Stacks of three bricks drop one by one from the top of the screen. Your objective is to rotate and manouevre them such that, when they come to rest, you form a vertical, horizontal or diagonal line of three or more squares of a single type, these then disappear and the squares above them drop down to fill the space that has been created. When the stacks reach the top of the screen, the game is over.



You've seen Conway's Life, and you've been fascinated by fractals, now you can sit back and enjoy the amazing patterns created by 2D cellular automata.

How to start

Log on to the directory in which you have installed 2D Life and type **Life17 [Enter]**. Press C, E or V to select CGA, EGA, or VGA graphics, then press the spacebar three times to exit the intro screens and start the pattern generation.

How to quit

From within the pattern generator, press Esc to exit to the options screen. From the options screen press Esc and then the spacebar twice to cycle through the text screens. From the address input screen, press Esc to exit the program — finally!

What hardware you require

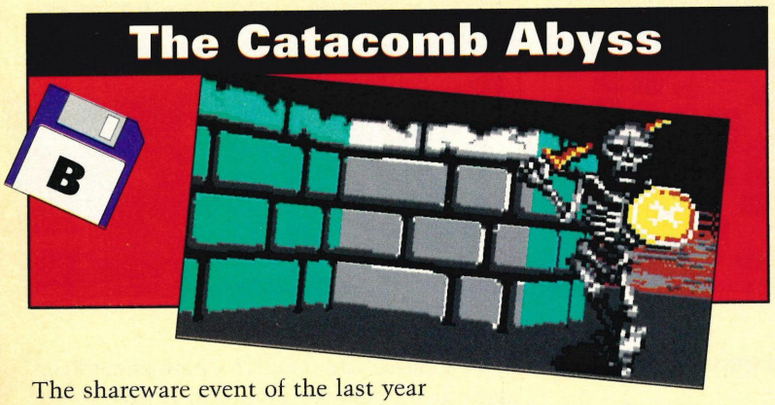
Any PC with 640K of RAM; CGA graphics or better

Controls

Enter	Redraw pattern with new seed
F4	Cycle through effects
F2	Cycle through colours
F1	Change range of colours

For more detailed instructions and an explanation of 2D cellular automata, log on to the directory in which you have installed 2D Life and type **Type life.doc | more [Enter]**. To get a hard copy of the instructions, prepare your printer for printing and type **Copy life.doc prn [Enter]**.

The Catacomb Abyss



The shareware event of the last year had to be Wolfenstein 3D, the impressive shoot 'em up from ID software. Now PC Review has bagged an exclusive chance for our readers to try out the impressive sequel, The Catacomb Abyss.

How to start

Log on to the directory in which you have installed The Catacomb Abyss and type **Start [Enter]**. Press a key to exit the information screen. At the main menu press 5, then press any key to begin play.

How to reconfigure the game

Press F2 within the game to select the type of sound support you require.

How to quit

Press Esc to call up the options menu and then press Q to quit.

What hardware you require

Any PC (20MHz or better is recommended) 640K or better; EGA Graphics or better; Ad Lib compatible soundboards supported; keyboard, mouse or joystick control; hard disk installation recommended

Controls

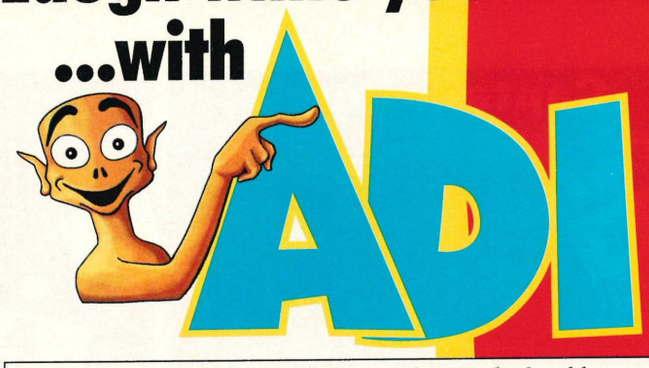
Cursor up/down	Move forward/backwards
Cursor left/right	Turn left/right
Alt+cursor left/right	Step left/right
Tab or V+cursor left/right	Turn quickly left/right
Ctrl	Shoot magick missile
X or Enter	Fire Xterminator (a circular pattern of shots)
C or Spacebar	Cure yourself
1-8	Read numbered scroll
Mouse/joystick forward/back	Move forwards/backwards
Mouse/joystick left/right	Turn left/right
Left mouse button/fire button 1	Fire magic missile
Right mouse button/fire button	
2 held down + mouse/joystick left/right	Step left/right
F1	Help/instructions
F2	Select sound mode
F3	Save position
F4	Restore a position
F5	Calibrate joystick
Esc	System options

How to play

In your last battle against the evil Nemesis, you sent him packing, but his minions have built him a mausoleum in the town cemetery, where he is now believed to be recuperating his power.

Explore the graveyard destroying the zombies, bats and other creatures you encounter, while collecting magic globes to cure yourself, Xterminators for protection, keys to unlock doors, and treasure. Some walls are weak and can be destroyed with magick missiles.

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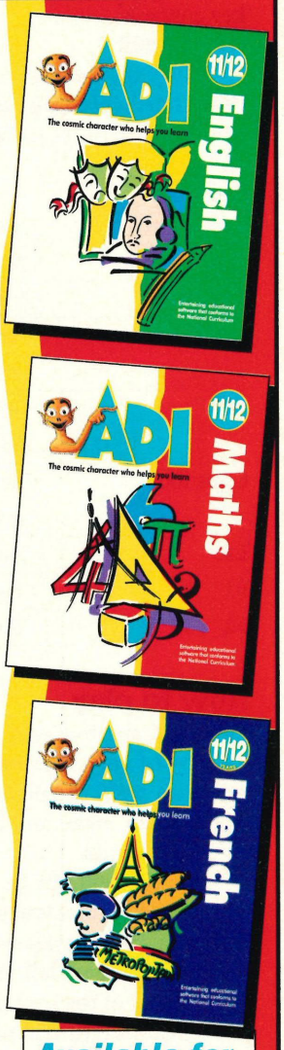
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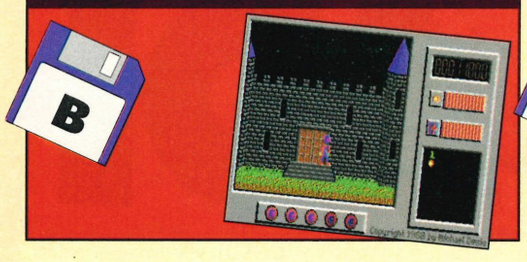
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Captain Comic



Yet more platform capers to be had in this fun shareware game featuring a hero in the spirit of Commander Keen, but this time he's Captain Comic.

How to start

Log on to the directory in which you installed Captain Comic and type **Comic [Enter]**. Press any key but K, then press any key twice to exit the intro screens and begin play.

How to configure the game

From the initial screen press K to configure the key controls.

How to quit

From within the game press Esc and then Q.

What hardware you require

Any PC with 640K RAM; EGA graphics or better

Controls

Cursor left	Move left
Cursor right	Move right
Spacebar	Jump
Insert key	Fire (must have collected coke can)
Alt	Open door (must be in possession of door key)
Caps lock	Teleport (must have pos session of wand)
Esc	Pause or quit
F1	Turn sound on
F2	Turns sound off

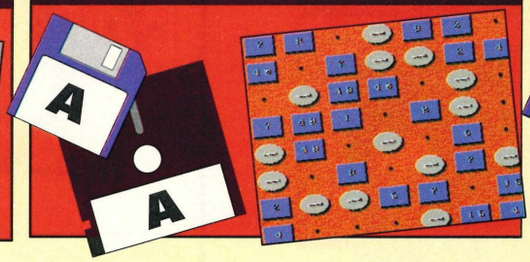
How to play

You are Captain Comic, galactic hero and all-round good guy. Your mission is to recover three treasures from the planet Omsoc, which have been stolen away and hidden on the remote planet of Tambi.

Your task will not be easy, you will need to gather tools to increase your fighting and defensive capability, navigate dangerous terrain, and avoid or destroy a horde of deadly creatures. It will take all of the captain's skill and wit to see the treasures returned to Omsoc.

For more detailed instructions, log on to the directory in which you installed Captain Comic and type **Type comic.doc | more [Enter]**, or, if you want hard copy of the instructions, prepare your printer for printing and type **Copy comic.doc prn [Enter]**.

Addix



Test your arithmetic skills with this great shareware puzzle game.

How to start

Log on to the directory in which you installed Addix and type **Addix20 [Enter]**. Press C, E, or V to select CGA, EGA or VGA graphics. Press the spacebar three times to exit intro screens and begin play.

How to quit

From within the game, press Esc to exit to the options screen. From the options screen, press the spacebar to exit to the text screens. Press the spacebar twice to reach the addres input screen. Press Esc to finally exit the program.

What hardware you require

Any PC with 640K of RAM; CGA graphics or better

Controls

Cursor keys	Move cursor
Enter	Select tile
F1	Hint
F2	Force computer to play move
F3	Demo play (press space bar to end)
F4	Change IQ level
F10	Help

How to play

Addix is one of those neat strategy games with deceptively simple rules! Each player takes turns to capture numbers from a grid. You take numbers from the horizontal row of the last move, and the computer takes numbers from the vertical column of the last move. The captured numbers are added to the scores, and when one side runs out of moves, the game is over and the highest score wins.

If a negator is captured, subsequent numbers captured reduce the score! Negate mode is toggled off by capturing another negator. Note that the board is symmetrical along the A1-H8 diagonal — this ensures that both horizontal and vertical player have the same choices.

For more detailed instructions, log on to the directory in which you installed Addix and type **Type addix.doc | more [Enter]**, or, if you want a hard copy, prepare your printer for printing and type **Copy addix.doc prn [Enter]**.

Duke Nukem



If you enjoyed last month's Commander Keen game from Apogee then you'll love Duke Nukem. This laser-toting hero has plenty to contend with in this all-action platform game.

How to start

Log on to the directory in which you installed Duke Nukem and type **Duke1 [Enter]**. From the title screen press a key to get the main menu. From the main menu press S to start the game, then press a key twice to exit the intro screens and begin play.

How to reconfigure the game

From the main menu press G and then choose your desired control and sound options.

How to quit

From within the game press Esc and then Y to exit. If necessary press enter to exit from the high score input, and then press enter to exit the high score table. From the title screen press Esc and then Y to confirm.

What hardware you require

Any PC with 640K of RAM; EGA graphics or better; joystick is optional

Controls

Cursor left	Move left
Cursor right	Move right
Ctrl	Jump
Alt	Fire
Cursor up	Action key (activate elevator, teleport, or time machine/read notes or monitors/open doors/insert access card or key/swing from ledge (when using rappling hook)
F1	Help

How to play

The year is 1997, the evil Doctor Proton has taken over earth's largest city with his army of techbots, and now he plans to dominate the earth. Tough guy Duke Nukem has been employed by the CIA to stop Proton's evil plans.

You will be dropped on to a skyscraper and must explore each level of the city collecting food and bonuses and destroying creatures and security cameras. Save your game when you complete a level. For more detailed instructions press I from the main menu or F1 during the game.

How to use the cover disk

1. Put the cover disk in any disk drive and log on to that drive. For instance, if you have put it into drive A: type:
   A: [Enter]
2. Now type **PCR [Enter]** to load the installation program.
3. A list of programs on the disk will now be displayed. Use mouse or cursor keys to select one to install and then press Enter.
4. The program will select a drive or directory to install the program to. If you are happy with the suggested location, press the enter key and installation will begin, otherwise backspace over the suggested path and enter another one. The program will now be installed to the desired location.
5. Once you have installed all the programs that you wish to, press Esc from the main menu to return to DOS.

Helpline

If you have difficulty in getting your disk to operate, please telephone our helpline number below before returning the disk.

Disk Helpline: (0685) 350505

The helpline operates between 10.30 am and 12.30 pm weekdays.

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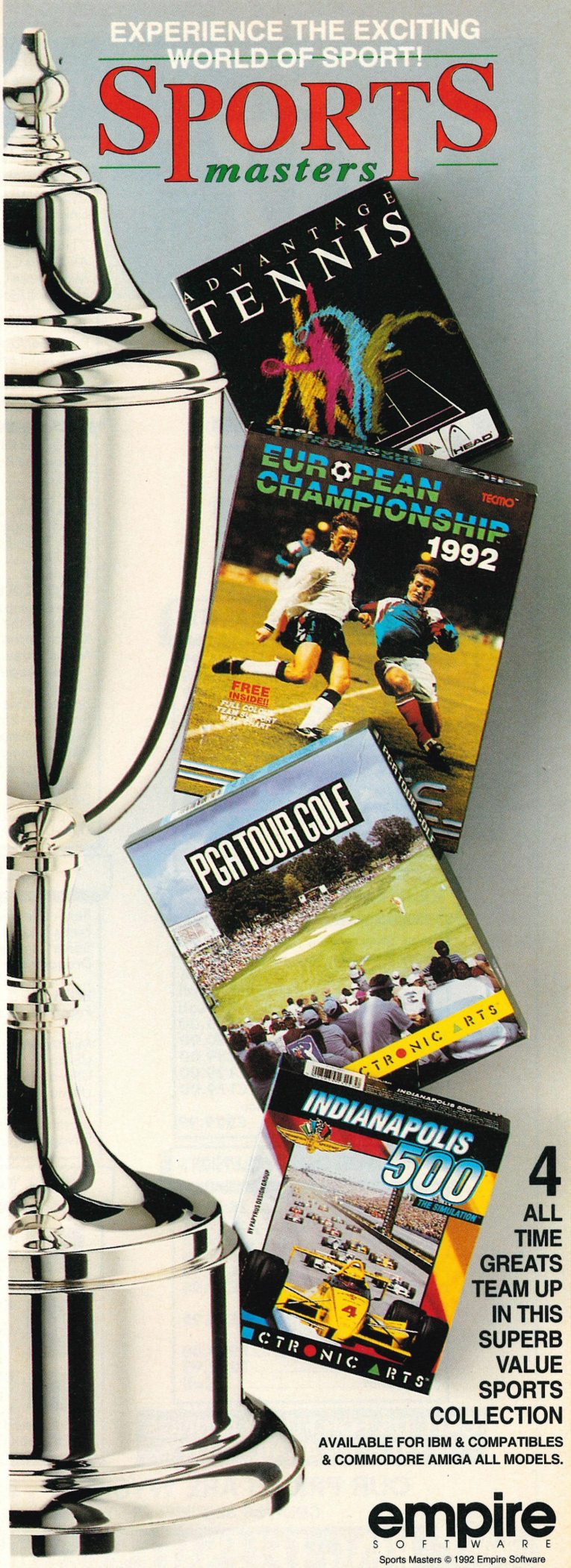
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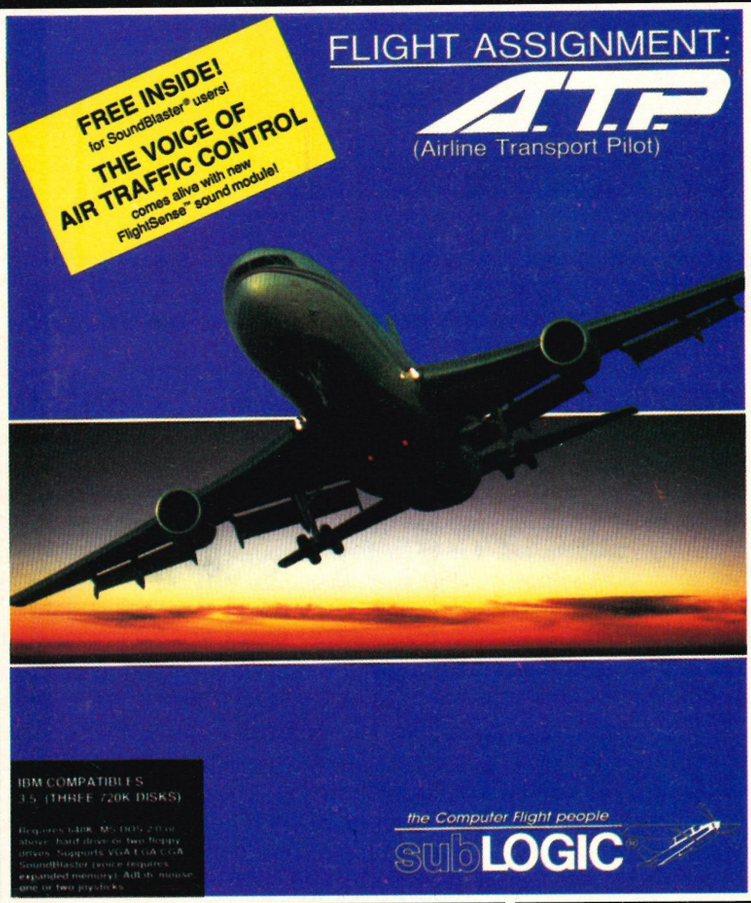
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PC price plummet peters out

The recent incessant downward spiral of PC prices seems to be bottoming out, as the latest announcements from a number of major PC manufacturers, including Elonex, Viglen and Dan Technology see prices both rising and falling in a seemingly indiscriminate pattern.

Hardened price cutter Elonex reverses its usual policy by announcing price rises averaging £100 across its range of desktop machines. Commenting on this development, Elonex managing director Israel Wetrin says: "Every player in the UK PC industry, without exception, has to source high-value components on the international market. The currency of the international market is the dollar. Since we all have to buy in dollars and sell in pounds, the current slump in the value of sterling means that we must make a choice.

"Do we stick with lower prices and compromise on quality, or do we absorb as much of the extra cost as we can and raise our prices by as much as is necessary to maintain high standards? Elonex has chosen the latter course."

However, one company which would appear to fundamentally disagree with this argument is Commodore, which has just announced a price drop across its Powerline range of 486 machines. The new prices (all exclusive of Vat) range from £899 for the entry-level DT486SX-25 to £1,349 for the DT486DX-33c.

For Commodore, sales director Steve Hollender offers this line of thought: "Our Powerline's strength is its impressive price to performance ratio, and we will do whatever it takes to maintain this throughout the current price war."

Another hardware manufacturer to have made the news in the last month is Packard Bell, which has strengthened its high street presence by selling its machines through the Allders department store, and – perhaps more significantly – launching a new multimedia PC which will be available through Dixons.

The snappily-named Packard Bell MPC will be a 486SX system, with a 105Mb hard drive, two floppy drives, Sound Blaster card, 4Mb of RAM and, of course, a CD-ROM drive. The entire package will sell for £1,799 (inclusive of Vat). Software bundled with the package will include the World Atlas, Chessmaster 3000 and Sherlock Holmes.

Contact numbers for all of the above are: Commodore (0628) 770088; Elonex (081) 452 4444; Packard Bell (0753) 831914.

IN BRIEF...

It may sound like a contradiction in terms, but if you're stuck in Mindscape's Captive, then you may be interested in checking out the all-new Captive Mapgen, a hintbook and map generating package for the award-winning program. Coming on both book and disk, the Mapgen is available now, priced at £8.99.

Avid users of family tree software can now have their needs serviced by the newly-formed Genealogy Programs User Group (GPUG). Services offered to members include a telephone hot-line, regular magazines, discounts (on hardware and software) and an opportunity for contact and mutual support. The annual subscription fee covers all of the above and entitles the member to three shareware disks as part of the 'welcome' package. Contact GPUG on (0509) 415101.

Cambridge-based Eesox is offering a CD-ROM disc mastering service to software developers. A single 'write once' compact disc produced to the ISO 9660 standard can be produced for as little as £150 (with further copies available from £45 each). Further details are available from Eesox on (0223) 264242.

Mindscape's keyboard and computer piano tutoring system, The Miracle, has strengthened its presence in the high street with the announcement that it is to feature in 20 Tandy stores throughout the UK. In addition, each of these shops will feature a team of demonstrators to take the general public through the system's uses and benefits.

Lovers of pub-based electronic trivia quiz machines may like to try their hands at 1992, a PC trivia news quiz from Albon computers. No price has been fixed as yet, but Albon expects its 2,000 question package to retail for just under £5. For further details, call the Biddenham office on (0580) 292442.

Nildram Software, publisher of the Flexibak Plus v2.50 hard disk back-up utility, is offering a competitive upgrade price to users of any other similar program, including CP Backup, Norton Backup, Fastback Plus and Holdfast. Users taking advantage of this offer can purchase the program for £24.00, a saving of £15 over the full price (prices are exclusive of Vat). Further details from Nildram on (0442) 890303.

The seventh International Computer Show will take place at the Wembley Exhibition Centre between February 19th and 21st of next year. The show, organised by Westminster Exhibitions, will feature five main sections: entertainment, home education, the 'home office', music and the 'force field zone'. Further details are available on (081) 549 3444.

Ambra – the PC manufacturer who invited us all to 'take our minds for a run' – has released its first set of sales figures since its launch on June 4th. Apparently, there are 12,000 desks in Britain (and 24,000 throughout Europe) which now sport one of the firm's Treka, Hurdla or Sprinta models.

The ever-expanding catalogue of CD games continues to grow with this month's announcement from Sierra that its wacky interstellar hero, Roger Wilco, is to get compact with the release of Space Quest 4 – CD (available now, priced at £44.99).

Digitiser, a new electronic daily games magazine, will begin transmission from January 1st through the new ITV and Channel 4 Teletext service. The new service is scheduled to feature four pages of PC game reviews (transmitted during weekends only), alongside news, competitions and readers' letters.

Are you satisfied with your PC? Then you're probably a Dell owner – or at least, that's what a recent Computer Weekly poll would have us believe. Apparently this year's User Satisfaction Survey saw Dell knock Apple off the number one spot to take the title for the third time in four years.

Those of you struggling with the Windows database package Skylight may be interested to hear of Kuma Computers' latest book, Skylight Illustrated. Fully illustrated (oddly enough), the book takes the user through all aspects of the program's functions, from designing a database to passwords and security. Skylight Illustrated is available now, priced at £16.95.

Following last month's story that developer Vivid Image was scouring the country for a publisher to take its eagerly awaited Second Samurai title, PC Review can now exclusively reveal that Liverpool-based Psygnosis has won the day. Although the game was originally due to be released by this Christmas, it now looks as though Psygnosis needn't bother producing any box artwork until Christmas of 1993 – at the earliest.

Claiming that it was "not a mainstream PC seller", electronic giant Philips has announced its intention to withdraw from the PC sales business in Britain, Scandinavia, Ireland and Greece. The decision has led to the closure of the firm's Dutch distribution centre, with a subsequent loss of 40 jobs.

Make a connection

If you're facing the usual last-minute problem of what Christmas presents you're going to buy for your PC owning friends, then the latest catalogue from direct sales specialist PC Connections might be well worth investigating.

For the creative type, there's Print Shop Deluxe, an updated version of the popular card and banner design and printing software suite. This latest version retails for £59.95 and features scalable fonts, a 300-object clip-art library, decorative borders and other graphic effects not to mention the ability to store files in EPS, CGM, PCX or TIFF formats.

For the younger PC user, there are a number of titles, including Nigel's World, which comes from the makers of the Carmen Sandiego series. This is a geography 'edutainment' program for seven to 12-year olds featuring 40 maps, 90 digitised photos, 30 international folk songs and digitised speech (among other attractions) – all for £34.95.

Also for the kids, there's the Fisher-Price Creativity Kit, a series of programs based on the famous educational toy range. This line-up includes the Fisher-Price Farmhouse and the Little People Main St, both of which feature more than 200 animations and are aimed at children between three and eight years old.

Finally, for the whole family there's the Multimedia Family Bible, a £44.95 religious experience featuring narrated looks at paintings by Raphael, Rembrandt and Bloch among its attractions. This program runs on any PC from a 286 upwards, and supports all of the expected features, including word searches, output to a printer and so on.

For further details on all of the above and the rest of the PC Connections range, call (0706) 222988.

Game for a laugh

Following the recent announcement of a link-up between software development giant Ocean and Comic Relief (see Issue 13), further details have been released on the nature of this collaboration, which, it's to be hoped, will raise somewhere in the region of £500,000 for the charity.

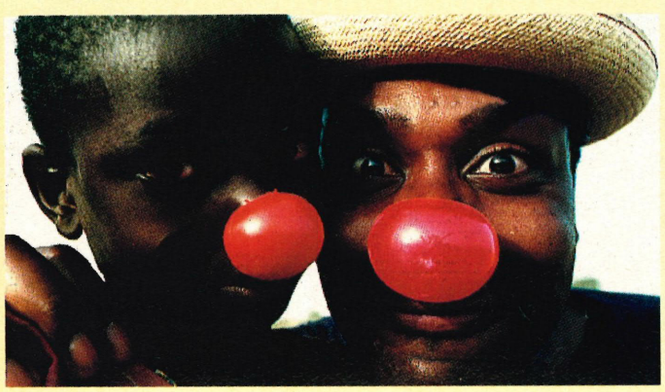
The whole initiative will centre around the launch of Sleepwalker, a game which has been jointly developed by Ocean and the Comic Relief team (Comic Relief's contributions include Lenny Henry's voice-over and the in-game appearance of such characters as Mr Bean, and Hale and Pace as the Management).

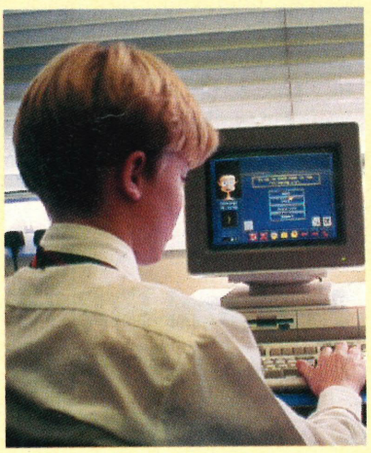
As well as contributing directly to the Comic Relief coffers through all involved parties accepting a cut in profits, each copy of Sleepwalker will contain a sponsorship form allowing players to raise further cash for Red Nose Day 4 (which is scheduled to take place on Friday, March 12th 1993).

Moreover, a national Sleepwalker games challenge is in the pipeline, with a number of major retail chains lined up to take part.

Speaking on behalf of Comic Relief, communications director Kevin Cahill says: "A Red Nose game is fantastic news, and is a real first for Comic Relief. The message that will be going out to games players is get involved and take part in the fun of Red Nose day – challenge your friends or your family at Sleepwalker, or any game, get sponsored, enjoy being involved and take part in the fund-raising."

Sleepwalker is scheduled for release in January of 1993. For further details, contact Ocean on (061) 832 6633.





Child's play

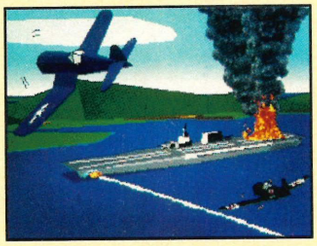
If you share your PC with another user in the four to seven-year-old age group, you may be interested in Europress Software's latest addition to its 'ADI' range of educational products.

ADI Junior comes in two packages, designed to help with reading and counting respectively. Both packages are further sub-divided to cater for children between four and five and six and seven. Each package features 15 puzzle-based activities and a help key designed for when the child becomes stuck.

Like the rest of the ADI range, ADI Junior was originally developed in France by Coktel Vision, and has been amended and updated for the UK market by Europress.

For further details on ADI Junior and forthcoming ADI programs (including ADI French), contact Europress Software on (0625) 859333.

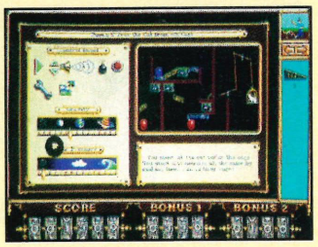
COMING SOON



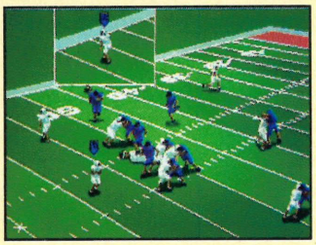
The age-old question of 'what might have been' is the inspiration behind Dynamix's WWII 1946 – Aces Mission Builder, a mission-building package designed for use with Aces of the Pacific.



Following Infogrames' (ahem!) unofficial tribute to H P Lovecraft with Alone in the Dark, it has now secured the official rights to produce games based on the author's chilling work. The first fruit of this new liaison will be Shadow of the Comet, above.

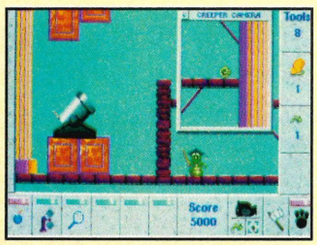


Lots of useless inventions come in handy in Dynamix's "computer-age, logistical puzzle-solving game", The Incredible Machine. With over 50 working parts to choose from and 100 levels of play, this should stretch the



Dynamix is promising that Front Page Sports: Football is the simulation for you. Along with options allowing the player to draft rookies and choose tactics, a complex 'play editor' creates custom plays which can be used with the program's original 200.

COMING SOON



Creepers from Psygnosis features 80 levels of 'grey matter gameplay' involving a host of young and innocent caterpillars and their hair-raising adventures.



Up to four players can take part in Premier Manager, a football management simulator coming soon from Gremlin, incorporating financial management with the subtleties of coaching a team to the top.



Travel the world, meeting interesting people – and then punching their lights out – in the forthcoming PC adaptation of CapCom's hugely popular beat 'em up coin-op, Street Fighter II.



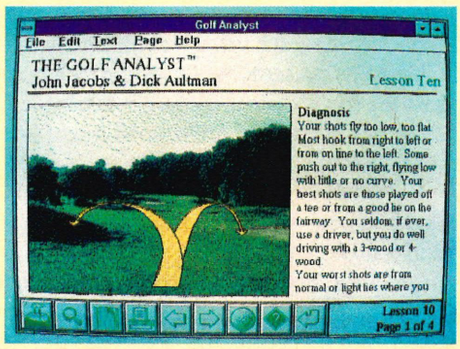
Save the world from Dr Fred's mutant tentacles in Day of the Tentacle, LucasArts' follow-up to its 1987 classic, Maniac Mansion. Designed by Tim Delacruz and Dave Grossman (previous credits include Monkey Island series), the game features a quirky cartoon graphic style.

Mindscape gets a life

Following the recent departure of Origin to Electronic Arts, Mindscape International has filled the gap in its release roster by signing up a new affiliate, Lifestyle Software.

The new label concentrates on a series of 'new age', life-enhancing programs, as illustrated by its initial clutch of titles which includes packages on astrology, diet, golf instruction and genealogy.

The complete opening line-up consists of Visions (a complete astrological insight into the "innermost workings of the human psyche"), Diet Pro (a "complete diet, nutrient and exercise balancer"), Golf Companion (an interactive tool for improving every aspect of the user's game, authored by pro golfer John Jacobs), Take Control of Cholesterol (an explanation of your blood cholesterol level and what it means to you), Horizons (a comprehensive means of "collecting family histories and sharing the rich tapestry of your family tree"), Micro Bridge Companion (a tutor for bridge players of any ability) and Multimedia Tarot (a program which "excites the senses with a force that only the most ancient of games can wield").



In addition to taking on this entirely life-enhancing range, Mindscape has also announced an extension to its 'Classics' budget range, and a host of new multimedia titles to further strengthen its grip on the CD-ROM market.

Still priced at £19.99, the new additions to the Classics line-up are TV Sports Baseball, TV Sports Boxing, Chessmaster 2100 and both Life and Death packages.

New on the compact disc front are The Animals, a digital zoo which features extensive video-style footage including (would you believe?) a three-minute clip of a giraffe giving birth, Chessmaster MPC Pro and The New Grolier Multimedia Encyclopaedia. Prices have yet to be announced on either The Animals or Chessmaster, while the Grolier Encyclopaedia is priced at £249.95 (although owners of a previous version can upgrade for £49.95, and owners of any encyclopaedia can avail of a £129.95 trade-in offer).

For price details on the Lifestyle range, or general information on any Mindscape products, call (0444) 246333.

Sony and IBM in strange alliance

Unusual alliances between hardware and software manufacturers have been the order of the day in recent weeks, as Sony's announcement of a link-up with IBM comes only days after rumours sprang up of a similar coupling between Nintendo and Microsoft.

IBM's agreement with Sony concerns support for the latter's recently-launched handheld multimedia player. This support is particularly important, as Sony's format differs slightly from the internationally agreed norm.

The Nintendo/Microsoft rumours concern the attempted integration of the software giant's Windows environment into forthcoming Nintendo hardware. Although these rumours have been strenuously denied by Microsoft sources, it's believed that the joint project is in fact up and running, under the imaginative name of 'Wintendo'.

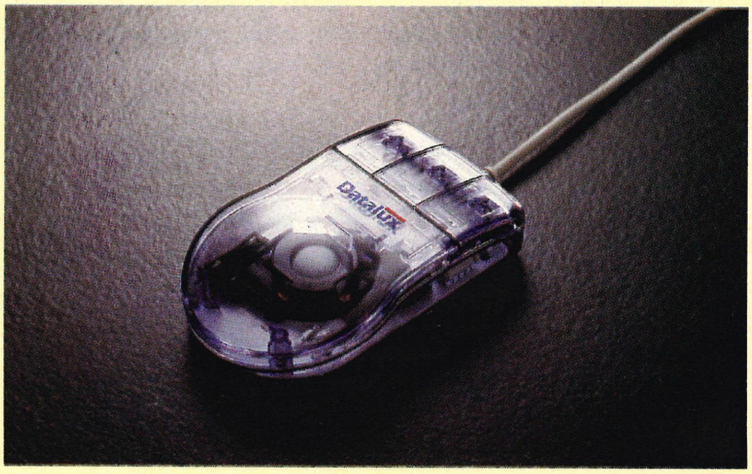
These multiple alliances are all the more intriguing, due to the fact that Sony is already working with Nintendo on a forthcoming CD product. The possibility of link-up between any combination of these four giants seems therefore distinct.

The invisible mouse

You may consider yourself to be an expert in seeing right through peripheral manufacturers' sales gimmicks, but the latest release from Spectravideo is probably the first that actually encourages this practice.

Spectravideo's all-new Datalux mouse comes housed in a completely see-through shell, allowing all and sundry to gaze at its indecently exposed workings – what it doesn't allow you to see, however, is the Microsoft mouse compatibility, 100-400 dots per inch resolution and high tracking speed (1,050mm per second) which this rodent has cunningly hidden in its workings.

Available now, the Datalux mouse is priced at £24.99 (make sure that you ask for the PC model though, as the thoroughly incompatible Amiga and Atari ST versions are more or less identical in appearance). For more transparent mouse facts, call Spectravideo on (081) 902 2211.





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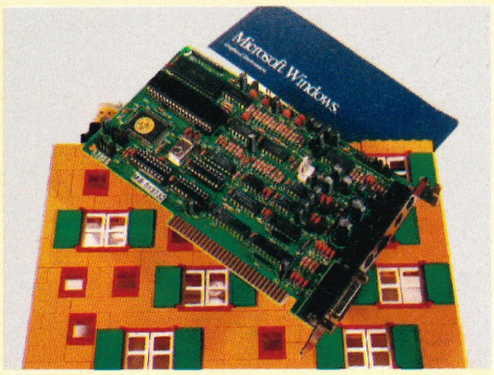
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PCR11

Sound through windows



As if the choice of sound cards wasn't already wide enough, Woking-based Interconnections Ltd has launched a complete audio package, specifically designed for use with Windows 3.1.

The package consists of a Media Concept 2 sound card (which is both Ad Lib and Sound Blaster compatible), Trax sequencer software, MIDI interface, joystick port, stereo speakers and microphone.

As well as providing the all-important soundtrack for games, the package also enables music, voices and sound effects to be generated and incorporated into programs of all types.

The complete package sells for £85 (exclusive of Vat and delivery) and can be ordered from Interconnections on (0483) 797418.

Nigel takes the wheel

Following the trials and confusion which have dogged Nigel Mansell's career over the last couple of months, PC Review can now reveal that Britain's latest motor racing world champion has finally signed the deal which will seal his future security.

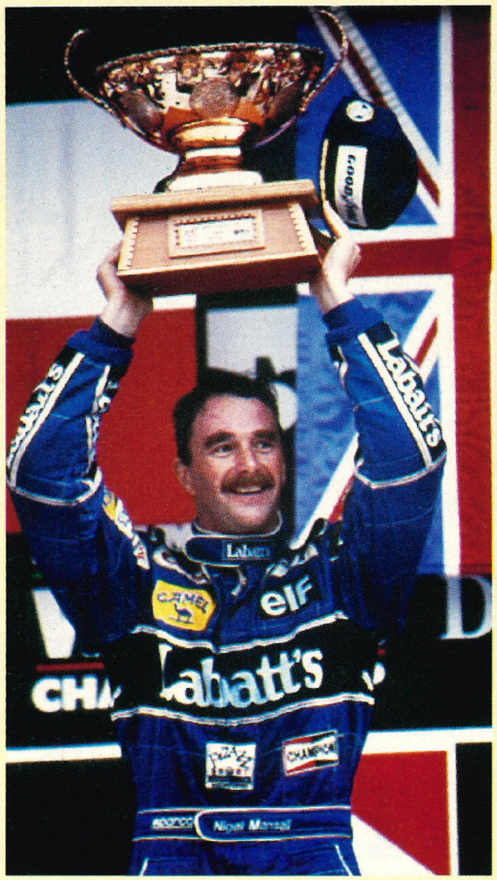
No, it's not a lucrative deal with Paul Newman's Indy Car racing team ... instead the moustachioed, bus-driving special constable has signed up with joystick and widget manufacturer Logic 3 to put his name to its 'Freewheel' game controller.

Designed specifically for use with the multitude of driving and racing games and simulations, the Freewheel replaces the standard joystick control with a more 'natural' steering mechanism.

Obviously delighted with his new signing, Logic 3's managing director Ashvin Patel says: "We are naturally delighted with the prospect of Nigel joining the team. In fact, the timing couldn't be better because next year we are planning to tackle the American market with our products, and now that Nigel is racing there we couldn't have wished for a better boost. We wish him lots of luck!"

Unfortunately Nigel himself was unavailable for comment.

The Freewheel is available now, with the IBM-compatible analogue versions priced at £39.99. For further information, contact Logic 3 on (081) 902 2211.



Hawaii fore-0

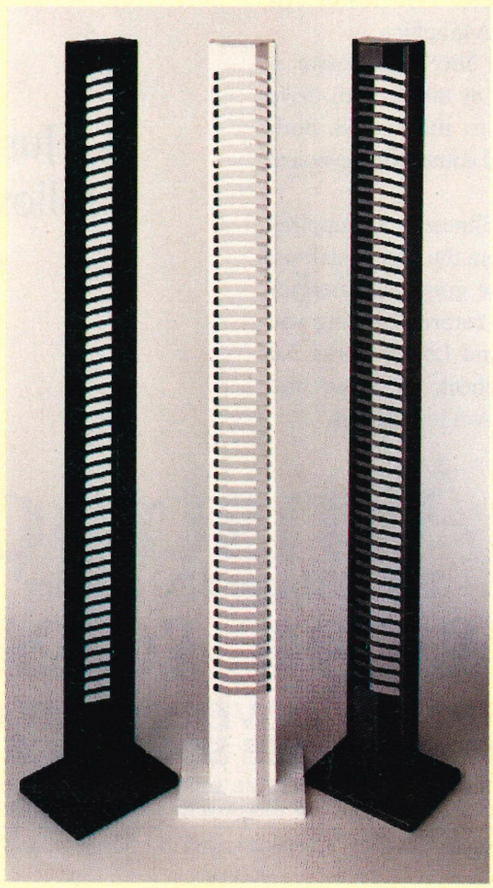
Digital golfers who prefer to brandish their woods and irons in Access' Links can now add Hawaii to their list of venues, as the program's first add-on course disk is a re-creation of the 50th State's top-rated golf course.

Constructed in 1964, to a design drawn up by noted architect Robert Trent Jones Senior, the Mauna Key course is built on a 5,000 year old lava flow from the eponymous mountain.

Apart from being Hawaii's top golf course, Mauna Key is also ranked among America's 100 greatest, and has received Golf magazine's gold medal award for being one of the 12 best golf resorts in all of America.

The Links design team has digitised a series of photographs of the course taken in late spring for use in this new course disk.

Links Championship Course Mauna Key is available now, priced at £21.99, and requires Links The Challenge of Golf, Links 386 Pro or Microsoft Golf to run. Further details from Access' European distributor US Gold on (021) 625 3366.



Compact casing

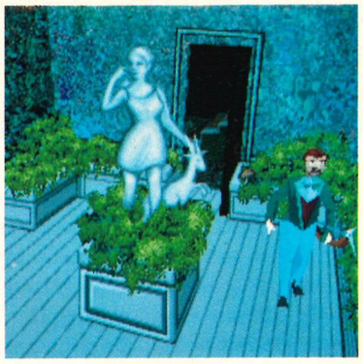
It looks as though the CD-ROM concept has really hit the mainstream, as widget manufacturers have begun to dress their existing CD storage systems up as CD-ROM peripherals in an effort to sell them into PC users' homes.

The first of two such devices brought to PC Review's attention this month is the Bib CD Storage Tower, an aluminium construction which comes in one of three finishes: black, white or grey. These Empire State-like affairs, priced at £49.99 apiece, can hold up to 50 CDs each, which means that any one of them could probably hold the entire catalogue of currently available titles.

Optech's offering, the STACman, is a little less ambitious, with each £5.99 module holding five compact discs (in crystal cases).

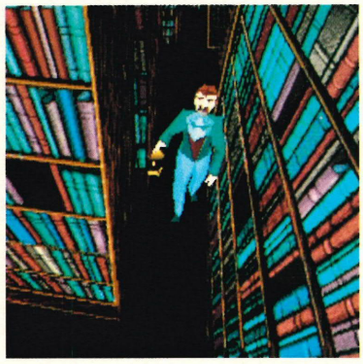
For further information, contact Bib on



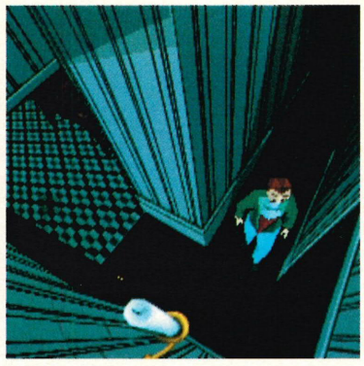



ALONE IN THE DARK

When night falls it's time to scream.







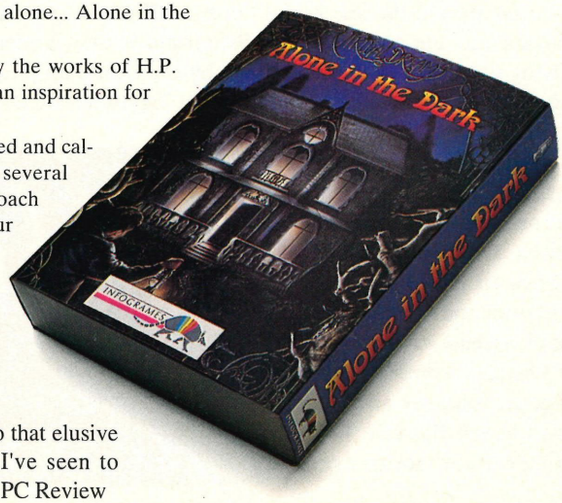


EXPERIENCE MYSTERY AND TERROR, FULLY ANIMATED IN 3D

Derceto. The mere name of this sinister mansion is enough to fill anybody with dread. It is also said that an evil presence resides within. Suspended by a rope, Derceto's owner, the painter Jeremy Hartwood breathed for the last time. No suicide note was ever found, the case was wrapped up and the body was bagged. In your quest for the truth, you will have to overcome your fears and enter the house before nightfall. After this time however, you will be alone... Alone in the dark.

Alone in the Dark is an arcade/adventure game inspired by the works of H.P. Lovecraft - the author of the Cthulhu series of novels, and an inspiration for most of today's horror writers.

All the characters and the objects you'll use are fully animated and calculated in real-time 3D and the action is viewed through several unique camera angles in each room. The movie-like approach mixed with fluid animation adds immense atmosphere to your terrifying investigation into the macabre. You'll have to explore each room searching for useful objects and items that will help you survive. For in the darkness of Derceto lurk the vilest and most evil-minded of creatures. Entering Derceto is the easy part, leaving could be hell!



INFOGRAMES

PC review 9

"Brilliant - coming closer to that elusive 10 rating than any game I've seen to date" - Laurence Scotford - PC Review

INFOGRAMES Ltd - 18 A Old Town - CLAPHAM - LONDON SW4 OLB Tel: 071-738 8199

Decisions, decisions...

If the makers of Decision Track, a new 'intuitive management' software suite, are correct, then up until now you've probably been running your life and your business incorrectly without even knowing it.

Developed by Tao Management International, in conjunction with Nobel Prize nominee Guy Damian-Knight, Decision Track draws on the ancient experiences and wisdom of the I-Ching (which was written more than 3,500 years ago) to aid the user in his or her "intuitive management and decision making".

For those of you who still like to deal in hard facts, the program runs under Windows 3.1, incorporates 1Mb of database text and a text editor and is available on either 3.5" or 5.25" disks.

Decision Track will be available from January onwards, priced at £49.99. For sales information and further details, contact Tao management on (071) 284 2258.

Hard times

CD-ROM specialist Optech's latest offering is a multimedia panoramic view of historic events of the past 200 years, as seen through the pages of the world's most famous longlived newspaper, The Times.

Changing Times features extracts from the paper's pages, including photographs, maps and even hand-written letters, all divided into separate topics for ease of use.

Changing Times is due for release in January of 1993.

In the meantime, Optech is keeping busy with Toshiba's brand new XM3401 CD-ROM drive. Fully MPC and Photo CD compatible, not to mention available in both internal and external configurations, this drive features both a fast data transfer rate of 330K, and a 200ms random access time.

For details of prices on the above and any other developments, including Optech's extensive catalogue of CD-ROM products available, in all fields, call Optech on (0252) 714340.

TV times

PC-owning couch potatoes can now pursue their favourite hobby without even bothering to leave their desks, as Imagine Graphics has announced the Videomate JV-819PT – a video adapter which converts any VGA screen into a fully-working TV.

The Videomate changes low resolution, interlaced, composite PAL signals into high-quality, non-interlaced VGA RGB signals, thereby allowing the user to display TV and video signals on any standard VGA, Super VGA or Autosync colour monitor.

The package comes complete with an audio amplifier, built-in speaker and remote control, while a built-in switching facility allows the computer to carry on processing while the TV is in use.

Videomate is priced at £269 (exclusive of Vat). For further details, contact Imagine Graphics on (0727) 830638.



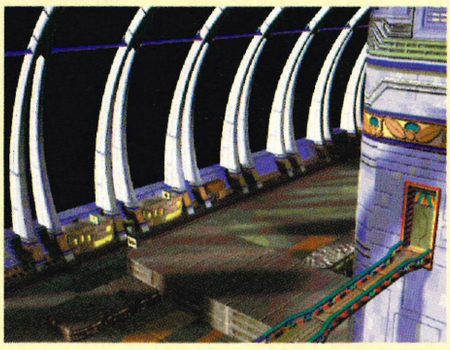
Origin's Halloween party

As if having best-selling computer games in all corners of the PC world wasn't enough, Richard Garriott, president of American RPG giants Origin (subject of a full-length feature next month) and creator of the award-winning Ultima series of games, recently invited his public to experience the world of Britannia for real.

Once every two years, usually during the four nights leading up to Halloween, Garriott's million-dollar mansion in Austin, Texas, is transformed into an all-screaming, all-terrifying 'spook house', filled with just about every horror monster and gruesome special effect you can think of, from organ-playing demons to spectacular fireballs during ritual ceremonies.

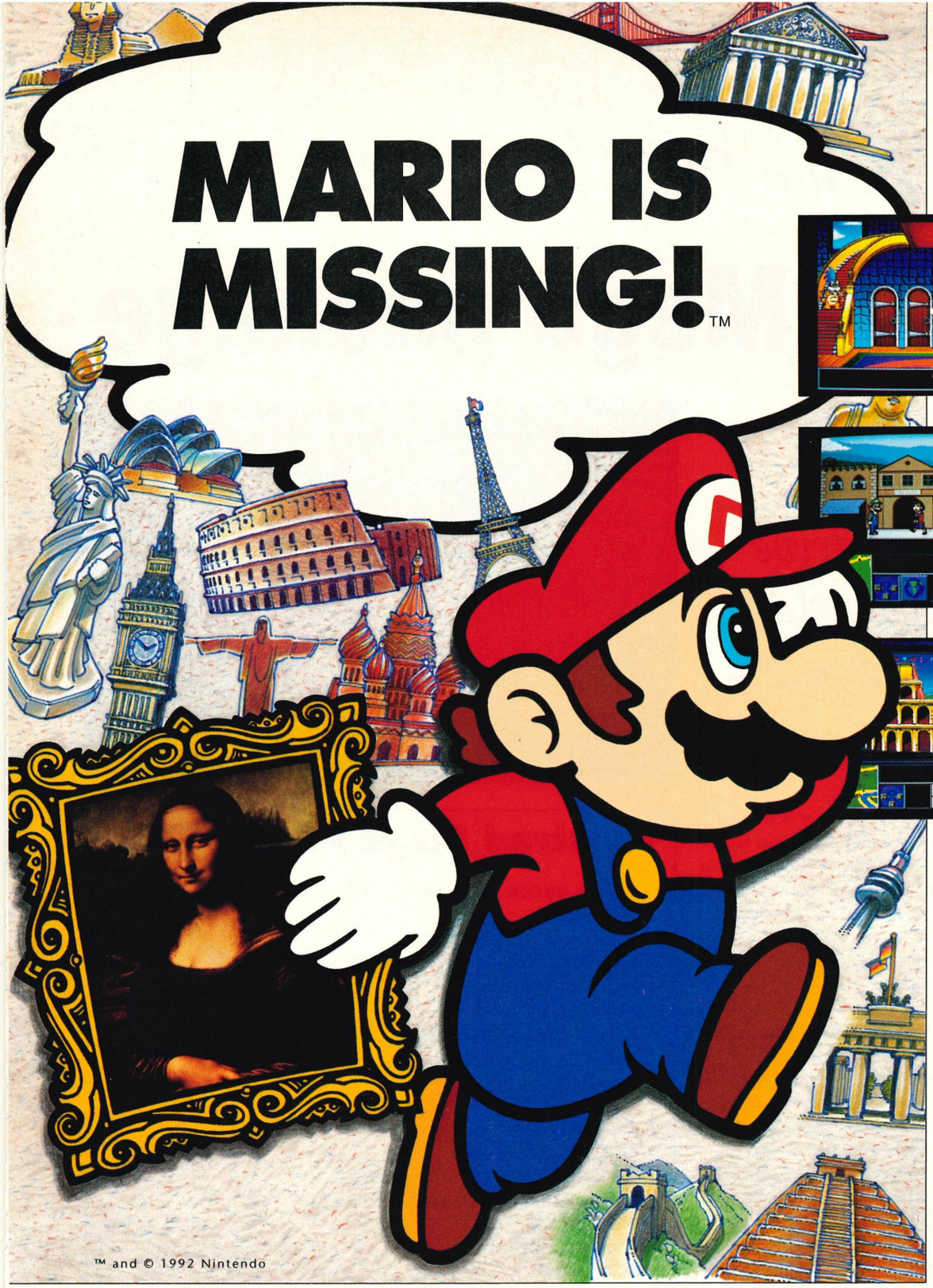
Based around the successful Ultima VII game, groups of four terrified participants are guided around 'Britannia Manor' under the pretence of saving the world from an invasion by the Guardian (archetypical villain from the game). 'Guided' is perhaps an inappropriate term as more often than not the players are left to fend their own way through pitch black mazes, across creature infested lakes and rope bridges, werewolf plagued crypts and into (and out of at very quick speeds) a mad butcher's kitchen complete with human remains and dismembered figures. One unfortunate victim even ends up trapped in a cage while a mad scientist shoots a million volts of electricity at them.





All this spookery is achieved through the use of an army of volunteers from Austin's Zachary Scott Theatre Group, all of whom work free of charge as Garriott is keen to ensure that this is a non-profit making venture. "All year round people are buying our games," comments Garriott in full Lord British garb, "this is my way of giving something back. Plus the only feedback I usually get is in the form of letters and cards. This allows me to get instant feedback, instant satisfaction from seeing people experience the Ultima genre."

MARIO IS MISSING!™



Bowser and the Koopas are at it again. This time they've captured Mario *and* they're stealing the world's treasures... so you've got to stop them.

You'll be Luigi, Mario's baking brother, coming to the rescue. Following the Koopas through time portals... using your wits to win out... ruining Bowser's day.

Talk to local people and search for clues as you visit 19 different cities. Cairo, New York, Tokyo, Paris... fasten your seatbelt and foil the Koopas to put treasures like The Sphinx, Big Ben and The Mona Lisa - not to forget Mario himself - back where they belong.

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YES. TELL ME MORE ABOUT 'MARIO IS MISSING'.

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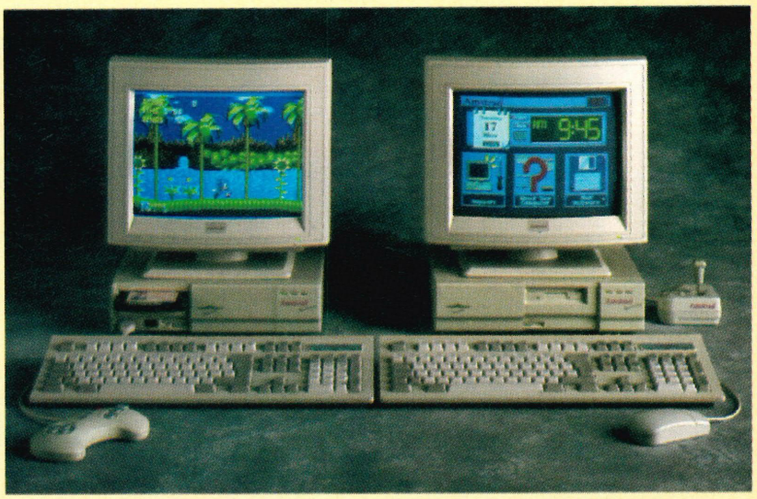
TEL

PCR 1

Is it a console ... is it a PC?

Amstrad's Mega package

Amstrad's Mega PC combines a 386SX PC with the Sega Megadrive — the best of both worlds or a double compromise?



Christina Erskine reports

Putting two different types of device in one box has become an Amstrad forte: with its hi-fi units in the later 70s, its one-plug CPC games computer and PCW word processors in the early 80s, and the combined TV and video player more recently. After Sega's flirtations with its PC-plus-console Teradrive, it seems almost inevitable that it would be Amstrad to pick up the reins of this concept.

The result is the Mega PC: a 25MHz 386SX PC, with an integral Megadrive. The PC side of the machine is basically the Amstrad 7386SX; the Megadrive end is produced under licence from Sega.

As a PC, the machine has the components you would expect from an entry level consumer configuration: 1Mb RAM (expansible onboard to 16Mb), a 40Mb hard drive, Ad Lib sound card and joystick port, speakers (built directly into the VGA colour monitor), 3.5" disk drive, parallel and serial ports, and a free expansion slot.

In PC mode, a front panel flap conceals the Megadrive. Slide that across, so that it now covers the disk drive and the Megadrive's cartridge slot is revealed. Moving the flap over puts the machine into Megadrive mode, so that the monitor and speakers are now being driven by the Megadrive main board. Now all you need do is insert your game cartridge and off you go. This is beautifully simple and a very neat piece of design.

Furthermore, flipping to Megadrive operation doesn't reset the PC. If you slide the flap back again, you'll find yourself back on the PC, exactly where you left off, even if you were in the middle of an application at the time, which makes the whole set-up either ideal or disastrous for inveterate skivers.

The whole idea of the Mega PC is fascinating — now, why has Amstrad done it, and who it thinks is going to buy it?

The Mega PC will cost £999.99, inclusive of Vat. The 7386SX starts at £740 (although this is with a monochrome monitor), while a standalone Sega Megadrive is around £140. Since there isn't a dramatic price discrepancy between the individual machines and the combined Mega PC, one should perhaps look at the attractions of it as a package.

Amstrad's own response is that, with the Mega PC, it is going straight back to its roots as purveyor of technology to the masses, at a price they can afford, in a form they can understand. At a Vat-inclusive £999, it may sound distinctly expensive to anyone who knows how to shop around for components and order direct from the supplier, but still compares favourably (-ish) to high street prices. What makes the Mega PC easy to understand is the inclusion of Counterpoint, Amstrad's graphic-based front end which effective-

Amstrad Mega PC 386SX

* **25MHz 386SX processor**
* **1Mb RAM**
* **40Mb hard disk**
* **3.5" disk drive**
* **Parallel port**
* **Serial port**
* **Ad Lib compatible sound card with joystick port**
* **Mouse**
* **Joystick**
* **VGA card**
* **VGA colour monitor**
* **Speakers (built into monitor)**
* **One free expansion slot**
* **MS-DOS 5.0**
* **Counterpoint**
* **PC tutorial**
* **Megadrive (produced by Amstrad under licence from Sega)**
* **Slot for Mega CD**
* **Joypad controller**

* **12 months on-site warranty**
* **Telephone hotline support**

* **£999 inclusive of Vat**

ly shields the beginner from any tinkering with DOS (it basically acts as an application launcher), and there's also an on-screen illustrated PC tutorial as well.

The tutorial's thoroughness is admirable, although one wonders if the sheer amount of detail contained within will prove just as daunting to the novice as the weighty traditional manual.

A further note on the Mega PC's price: until very recently, you could accompany this with a quiet hint that £999 could all too easily become £799 within a few months. However, a weakening pound, strengthening dollar, deepening recession, etc, etc, mean that this is by no means a certainty any more. Chip prices seem to have bottomed out recently and a number of PC suppliers are actually raising prices. What is far more likely is that, if the Mega PC idea proves successful, Amstrad will bring out more highly specified versions next year — "deluxe GTi versions", as Amstrad puts it — but not necessarily at a lower price.

Amstrad's thinking is that the Mega PC will be bought by parents as a true family computer. It can be used for business applications (or, let's face it, PC games), during the day, or after the children have gone to bed, and by the kids themselves, as a Megadrive, at other times. Amstrad also believes students will be interested, the Megadrive having a higher age profile than other consoles.

What this doesn't seem to take into account are the advantages of keeping the family console and the PC separate; the lack of arguments when more than one person wants to use the computer. David Hennell, Amstrad's marketing manager, is unconvinced: "Surely the arguments over the console versus the television are greater than that."

Hennell is also unrepentant about Amstrad's refusal to lead the market technologically. "We are selling computers to the domestic market. Sure, the techies can put together a highly specified system, buy it on mail order and more or less put it together themselves. But the average consumer is uncomfortable with the technicalities and buying unseen: they want to go into a shop, see it running, buy it and take it home with them. And to appeal to that market, we have to build to the right price."





The beige machine on the left, plus the black machine of the right, equals the Amstrad Mega PC.

This is true Amstrad philosophy; the company has played and missed at the corporate buyers and is now concentrating on its ability to spot a consumer gap and make it its own. It's certainly the leading seller among the PC entertainment bundles in the high street.

Entry level machine

So, from the PC buyer's point of view, one is getting a fair entry level machine: at 25MHz, the 386SX processor is good enough for all games around at the moment, the RAM can be expanded easily if need be (although this does rather negate the plug-in-and-go philosophy), and there's no point in berating Amstrad for only putting a 40Mb hard disk in there — all the other games packers use 40Mb hard disks — incorporating the speakers in the monitor saves on trailing wires and improves the machine's aesthetic appeal. There is also a headphone socket, so you can play without deafening the rest of the household.

However, if Amstrad wants you to buy this to keep the kids quiet, or if you have a yen for a console on the side (as a number of PC owners do), what does this package look like from a potential Sega buyer's standpoint? Paul Glancy, editor of the Megadrive magazine, Megatech, has his doubts. "The concept's fine. But compared to a Sega Megadrive at £140, it seems like an awful lot of money.

"If I was a parent and I spent £1,000 on this as an all-purpose computer, the prospect of it being thumped on by my seven year old would be decidedly risky."

There is also a point which may seem pifflingly unimportant to mum and dad and crucial to youngsters, which is that the styling of the Mega PC categorises it utterly as a PC: it's beige (so is the included Megadrive joypad controller), it's a rectangular block, it inevitably has a keyboard and PC-like front panel.

The Sega Megadrive is well designed for its market, a moody black hulk which looks like something out of Gotham City, and the line between 'cred' and 'non-cred' in the teenage male market is very finely drawn. However, this did not detract from the Mega PC's pulling power at this autumn's Computer Shopper, where Amstrad's stand was swamped for three days.

Also, the Mega PC does have inbuilt advantages. Firstly, and obviously enough, it uses the VGA monitor supplied rather than the TV, so the screens will immediately be crisper than the standard Megadrive looks, and the sound goes through the integral stereo speakers by default.

Secondly, Amstrad has deliberately included a CD bay under the cartridge slot. When Sega brings out its Mega CD, the Mega PC will be ready for it. Which just makes it a shame that there is no such space on the PC side of the machine, though one can see Amstrad baulking on principle at the idea of having to incorporate two different CD standards in the one box.

It's extremely difficult to come to any sensible conclusion about the Mega PC because there's nothing to compare it with. The only precedent is the Sega Teradrive, which was sold in Japan, whereas this is initially intended for the UK and Australia (and later next year, the rest of Europe), so comparisons would be invidious.

Amstrad has a huge asset in the strength of its brand name. It has also consistently shown imagination, and some guts, in the machines it conceives in its genuine — and successful — determination to make PCs accessible to the non-technically minded, and that holds true here. With Counterpoint and the tutorial, there is no excuse for anyone to find they can't work out how to use the machine (and there is telephone hotline support as well). The 386SX at 25MHz is a fair entry level processor (look at the comments in our feature on page 32 for confirmation of this), although given the interdependent nature of the Megadrive and PC within the machine, it would be difficult, if not impossible, to upgrade the graphic and sound capabilities.

The bottom line has to be that while you can buy a 386SX PC for less, and you can buy a Sega Megadrive for less, this is the only way you can buy the two together, and if that idea appeals, then this is the way to go. Either way, the Mega PC is certainly one of the more interesting PCs to be released for a long time.

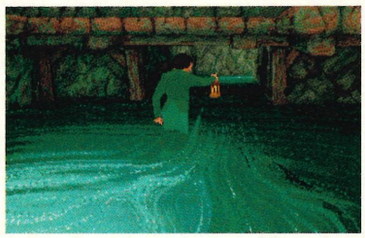
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JOE & MAC™
CAVEMAN NINJA™

Win your chance to investigate the macabre mystery of...

The Shadow of the Mine





This is a PC Review competition with a difference. Instead of big grey boxes, or bundles of software, we are offering you the chance to take part in your own Alone in the Dark style supernatural mystery. The winner of this competition will be able to take a friend or partner with them to Llangollen, Wales, where you will join in a Live Action Adventure, experiencing vintage horror and mystery as a 1930s investigator.

There's more ... you'll be put up at a hotel in Llangollen, courtesy of adventure organiser Hack & Slaughter and PC Review, but the mystery itself will take place at the Chwarel Wynne Quarry, a slate mine/museumbased around two and a half miles of tunnels and caverns. Prepare yourself for a spine-chilling night out!

Finally, in keeping with the Lovecraft tradition, the whole things takes place in 1930s costume, with 1930s props and atmosphere. It's a chance to take part in a fantasy adventure of your own. Also joining in the fun will be representatives from Infogrames and PC Review. Due to the nature of the prize, we have to restrict the mystery tour to those who are 18 years or older. If you're younger, don't worry, we won't discriminate against you for the runners-up prizes ... three winners who don't make it to Wales will get a copy of Alone in the Dark, the stunning new graphic adventure from Infogrames.

How to enter

You will need to flex your detective muscles on PC Review's own mini-mystery. The murder tale below may have been shorn of all descriptive gloss (and indeed, any pretensions to literary merit), but it serves its purpose — we need you to identify the killer.

Murderous mystery tour

Inspector Floggett surveyed the four suspects in front of him grimly. One of them, he knew, was the killer, and no-one was going to leave the room until he'd identified the guilty party. Surely he could trap the murderer into a confession.

"Well, Inspector, it can't have been Davis — he was miles away at the time," said Adams defiantly.

"Chandler here is the man you want," said Brown.

Chandler started from his chair. "How dare you accuse me, Brown! You're just covering up for your own guilt!"

Davis looked comparatively relaxed. "You don't really need me to add to this, do you Inspector? You must have worked it out by now."

Inspector Floggett nodded, although he didn't know if Davis knew what he knew: that Adams always tells the truth, Brown is a constant liar, and Chandler, while truthful enough when talking about himself, lies about others.

Who is the murderer?

When you think you know the answer, write it on the form provided, and stick that to the back of a sealed envelope or postcard. Send it to

Murderous Mystery Tour
PC Review
Priory Court
30-32 Farringdon Lane
London EC1R 3AU

The closing date for this competition is January 31, 1993. We'll announce the results in the April 1993 edition of PC Review.

Rules

- The winner of the two places on a Shadow of the Mine trip will be the first correct entry drawn at random after the closing date. The winners of Alone in the Dark will be the next three correct entries drawn at random.
- No entries received after the closing date will be considered.
- Only ONE entry per person, please.
- No employees, or their relatives, or associates of Hack & Slaughter Associates, Infogrames, or EMAP Images are eligible to enter the competition.
- The editor's decision in all these matters is unquestionably final.

Murderous Mystery Tour

The murderer is:

.....

Name.....

Address.....

.....

.....

.....

❑ Tick this box if you do NOT wish to receive any further information from companies associated with this competition.

Closing date: January 31, 1993

Please note: *Alone in the Dark is best enjoyed on a 386-based PC. Minimum spec: 286.*


1991
1992
1993
1994
1995
PC REVIEW

1993 and all that

Take a wide selection of PC leisure movers and shakers, ask them some pertinent questions about the way PC entertainment will develop in 1993, and stand well back. These are the people developing, publishing and packaging products for this market, so read on to see how they intend to shape PC games in the next 12 months

First though, a quick look back on what has undoubtedly been a great year for the PC games player. Never before has so much leisure software been produced, and against a background of falling hardware prices, highly specified PCs became ever more affordable. Perhaps more significantly though, in 1992, PC games-playing became respectable. No longer a fringe activity for those quick 20 minute breaks after work, games of depth, sophistication, and a high brain-taxing quotient – not to mention their sheer size – were released. It augurs well for the market that software publishers in Europe, not just the States, where the PC has a long and established home-use pedigree, are now prepared to invest in titles which will require two years or more of development, and we'll be seeing the fruits of these labours in 1993 and beyond.

The potential of PC games lies in the fact that it is a leading format on a worldwide scale. While here in the UK we are still gripped by console fever, and in the Amiga and Atari ST, have two very well-equipped leisure computers, the PC is still an emergent platform, rightly preferred by those who want a genuine all-round performer. Countries without the games machine tradition we've built up have already targeted the PC as a one-stop solution.

Thus, in 1992, we had Wing Commander II, which, whatever its faults, is a pointer towards the movie-style game which will become all-too-common (and easier to install and play) in the future. We have LeChuck's Revenge and Fate of Atlantis, perfect examples of LucasArts' SCUMM game engine used to create accessible, satisfying adventures. We have Falcon 3.0, stretching the hardware to its limits (beyond, in parts, judging by the bugs left behind) for a flight sim of authenticity and graphic excellence.

Role playing games, too, emerged from the constraints of table-top systems to produce friendlier, graphically attractive offerings. If Ultima VII overestimated hardware tolerance, then Shadowlands and Wizardry VII proved there are many ways to take this genre forward still.

Then there were the one-offs: Alone in the Dark, a beautifully crafted graphic adventure, which seemingly arrived out of nowhere; Jimmy White's Snooker (which must have knocked on the head



"The good thing about the PC from our point of view is that PC owner is less volatile than buyers for other formats: they're more mature, they have more money, and they buy their games throughout the year."

Geoff Heath, managing director, Mindscape



"PC games shouldn't be sold next to console stuff, but in bookshops, or places like Rymans"
Andrew Wright, Virgin Games

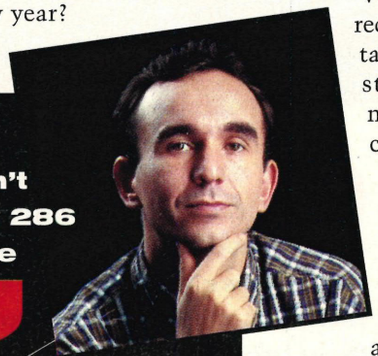


the idea that the PC 'can't do' a non-adventure, non-flight sim type of game); and Ultima Underworld, which grabbed the first person perspective dungeon idea by the scruff of the neck.

It was also a great year to be buying hardware, as the PC price war reached a climax. Here the prospects for 1993 aren't so great, as a number of manufacturers, such as Viglen, Dan and Elonex, have already decided to raise prices in the current economic climate.

While the people canvassed in this admittedly unscientific, but revealing, survey below expressed many different views about the way that PC games will develop, there is a clear impression of the PC entertainment market as more mature (older, not to put too fine a gloss on it), more discerning, more sophisticated. Companies such as LucasArts, Origin and Sierra have evidently been an inspiration in terms of the type of games that people want to own and play. As Charles Cecil at Revolution Software has remarked, UK developers all owe a debt to these publishers for giving them a standard to aim at.

What is also clear is that publishers are setting their sights high. In general, arcade screamers and bounce-a-minute Mario-style romps are distinctly out of fashion (dismissed as console fare by many) in favour of strategy games, simulations and graphic adventures reaching ever new presentational heights and levels of interactive gameplay. Happy new year? We reckon so.



"You won't see any 286 games this time next year"
Peter Molyneux, Bullfrog

What will be the minimum spec for PCs in 1993? Has the 286 had its day?

"For new games the 286 is dead. Although games will continue to work on a 286, the 386/486 will be the industry standard."

Geoff Heath
Managing director, Mindscape

"The 286 is effectively dead. We know from our Commodore Direct campaign that the 386SX is a bare minimum, and 486 prices are getting to the point where a 486 is a viable entry level processor."

Andrew Ball
Marketing manager, Commodore UK

"You just won't see any 286 games around this time next year. Things are so much easier on a 386."

Peter Molyneux
Bullfrog

"386 and VGA. To concentrate on the 486 would be premature — although I do know of some companies who are developing this way."

Gary Bracey
Software director, Ocean

"Everyone says the 286 is dead, but I'm not convinced. If a game plays well enough, then you shouldn't need all that technology for the game to be good. That side of PC development is going the wrong way. A lot of American programmers do it all in C, and you really don't need to do that. Instead of saying, 'let's try to get the best out of this machine', they say, 'oh well, let's up-rate the program'."

Eric Matthews
A Bitmap Brother

"Since we write games exclusively in 8086 machine code we already have a considerable speed advantage over our competition. We don't therefore consider it necessary to write 386 specific code which would exclude users with lower specifications."

Charles Cecil
Director, Revolution Software

"Virtually all our new products will require at least a 386. Experience has taught us that whilst there is a substantial user base on lower spec machines they are not prolific purchasers."

'Wild Bill' Stealey
President, MicroProse

"The US companies we're dealing with say that 4Mb RAM and a 386 is the lowest spec to write for. While this removes a lot of restrictions it alienates a lot of the UK market, so we're currently looking at 2Mb and a 286."

Kevin Bulmer
Managing director, DCD

Will CD-ROM take off in 1993, or is it still just so much hype?

"In 1992, a couple of the key retailers in the UK, Virgin and HMV, introduced specific CD-ROM bays into their stores, which is encouraging. I think in general, the CD-ROM market is about a year behind expectations — we thought 1992 could have been the year it took, now I'm saying 1993 *will* be."

Geoff Heath

"With a game like Guest, I can see why that's going straight on to CD-ROM, but if it just means big fancy intros, then I don't see the necessity for putting a game on CD-ROM."

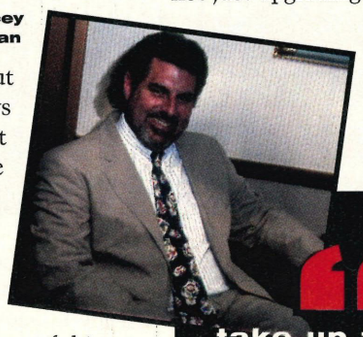
Eric Matthews

"Christmas 1994 may not be CD-ROM heaven, but it will be there. We're committing development to it, because Christmas 1995 will be *the* time for CD-ROM."

Mark Lewis
Marketing director, Electronic Arts

"CD-ROM will pull away from the launch pad but won't quite get into orbit in 1993. It should be a viable platform for introducing new titles, not just upgrading older ones."

Kelly Flock
General manager, LucasArts games



"Without question, CD is the way forward. It's just a matter of when — if anything, you're looking at the end of 1993, not the beginning."

"It is untenable that games can take up to two and a half hours to install, and then 20Mb-25Mb on your hard disk"
Mark Lewis, EA

Mark Strachan
Joint managing director, Domark

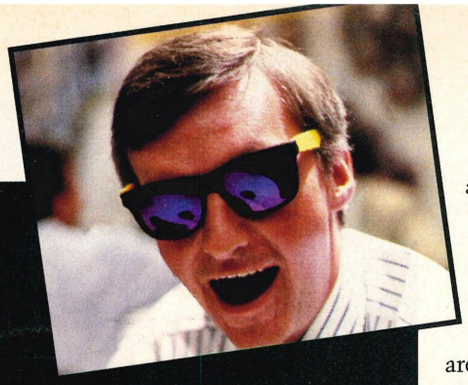
"Not until the Japanese all get together and produce a black box which will play laserdiscs, audio disks and digital disks. Until then it will continue as a niche medium."

Ian Higgins
Managing director, Entertainment International (Empire)

"Observing the success of the CD-ROM in the US at the moment (a minimum of 20,000 CD-ROM Incas to be sold in the US) we are confident that it will soon take off strongly in Europe."

Roland Oskian
Managing director, Coktel Vision

"In my personal opinion, the CD-ROM market is in a Catch 22 phase. The players are now cheap enough to make them viable, but there is not a critical mass of software to encourage pur-



"Fewer but better is the catch-phrase at Domark"
Mark Strachan

chase, and we can't produce originals for it conveniently yet because there aren't enough people to buy them. The appearance in a big way will be in 1994."

Richard Garriott
Origin Systems

"There are too many CD-ROM platforms. Most will die and one or two will go on to fame and glory. Everyone who buys into one of the obsolete platforms will be upset. All publishers who develop for the obsolete platforms will be upset."

Ken Williams
President and CEO, Sierra On-Line

Is there any chance at all of software prices coming down?

"Probably not. The amount of time and resources spent on a game counts for more than just the physical manufacturing costs, and PC games are getting bigger and bigger all the time."

Eric Matthews

"The 16-bit price point hasn't really moved from £25-£30 in the last five years, but development costs are now *much* higher, so you could argue that in real terms, prices are decreasing anyway."

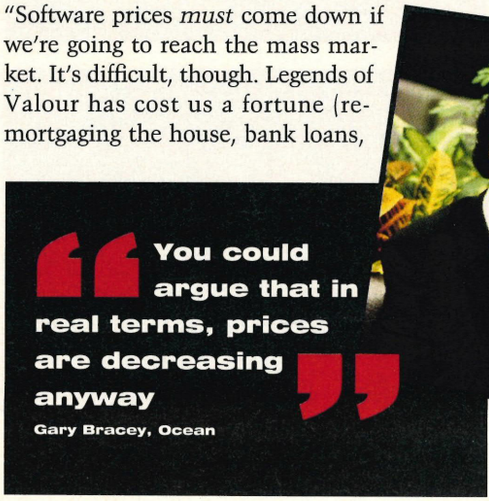
Gary Bracey

"Maybe. Maybe not if the dollar strengthens and the pound weakens, but really these are marginal costs. The marketplace is now bigger, and sales will decline if prices go up."

Mark Lewis

"Software prices *must* come down if we're going to reach the mass market. It's difficult, though. Legends of Valour has cost us a fortune (remortgaging the house, bank loans, and so on) over the last 18 months, so we have to sell a certain number of copies in order to recoup that money. But with, say, CD-ROM, you can encourage people to support it by bringing games out at a mid-price, say, £20-£25, and sell more. The development costs are higher, but CDs are cheaper to produce."

Kevin Bulmer



"You could argue that in real terms, prices are decreasing anyway"
Gary Bracey, Ocean

"If anything, CDs should be cheaper than floppy disks because it's far cheaper to produce one CD than six high density floppy disks. Also, the price of CD-ROM drives is falling and it will continue to fall."

Mike Weatherley
Sales and marketing director, Westpoint Creative

"Lower prices must come through having a larger market to sell to. It is not unusual for Sierra to invest over $1m to build and market a game — but you can price a game much lower if you expect to sell a million copies than if you are going to sell 150,000."

Ken Williams

Will the PC be a mass market, premier games format in 1993?

"It's a difficult time for the PC consumer at the moment — it is untenable that games can take two and a half hours to install, and then take up 20Mb-25Mb of your hard disk once installed. Great product, but the customer doesn't much like it and until CD-ROM does take off then you'll have great entertainment on your PC, but only with one game at a time on the disk."

Mark Lewis
Marketing director, Electronic Arts

"In Europe, it will be PCs and consoles ... and that's it. I *hope* the PC market will grow more than the console market, because the variety of PC games looks much better."

Eric Matthews

"The good thing about the PC from our point of view is that PC owner is less volatile than buyers for other formats: they're more mature, they have more money, and they buy their games throughout the year."

Geoff Heath

"Machines like the ST and Amiga are not growing, while the PC market has huge potential, which is largely untapped. Frankly, the distribution system for PCs is all wrong. PC games shouldn't be next to the console stuff, but sold in bookshops, places like Rymans, or special sections in W H Smiths."

Andrew Wright
Marketing manager, Virgin Games



"Sierra typically sells well over 100,000 copies of each of its titles and many sell in excess of 300,000 copies — few hardback books ever attain this level. If this isn't a mass market, what does it take?"

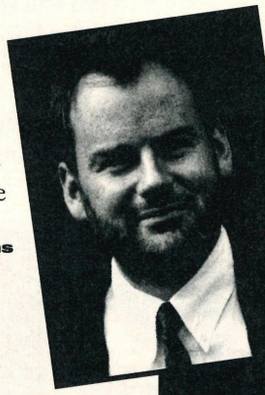
Ken Williams

"The market will grow, because the machine base is widespread, and the image of games has changed, from being seen as a childish pursuit, to a sophisticated, intelligent and rewarding experience."

Ian Grieve
Software producer, Psygnosis

"The mass market is the future of this industry, although games enthusiasts will conitnue to represent the core of our business for some time yet."

'Wild Bill' Stealey



"We don't consider it necessary to write 386-specific code, which would exclude users with lower specifications"
Charles Cecil, Revolution Software

What sort of games will we see?

"The console-style products, such as shoot 'em ups, will start to disappear, as the predominant software on the PC gets ever more mature — partly because PCs and consoles aren't an either/or buying decision, but often complementary."

Geoff Heath

"We're working on a first-format PC game for next year, which although it will look like a combat or action game, won't play exactly like one. It will be mouse rather than joystick controlled, and designed to be multi-player — and, er, that's all I can tell you about it at the moment."

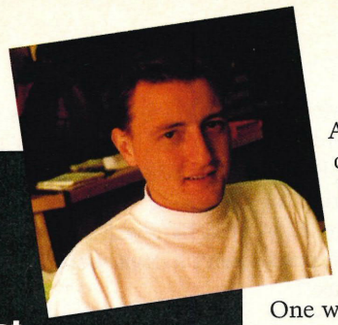
Eric Matthews

"We'll continue to develop our Virtual Theatre engine [as used in Lure of the Temptress] so that we can achieve our aims of beating our competitors in the graphics adventures category. Our next game is entitled Beyond the Abyss. We've spent over six months designing the background world and characters before any coding started. The game features the graphics of Dave Gibbons which gives the product a totally new look."

Charles Cecil

"SSI will be developing a new AD&D role-playing system to replace the Eye of the Beholder and Pools of Radiance systems. It's also looking at new simulation areas, at flight sims and graph-





"The image of games has changed to that of an intelligent and rewarding experience"

Ian Grieve, Psygnosis

ic adventures. You'll see SSI covering a much-broader games base in 1993."

Bob Malin, UK product manager, SSI

"We'll have our first PC CD-only game next year, which has a working title of John Doe at the moment. We also have a wonderful golf game which is as yet untitled, and yes, we'll be continuing with our licensed product — Jurassic Park, in particular, will be a major undertaking on the PC."

Gary Bracey

"We have three PC-originals due out in 1993, Creation, STP, and Syndicate, the last of which will be out at the end of February."

Peter Molyneux

"Fewer but better is the catchphrase at Domark ... probably no more than six titles and all higher end stuff. The days of coin-op conversions and arcade games on the PC are over — well, unless they're unbelievably brilliant."

Mark Strachan

"We'll be running towards high end PCs, and our acquisition of Westwood Associates gives us a strong footing in the fantasy role-playing area. Then of course we've invested very heavily in CD, and Guest will be out, er, sometime soon next year."

Andrew Wright

"Al Lowe will be introducing Freddy Pharkus, Frontier Pharmacist, a comedy western which Al describes as a 'funny interactive version of Blazing Saddles'. Roberta Williams will be introducing our first CD-only title, Scary Tales, an adult horror game with themes and visuals that people aren't exactly used to seeing on computers. One writer has referred to it as Mother Goose with a chainsaw.

"Dynamix will introduce four new flight simulators, beginning with Aces Over Europe, and also a full line of sports products. And we also have Leisure Suit Larry 6, Police Quest 4, and Space Quest V."

Ken Williams

"1993 will see the release of our first games for the Windows operating system, and enw titles due for early release are Fields of Glory, a Napoleonic war strategy game, Death or Glory, a dog-fighting simulations, and updated Pirate's Gold, and numerous others."

'Wild Bill' Stealey



"The mass market is the future of this industry"

'Wild Bill' Stealey, MicroProse

"Lord British will be publishing Ultima 8 in the fall of 1993 and Bounty Hunter in spring/summer 1994. The general idea will be to create more of the Ultima gameplay philosophy (not necessarily gameplay style), like Bounty Hunter, which is the first non-Ultima product taken into the science fiction arena."

Wayne Baker, Origin Systems

"Sound card support will become a standard, *not* an optional extra — perhaps with the sound hardware built into the motherboard. Historically, the Ad Lib card would just play a soundtrack. Now the Sound Blaster can offer sound effects and speech as well. "I think we'll see further developments in the way of wavetable synthesis and 16-bit sampling, but I also think that we'll see more in the way of real-time video, with CD as the delivery mechanism."

Mike Weatherley

"By this time in 1993, there will be a lot fewer computer suppliers. The recent price increases [in PC hardware] shows just how fine the margins are."

Andrew Ball

"Amstrad will continue to supply highly specified machines, but we won't be slashing prices just to get the things out of the door. The economic



"If it just means fancy intros, then I don't see the necessity for putting a game on CD-ROM"

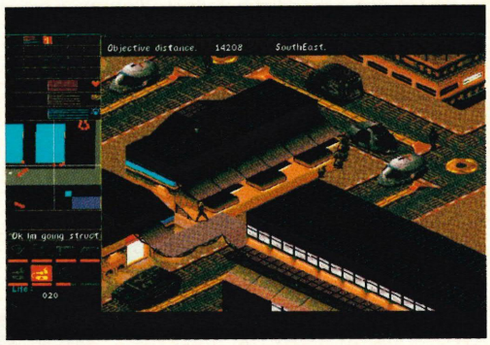
Eric Matthews, The Bitmap Bros

outlook is really gloomy at the moment, and until consumer confidence is restored it's hard to see any prospects for growth."

Nick Hewer
Spokesman, Amstrad

It's all Bill Clinton's fault ... "The arrival of Bill Clinton in the White House is one factor that will determine what happens in the hardware market in 1993. The Democrats traditionally tax and spend, and if he spends so that US interest rates go up, the dollar will get stronger, the pound weaker, and we'll all be paying more for parts. Since the pressure in the UK is to get interest rates down, I can see us moving towards dollar to sterling parity next year."

David Bridson
Spokesman, Elonex





Top: early screens from Bullfrog's Syndicate, and above, Beyond the Abyss from Revolution Software

What was new in '92

In	Out
Windows 3.1	Windows 3.0
CD-ROM	CD-TV
Inkjet printers	Dot matrix printers
Interactive movies	Interactive fiction
Bundled games	Bundled business software
Gourad shading	Wire frame graphics
Sound Blaster Pro	Ad Lib
PC Review	PC Leisure

How "GOD" are you?



Extremely challenging and very humorous

Easy to grasp but hard to master

Very fulfilling

"Instantly accessible strategy game with appealing graphics and entertaining sound effects. Easy to learn and get into, but difficult to master and eventually beat."

PC FORMAT







Conquer islands spread over 10 epochs ranging from prehistoric to futuristic level. At the beginning of each epoch you control one of the sectors and your aim is to conquer the others by managing your troops and your natural resources.

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Tel: (081) 343 9055

screen shots on IBM PC

Left... ...right fire!



Using your PC joystick

A joystick is a near-essential part of the games-player's armoury, but PC joysticks, like so may other PC add-ons, need a little care and understanding. Mike James explains how joysticks work, and how to get the best out of your autofiring monster

The PC's games port looked set for obsolescence (like the original PC's cassette interface) when the PC became the standard for business and so-called 'serious' computing. Only recently has the standard PC hardware caught up with what is needed for a good arcade game and suddenly the original PC games port and joystick is back in fashion.

How it works

A standard joystick interface consists of a games port adapter and the joystick itself. The games port adapter is usually part of a more general expansion card along with serial and parallel interfaces. If your machine hasn't got a games port then you can buy one for around £10-£20 and plug it into a free expansion slot. Installation is easy because there are no switches to set on the board — the games port is one of the few completely standard things on a PC!

Although the joystick is the more visible partner in the team the games port really does all the work. It contains the electronics needed to sense the state of four different switches — fire buttons to you and me — and the value of four different resistances. In a standard joystick, there are two fire buttons and two variable resistances — one for the X axis and one for the Y axis, so you can see a games

port can support two complete joysticks. However most games cards only ever work with one because of difficulties in actually connecting the second stick — see the panel on this page.

The way that the fire buttons work is so simple and trouble-free that apart from considerations such as 'autofire' facilities there is little to worry about. It is how the position sensing works that is more interesting and often more troublesome. A single joystick has two variable resistors, similar to volume controls. As the stick is moved left to right (the x axis) it alters one of the variable resistors and as it moves up and down (the y axis) it alters the other. By measuring the resistance of each variable resistor in turn, the machine can discover where the stick is positioned. So far, so simple, and really the only complication at this stage is exactly how the stick can be made to move the two variable resistors without undue force or friction.

Where life becomes a little strange is in the way the PC measures resistance. What happens is that the resistance in the joystick is used as part of a timing circuit in the games adapter. The PC switches the timer on and then waits until the timer signals back that the time interval is complete. The timer is constructed so that the interval depends on the resistance in the joystick. Now do you see how this convoluted method discovers the position of the joystick? The PC turns the timer on and then sits there waiting for it to signal that the interval is up. The longer the interval the higher the resistance. The PC times the interval for itself and the value that it gets is proportional to the resistance, which is in turn proportional to the position of the stick. The time interval ranges from almost zero to just over one millisecond (ie, one thousandth of a second) if you are using a standard games port and joystick (the variable resistance has to be between 0 and 100).

There are four timers in every games adapter and the PC can trigger and measure the interval for all four in one simple action. So this method of making a joystick work does have certain advantages but there is plenty of scope for getting it wrong.

Too fast

This use of a time interval to measure position is the cause of the most common joystick problem — the too-fast machine. There are still games that work erratically if you try to run them on a latest generation machine simply because the machine is too fast.

The real problem is how does the PC measure the timer interval? Many early programs that used the joystick simply counted up from zero until the time interval was over. The final value of the count was proportional to the time interval. Neat solution? Yes, but disastrous. The value of the count depends not only on the length of the interval but how fast the machine can count. This results in erratic joystick performance on machines other than the one that the game was intended for. This is the reason why some games cards have a switch that can be set to 'low', 'medium' or 'high'. This switch alters the time period in an attempt to produce the same count no matter how fast the machine is running. It sometimes helps but it isn't an exact science. Without a 'speed adjusting' games port the only thing you can do is to slow the whole machine down using the Turbo button or its equivalent.

The correct way to do the job is to use the real time clock that every machine has. In this case the number that you get doesn't depend on the speed of the machine at all. In other words when software does the job of handling the joystick properly there is no real need for 'speed adjusting' games ports. Even so if you have got one selecting high speed could give you a slightly more responsive game because the time interval needed to find the joysticks position is less.

Calibration

As programmers become increasingly familiar with the way PC joystick input should be handled so many of the problems tend to fade away. For example, back in the early days programs assumed that an IBM joystick and games card would produce a standard range of time intervals. In practice this wasn't true because of variations in the way that the variable resistors were made. This resulted in off centre positioning. You would centre the joystick but whatever it was that you were controlling wouldn't be in the centre of the screen. To correct this trimming resistors were added to most joysticks. These could be used to alter the resistance of the centred joystick to bring what was being controlled into the centre of the screen.

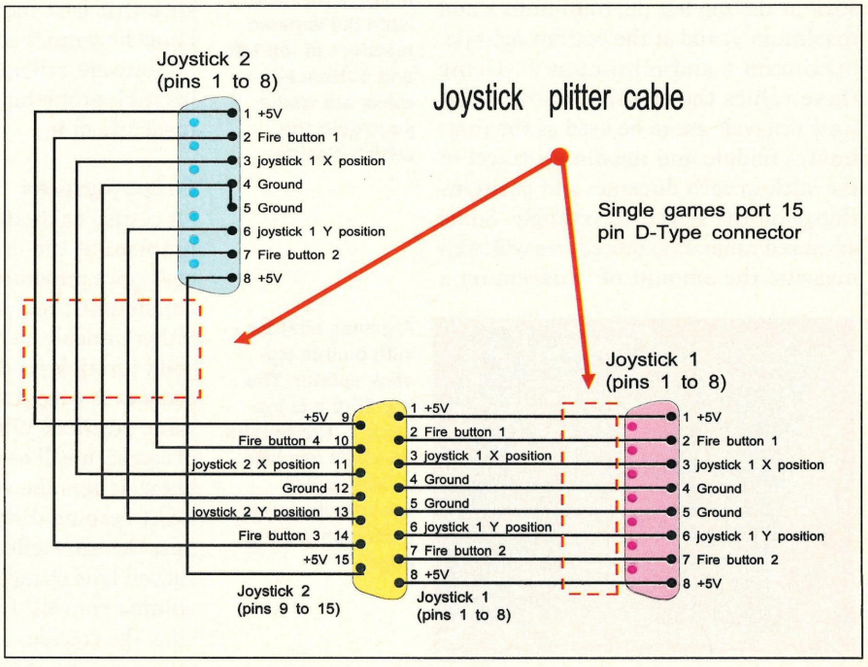
Trim controls work fine but they only

Some kind games port adapters have solved the problem of two joysticks by duplicating the 15 pin D-Type on the back of the adapter card — one for joystick 1 and the other for joystick 2. This is really nothing more than a built in splitter but it does save time and effort if you want to use two joysticks.

It is also worth mentioning that a flight yoke is nothing more than a single standard PC joystick packaged in a different way. Although they look more complicated they do not need a dual joystick connection. Indeed if you have a flight yoke for use with Flight Simulator 4, you can connect your original joystick as number 2 and use it to control the throttle and rudder. This is exactly how the special foot pedals for flight and driving simulations work, ie, as joystick 2.

Two joysticks

The standard joystick connector found on all games adapters is a 15-pin female D-Type. The majority of analogue joysticks intended for the PC have a matching 15-pin male D-Type. As long as you only want to connect a single joystick this is no problem but the 15 D-Type on the back of the games port has connections for two joysticks. The question is, how do you get at the second set of connections when a single joystick is hogging the whole connector? The answer is a joystick splitter or Y cable that plugs into the games port and duplicates the 15-pin female connector. Using this you can plug in two identically wired joysticks and use one as joystick 1 and the other as joystick 2. You can get a splitter from a number of sources (Westpoint Creative for example) but if you are adventurous enough to want to make your own then the pin connections are:



Paul Presley's five favourite sticks



The Flightstick
When it comes to flight simulators, you can't go far wrong with a Flightstick. Although it's not as comprehensive as a yoke, the Flightstick scores in that it supports just about any game and is just so smooth, responsive and easy to use. The only bad point is the slightly dodgy throttle wheel which just seems to have been added as an afterthought to the rest of the stick.



The Gravis Mousestick
When I first heard about the Mousestick I thought "This can't possibly work". On using the thing though, I have come to the conclusion that not only does it work, it works beautifully. The Gravis is one of the most elegant sticks you are likely to use, very sturdy, extremely responsive and perfect for those of you without mice. It does need its own joystick card to be installed, though.



The Free Flight
As joysticks go, this is definitely unique. Consisting of simply a long shaft with optical sensors and no base, the Free Flight is actually a lot easier to use than you'd think. It is very responsive and next to the Flightstick provides the most realistic feeling of flight yet. There is also an optical steering wheel available for driving simulators which works just as well.



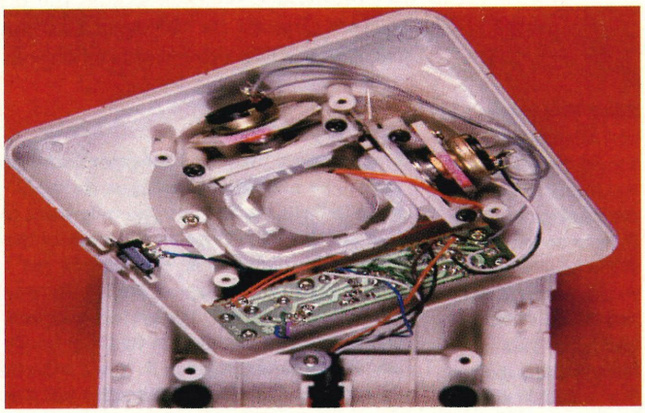
The Sting-ray
If you have access to a joystick converter box (allowing you to use standard 9-pin sticks on your PC) then my own personal favourite is the Sting-ray (although I must admit to being in a minority when it comes to its supporters). It may look cumbersome but for playing mindless shoot 'em ups that need fast reactions, the Sting-ray has served me well for a long time.



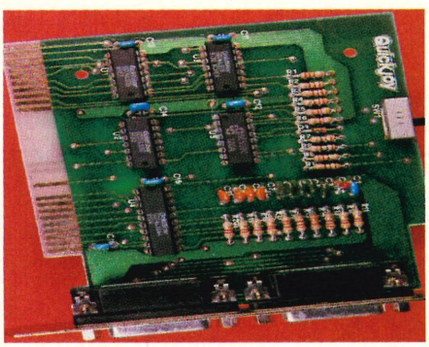
The Total Control Stand
Although not actually a joystick, the TCS provides the perfect base for anyone with even a passing interest in flight sims. Using Velcro pads to attach your favourite stick to its top (in my case the Flightstick) and positioning itself between your legs (no rude comments please), it is comfortable, frees your other hand for keyboard control and works better than it sounds.

allow you to correct the joystick to the centre. They don't do anything for the upper and lower limits of travel. For example, using this system it is perfectly possible to discover that while the center of field is OK you cannot reach one or more edges of the screen because the joystick doesn't have enough travel. The solution to this problem and to the centring problem is software calibration. The way that this works is that the software asks for the joystick to be centred and then it reads and remembers the time intervals that correspond to this position.

The same trick is repeated with the joystick at the top left (ie, minimum x and maximum y) and at the bottom right (ie, maximum x and minimum y). Using these values the program knows what time intervals are to be used as the minimum, middle and maximum travel of the stick in each direction and positions things on the screen accordingly. Some advanced calibration procedures will even measure the amount of variation on a stick that isn't moving just so that they know how much to ignore.



Inside a joystick. Note the variable resistors at top left and bottom left – these are where you squirt the switch cleaner.



A games adaptor with built-in joystick splitter. The top 15-pin is joystick 1. The bottom 15-pin is joystick 2. Notice the speed adjustment switch on the top edge.

Software calibration solves nearly all joystick problems — if only all games made use of it.

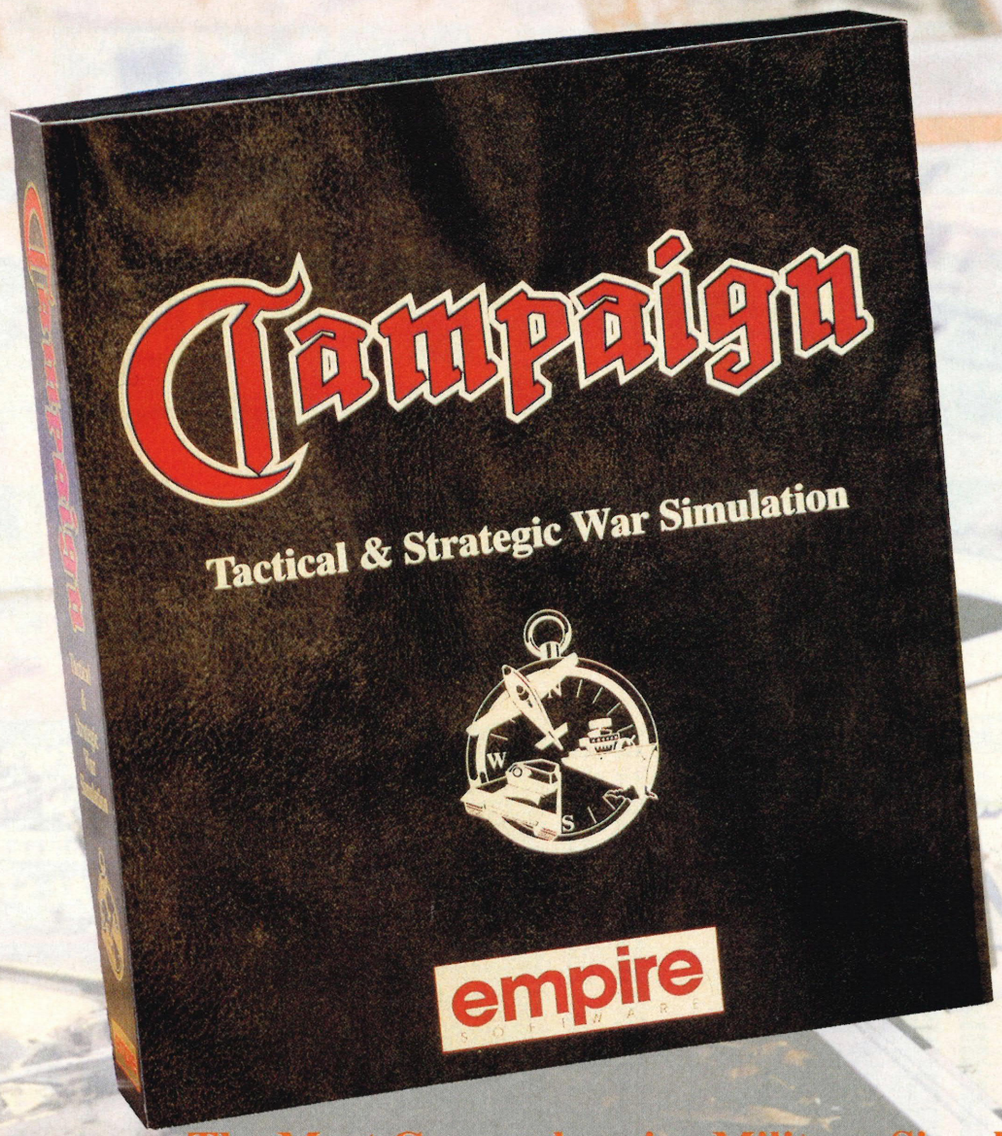
Erratic joysticks

Of course calibration doesn't solve the problem of the erratic joystick. If the resistance presented by the joystick isn't consistent then positioning becomes rather difficult indeed. In other words, a good joystick produces the same resistance each time you place the stick in the same position. When a joystick is new, of course, it will be reasonably consistent, but as it ages the variable resistors at its heart become dirty and worn. You can hear the same effect in the crackles and sudden level changes produced by an aged volume control. In the case of the joystick the crackles and level changes produce a random jumping of position that makes even the best game frustrating. Sometimes the level changes with position can become so great that you have to go back and recalibrate the joystick because the resistance at the center has changed so much.

The cure for a gunged-up joystick is exactly the same as for a dirty volume control — a shot of contact cleaner and lubricant. You can buy this in spray cans from most electrical shops. It is easy to use, just spray it into the variable resistors and move them around, but the difficult part is getting at the variable resistors. If you have a joystick that is really bad then you have nothing much to lose by opening it up and squirting some in. Remember though, most joysticks have a guarantee which is invalidated if you open the case!

Don't become too enthusiastic a cleaner of joysticks because each time you do it you shorten the time until it becomes necessary to do it again. Also notice that a good joystick will work for a very long time before showing signs of wear — just think how long a volume control works before it starts to crackle. Notice also that some joysticks don't make use of standard rotary volume controls (see this month's Q&A on page 133) and in this case cleaning may make the situation worse by removing any special lubricant that the maker has used. In other words — if it ain't broke, don't fix it!

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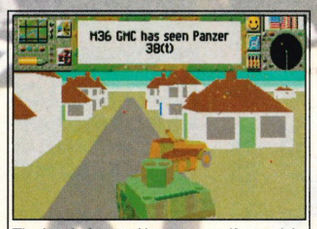
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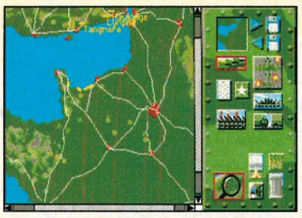
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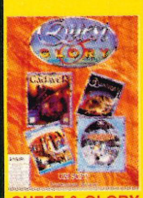
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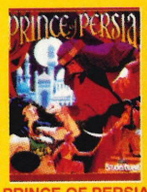
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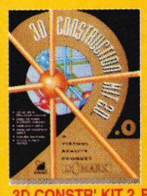
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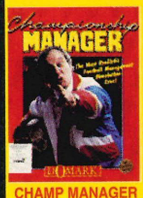

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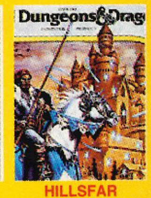

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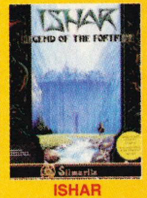

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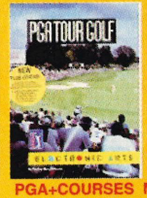

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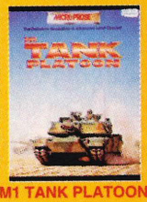

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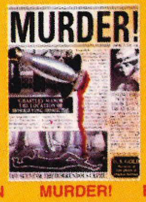

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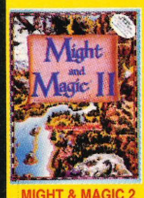

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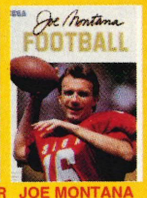

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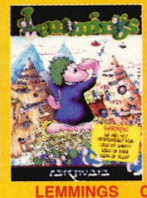

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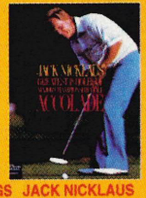

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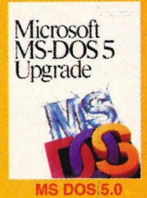

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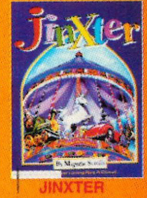

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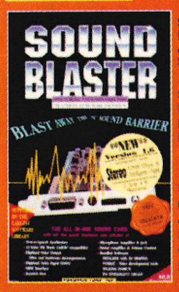
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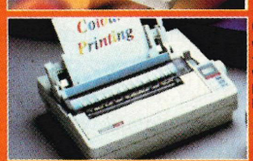
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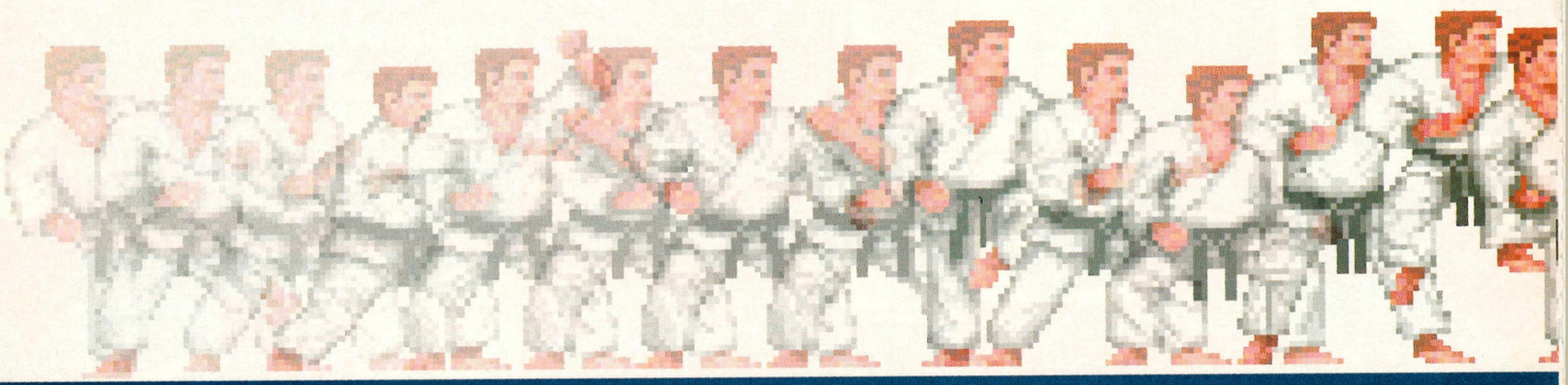
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The first two parts of this series on graphics showed you how to create effective illustrations using your PC. Now it's time to breathe some life into them, as Jonathan Inglis explains the principles of animation and gives some practical advice

If the personal computer has captured the imagination of so many of us then much of the credit must go to the animated graphics it can display. Although computer generated animation has been around for years the limitations of processing power have until recently made it the exclusive preserve of the code junkie. Fortunately, the new generation of PCs makes life much simpler for a budding Walt Disney. If ever there was an ideal combination it just has to be computers and animation, the perfect marriage between technology and art.

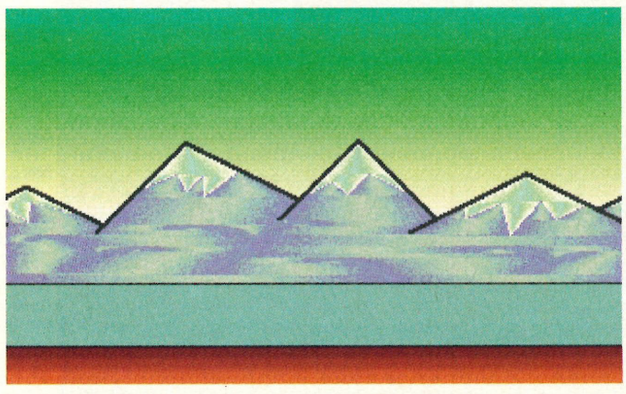
There's a wide range of packages to choose from, many of them aimed price and power-wise at the professional. At the other end of the price range, however, there are several very good packages. In this, the third part of my series on computer graphics, I'll be looking at Deluxe Paint Animation, currently on the market at £99.

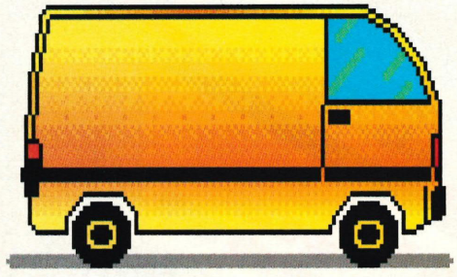
Deluxe Paint Animation is closely related to the drawing package Deluxe Paint II. Those of you familiar with the Amiga will recognise that the Amiga version of DPaint already incorporates many of the features in DP Animation. Sadly, as yet there's no support for sound effects, an important ingredient of the best cartoons, but nevertheless this is an excellent package. It's simple to use and makes an ideal introduction to the whole business of moving pictures.

Before you start though, a few words of caution. Walt Disney employed whole studios full of animators, some of whom would spend a whole year creating a three minute sequence, only to find that it ended up on the cutting room floor. So don't go too mad yet and start planning for the Hollywood launch of your version of the latest Terminator epic. Full blown animation is a complex task. Although the temptation must be to try and imitate cartoon style movement of the Mickey Mouse variety, do remember that animations can be much simpler. Using words and simple geometric shapes can create very effective results. If you're looking for ideas, don't just look at Disney, look at the opening credits for TV programmes and advertisements too. These make much use of bold, often abstract effects. So, to begin with, keep it simple. Far better to attempt more modest effects, making the most of the special features offered by your program.

The best thing about computer-based animation is that you don't need to create all the elements of a finished sequence at one go. At any stage in the production process you can add to an existing animation. You can begin with a simple idea, such as a rolling background and then add characters, logos, explosions, etc, once you're satisfied with the results. Frequent saving of an animation means you can experiment with new variations without losing earlier versions. Once you start you'll fast discover why computer technology is such an ideal medium for animation.

Although you can follow a step by step approach such as the one outlined below it's





Elements of the animation. Left: the background, which remains static throughout. Above, the truck which will appear to ride along the road.



Moving pictures

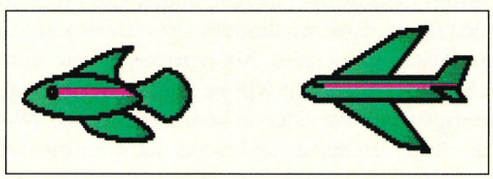
important to recognise that each stage represents a specific aspect of the program. How you combine them together is very much a matter for you to choose.

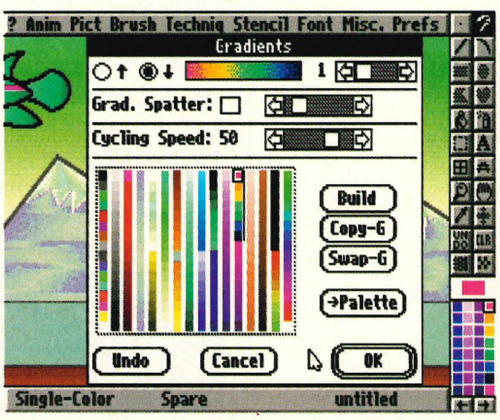
Deluxe Paint Animation operates on a very straightforward basis. An animation is effectively no more than a series of screens displayed in quick succession. There are a number of ways of creating an animation. At the most primitive level, it can be drawn frame by frame. This is relatively slow and laborious. To make life easier DPaint Animation incorporates various features to speed up the process.

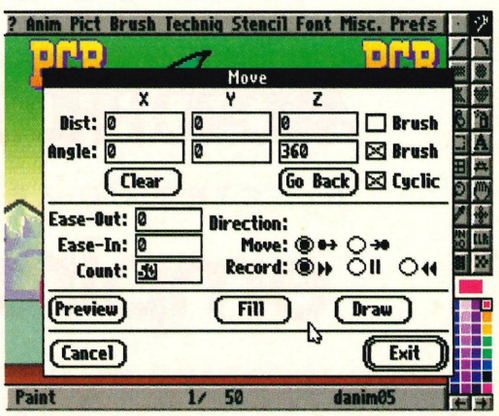
Characters, or distinct elements can be created separately and added to each frame as you flip through the screens. By placing these 'brushes' at different places on each frame the illusion of movement is created. In addition, a series of submenus allows you to enter specific numeric parameters which define how a particular element may move on screen — enabling titles, for example, to spin round or zoom in and out. The animation that follows demonstrates some of the main techniques available in Deluxe Paint Animation.

A common feature of many cartoon films is a background that rolls or 'scrolls' continuously across the screen. To create a suitable backdrop, a background is drawn so that both left and right hand edges match. Using the scroll sub-menu, the parameters of the scrolling are set to move the picture 320 pixels (the width of the screen) horizontally and zero pixels vertically. The duration of the scroll is set to 50 frames. When the picture is scrolled the effect of seamless movement is created. Before playing back, the optimise command is selected. This optimises the smooth playing of the animation, reducing jerkiness to a minimum. Images can be scrolled vertically, horizontally and even diagonally.

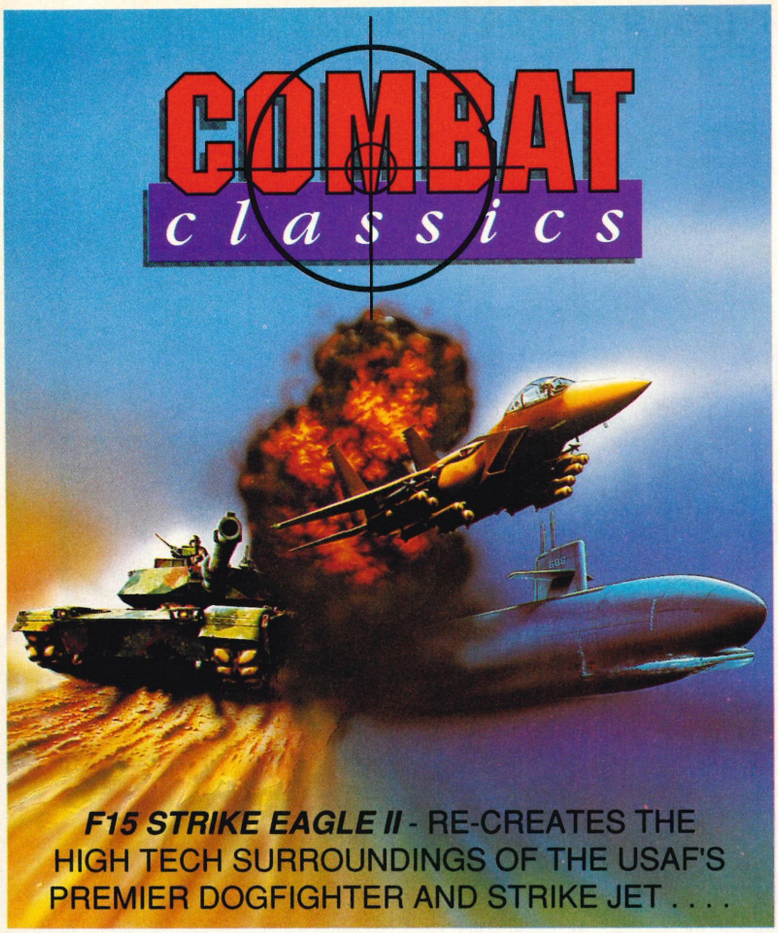
The next stage involves creating a van to roll along the road. This is drawn on the program's spare page. Notice the shadow which helps to marry the two elements, road and van and add an extra touch of realism. To turn the van into an 'brush', which allows the van to be pasted over the animation, the brush menu is selected and the van is cut out. Turning back to the main screen and pressing the number key 2 causes the animation to flip through, frame by frame. Clicking on the mouse pastes the van on to the landscape. Altering the position of the van slightly on some frames helps to give a bumpier feel to ▶ the ride and heightens the effect of movement.







Above, the fighter plane and fish are drawn and then saved as a brush. Right, using the gradient and move menus you can cycle colours to give the appearance of movement.



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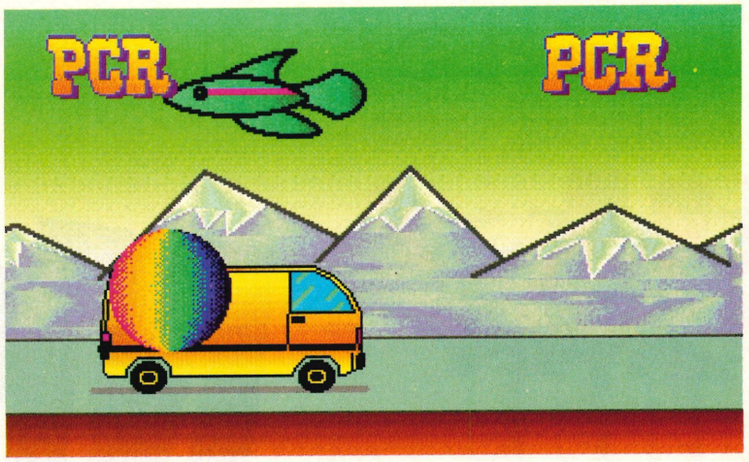
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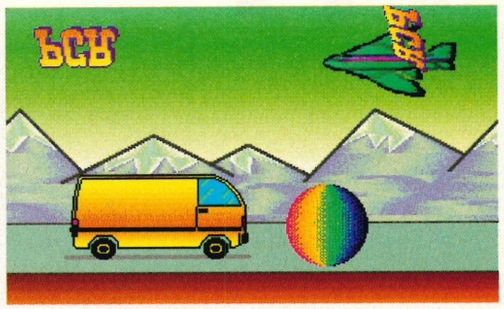
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All the elements in place: the PCR logos rotate, the plane metamorphoses, and the bouncing ball spins independently of the truck. Surreal, huh?

▶ One of the most interesting features of Deluxe Paint Animation is the 'metamorph' option. It can be used to create a smooth transition between two images, in this case a fighter plane and a fish. Each is drawn and then saved as a brush. Selecting the metamorph option the program then draws the intervening stages between the two and saves the results as an animbrush. By pressing the Alt key the brush then flips through the frames of the animation and pastes each successive stage of the animbrush on to the animation.

As well as moving shapes across the screen you can also create the illusion of movement by animating the palette using a technique known as colour cycling. The next element in the animation — the bouncing ball above — appears to spin round because of the cycling of the colours within it. To achieve this effect a gradient fill was created from the palette sub-menu with a speed setting of 50 and, before running the animation the cycle option is selected from the technique menu.

Now for the final touch, the finishing flourish even — the spinning logo. The logo itself is drawn, saved as a brush and pasted on to the animation. Selecting the move option sub-menu allows a number of 3D movement effects to be chosen. For example, entering a figure of 360 degrees spins the logo around its axis.

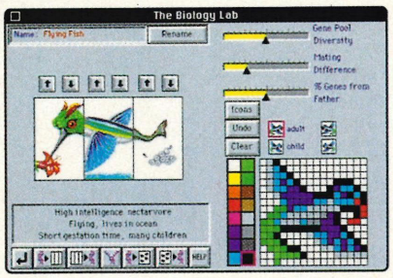
Although primarily an animation package, Deluxe Paint Animation has many potential applications. For example, since it can be controlled from the keyboard the program can be used for presentations. How about a demonstration of how plants grow, or a machine works or even to present a graphic novel?

If you're not exactly certain of your own artistic ability the program comes supplied with a varied range of its own animbrushes which you can paste on to any of the animations you create. Alternatively if you manage to get hold of a frame grabber then you will be able to incorporate sequences of freeze frame stills from live video in your animations. Why not capture your favourite video sequences and build them up into an animated scapbook?

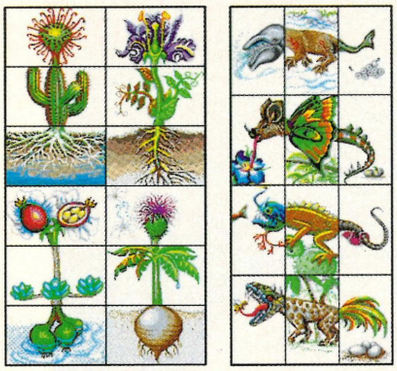
NB DPaint Animation will run on any machine with a VGA card, ie, it doesn't require a 386 based PC with extended/expanded memory. The program only supports one mode 320 x 200 in 256 colours (which is a major limitation in some ways).

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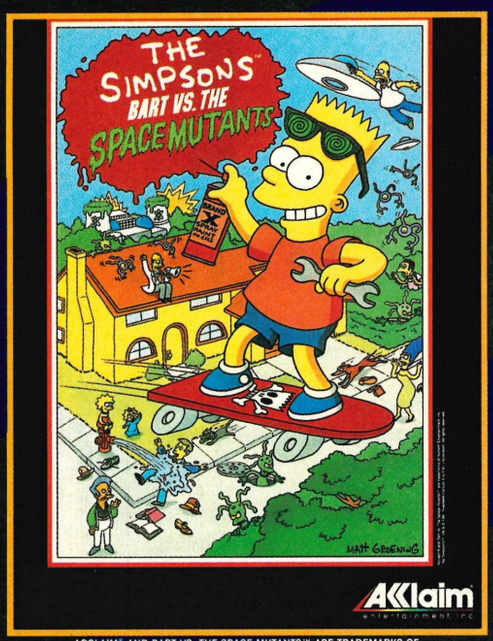
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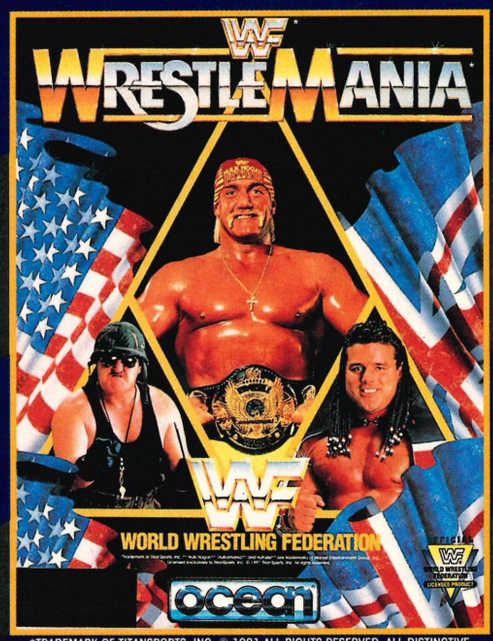
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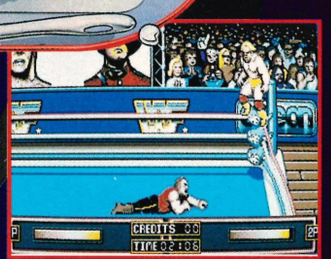
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ON THE SPOT

Long-haired Lemmings from Liverpool

Four PC Review readers joined us for a day out at the offices of Psygnosis, in Liverpool, for game previews and interviews with Psygnosis's testers, designers and marketing personnel

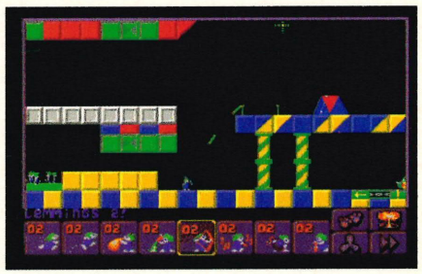
Psygnosis was founded in 1985 by Ian Hetherington and Jonathan Ellis, with a brief to develop sophisticated games for the then very new 16-bit market. Its first title, Brattacas, stole the show at the autumn PCW exhibition in 1985, and it notched up further success with Shadow of the Beast and Blood Money. Psygnosis enjoyed a cult rather than mass following, until 1990 when Lemmings became a massive worldwide best-seller. And while Amiga and Atari ST owners were playing Psygnosis's graphically-led adventures long before Lemmings was conceived, the suicidal rodents were probably the first Psygnosis game encountered by PC players.

Psygnosis is currently developing titles specifically for the PC, but it has also made a major commitment to CD-ROM and is working on a number of CD-ROM projects which it is keeping firmly under wraps at the moment. The PC Review party was treated to a viewing of some very early CD demos put together by the company, but further revelations are going to have to wait until next year.

The main attraction of our visit was undoubtedly the extended preview we were given of Lemmings 2, with early versions available for playing and testing. The On the Spot visitors were also given the opportunity to quiz Psygnosis's game testers and graphic artists — even though tearing them away from Lemmings 2 proved something of an obstacle.







Lemmings 2

Dundee-based DMA Design has stuck with the fundamental Lemmings concept: the lemmings will march on regardless and will fall down holes and get blocked by walls unless you do something to clear their route to the exit. But the procedures for rescuing lemmings have become more intricate, there are new types of lemming 'worker' you can call on to help, and Lemmings 2: The Tribes features vertically scrolling levels as well as the horizontal screens.

Rather than rescuing a long series of anonymous lemmings, DMA has concocted the 12 lemming tribes, each of whom has its own characteristics and gameplay procedures and appropriate graphic backdrops and music. Thus we have circus-lemmings, beach-lemmings, snow-lemmings, shadow-lemmings, and so on, which may come as a surprise to David Attenborough, but offers some refreshing variety to the gameplay.

Circus lemmings, for example, march over screens of brightly striped tents, and see-saws over barrels, with well-known circus music cascading over the top. This is one of the screens in which you can manipulate lemmings into becoming balloonists (assign balloon to lemming, watch him blow it up and float off up-screen hanging on to it. Next, select the fan from the on-screen icons, and position it near the ballooning lemming so that it blows him in the right direction. Otherwise, he'll just keep floating up out of sight and into lemming oblivion.) There are a number of ways to bring down a lemming on the end of a balloon, but one of the surest is to assign another lemming as an archer and have him fire an arrow into the balloon.

One way of securing the passage of some of the lemmings in the circus level is to fire them into the safety zone out of a cannon, which you'll find, handily enough, waiting around on the level to be used. This is one of the level-specific features designed to be in keeping with the circus theme.

Move on to the beach, and suddenly the lemmings are cool and laid back — and still stomping inexorably on to certain death. Beach Boys style music, predatory giant clams and sunshades play a part in this level, which is primarily a vertical-scroller.

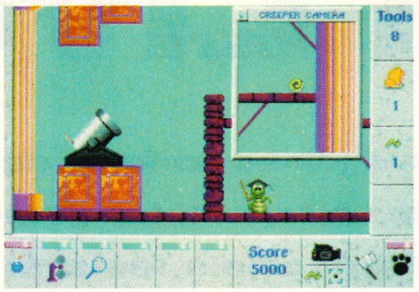
The shadow lemmings inhabit an eerie industrial wasteland, and as the name suggests, the lemmings and the backdrops are seen only in silhouette — lemmings in perpetual twilight. This is a surprising level to come upon unexpectedly, since it's so different in atmosphere and graphic style to the others.

The PC Review players were engrossed by Lemmings 2, but expressed a few doubts. Darren, in particular, felt that the decision to drop the option to blow all your lemmings up was a drawback.



The coiled worms on the horizontal bars are your creepers: they need to be able to make a safe passage across the screens.

Use the various tools at the foot of the screen to facilitate their progress.



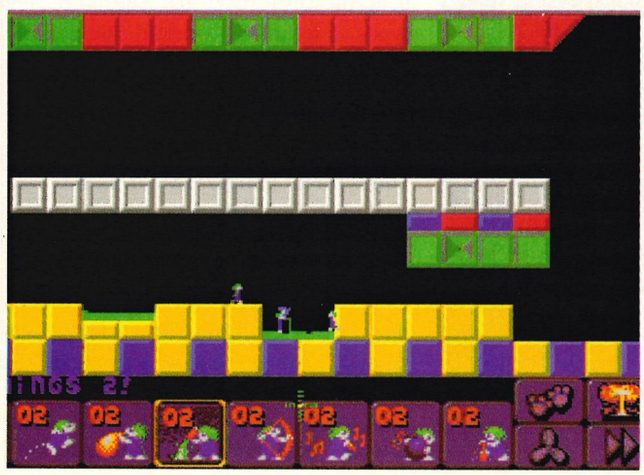
Creepers

Although Creepers looks as though it was inspired by Lemmings and therefore should be targeted at the same market, it was actually developed by American outfit Destiny Software. In this game, you need to manipulate caterpillars (the creepers of the title) from one side of the screen into a bucket on the other. It's colourful, with large clear graphics and will probably appeal enormously to younger players.

Armour-geddon

Dave Pollard spent a good while on this early PC version of Psygnosis's 3D polygon-based simulation, in which you can use a land, sea, or air-based craft in order to find and destroy parts of a neutron bomb and thus prevent Armageddon from taking place. The graphics are smooth and curiously pastel-shaded on-screen in this conversion, due out early next year.

Below: the new 'filler' lemmings will pour quick-set cement into any on-screen gaps in order to keep the other lemmings moving towards the exit.



In conversation

After game testing, and the party's individual talks to game testers and graphic designers, it was time for the On the Spot question and answer free for all, as the visitors fired questions at Mark Blewitt and Maggie Goodwin. What follows are selected extracts from the general Q&A session:

DC: Why does Psygnosis seem to produce games without any cheats in or anything?

MB: With many games, you'll find there are cheats in them, such as codes which you type in on the keyboard. These codes aren't published, and sometimes, the programmers will remove them from the final version of the game. But many games do have these codes.

MB: If you ring the helpline at Psygnosis and ask them for a cheat, I'm sure they will give it to you.

DP: With the Psygnosis helpline, is that a normal call or one of these peak hour things?

MB: No, it's just the charge of the call.

DC: I know other companies have tried to do this but they don't always know everything about each game ...

MB: We have our games testers who usually take the calls, because they know all the games inside out, and so they could take you through any game you wish without losing a single life. They can tell you how to clear each game, and all the cheats as well.

DC: Who was the guy who came up with the idea for Lemmings?

MB: It was a programming team called DMA, they're up in Dundee. Although they wrote Lemmings, and of course Oh No! More lemmings and Lemmings 2, they also developed Blood Money. We act as the publisher, you know, just as a book publisher. The product managers, or producers, as we call them here, each of them has their own teams that they like to work with, and then sometimes new teams will come along.

MG: Mind you, we did turn down Lemmings at first. Twice actually. Luckily we decided to take it on the third time.

DP: You say that Lemmings 2 will be more 'friendly', but I thought it was things like blowing all the lemmings up which really made the game. Why have you done it?

MB: Well, there are lots of things in Lemmings 2 that you didn't have in Lemmings 1: the vertical scrolling, the cannons, the items the characters interact with and there are still lots of nice sound effects in there, such as Lemmings squealing "Ow!" when they fall from a great height. If you want to be sadistic to your lemmings, there's lots of room in Lemmings 2 for that.

DC: Lemmings 2 is two dimensional — will there be a Lemmings 3 in 3D?

MB: I don't know. There's no plans at the moment — it would be a good idea.

DP: What's the origin of the name Psygnosis?

MB: It's a corruption from the Greek for 'mind games'.

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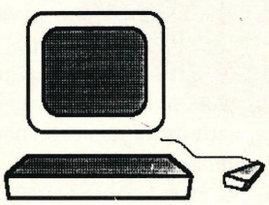
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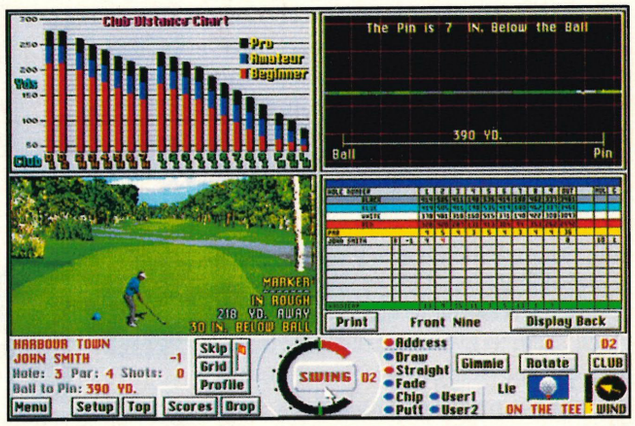


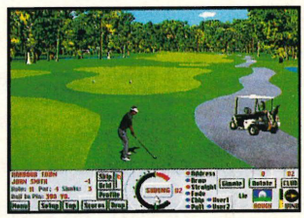
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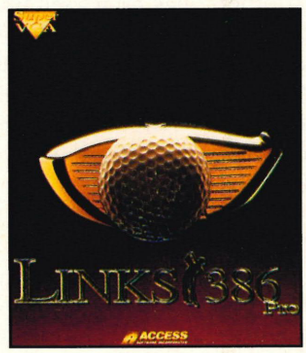
Links 386 Pro. The rest are strictly amateur.











There are other golf simulation games.

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All of the features on Links 386 Pro leave other games flailing in a bunker of mediocrity. With over 345 different options of viewing windows you are able to set up the screen the way you like it, perhaps showing profile from ball to pin, the leaderboard and the club distance chart. You can even choose the colour of your golfing attire!

But the real beauty of Links 386 Pro is that it's simply great fun to play around on. Again and Again.

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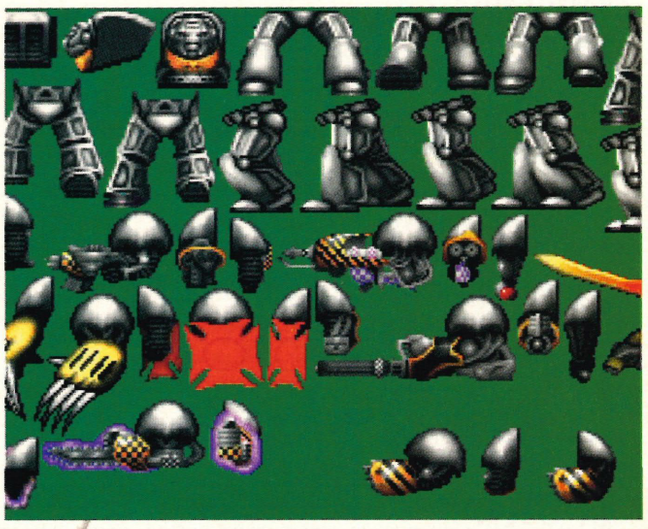
A serious PC experience

SCREEN SHOTS ARE ONLY INTENDED TO BE ILLUSTRATIVE OF THE GAMEPLAY AND NOT THE SCREEN GRAPHICS WHICH VARY CONSIDERABLY BETWEEN DIFFERENT FORMATS IN QUALITY AND APPEARANCE AND ARE SUBJECT TO THE COMPUTERS SPECIFICATIONS.



The actions screen shows the views from all five squad members at once. You have directional control for only one of them, but you can fire on any screen.

The space marines have a suitably macho-mechanic look, as can be seen in this sprite file. Eat your heart out, Ripley!



Title:	Space Hulk
Publisher:	Electronic Arts
Contact:	(0753) 549442
Release date:	January 1993
Genre	Board game conversion
Price:	£34.99

Space Hulk

Converting a board game to computer formats is easy, making it a better game in the process is not, but that hasn't stopped Games Workshop from giving its space combat tabletop game a whole new lease of life

Role-playing systems and fantasy board games are obvious candidates for the conversion to computer games. The games environments are usually easy to recreate given the graphics and sound capabilities of modern computers, and they have a rigid rule system which is easily translated to a playable game. The problem is that computer versions of board games very rarely seem to go beyond the basic material, and too many development houses are content with just emulating it. The Heroquest and Spacequest games, and early AD&D conversions are just a couple of examples of this syndrome.

Having recently acquired a licence to Games Workshop's cult Warhammer 40,000's rules, Electronic Arts seems determined not to waste it in the same way. Set in a fictional universe, Warhammer 40,000 began life as a tabletop skirmish game, in which two or more players could fight battles with miniature figures. Space Hulk takes that background, and puts it into context of space, and ships on which the players fight boarding actions.

Philip Gallagher, Games Workshop's licensing manager takes up the story. "At the time we were developing the rules, the film Aliens was very popular. We already had a background for an alien race that was very similar, so we decided to make these the opponents for the Space Marines in the game."

These are the genestealers, horrific parasitic creatures which take over other beings rather than reproducing. The space marines are an elite corps assigned to enter the derelict wrecks of spacecraft and rid them of the alien hordes.

The computer version of Space Hulk has taken on board all of the best elements of the table-top game. It has a unique line of sight rule which means that genestealers only appear as blips until they come into sight. So while you always know where they are, you can never be quite sure how many there are.

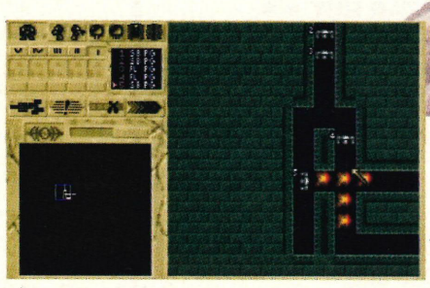
Another original feature of the board game is the time limit. Each model has six action points, and each of the possible actions uses up a number of points. The player controlling the space marines has just two and a half minutes to move his squad before the genestealers attack.

The EA team has been very clever in its implementation of this feature, and have introduced the concept of freeze time, during which the action is frozen and the player free to plan moves on the overhead strategic map. Once this time has been used up, the player is thrust back into the real-time 3D mode and must cope with the onslaught as best as he or she can. While the real-time mode is running, the player earns more freeze time to use as and when he or she likes.

In addition the computer game uses all of the weapons featured in the original board game and most of those featured in the two expansion sets. There are also some additional scenarios and a range of training missions which introduce the player gently to each aspect of the game. Just about the only rule the conversion does leave alone is the new one for psychic combat.

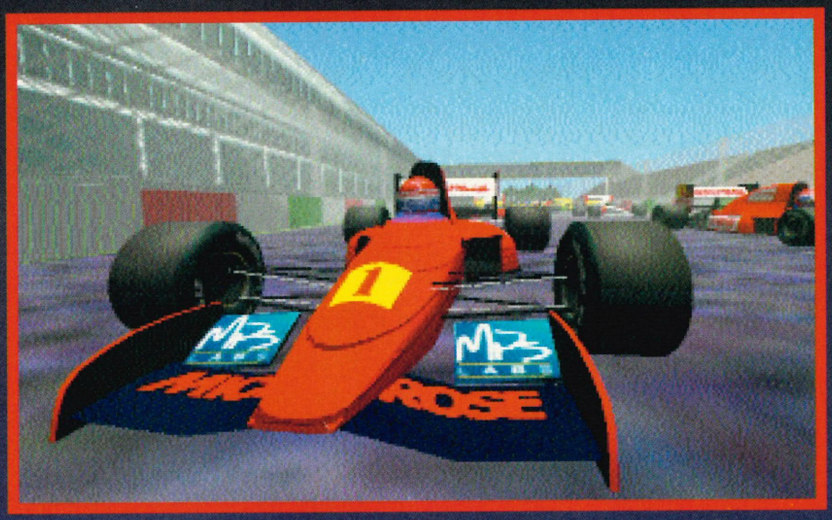
All in all, it looks as if this may be one of the first board game conversions to capture and enhance the atmosphere of the original, and there may be even greater things to come. One ripe candidate for conversion is another Warhammer spin-off that Games Workshop has planned, which is to be set on a hive world. Over thousands of years it had become so ravaged and exploited that humankind is the only natural life remaining. The inhabitants live in layers of cities built up over millennia, with mutants at the bottom and ruling elite at the top.

You can expect to see something within the next two years. If it's as good as Space Hulk, let's hope that applies to the PC version too.



The strategy aspect of Space Hulk doesn't get the opportunity to be dull and boring. Before you know it you're faced with more action than you might have expected from a conversion of a board game.

When the arguing stops, which team will you be driving for next season?



MicroProse Formula One Grand Prix - Just Drive!







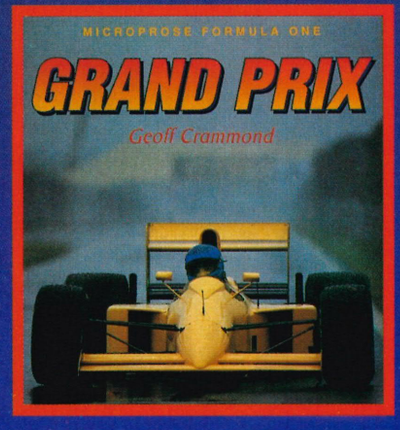
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reviews index

Our comprehensive reviews service starts here. Over the next 60 pages, you'll find the latest PC games fully evaluated, with clear comparisons made to similar games on the market. We also try to make it easy for you to see whether a game is suitable for your machine and your tastes, so read on to see how to get the most out of them

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Specifications

PCs come in so many different flavours and configurations that finding out whether a PC-compatible game really is going to work with your set-up can be a minefield. Each review carries a detailed TechSpec column, explaining what features are supported by the game in an easy to read, at-a-glance panel.

The graphics, soundboards and control sections tell you which popular devices are supported by the game in question.

Under disk requirements, you'll find out whether a game needs to be installed on to hard disk in order to play it, how much space it takes up if installed to hard disk, and we also note if the game comes on high density disks.

The performance section isn't quite so clear cut. Publishers often state a set of minimum hardware requirements on the box, but these can be very minimal indeed. Our optimum performance level is a subjective rating, and gives you not the publisher's base specification required, but rather the minimum we think the game needs in order to run comfortably. Game X may run on a 286, but at a snail's pace, or it may run OK on a 16MHz 286 but be unacceptably slow at 8MHz. This is where we let you know.

After the optimum speed rating, we note the minmum RAM required to run the game, and finally, how much of your base 640K RAM must be available for the game to load properly.

Alternatively

We believe games should be placed in context. You may like the sound of game Y but suspect it might be too technical, or difficult to control. We'll tell you about alternative games of a similar style, subject matter, or interface, which might be more to your taste (or warn you off those which are inferior to the game being reviewed, however superficially similar).

Two Minutes

This is the closest you'll get to seeing the game in action before you reach the shop. We take a series of manoeuvres from the game and explain clearly the gameplay required to get through the screens. You may find some helpful game hints in this section!

Rating system

We give a single mark out of 10 to indicate what we think of the quality of the game. As a rough guideline, the ratings break down thus:

10

0-2	Dreadful
3-4	Deficient
5	Average
6-7	Good
8-9	Excellent
10	Staggeringly perfect

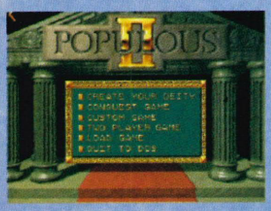
Ratings are not the sole preserve of the author of the review, but are discussed and thrashed out by everyone at PC Review who knows the game in question.

We also rate the games relative to other games currently on the market.

The reason for this is that, while PC programming expertise is improving all the time, and Monkey Island VI will doubtless be miles better than Monkey Island II, that doesn't mean it will have to get 16 out of 10 when reviewed. By the time it arrives, if it looks excellent compared to everything else around at the time, it'll still be worthy of its eight or nine.

Shareware

The shareware reviews section is an independently written column on the best and most interesting of the latest shareware and public domain releases. Here you'll also find the Shareware Finder Service. If you have a particular software need for your PC, but don't know if such a program exists, try us. We may well be able to pin down a cost-effective shareware program to do the job for you.



Title	**Populous II - Trials of the Olympian Gods**
Publisher	**Electronic Arts**
Contact	**(0753) 549442**
Price	**£34.99**

In the beginning there was Populous

Well ... not exactly in the beginning, but Bullfrog's original world-builder was such an innovative, influential product it seems that every 'grown-up' game which has appeared in its wake has been judged by its standards.

So now, almost inevitably, we have the sequel — updated to take advantage of the massive strides which have been made in home computing technology in the two and a half years since the original's appearance (and also to make use of some of the new programming, graphical and game development skills which the Bullfrog team have picked up along the way).

Before going too deeply into the nuts and bolts of this package, though, it's worth pointing out that this isn't so much Populous II as 'Populous v1.5', in that the gameplay is more or less identical to the original's (albeit with a lot more bells and whistles attached). Those of you hoping for another shot of pure originality carrying the Populous name are in for a disappointment — although I suspect that there are precious few true Populous fans who actually want anything more than what's promised here — that is, an enhanced and updated version of the original.

It's next to impossible to describe Populous to a complete beginner, but here goes anyway ... in Populous, the player takes on the powers and responsibilities of being a god — complete with a tribe of fanatical worshippers. The game is played on a square world populated by your own worshippers and those of an opposing god — with the idea being simply to help your worshippers overrun every square inch.

However, you cannot directly instruct any one of your on-screen characters. The way that you make things happen is by altering the environment and climatic conditions, which in turn forces your people into performing certain actions. For example, by raising and lowering land to form flat plains, you allow your people to build large settlements and thus create the

OK, this is going to take a little more than two minutes, but who's counting when you've having this much fun?



Life begins on Doegac, the first world, with your followers happily going about their business, settling down and starting families.



Flatten a patch of land and the tents and houses are miraculously replaced by these castles (I'd get rid of those rocks, though).



Switch to 'go to papal magnet mode' and your leader heads off at once in search of that false idol.



Quickly switch to your opponent's side and cause a little trouble among his ranks with the strategic placement of a pillar of flame.



Turn your leader into Perseus and quickly switch back into 'settle' mode as he heads off to loot and pillage the surrounding neighbourhood.



Finally, place your papal magnet right in the heart of your enemy's territory, send your walkers towards it, switch to 'fight' mode and let them finish things off by themselves.

Populous II

Trials of the Olympian Gods

necessary conditions for your population to expand. And this, essentially, is what it's all about — who has the largest band of followers.

Might is right in this world, and the god with the strongest following is usually in a position to win the day. However, as the game progresses through the levels, different effects come into play — from the banal (including fire and floods) to the bizarre (plagues and the marvellous 'baptismal fonts', which we'll come to later) — allowing scheming gods to overcome seemingly impossible odds.

The end result is a game where even a single level can eat up hours of game time — and where there's no such thing as a foregone conclusion. This is supposed to be a cerebral sort of affair, but when the action hots up (and it always does), there's usually precious little time for you to think with anything other than your mouse finger. For those who are willing to put the time into it, Populous is a totally demanding — and equally rewarding — experience.

But so far, all that I've talked about is the Populous concept — what about this second version in particular?

Well, if you're one of the rare breed who actually reads a game's manual before installing it (instead of waiting until you get stuck like the rest of us), then the first change that you'll probably notice is that Populous II has developed one thing which its predecessor never had (or, indeed, needed) — a superfluous storyline.

For what it's worth, this scene-setting scenario goes something like this: the head honcho on Mount Olympus, Zeus, had (how shall I put this?) a great 'admiration' for mortal women. This 'admiration' led him into the bizarre habit of changing his form, coming down to Earth and 'admiring' these mere mortals from a little bit closer than maybe their mothers would have been comfortable with. The result of all of this less than admirable behaviour was … well … you!

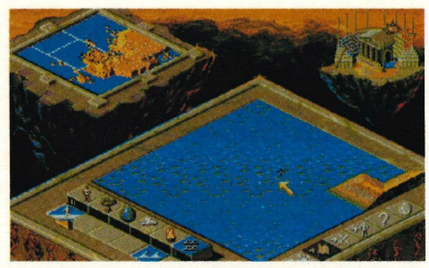
If playing god sounds like an attractive proposition, then now you have the perfect opportunity to realise your ultimate dream, in Bullfrog's sequel to the strategy game of the decade

You assume the role of the bastard son of Zeus: more than a mere man, but not yet accepted as a god. Thus, to gain acceptance and a place at your father's right hand, you must overcome the trials of the Olympian gods — a task which just happens to be exactly the same as completing the 1,000 levels of Populous II.

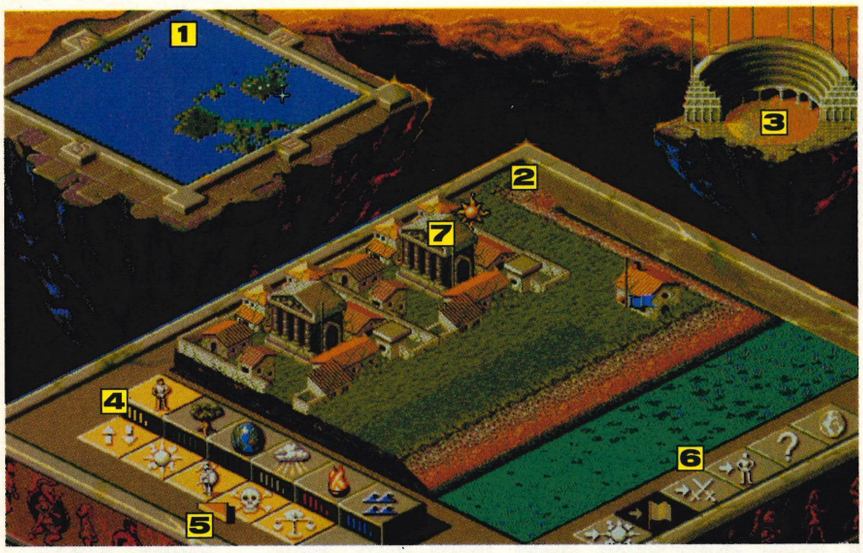
This silly little story (which doesn't actually detract anything from the affair, but then it doesn't add anything either) is the only unessential item in the whole package. From here on, everything takes on a vital importance — and often in ways that you wouldn't actually notice.

Take, for example, the 'create your deity' function, which, in tried and trusted RPG style, you use to create your character before heading off for your first spot of Conquest (Conquest is the standard game, where you work your way upwards through the increasingly difficult level structure).

This facility presents the player with a number of eyes, chins, hairstyles, mouths and other facial features to choose from. This might appear at first to be a slightly less than crucial aspect — maybe even a purely graphical frill — but it actually turns out that the visage which you choose for yourself directly affects the way that your opponent reacts to you — choose a warlike front and he'll react in kind, choose



The seats of this miniature Colosseum gradually fill with blue (for good) and red (for bad) characters to depict how the two sides are faring, relatively speaking. This has another function, in that it displays a good deal of information on any walker or settlement when used in conjunction with the 'query' icon.



1. The world map (usually shows both sect's populations and spread).

2. The close up map (your current location, marked by a black cross on the world map).

3. The Colosseum (shows the comparative levels of both populations, along with other information on your current technology level and so forth).

4. Divine intervention effects.

5. The mana gauge (an indication of your current level of power, which is dependent entirely on the strength of your following).

6. The basic influence commands (see panel).

7. Settlements (which vary from a humble tent right up through a wooden fortress to a huge walled castle).

a more thoughtful exterior and his methods will become more subtle. Having said all that, I still can't see anyone actually choosing to become a Cyclops — can you?

Each of your god's skills comes from one of the elemental groupings: people, vegetation, earth, air, fire and water. As an example of how this works, your ability to create fire or a volcano comes from the fire element, while floods come from water — easy enough so far. Whenever you win a battle, you're awarded with between one and five experience points (depending on how quickly you finished off your opponent, what tactics you used and so forth). These points are allocated among the six elements in whatever way you wish.

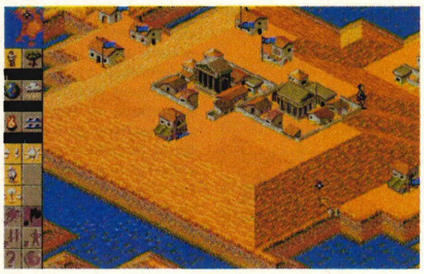
This is where it gets interesting. The stronger you become in a certain element, the longer-lasting and more devastating its effects will be — so if you're strong in fire, your pillars of flame will land more accurately and burn for longer.

However, as you progress, you can't really help but become stronger in all departments — the only trouble is that your opponent is improving right along with you. Which brings us nicely along to the all-new two-player mode.

Well, it isn't actually completely new, but the original Populous could only be played against human opposition via the telephone line. Once again this sequel has introduced a subtle, but important change, so that two adjacent PCs can be linked by 'null modem' (basically, a special cable) for head to head combat.

This is a major bonus for a couple of reasons: firstly BT isn't involved, so it's a whole lot cheaper, and secondly, there's

There are two separate graphic modes available, standard (top) and wide-screen. Each has its advantages, but the exclusion of the Colosseum in wide-screen mode probably causes more trouble than it saves.

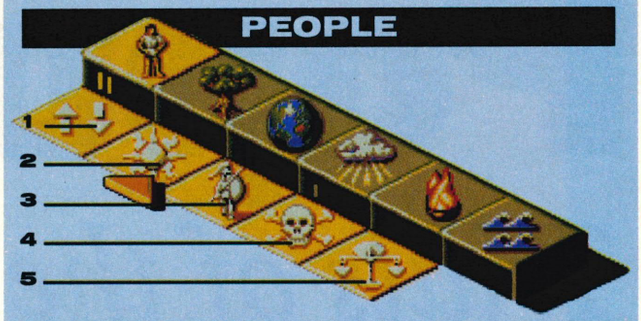




DIVINE INTERVENTION

The 30 effects take some getting used to, especially as some work better than others, depending on what your opponents strengths are and what the current landscape is. However, this brief guide should give you some idea of what you're capable of. By the way, an effect only comes into operation when your level of mana (as dictated by your people's worship) pushes the triangular icon into or beyond its vicinity.

PEOPLE



1 Raise/lower land: simply click your left or right mouse button to raise land. Different levels attach conditions to this act, however: some only allow you to raise land beside your own settlements and so on.

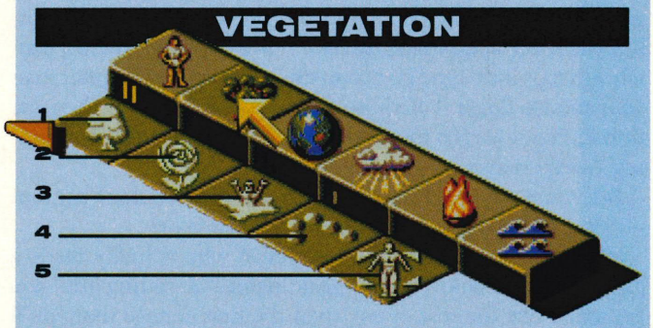
2 Place papal magnet: moves your papal magnet to any position on the map — but only if your tribe has a leader.

3 Create Perseus: turns your leader into Perseus, a strong and intelligent soldier.

4 Lay plague: infests your opposition with an unshakeable lurgy, which removes their ability to create mana and makes them ineligible for duty in armageddon situations.

5 Declare armageddon: brings the entire world's population to the centre of the battle field for a final confrontation (only to be used when you're sure that you're in control of the situation!).

VEGETATION



1 Grow forest: improve your popularity by planting trees around your settlement (or, plant trees on your opponent's land before setting him on fire!).

2 Renew land: must be used when your opponent has planted a volcano in your vicinity.

3 Swamp: places small muddy pools as traps for unwary followers of your opponent.

4 Plant fungus: places a deadly, spreading fungus in your opponent's land.

5 Create Adonis: turns your leader into a luxuriantly verdant leader, who divides to conquer in combat.

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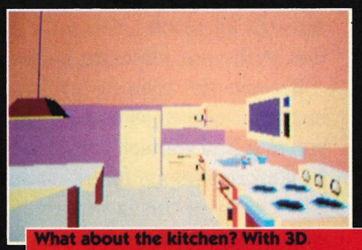
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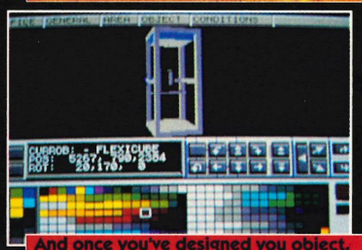
- 3D shape designer/manipulator
- Sound effects manipulator
- Game design utility
- Print out/screen dump option
- Animation programmer
- Computer VCR playback function
- Clip art library with colour catalogue



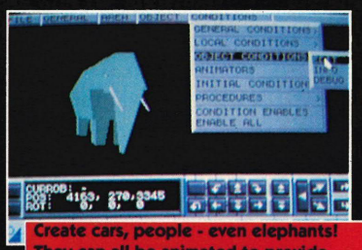
What about the kitchen? With 3D Construction Kit 2.0 it's easy to design one yourself



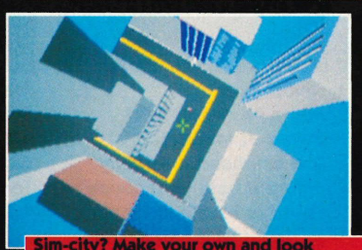
The 'Create' panel is designed to be icon driven with just a mouse. No complicated programming - it's been done for you!



And once you've designed you object, you can colour it with a comprehensive palette.



Create cars, people - even elephants! They can all be animated to provide realism within the environment you select.



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We know how frustrating it is to buy a piece of software and have to wade through a huge instruction manual just to get started. So we've included a short tutorial video to get you up and running quickly and give you a taste of what 3D Construction Kit 2.0™ is all about. Starting from scratch, the tape will show you how to create, ,manipulate and join objects, design landscapes and even make your own game! You'll also get a glimpse of some of the fantastic results that can be achieved once you've had a bit of practice.

DOMARK

Designed and Programmed by Incentive Software

© 1992 Dimension International Ltd. IBM PC Screenshots

Domark Software Ltd., Ferry House, 51-57 Lacy Road, Putney, London SW15 1PR

incentive
The Award Winners

a lot more satisfaction to be gained from humiliating someone who's sitting only feet away from you.

But no matter how much fun you get from trashing another human god, you must eventually return to the original task, which is to take your own deity through all 1,000 levels for a confrontation with your reluctant father.

Because the opening levels are such a breeze, it comes as quite a shock when you first find yourself completely overrun by your opponents followers and effects. The beauty of this is that there is no set way to win a game — it's just a matter of relying on speed of mind and reacting to whatever's thrown at you in whatever way you see fit .

That said, most players will develop particular strategies which rely on certain elements. For example, I grew quite fond of using the all-new right-hand mouse button method to 'sprog' my followers ('sprogging' is the art of ejecting your people from their settlements so that they move about the landscape to build new ones — thus speeding up the colonisation process). However, at a point somewhere around level 150, the program suddenly removed this option and I had to revert to the original sprogging method of raising and lowering land close to settlements. This caused me such a headache that I must have attempted to conquer that particular world at least 30 times before finally getting the hang of it.

Frustrating as this affair was, it actually served to demonstrate one of Populous II's greatest strengths. The huge variety of options available to both the player and the computer are enough to keep even the most god-like player from becoming complacent — and therefore the interest level should remain somewhere near its peak right up until the final confrontation.

Another element which should keep the player's interest (whether they played the original to death or not) is the huge

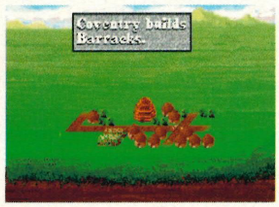


During later levels, random monsters appear to cause havoc among anyone (or thing) who gets in their way. They range from the cute (a walking tree, which leaves a line of vegetation in its wake) to the downright nasty, such as Kraken (above), a powerful sea god who leaves a devastating canal in his wake. No matter what they look like, these monsters can either be a blessing or a curse, depending on whose side they appear on.



The custom game allows you to create your own land, planting trees, rocks and people wherever you desire. You can even add to your mana stockpile if you want to! One restriction placed on this facility is that you can only use effects which you've earned within the conquest game.

Alternatively...



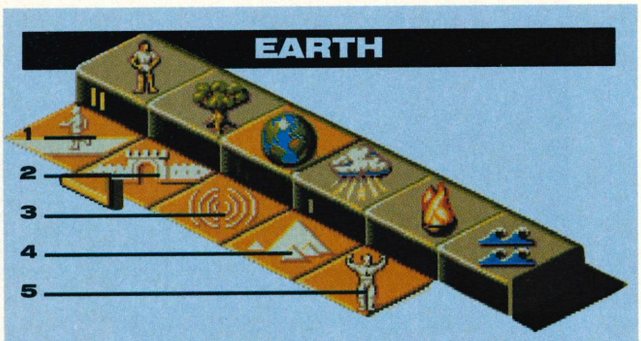
Civilization
MicroProse, £39.99
Rated 7, Issue 1.
The emphasis is slightly different here, in that you're asked to create civilisation as we know it, rather than defeat an enemy (and anyhow, where on earth do you think we're going to find anything that's even remotely similar to Populous?). However, the feeling of godliness is, if anything, even greater in this case.



Railroad Tycoon
MicroProse, £35.75
Like Civilization, written by Sid Meier, but a totally different task, this time to build and run a successful railway line, against computer-generated rival companies, getting rich, and expanding your empire. However, this is yet another game which gives you a feeling of omnipotency which comes close to emulating that produced by Populous II.



Utopia
Gremlin, £29.99
Rated 7, Issue 12.
Probably the game that comes closest to looking like Populous of the three, this one has often been likened to a cross between the original Populous and Maxis' classic Sim City. There's also an element of combat involved, as you fight off a marauding enemy race in the isometrically-presented environment.



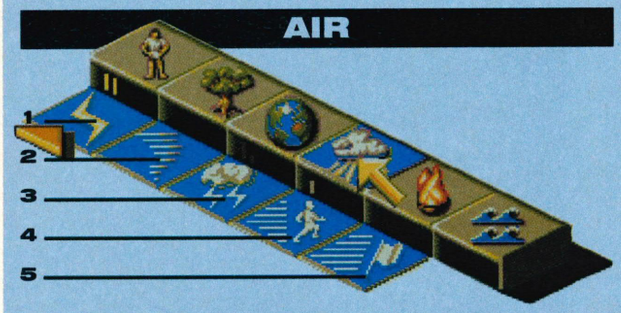
1 Roads: allow your people to travel faster — not only that, but they can block the spread of fungus.

2 City walls: protect your worshippers from weaker opponents.

3 Earthquake: is a devastating effect, which destroys your opponent's land and leaves a deadly gaping hole in its wake. Better still, it's directable!

4 Batholith: causes rocks to rise in your opponent's land, thus rendering it uninhabitable.

5 Create Heracles: turns your leader into the incredibly strong hero Heracles, who proceeds to wander the enemy's territory looking for trouble.



1 Lightning: is used to electrocute enemy walkers and settlements.

2 Whirlwind: not only do whirlwinds cause great devastation, they also reduce any walker which they catch to low power.

3 Storm: a very useful weapon, which hovers above enemy territory wreaking havoc with multiple bolts of lightning.

4 Create Odysseus: turns your leader into the fastest of all the heroes.

5 Hurricane wind: causes a gale-force wind to devastate your enemy's land.



1 Fire column: sets a random column of flame burning across your opponent's land.

2 Rain of fire: has a similar effect to the storm, but with more instant results.

3 Volcano: is an extremely destructive effect, which firstly destroys a huge area of your opponent's land, and then continues to pour forth streams of lava.

4 Create Achilles: turns your opponent into an extremely fast hero with a head of flame.

5 Flame burst: is an effect which is completely unique to the PC version. It causes your leader to explode in a monstrous circle of fire.

HISTORYLINE

1914-1918



HISTORYLINE 1914-1918 is a strategy war game simulation set in the period of the first world war.

One or two players are able to take control of opposing forces. Choose to take the role of either the Allies or the German-Austro-Hungarian army. From your aerial view, witness the battle as you deploy and then the enemy counters.

Changing seasons, varying quality of terrain, strategically held locations, and well planned attacks by outmanoeuvring your opponent are all critical considerations to be met in order to achieve victory.

HISTORYLINE 1914-1918 contains a wealth of historical and technical information. This is not only illustrated beautifully on the screen during the course of the game, but is also available for your reference in the extensive and meticulously researched manual.

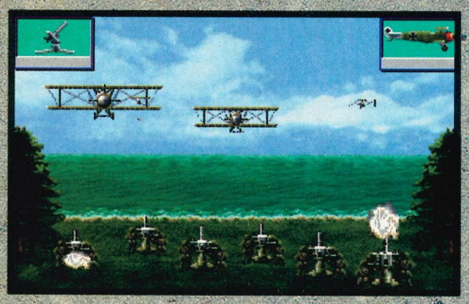
Making it easy to learn and to play, HISTORYLINE 1914-1918 is a must for everyone interested in an extremely high quality, massively challenging, addictive, and hugely accurate strategy war game simulation.

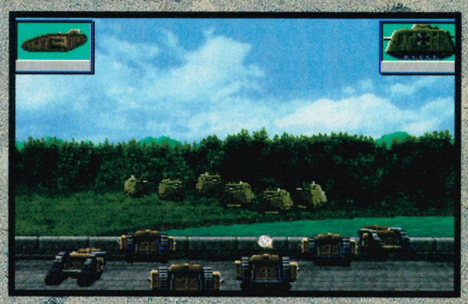
Hours of enjoyment - *Guaranteed*. You may even learn something!

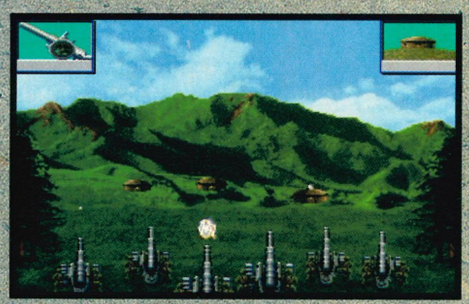












Screen shots show MS-DOS VGA version. MS-DOS version supports Adlib, Soundblaster, and VGA 256 colour mode graphics. Amiga version supports accelerator boards and 64 colour mode graphics.

Designed and developed by the same team who created Battle Isle.
For further information please telephone 0727-868005

Blue Byte

Blue Byte / Play Byte
Aktienstraße 62
4330 Mülheim-Ruhr
Germany

Techspec

Note that opting for sound effects other than those generated via the internal speaker requires slightly more free RAM, and you will need at least 2Mb to run the game in high resolution mode.

Disk requirements

High density	✓
Hard disk only	✓
Space taken on hard disk	10.5Mb

Graphic modes

CGA	x	EGA	x	Tandy	x
VGA	✓	SVGA	✓		

Soundboards

Ad Lib	✓	Roland	✓	Sound Blaster	✓

Control

Joystick	x	Keyboard	✓	Mouse	✓

Performance

Optimum speed	20Mhz
Minimum memory	1Mb
Free RAM required	587K



Populous II's huge variety of options are enough to keep even the most god-like player from becoming complacent.

variety of new options and elements. Whereas the original game provided the player with half a dozen options, this sequel has 30, some of which can even be used in combination to put the cat well and truly among the pigeons.

Some of the newcomers are fairly straightforward. For example, if you plonk a volcano on your opponent's land, you'll render the vast majority of it uninhabitable. However, some of them don't actually reveal their true uses until you're well into the later levels.

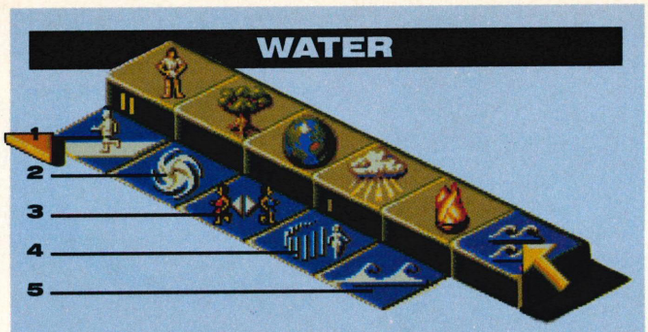
Take, for instance, the baptismal fonts. A real innovation, the fonts are tiny pools of water which you randomly scatter throughout the landscape. Then, whenever one of your opponent's followers steps through a font, he or she immediately converts to your cause (changing colour in the process). However, these can be something of a double-edged sword, as your own followers aren't immune from their effects and just as readily switch their allegiance.

Despite the huge similarities to its predecessor, Populous II remains a thoroughly engrossing and addictive game. It's technical polish is such that you become totally captivated with the proceedings and, yes, eventually you do begin to regard yourself as somewhat god-like.

That said, it's a little short of being the perfect program: it doesn't run in Windows (although Bullfrog is working on a Windows-dedicated version as we speak) and the worst aspect of all is the sound, which is, at best, a let-down. Gone forever is the throbbing heartbeat which accompanied the Amiga version (and added greatly to its atmosphere), and what sound effects there are don't work with the Ad Lib standard (although the intro soundtrack does). In fact, if the sound was better, this program would definitely have qualified for an extra mark.

Despite all that, this game is very close to essential. The Populous concept has always been an ambitious one, and this latest incarnation is just about as good a version as current technology can handle. Bullfrog claims that this will be the last version of Populous ever, but surely as the current crop of 386 and 486 machines give way to new generations of faster and more graphically capable PCs, then this decision will have to be reconsidered.

8



1 Basalt: creates bridges to carry your walkers across water.

2 Whirlpool: causes great devastation to your opponent's coastal areas.

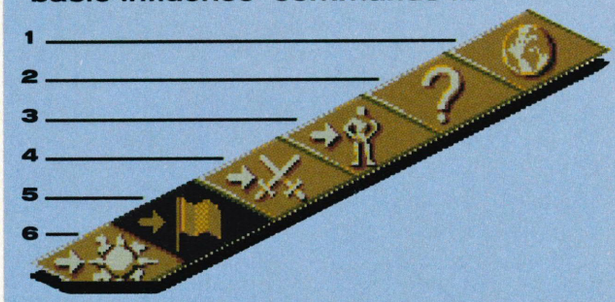
3 Baptismal fonts: turn bad walkers to good, and vice versa.

4 Tidal wave: sends a huge earth-destroying wave across the world.

5 Create Helen of Troy: turns your leader into an alluring temptress who leads your opponent's walkers to their death.

BASIC INSTINCTS

Although you can't directly instruct your followers to perform any specific act, you can generally influence their overall behaviour by selecting one of these 'basic influence' commands ...



1 Go to papal magnet: sends your population firstly towards your leader, and then towards the papal magnet, which can be placed anywhere on the map. This is useful for moving your population towards good land or even into the enemy's heartland. It's also necessary to combine your population into a strong leader using this command so that you can create a hero.

2 Settle: simply allows your population to go forth and multiply.

3 Fight: encourages your walkers to attack enemy settlements. Your population will continue to build settlements of its own while in this mode.

4 Gather together: is useful in that it brings your walkers together to form strong single characters. Once again, your followers continue to settle while gathering.

5 Query: brings up a wealth of information on the size and strength of a selected walker or settlement (as displayed in the Colosseum).

6 Game requester: allows the player to access a number of options, including game saving and loading.

Surely that just about says it all. I'm currently stuck about one quarter of the way through this game and I'm already crying out for the next version and the one after that! As I've already mentioned, Populous is a difficult idea to convey in words and still pictures. If you're already familiar with the original, then you should get your hands on this sequel as quickly as possible — and even if you've yet to encounter Populous in any shape or form, then now's your chance.

After all, Populous is next to godliness.

■ ***Ciarán Brennan***

The most *playable* computer role-playing game ever created...

...is also the most *replayable.*





Choose your character and modify his skills and attributes.



Puzzles have multiple solutions depending on your character type.



Every decision molds your Hero... and shapes your destiny.



Overcome obstacles with might, magic, and cunning.

The Key to this World is Your Wits.

If you survive, you may discover an unspeakable evil that lives at the very heart of fear and violence. And if you succeed, it will be because you cut to the core of the mystery with your mind, not because you managed to sort through a series of stats or slash through a thousand mindless monsters.

This is the latest chapter in the series *Compute* magazine called "a breakthrough in adventure game design". Play as different character types, approaching problems with different skills and solutions. Every decision you make builds your Hero... and shapes your destiny.

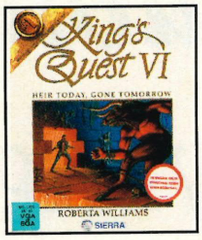
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Title	**Kings's Quest VI**
Publisher	**Sierra**
Contact	**(0734) 303322**
Price	**£44.99**

The intro sequence describes Prince Alexander's hazardous journey from Daventry to the Isle of the Crown, right up to the point where his ship is wrecked and he is washed ashore. Then you take over ...



The shining object on the beach is Alexander's royal crest. Don't leave it behind since it's his only form of ID in this mysterious land. Before heading inland it's wise to explore the rest of the beach.

Sierra's King's Quest saga has come under a bit of fire recently. Let's see if the latest Roman numeral in the series can put it back on the right track

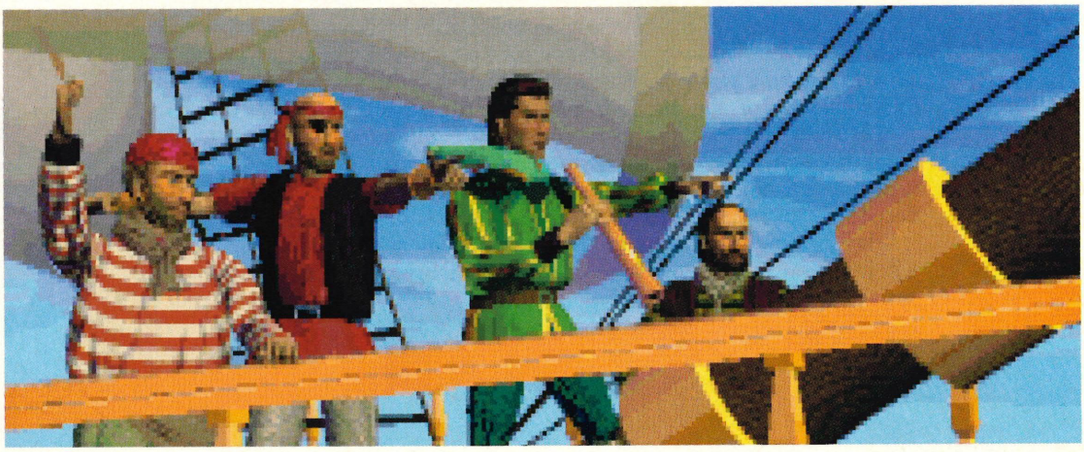
King's Quest VI

I was actually hoping that King's Quest VI (subtitled Heir Today, Gone Tomorrow – ah, that wacky American sense of humour) would be quite good. Of late, Sierra's range of quests has been somewhat overshadowed by a vast wealth of new talent, both European and American. It has also suffered from not being (shock, horror) *that* good. In fact, I've heard quite a few cases where people are longing for a return to older games, preferring the EGA graphics and Game Blaster sound of Police Quest I to the 256-colour VGA and dual Roland and Sound Blaster support of Police Quest III, simply because the actual *game* was that much better.

Still, when has having a good game ever stopped Sierra from pushing everything into development of its presentation skills? Upon installing Roberta Williams' latest 'epic' my heart near-

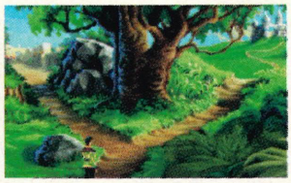








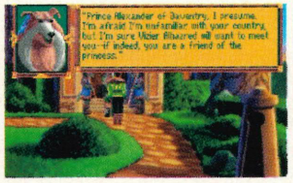
Underneath this plank was a box containing a gold coin. Alexander may have lost his traveller's cheques but at least he isn't penniless any more. He has one exactly penny. Time to head to the town.



Decision time! A fork in the road. Left lies the town, a valuable source of information and a potential inventory. To the right looms a majestic castle which may house Alexander's long lost love.



The castle is guarded by two dog-like creatures wielding spears. Brute force isn't going to win: perhaps honesty might be in order? Showing the ring to the guards one of them fetches his master.



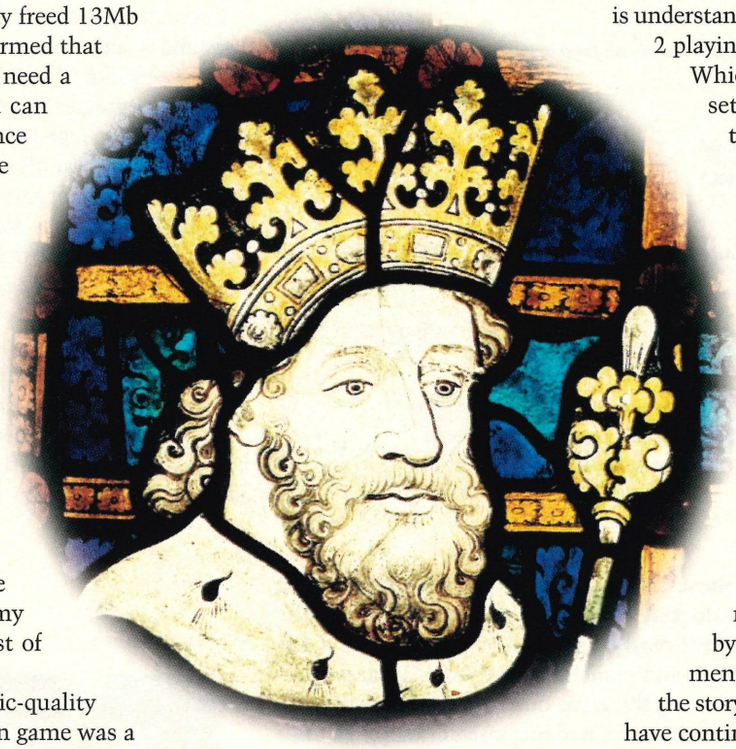
The captain seems to think it's OK for Alexander to visit the master of the castle and informs him that his mystery woman is indeed inside. Looks like every cloud really does have a silver lining!



The old Visier refuses to let Alexander see the beautiful Princess Cassima as he plans to marry her himself and wants no interference from this young upstart. Alex will just have to rescue the Princess.

ly stopped when, after having already freed 13Mb on my hard drive, I was politely informed that to run the opening cartoon I would need a further 6Mb free. Thankfully, you can delete this intro from your drive once viewed and it won't interfere with the rest of the game in any way. If only everyone was so considerate.

It's worth the extra space, though. As introductory sequences go, this is certainly one of the better examples of the species. Ignore the rather sugary storyline (a young prince yearning for the girl of his dreams gets shipwrecked while searching for her) and just marvel at the visual effects as the ship rolls about on the waves, the camera pans around the royal throne room, etc. Once I'd seen it I almost felt it to be a crime to remove the thing from my drive, wishing I could delete the rest of the game instead.



Moving from the almost cinematic-quality intro to the almost cartoon-like main game was a bit of a shock. My first thought was that things haven't changed all that much since KQV. The icon control system is the same, the graphics aren't noticeably different and the story is the usual fairy tale nonsense of magical lands, bizarre creatures and long-lost love. Of all the elements that go to make up a modern-day Sierra tale, the one area that has always let the side down most has been the animation of the sprites. Allegedly, it's all done with digitised images to give a true feeling of motion. Well, motion is there all right, it just appears to be stop-motion (the kind of thing seen in almost any Peter Gabriel video). It's all very well touting a wonderful new graphic technology that nobody else is using, but the fact that no one is using it should tell you something. It doesn't look convincing at all and just succeeds in letting the rest of the game down.

Fairy dust

This is such a shame as potentially King's Quest VI could have been very good indeed, just the thing to lift the series out of its present rut. What has caused Roberta Williams' baby to fail to develop is that quite simply the storylines have been much more suited to the typical all-American household (which is understandable, I suppose) than the Street Fighter 2 playing kids of Britain in the 90s.

Which is also a shame as the background settings, if you take the time to look at them, aren't really that bad, aside from the moments when they fall into typical fantasy plot trappings (pseudo-English names or accents and 'fairy dust' magic). A lot of time actually goes into the creation of the worlds encountered by King Graham (see what I mean) and his entourage. Unfortunately the game system and the obviously placed puzzles just don't allow you the chance to explore them in detail and feel as though you're really there, unlike one of the Ultima titles. Neither do the actual stories imposed upon the background have as much depth, excitement or interest as those being produced by the folks at LucasArts. It's a sad indictment upon what used to be the masters of the storytelling adventure game. While the rivals have continued to improve in all areas, Sierra has either stood still or gone in the wrong direction.

Company profiles and industry musings aside, King's Quest VI isn't really that bad a game. It's certainly large and almost nearly justifies the use of the 13Mb of space. Where it really shines is in its obvious appeal to the young. The puzzles encountered aren't all that challenging and the characters you meet are more than enough to satisfy even the most curious and inquiring of five-year olds. Take the flower garden outside the chess land with its wealth of comical characters, from grumbling sour grapes to wallflowers so shy that they back away whenever you approach.

A particularly good example of the puzzles comes a little earlier on the beach of the Isle of Wonder. When you arrive you are faced by a group of trolls/dwarves/gnomes (I couldn't quite work out which but it's not going to matter to the average youngster) who won't let you on to the island if you are human. Each dwarf/troll/gnome has the use of one sense only, and it's up to you to try and bluff your way past them by using objects to disguise your humanity.

One area that does seem to have improved slightly from previous titles is that KQVI is actually pretty open and allows you a fair amount of freedom to explore and do what you want

Far left: the impressive intro sequence shows Alexander's fate.



Princess Cassima lies trapped in an old castle overlooking a small fishing town. The small collection of huts, shacks and boats is home to many colourful characters, from the friendly pawn shopkeeper to the grumpy old sailor, right down to the sinister hooded figure in black.



Techspec

Memory problems aren't much of a worry if you're willing to use a boot disk created by the installation program. Once viewed, the intro sequence can be deleted from the hard disk, freeing up a handy 6Mb.

Disk requirements						
	High density				✓	
	Hard disk only				✓	
	Space taken on hard disk				***13Mb (19 with intro***	
Graphic modes						
	CGA	✗	***EGA***	✓	***Tandy***	✗
	VGA	✓	***SVGA***	✗		
Soundboards						
	Ad Lib	✓	***Roland***	✓	***Sound Blaster***	✓
Control						
	Joystick	✓	***Keyboard***	✓	***Mouse***	✓
Performance						
	Optimum speed				***25Mhz***	
	Minimum memory				***640K***	
	Free RAM required				***573K***	

I actually quite like King's Quest VI. It has a pretty good story and is fairly well presented. but I'm not going to start throwing phrases like 'classic' and 'the best yet' around because it has neither progressed enough since the last few Sierra games nor contains enough innovation and originality to deserve such honours. At its best it's a formula adventure game which, while not capable of winning new audiences and causing Monkey Island players to turn away from Guybrush Threepwood for long, looks pretty but not beautiful, plays well but not outstandingly, and will likely keep your interest as long as the first puzzle that really stumps you. At which point, I can't see many people having the incentive to return and I can see the game being left on top of a dark, dusty shelf somewhere with the rest of the series. Sierra has some work to do if it wants its games to start being left scattered around the CPU with their manuals getting lost behind the sofa and their disks continually going missing, which is, let's face it, the fate of all the best games.

■ ***Paul Presley***

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(even if most of those things are greeted by a "Why would Alexander want to do that with the stick?" or something similar). I admit I haven't reached the end of the game but I am told that there are two end sequences, one with Alexander getting the girl and winning the game outright and one where he ends up as best man at the girl's wedding instead. Although multiple endings are nothing new (and this certainly isn't as good an example as Indiana Jones and the Fate of Atlantis which actually has three different paths for most of the game), this is a step on from the usual strictly linear plots that we've seen in games like Space Quest IV and Police Quest III.

Despite this admirable openness of the game, it's still very much a 'reveal a few locations then throw up a tough puzzle then reveal a few more locations' type of adventure. Most of the time it disguises this fact well behind the rest of the presentation, but once you start travelling to the islands you start seeing the joins and realise what's really happening.



The Land of the Green Isles is spread across four islands. Once the magic map has been found, travelling to each is simply a case of opening the map, selecting your destination and teleporting there.

Naturally this wouldn't be an adventure without a maze of some sort and here Ms Williams has resorted to the classic minotaur in a labyrinth. No balls of string to be had here though, not even a bag of bread crumbs. Instead, you are given a map in the manual which kind of defeats the purpose of the maze aspect of the labyrinth, leaving you to figure out a way past the various traps contained therein.

Alternatively...



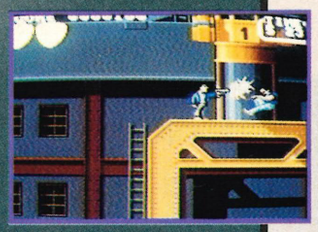
King's Quest V
Sierra, £44.99
The previous game to bear the KQ title bears little technological difference from this one (aside from the set pieces of animation). KQV saw King Graham searching a mysterious far-off land for a castle rather than his true love. If ever a game was to contain more simpering niceness and coy characters than an episode of The Chronicles of Narnia, this was it. If you really want a fairy tale for the kids, it's a tough choice between KQV and KQVI, so go with whichever your PC has the best chance of supporting.

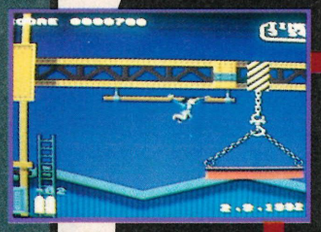


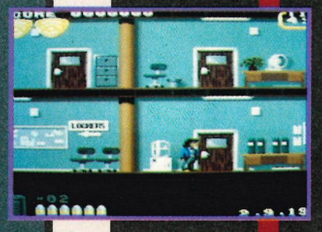
Indiana Jones and the Fate of Atlantis
LucasArts, £37.99
Rated 9, Issue 11
If you want a real adventure, a game to keep you addicted until the end, a game that fills you with excitement until the credits roll, then Indy's your man (or game). Multiple storylines throughout the game ensure repeatable playing sessions, even after you've finished it. Multiple characters to play with the addition of a feisty redhead that accompanies Indy on his travels. A clever story that fits nicely with the character and setting of Indy Jones. There's barely a bad word to be said.

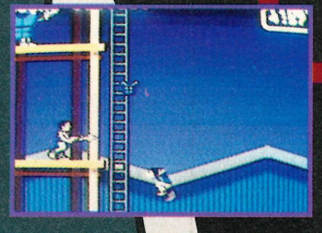
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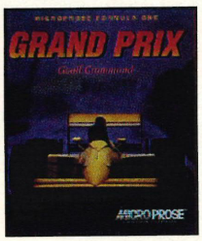
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Title	**Formula One Grand Prix**
Publisher	**MicroProse**
Contact	**(0666) 504326**
Price	**£44.99**

Formula One Grand Prix

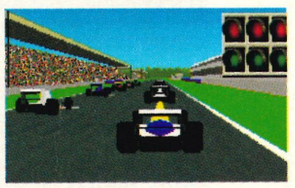
Geoff Crammond's three-dimensional racing extravaganza has been the PC motor racing game to wait for all year. Now that it's finally here, how does it measure up to expectations?

Do you want to know what impresses me most about Formula One Grand Prix? The way the kerbs that stretch around the corners are actual three-dimensional polygons. Really! That to me sums up the amount of detail that Geoff Crammond has put into the design of his highly acclaimed racing simulation. The rest of the game? Well, I'm just not sure about it any more. It's missing something, I don't quite know what, but it just doesn't seem to have the same excitement, the same attraction that it once had.

Maybe it's the fact that the actual racing season is now over,



The manual provides a handy walk-through of several laps at Monza in Italy for the beginner to get used to the car. Once you get to race day, though, you're on your own. Over to Murray Walker ...



Monza's the circuit and the cars are lined up waiting for the green light. Too bad I'm stuck in last place on the grid but it does mean I won't have to watch my back. Plus it'll give me a chance to show off my overtaking skills.





or maybe it's just the fact that we've been waiting for so long, had our expectations sufficiently hyped up by all the attention it's been getting in the popular media, that now it's actually here and it isn't the most stupendous piece of computer programming eve that we're just not willing to forgive it.

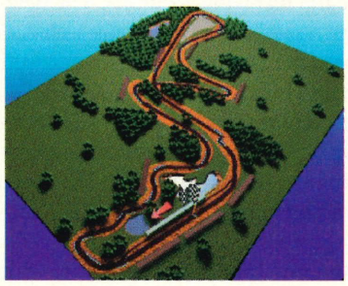
I feel as though we in the magazine publishing industry are partly to blame for this lack of excitement, for the overall polish that the game seems unable to conjure up. For a long time now, ever since we heard that the game was being converted to the PC, we have been breathing down the necks of the publishers, asking for screenshots, preview disks, exclusive coverage and, of course, review copies. Following this chain along its logical course, the publishers hound the developers (in this case, Crammond) to give them something to show us and to get the game finished and this in turn causes the developers to rush things.

Where this shows up the most is in the graphics outside of your car's cockpit. According to Crammond's development process, the graphics were the last element of the game to be worked upon and in the rush to get it all finished before Christmas they've ended up looking pretty bland and uninspiring, worse in fact than when they were on the Amiga and Atari ST. Having seen some truly remarkable progressions with polygon technology of late in games like F15 III, Epic, Strike Commander, etc, the rather simple boxes and quadrangles used to simulate buildings look somewhat amateurish in comparison.

MicroProse has done its best to enliven the proceedings with superb presentation, a truly astounding intro sequence and plenty of in-game animations, music and sound effects. In fact on the surface this isn't a bad game at all. Despite the lack of pleasing aesthetics it is actually very easy to become absorbed in the gameplay, especially if you are as big a fan of Formula One racing as I am.

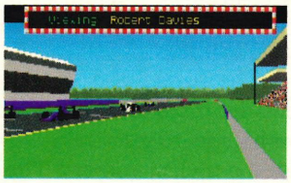
Formula One Grand Prix has been designed to be the most realistic driving simulator going, right down to the shape, length and difficulty of the courses. These pictures of the Variante Ascari chicane at Monza shows how accurate it is.

You may or may not be aware of all the legal tanglings involved with the copyrighting of the real-life drivers, teams and engine manufacturers, but the upshot of it all is that MicroProse hasn't been able to use the actual names in the product. It has, however, ensured that you are able to modify things somewhat. You can change any of the names/drivers, etc, at will and you'll even find the real data for the 1991 season in the back of the manual. Invest a little time in typing them all in and bingo, you've got yourself a bundle of added atmosphere at no extra cost. Input the drivers into the correct positions and they'll even behave with the same



Before each race you are shown a graphic overview on the course you are about to crash on (unless you've been practising). All sixteen of the GP tracks are included, such as the Suzuka circuit pictured here.

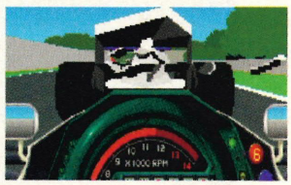
Two Minutes *of every lad's dream*



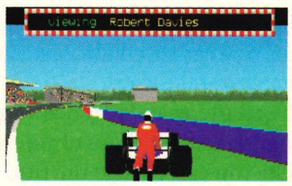
The green light's been given and we're off. The start of a race is always hectic as everyone jostles for position and attempts to overtake. At least I'm not up front where everyone'll be bumping into me, causing untold damage.



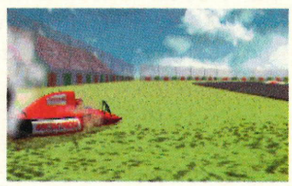
The first corner, a chicane called Variante Goodyear, and the pack is starting to even out. Now the race begins in earnest and I'll get a chance to put all my hours (well, minutes) of hard practice to the test.



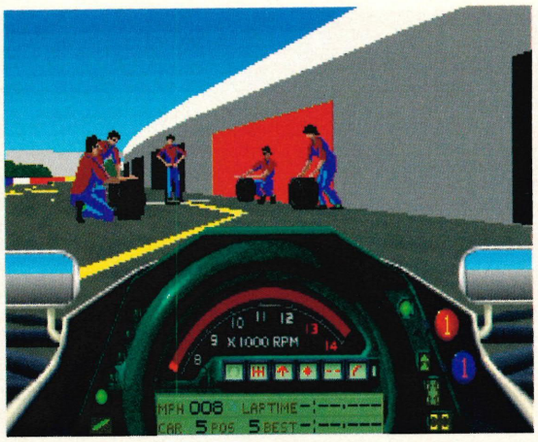
Out of the chicane and into the first real curve, the Curva Grande. Let's just see if I can squeeze round this guy ... whoops. Straight into the back of him at 152mph. Little wonder his rear wing buckled with the impact.



Unfortunately I too suffered from that collision. I skidded into the nearby wall and wrecked the front of my car. Luckily a race marshal was on hand to push me out of harm's way and into the waiting arms of a crane.



Just to hammer the point home, my race ending crash is reincarnated by this rather nice animation. My car screams around the corner, fails to hold it, skids off into the wall and smashes into a million and one pieces.



Each course contains a fully functioning pit crew, along with a fully functioning pit lane. Just driving up the narrow walled off section is tough enough so once into the pit area the computer limits the movements you can make, to avoid crashing.

degree of skill as they did in 1991.

This kind of authenticity is essential to creating an enjoyable atmosphere in a game like this, so I took the time to input the names and to add the correct data (I even replaced myself with Ricardo Patrese as Nigel Mansell's Williams team-mate). Unfortunately it didn't help to conjure up that feeling of really 'being there'. Although it was fun to be racing around Magny-Cours and Imola with Mansell, Senna, Brundle, Prost , Uncle Tom Cobbly and all in the other cars, the lack of detail in the aesthetics served only to lessen the experience.

Also essential to the atmosphere is that 'Formula One season' feeling, the sense of being involved in a full racing season rather than just being a driver in a few races. Fortunately F1GP scores back some of the points it's just lost. Not only do you take part in single races with other drivers on the course of your choice, you get to practise any at will, get thrown straight into some three-lap action for those of you wanting a quick racing fix and engage a full racing season, covering everything from practice laps to qualifiers to the main race.

Pulling into the pits you can access menus to change everything from gear ratios to front and rear wing positions. The newcomer probably won't want to get bogged down with all this technical hoo-hah and for the most part the default settings work well on the easier levels. If you really want to give yourself a challenge, though, and place the difficulty on realistic 1991 standards, you're definitely going to have to get involved in every aspect of Formula One racing if you want to earn that pole position and/or the winner's champagne animation for successful drivers.

Each race goes through the same procedure. You start with a free practice session to get used to the track. Next comes the qualifying stage where you attempt to produce the fastest lap possible within the allotted time, the fastest earning pole position in the race. Then comes the penultimate stage, the pre-race practice in order to make any last minute alterations to your car setup. Finally there is the actual race: 70 to 80 laps of tortuous driving in all manner of weather conditions against the top competitors in the racing world today.

Now, 70 to 80 laps plus full qualifying and practice sessions takes a bit of time, even for Mansell, so for those of you wanting to finish a season in one day you can change the time limits and percentage of race to run down to the barest minimum and get through an entire course in less than an hour. Basically, you can set the game up in any way you see fit, to suit all your wants and needs, to be as detailed or as spartan as you like.

Personally I'm already familiar with a lot of the game's ins and outs, its hidden depths and subtleties, mainly because of my knowledge of the Amiga and ST versions. But a question

Techspec ***Formula One is fairly demanding: you shouldn't even attempt to play it on anything less than a 25Mhz 386DX (an SX just won't cut it, I'm afraid). Playing with a joystick is also tricky, best stick to the keyboard.***

Disk requirements

High density	✓
Hard disk only	✓
Space taken on hard disk	6Mb

Graphic modes

CGA	✗	EGA	✗	Tandy	✗
VGA	✓	SVGA	✗		

Soundboards

Ad Lib	✓	Roland	✓	Sound Blaster	✓

Control

Joystick	✓	Keyboard	✓	Mouse	✓

Performance

Optimum speed	25Mhz
Minimum memory	1Mb
Free RAM required	600K

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that has to be asked is how easy would it be for the newcomer to find his or her way around the game, to master the art of driving around corners without smashing into every wall available? As always with MicroProse games the manual contains a helpful quick-start guide, taking you through a couple of laps of the Monza circuit step by step, teaching you how to get used the car, cornering, braking, changing gears, etc. Everything you need to know to be your very own Nigel Mansell.

Also helping the newcomer out with his driving lessons, the computer can be told to control various functions of the car. Automatic or manual settings can be applied to the brakes, the gears and spin recoveries, while you can also set the car to be indestructible, to suggest the correct gear to be in for different corners and to provide a guiding line for you to follow around the course. Naturally when you have all the computer options on it isn't very likely that you'll win many races. The computer will control your car in a very safe manner, braking very early for corners, changing into sensible gears and the like.

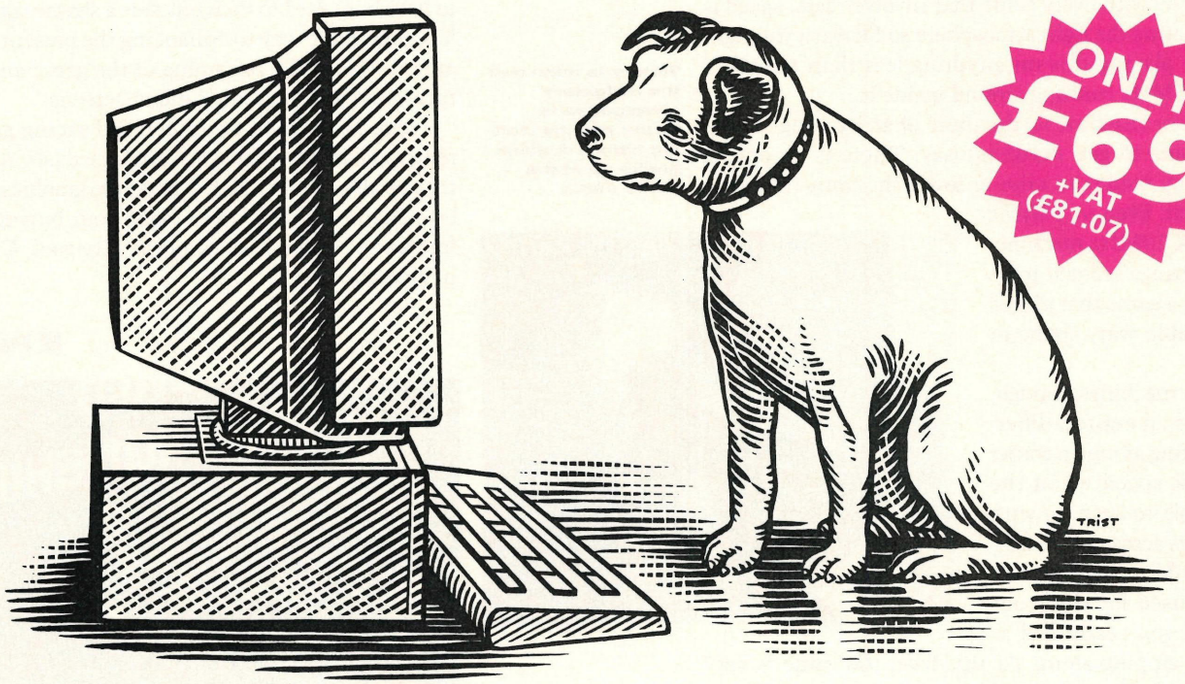
All this assistance does help you get used to driving in these tricky situations and it shouldn't be too long before you start to disengage some systems and take more control over your car. In fact, after a mere three or four practice laps I was controlling everything but the gears and managed to finish the first race of the championship season in a very respectable third place. Of course, I did have the opposition set to rookie standard but even so ... I was dead chuffed.

The manual also contains detailed maps of each course, with suggested gears and speeds on the trickier corners. This comes in extremely handy during practice sessions, working out exactly what how to negotiate the tricky chicanes and tight corners in your own style. It also contains plenty of advanced driving techniques,

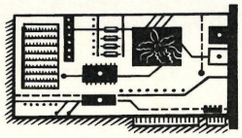
With the car in the pits (either during a race or in the practice and qualifying sessions, you can change anything from the gear ratios to the angle of the car's wings.



HIS MASTER'S CHOICE

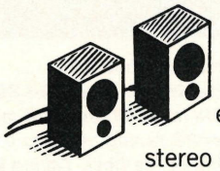


Orchid Sound Producer



Make no bones, he's delighted to hear his master chose the new Sound Producer by Orchid to bring quality sound to his PC!

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covering skid recovery, optimum cornering moves and neutral skids. All things that help to improve your skills and shave vital seconds off your lap times.

A problem with the game does crop up when you start getting technical. As with every game that involves cars, speed is essential to creating the right atmosphere so I'll warn you right now, don't try playing this on anything less than a 386DX with at least 25MHz running around inside it.

The faster your machine is, the more of an exciting experience you're going to get, needlesstosay. There is an option within the many menus to raise or lower the frame rate that the game runs at. Even so, playing this on a 386SX 20MHz machine, none of the settings seemed to be able to produce a game that played in any reasonable way, shape or form.

Victory is mine and the obligatory champagne is thrust into my waiting hands. A quick shake up of the bottle and...



On the faster machines, though, Formula One is an entirely different matter. Haring around a corner at a breakneck speed when the graphics are able to keep up with you really brings across a true feeling of speed. Add to that the textured surface used for the roads and grass and you really feel as though you're zipping along. At this level the game is very playable, especially if you just feel like releasing some pent-up anger or stress in a demolition derby. Just turn off the self-correcting spin option, turn your car around and head into the oncoming pack of unaware drivers. Bits of metal flying everywhere, cars being pushed off the track by marshals, then hoisted into the air by cranes (which, unfortunately, you don't get to see due to programming constraints. Instead the car just seems to rise magically into the air after a nasty pile up, ascending to racing car heaven as it were).

... it's time to spray my fellow drivers with the bubbly. This animated segment is shown every time you win a race. Other clips include cars crashing and overheating.



At the start of the review I mentioned that there was something missing from the overall polish of the game. Well four pages and umpteen races later, I still think it's simply down to the lack of overall detail used in the graphic quality of the three dimensional parts of the game. The facts that it looks very primary. It's this lack of, well care, I guess, that is stopping me from gaining maximum enjoyment out of the product (that and the fact that from my own point of view it seems over a year old to me). To anyone that hasn't played it yet, I've no doubt you'll derive nothing but the greatest of pleasure from it and to be honest there's no real reason why you shouldn't. Formula One Grand Prix is going to bring you immense pleasure.

My only other wish is that MicroProse will bring out an updated version of the game, including the correct teams/drivers/statistics for the 1992 and/or 1993 seasons, at a reasonable price or as an add-on disk, just to add to the feeling of realism a little more.

Geoff Crammond has, to all extents and purposes, created the same masterpiece of a game that he did on the Amiga and ST. The fact that the graphic capabilities of the PC don't appear to have been used to their fullest is a shame, although MicroProse has gone some way to enhancing the presentation with superb animations at the beginning of the game and the end of your races, and well presented menu screens.

There are several other detailed racing games, either currently available or about to be released (see Alternatively), that may be able to win F1GP over on the graphics front. This would be a shame if you were to make your buying decision on this fact alone. As far as sheer playability goes, Crammond's car is in pole position.

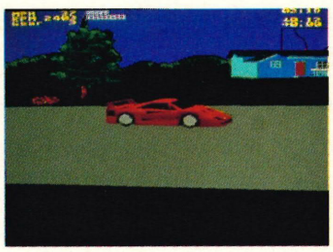
Paul Presley

Alternatively...



Road and Track
Accolade, £39.99
Rated 7, Issue 13.
A nice enough game but without the in-depth detail that F1GP provides. The game provides more of an arcade feel to it than that of a simulator but even so it is good fun to play. What makes it stand out to other racing games is that it contains a course architect, allowing you to build your own tracks to race on.

Comparing the two games is rather like comparing Afterburner with Falcon 3.0. Both games come at the same subject from different angles, one going for the simple, fun playability option, the other taking a serious look.



Car and Driver
Electronic Arts, £34.99
Reviewed next month
We'll be looking at EA's all-round driving simulator in more detail next month but it seems to be that what F1GP does for Formula One racing, Car and Driver does for driving in general. Take some of the world's best cars around some of the most varied courses (from shopping malls to Interstate highways), pushing them to their limits.

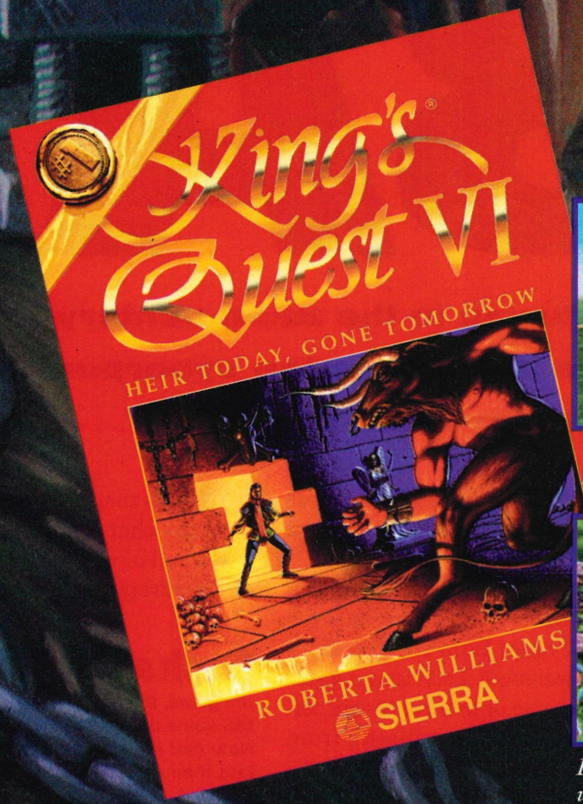
C&D is very nicely presented, taking the form of a mock magazine on your screen, with articles on the cars and the tracks, even page numbers and contents pages!

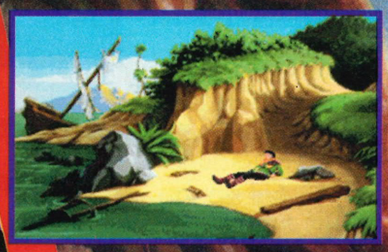


Indianapolis 500
Electronic Arts, £24.99
The most famous and most popular PC racing game to date is still one of the best. Taking you around the infamous Indianapolis track (immortalised, if that's the word, in Tom Cruise's Days of Thunder film) Indy 500 is simply so much fun to play words don't even begin to describe it.

Despite just one track, there is so much excitement generated during a single race it's guaranteed to draw crowds around the monitor. The most fun to be had is when you decide to go for multiple pile-ups, simply because the replay cameras cover every last detail of a crash. Simply brilliant.

The most popular computer game series of all time... ...Now, the best chapter yet.





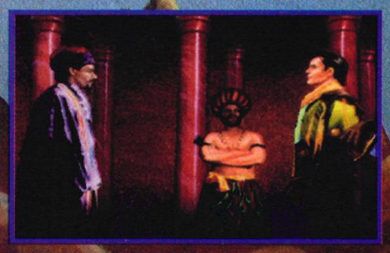
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Title	**BAT II**
Publisher	**Ubi Soft**
Contact	**(081) 343 9055**
Price	**£34.99**

BAT

Adventuring in the 22nd century is as dangerous as ever in the cyberpunk world of this long awaited sequel

One of BAT II's neatest features is the way the screen splits to show more than one location at a time. Here, we've landed in the wrong side of town.



The transport area at night is not exactly the safest (or the most inviting) place to be. Be careful!

Adventure games are not what they used to be. Gone are the limits of the single, linear plot, in favour of more complex storylines with sub-plots, red herrings and multiple solutions. BAT II combines good quality adventure with stylish role-playing elements on and around the planet Shedishan in the 22nd century.

You, the player, are an agent of the Bureau of Astral Trouble-shooters, BAT for short, a sort of cybernetic James Bond, in fact, who tries to resolve difficulties between large companies and governments before they escalate out of all proportion. Enhanced with certain cybernetic qualities, the agents are totally freelance and are allowed to work these problems out as they see fit.

Choose an agent

At the beginning of the adventure, you can either create your own agent or choose one from a predefined list. Initially, I would recommend you choose a predefined agent, as this game takes a lot of getting used to.

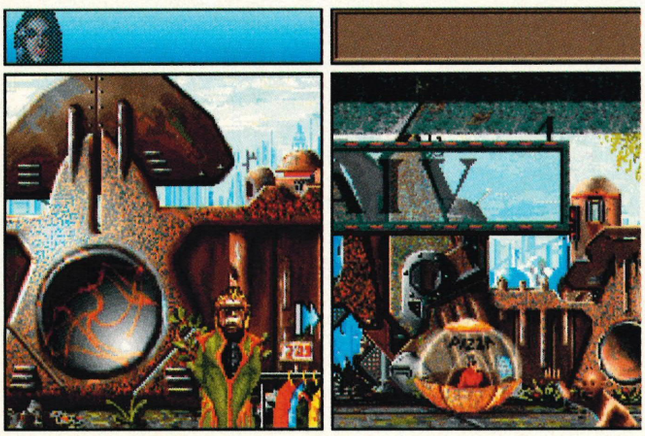
Furthermore, you can explore the game a number of times and push your predefined agent to the limits of exhaustion (even death!) with a view to obtaining as much information as possible, before sending in your carefully constructed agent to play the game proper.

When you create your own agent, you have eight weeks to train him in seven areas, which range from survival skills to sensory awareness. Each training session increases one or more of his six personal characteristics, ranging from strength to vitality, which give an indication of how well your character can carry out his tasks. Like most role-playing games, characteristics can go up and down depending on how well your agent performs or how much food, drink or sleep he has had recently.

Upon placing your character in this fantasy world, the first thing you will notice is the absence of any real plot. True, you are advised to go and present yourself at the Manoir de Mantoue hotel where you will meet Sylvia Hadford, who has some helpful information relating to a special task of yours, but you need not do this as there are various other plots available to choose from – all of which interweave with each other – and you are allowed to take this game at your own pace. Not for the indecisive!

BAT II's many storylines run parallel to each other and converge at certain points, all of which lead to the next part of the adventure. This is accomplished

Another hostile neighbourhood that just asks to be investigated.



Techspec ***Although a mouse is required for most of the game, the keyboard acn be used to control some of the simulators if you prefer. Note that the game won't run on anything less than a 286 and a 386 is highly recommended.***

Disk requirements

High density	✓
Hard disk only	✓
Space taken on hard disk	***10Mb***

Graphic modes

CGA	✗	***EGA***	✗	***Tandy***	✗
VGA	✓	***SVGA***	✗		

Soundboards

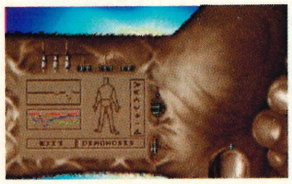
Ad Lib	✓	***Roland***	✓	***Sound Blaster***	✓

Control

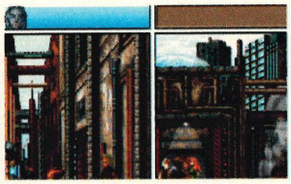
Joystick	✗	***Keyboard***	✗	***Mouse***	✓

Performance

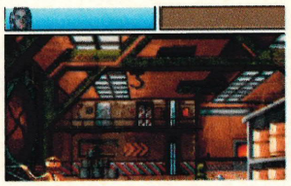
Optimum speed	***25MHz***
Minimum memory	***640K***
Free RAM required	***540K***



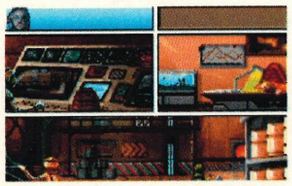
BOB, your own personal PC, reminds you when you last ate, drank and slept and shows you're in good health.



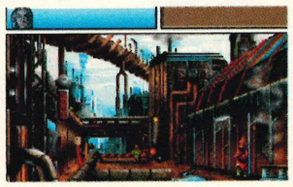
In the morning, you survey the area. The screen on the left shows the view from the one on the right.



This factory you've just discovered is extremely strange. It seems totally deserted and quite eerie.



Here's why. Going up the stairs reveals the gruesome truth that just begs to be investigated. The boss is dead.



Moving swiftly on now (you don't want to hang about here for long), there is more trouble at every corner.

II

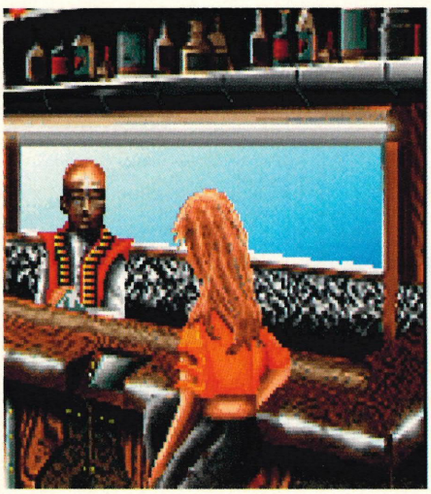
through interaction with the non-player characters. When you start adventuring, hundreds – and I mean hundreds! – of characters will walk past you, each of which you can talk to, buy from, sell to or try to recruit.

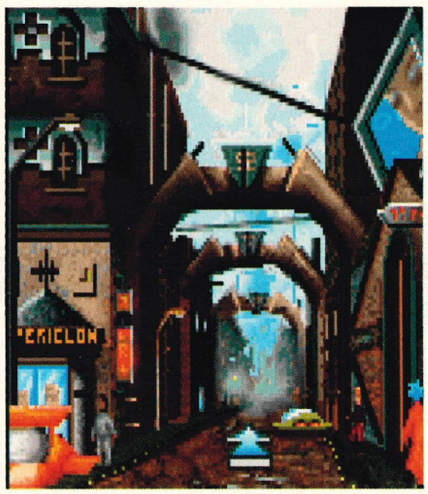
The main aims of the game are exploration and acquisition of knowledge. When you start investigating the planet, you are in for a pleasant surprise. If you enter a location and there is another running off it, the screen splits into two parts when you move into it and you can see both locations at the same time. Again, if there is another sub-location off this area and you enter that, the screen then splits into four smaller sections and you can see what is going on in all of them.

You will also find that BAT II is split up into various different smaller games. For example, you can enter arcades and play – and gamble on – an excellent version of Arkanoid, a perplexing variant of Chinese Checkers or a unique water balancing game called Tubular. Other games within the game are less fun: the requirement – unless you have the spare cash – to take part in sub-standard flight or driving simulations is no more than a waste of time.

That said, as you slowly but surely become aware of the plot, it is good to know that you will not be penalised in one part of the game if you have problems with the others. Your options are always open, and it is nice to find an adventure where you cannot simply become stuck at a certain point, unable to continue.

Combat, a rather considerable part of the game, can also be played on an arcade or strategic level. The arcade version is extremely similar to Hostages, where you have to fire at the infra-red shapes of your swrorn enemies as guided by intelligent sighting devices, while the strategical game is akin to some of the war games on offer.





Gaming clichés

BAT II suffers from a few old gaming clichés, which you thought would have been ironed out by now. For example, there is no auto-mapper, which would have been a nice touch, and yet again your character suffers from the overused constraints of lack of money and becoming weak without food, drink or sleep. Equally, getting the same answers from different non-player characters all the time is a bore.

BAT II is first and foremost an adventure and it is the way the adventure runs that makes this game. The well-designed and highly detailed graphic screens deliver a comic-book feel, whilst capturing the gritty realising of a very dark future. While some dull arcade sections detract from the overall excitement, it is still a stylish and enjoyable game to play.

■ ***Wayne Legg***

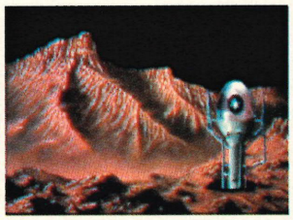
PCreview 7

After questioning the barman, it's time to have one for the road and get down it for more info.

Alternatively...



Rise Of The Dragon
Sierra/Dynamix, £30.00
A tough streetwise adventure, set in a dark, bleak cyberpunk future, where you play a wisecracking Mickey Spillaine type private-eye. Although punctuated with some dire arcade sequences, the game made its mark through the power of its characterisation and gripping scenario. It was at the forefront of computer technology for its time and you still need a fairly powerful machine to play it now.



Martian Memorandum
Access/US Gold, £35.99
Rated 5, Issue 1.
'Interactive movie' set in the 21st century with some stunning graphics, including digitised video sequences, and very impressive Ad Lib sound. You play a private eye who needs to find the missing daughter of an industrialist. ---Not, however, as playable as BAT II, since a lot of flexibility and interaction has been sacrificed to make way for this technical prowess.

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RICOH PCL5 LASER PRINTER

Ricoh UK Ltd is part of the worldwide Ricoh Group of companies, originally established in Japan, in 1936. With a turnover of over $5 billion and 37,000 employees, Ricoh have been producing computers and peripherals since 1971 and are the world's second largest manufacturer of Laser Printer engines. Ricoh have employed their expertise to produce a 'first' in laser printers for the world market, the LP1200 with FLASH ROM.

Fully HP LaserJet III™ compatible, the LP1200 employs industry proven laser technology. Unlike LED page printers, which use light emitting diodes, the LP1200's laser lightsource, focussed by high quality lenses, is able to produce the most accurate and intense printed images. Its fast, efficient processor and engine, together with a straight paper path design, allows printing at a full 6 pages per minute. Unlike its competitors, the LP1200 can print an A4 page of graphics at 300dpi with its standard memory. Also, Ricoh's advanced laser engine enables the LP1200 to address a range of print resolutions up to 400dpi. The standard 2Mb of RAM installed allows the LP1200 to print a full A4 page of text using standard internal resident fonts, or an A5 page of graphics, both at 400dpi. A FREE Windows driver supplied enables the Ricoh LP1200 to print a typical page of text at 400dpi from Windows 3 using the controller firmware currently installed on the printer and standard internal resident fonts. A 2Mb RAM upgrade (total 4Mb RAM) is required to print an A4 page of graphics.

Again, unlike the competition, the LP1200 includes a powerful document description language as standard. This language, 'LAYOUT', offers unique opportunities to develop custom-made printing systems. Forms and document templates can be designed and stored electronically in the LP1200's FLASH ROM, alleviating the need for pre-printed forms!

HP LASERJET III™ COMPATIBLE

400 dpi 2 Mb RAM 6 PPM

A4 TEXT/A5 GRAPHICS @ 400dpi • A4 GRAPHICS @300dpi
A 2Mb RAM UPGRADE IS REQUIRED TO PRINT AN A4 PAGE OF GRAPHICS AT 400dpi

FLASH ROM UPGRADEABLE!



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RICOH LP1200

- **6 PAGES PER MINUTE** *Using a straight paper path*
- **PCL5 - INC HP-GL/2** *With scalable fonts and vector graphics*
- **SHARP EDGED PRINTING** *Ricoh FIAL (Fine Image ALgorithm) enhances resolution*
- **400dpi RESOLUTION** *(Default res. - 300dpi. Will address 200, 240 & 400dpi.)*
- **2Mb RAM AS STANDARD**
- **UNIQUE FLASH ROM** *For controller upgrade and storage*
- **IC CARD SLOT** *(PCMCIA/JEIDA Compatible) For programmable FLASH ROM cards*
- **EXPANSION BOARD SLOT** *For improved connectivity eg. Coax/Twinax, PC-LAN etc*
- **LAYOUT** *Document Description Language*
- **SERIAL + PARALLEL PORTS**
- **1 YEAR ON-SITE WARRANTY** *Next working day response*



SHOWN WITH UNIVERSAL FEEDER TOP TRAY (OPTIONAL EXTRA)

FREE! WINDOWS DRIVER

The Ricoh LP1200 is a genuine laser printer and not an LED printer. Make sure you check out the competition!

CORPORATE SALES TEAM
Tel: 081-308 0888 Fax: 081-308 0608

Silica Systems are pleased to introduce the revolutionary Ricoh LP1200. It has all of the specifications that you would expect to see in today's most technically advanced laser printers, plus a unique additional feature which places it far ahead of the competition - FLASH ROM. This 'Future Proof' technology protects the investment you make when you buy a Ricoh LP1200, as it enables you to keep up to date with new laser firmware developments. FLASH ROM is an area of memory inside the LP1200 which holds the printer's controller instruction firmware. If new firmware is developed, eg an update to the printer's command language, it can be downloaded into this memory. Other manufacturers would require you to buy a new printer! Fonts, macros, graphics and additional emulations can also be stored in FLASH ROM, or on removable, industry standard FLASH ROM IC cards. The new Ricoh LP1200 is the only laser printer to offer this FLASH ROM facility. The LP1200 comes with a 100 sheet A4 paper tray (letter and legal trays also available as extras) and the facility to feed single sheets of paper and card up to 157gsm. An optional extra universal feeder provides the facility to automatically feed up to 150 sheets, from sizes of 98mm x 148mm to 216mm x 356mm in size at weights of up to 158gsm. The universal feeder also feeds up to 15 envelopes, overhead transparencies and labels automatically.

See how the Ricoh LP1200 compares to its Laser Printer Competitors

FEATURES	EPSON EPL4100	HP L/JET IIIP	M'MAN TALLY MT904+	IBM 4029 Model 010	RICOH LP1200
Average Street Price (excl. VAT) (*expected)	£569	£699	£699*	£750	£699
Official RRP (excl. VAT)	£945	£1,179	£1,099	£1,099	£1,195
Maximum resolution in dots per inch	300 x 300	300 x 300	300 x 300	300 x 300	400 x 400
Windows 3 Driver @ 400 dpi	-	-	-	-	YES
Print Speed	6ppm	4ppm	4ppm	5ppm	6ppm
Straight Paper Path	YES	-	-	-	YES
PCL 5 Printer Command Language	-	YES	YES	-	YES
HP-GL/2 Vector Graphics included	-	YES	YES	YES	YES
Resolution Improvement/Enhancement	YES	YES	YES	YES	YES
Standard RAM	0.5Mb	1Mb	1Mb	1Mb	2Mb
Full A4/300 dpi graphics with standard RAM	-	-	-	-	YES
Warm Up Time	<45 secs	<60 secs	60 secs	33 secs	45 secs
First Page of Text Output	<20 secs	<40 secs	34 secs	20 secs	<15 secs
Document Description Language included	-	-	-	-	YES
Flash ROM	-	-	-	-	YES
Upgradable Firmware	-	-	-	-	YES
IC Card Slot	YES	-	-	YES	YES
Scalable Resident Fonts - in HP LJ III Emulation	-	8	8	0	8
Resident Bit-Mapped Fonts	11	14	14	16	14
AGFA Intellifont Scalable Font Technology	-	YES	-	-	YES
HP LaserJet III Emulation Included	-	YES	YES	-	YES
EPSON FX Emulation Included	YES	-	YES	-	YES
IBM ProPrinter Emulation Included	-	-	YES	-	YES
Standard Tray Capacity	100	70	100	200	100
Protective cover on standard tray	YES	-	YES	YES	YES
Cost per copy**	1.65p	2.00p	1.71p	1.64p	1.65p
Min-Max Paper Weight in gsm	60-157	60-105	60-120	60-131	60-157
Able to print on OHP Film	YES	YES	YES	YES	YES
Able to print on card (157gsm - Manual Feed)	YES	-	-	-	YES
Standby -Noise Level	<40dB	31.7dB	<35dB	38 dB	<38dB
Printing -Noise Level	<50dB	43.3dB	<46dB	50 dB	<48dB

**As quoted by manufacturers - 2/4/92

All Trademarks are acknowledged

Consumables + Accessories

CODE	PRODUCT	PRICE Exc VAT
CAB 7500	Cable for PC/ST/Amiga	£8.47
KIT 5200	Laser Starter Kit inc Cable	£12.50
LAA 5238	Universal Feeder (2nd Tray)	£100.00
LAA 5262	2Mb RAM Module	£149.00
LAA 5210	Developer/Toner Cartridge	£65.00
LAA 5225	OPC Cartridge (Drum)	£89.00
LAA 5334	Letter Paper Tray (100 Sheets)	£35.00
LAA 5323	Legal Paper Tray (100 Sheets)	£35.00
LAA 5312	A4 Paper Tray (100 Sheets)	£35.00

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LP1200 WITH SINGLE BIN & 2Mb RAM SILICA PRICE:

£699

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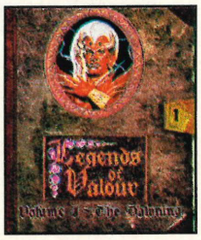
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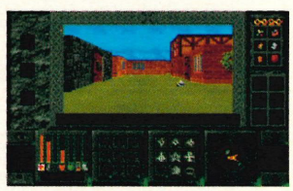


Title	**Legends of Valour**
Publisher	**US Gold**
Contact	**(021) 625 3366**
Price	**£39.99**

Legends of Valour

At last, a role-playing game with better technology than Ultima Underworld, a bigger game world than any other 3D RPG, an unlimited, non-linear plot, and plenty of humour too!

When you arrive in town there are one or two matters to be taken care of before you get down to the serious task of adventuring.



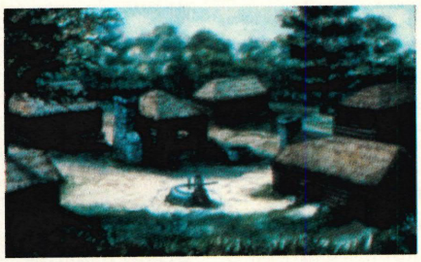
As you enter town, the gates shut behind you with a resounding clang. You're not going to get back out that way again ...

Established RPG fans will be familiar with Kevin Bulmer as the creator of the excellent Corporation, which was published by Core Design a couple of years ago. Corporation was ahead of its time in that it had realistic 360 degree movement, large characters with realistic light shading, and plenty of atmosphere and tension. You might also be familiar with the name Ian Downend. He used to be one half of the development team Astral, responsible for titles like Archipelagos, and more significantly, the 3D game Resolution 101.

Bulmer and Downend have since teamed up to create what is arguably the most advanced 3D graphics system currently in use in commercial games. I loathe the over-abundant use of the term Virtual Reality, so I'm not going to apply it to the work that Bulmer and Downend have done, but leave that to the marketing men and hype managers. In essence, what we can see in this game is not far removed from the technology used by Origin in Ultima Underworld, or by ID in the shareware classic Wolfenstein 3D. You have a viewpoint able to rotate smoothly through 360 degrees, you have characters which are proportionately scaled as they travel from foreground to background, and you have detailed texture mapping that gives the scenes generated by the game a very solid look.

Where the Bulmer/Downend system scores over Underworld, and to a lesser extent, Wolfenstein, is in speed. What matters in this case is not so much that the system is blindingly fast on a good 386 or 486, but that, even given a fairly tired and sad 286, you still stand a reasonable chance of getting the game running at something approaching a playable speed, without having to shrink the display to the size of a pinhead or switch off all the detail.

Another very good reason that speed is essential to a game like this is that, while the graphics are good, the general



Being a small town boy, life in the big city is going to be quite novel at first. Let's hope you survive long enough for the novelty to wear off.

idea is not for people to stand around admiring them, but, in a strange way, not to notice them at all. The principle behind a good 3D system is to create a believable world, not just jaw-dropping graphics. There is an optimum scale for all the objects in games based on this technology. That is the distance at which objects are drawn at their natural scale. As they move further back from this distance, pixels must be squeezed out to get the object to the correct size, and as the objects move closer, the pixels must be enlarged, so that they become blocky and uglier. Given the present constraints of memory and processor speeds, there isn't a lot that can be done about this, but it is easily forgiven if the game moves at a reasonable pace.

So much for the 3D, but that alone doesn't make a good game. What elevates Legends of Valour beyond the pile of so-so RPGs is the fresh approach that the development team has taken to story lines. Although they don't offend in this way quite as much as adventures do, many RPGs still tend to be very linear in terms of their plot. Even those that allow the player some lateral space still require that ultimately he or she doesn't stray too far from the storyline that the designer had in mind.

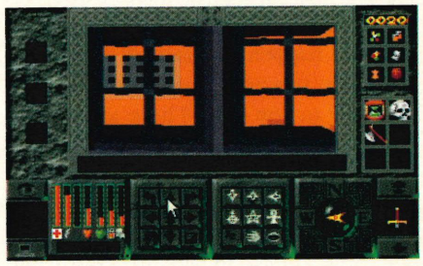


Gambling is one way of getting a bit of cash together, as long as you're prepared to run the risk of losing your shirt.

Bulmer and co have taken this problem on board and eliminated it by simply doing away with the plot. That's not entirely fair: there isn't a total absence of storyline, but it is flexible enough to allow you to ignore it if you wish and still get a lot out of the game.

Intrigued? That, I believe, is the general idea. There is far more a sense of discovery in this game, arriving in town, as you do, knowing little more than that your adventurous cousin Sven has preceded you. From here on, life in Mitteldorf carries on exactly as you might expect it to do in any thriving, typically olde worlde RPG town. People go about their daily business, and, as far as they are concerned, you're just another

Peeking through windows is another little trick this system can cope with. Be careful though, it's just one of the activities that is illegal in Mittledorf.

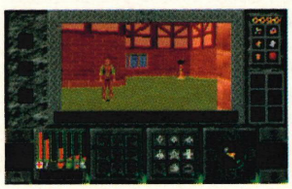


stranger come to sample the delights of city life. You had better hope that they are delights too, because, once you're within the town gates, they close with a resounding clang and are not to be opened again.

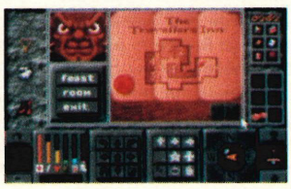
Considering that you're new in town, you may if you wish hail a passing stranger and ask them the directions to the local hostelry. You can ask about a limited range of subjects to begin with, but as you learn more about the town and its inhabitants, the range of subjects you can ask about increases.

Having posed your question, you may well find that you are politely offered accurate directions, although you're more likely to get a vague answer or even be insulted. Insulting each other at every opportunity seems to be the major sport of the strange inhabitants of Mitteldorf. The people of the town spend much of their spare time thinking up delightful little numbers like "You smell like a dead Kobold's armpit", or "Your mother swims out to Orc ships". This sport often leads,

Two Minutes *in the urban jungle*



The first thing to do is find a friendly tavern. Perhaps this passing stranger can help with some directions.



You're not too rich at the moment, so you can't be too choosy in picking a room. No luxurious penthouse for you.



Having secured a room it's time to get some grub inside you (although perhaps that should be 'grubs inside you').



Before you can do any serious adventuring, you have to build up your cash reserves: trading is as good a way as any.



Oh dear, the new boy in town has got into a fight already. I don't fancy my chance with these guys either.

funnily enough, on to the only activity that the locals like more than insulting each other: fighting.

You can expect to be frequently dragged into fights in Legends of Valour so you had better find a weapon of some sort early on in the game. Once you do find yourself involved in fisticuffs, there are three different moves open to you, each of which will do a different amount of damage depending on your situation. Through rather painful experimentation, you must find out which weapons and which manoeuvres are the best to use against the various characters you will encounter in the game.

If you happen to come off worse in a fight then you need to get yourself healed as soon as you can. There are several ways of getting back to full health, and which you choose will depend on your magical ability and your cash flow. If you are limited in both departments then you are going to have to patronise the establishment of Rusty Cutlass. This long-standing medical practitioner will certainly cure you, and if you lose the odd appendage in the process ... well, it's a small price to pay.

Rather more seriously, you might fall victim to the open sewers, bad breath and smelly armpits that generally abound in Mitteldorf, and contract a disgusting disease. There is a delightful range of diseases just waiting to be caught, such as lycanthropy or vampirism, but you probably won't be aware that you've got one until bits start to drop off.

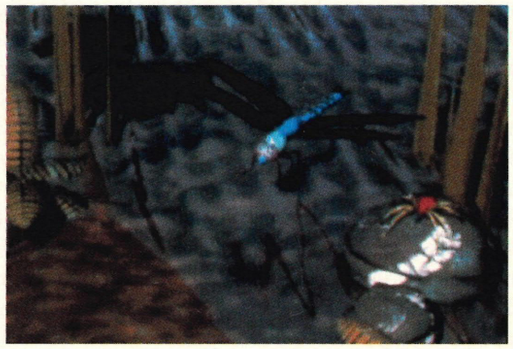
So you finally make it to the nearest hostelry. What is there to do here? The most obvious things are eating and drinking and there are plenty of delicious dishes on offer from bugburgers to ox blood. Each of the establishments in the town charges a different rate for these, but the price is not necessarily an indication of quality. Incidentally, unlike many RPG games, Legends of Valour won't allow you to wander around for days on end without eating, drinking or sleeping. You need to do all three on a regular basis if you plan to leave town alive some day.

Back to the hostelry. It also has a notice board, on which items of information are printed and job offers are posted. The information could be anything from a note from your friend Sven to a notice advertising that the players are in town. More immediately useful, if you are a little short of cash, are the job offers. The employment laws in Mitteldorf are pretty much relaxed, that is to say, there aren't any. If you fancy the look of a job, just turn up, and if you get there first, it's yours. Mind you, job security doesn't count for much either – these jobs are usually one-off deliveries, and the rate of pay makes even working for the NHS look like a lucrative profession.

The next thing to do is find yourself a relatively safe place to sleep and stash your goods. There are plenty of hostelries willing to rent you a room, but you can expect to pay through the nose for a lot of them. To be able to afford your rent you'll have to come up with a good way of earning some dosh. You can always try gambling, but this is far more likely to ruin you than set you up for life. A far better alternative is to trade the items that you are carrying. You begin the game



The 3D construction of the locations and the characters is truly impressive as both can be viewed from any angle.

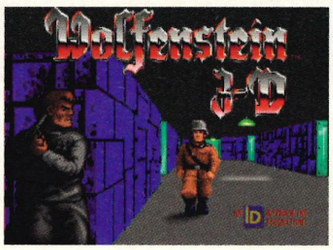


The gorgeous intro sequence admirably demonstrates that the development team knows a thing or two about bitmapped graphics as well as 3D.

Alternatively...



Ultima Underworld
Origin/Mindscape, £39.99
Rated 9, Issue 8
Underworld was the first game to feature super-fast texture mapped 3D graphics which could be smoothly rotated through 360 degrees, although it is almost passé these days, what with Wolfenstein and Legends of Valour taking the world by storm. Underworld is going to appeal more if you prefer a bit of old fashioned hack and slash to all this new-fangled cerebral stuff.



Wolfenstein 3D
ID/Transend, registered version £24.00, shareware version £5.00. Reviewed Issue 12
This program just goes to show that the best things in life are (almost) free. Despite its slightly dubious theme — you race around a POW block shooting up Nazi guards — technically this is just as good as Underworld. If you like a bit of mindless violence, it's an entertaining way to spend a couple of hours, if a little limited.



Ultima VII
Origin/Mindscape, £39.99
Rated 4, Issue 9
Another Garriott special — the latest in the Ultima series proper is huge (so large that one or two bugs got lost in the early versions). One thing that the Ultima games have going for them is that they do manage to create a complete world which you are free to roam without being too constrained by a tightly defined plot line, very much like Legends of Valour.



Darklands
MicroProse, £44.99
Rated 5, Issue 14
Yet another role-playing game which doesn't force you to follow a single path, although MicroProse's first foray into this genre has broken away from the graphic approach and resurrected the traditional text-based description, common to most RPGs of yore. It doesn't quite come off, but this may be worth a look if you are after something different.

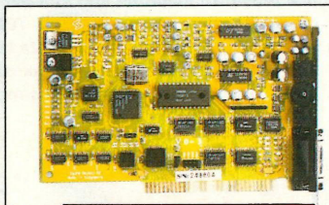
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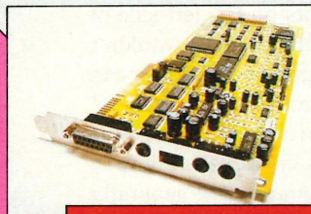
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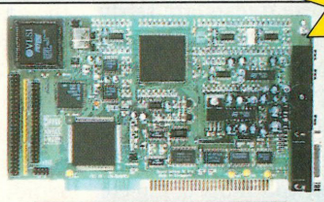
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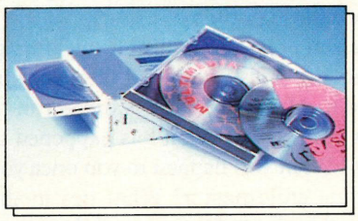
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SOUND COMPATABILITY			
Adlib	Yes	Yes	Yes
Sound Blaster 2.0	Yes	Yes	Yes
Speech Thing	No	Yes	Yes
Sound Source	No	Yes	Yes
FM SYNTHESIZER	11 Voice Mono	11 Voice Mono	20 Voice Stereo
CD-ROM INTERFACE			
AT-Bus	No	Yes	Yes
SCSI	No	No	Option
CONTROL			
Volume (manual)	Yes	Yes	Yes
Volume (software)	No	Yes	Yes
Bass & Treble	No	Software	Software
POWER AMPLIFIER	4W	4W	4W
MICROPHONE			
AGC Amplifier	Yes	Yes	Yes
Stereo input	No	No	Yes
SOFTWARE CONFIGURABLE	No	No	Yes
MIXER SUPPORT	No	No	Yes
DYNAMIC FILTERING	No	No	Yes
SAMPLING RATE			
DAC	To 44.1 KHz	To 44.1 KHz	To 44.1 KHz
DMA & Interupt	Yes	Yes	Yes
ADC	To 15 KHz	To 15 KHz	To 44.1 KHz
Stereo ADC	No	No	Yes
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Music aural software	Play it by ear	Play it by ear	
Voice playback utility			Windat
Text to speech software	Monologue	Monologue	Monologue
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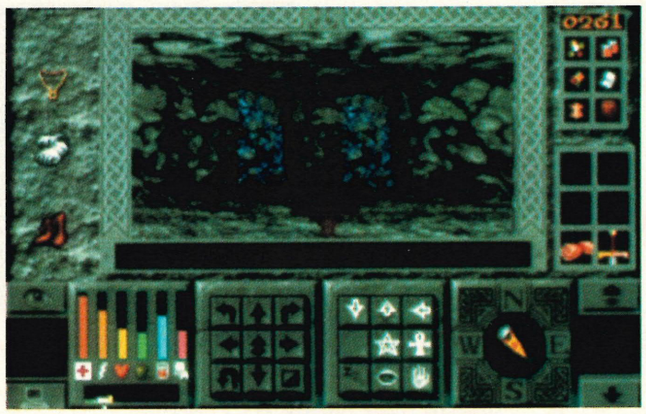
with a small selection of gems, hides and other tradable items, but by buying and selling in the right places you can quickly turn these into a sizeable wad of money.

All right, you're saying, I'm in Mitteldorf, I've got a nice room and some cash, I've tried the night-life, and now I want some real excitement. What do I do? Simple — you join a guild. There are several guilds in Mitteldorf, each one devoted to a different type of typical RPG art, from satanic rites to holy magic to good old fashioned fighting. Joining a guild requires a small amount of money, but, more importantly, you are expected to complete a quest.

To begin with, the quests are fairly simple affairs: usually you have to collect an object. Just find the object, get it back to the guild's headquarters and avoid getting killed in the process if possible. Once you've got yourself enrolled in a guild, however, you must complete further quests to advance through the ranks until you eventually become guildmaster. As you progress the quests become increasingly difficult and your objective more cryptic, so don't expect to breeze through them.

As you progress you'll start picking up intriguing clues that reveal there may be more to Mitteldorf than is dreamt of in your philosophy. What has happened to Sven? What will happen to you once you become guildmaster? What lies in the caverns beneath the streets of the town? Is there a way out of Mitteldorf, or are you destined to spend the rest of your days there?

Some of the guilds will endow you with useful magical skills. Magic in Mitteldorf isn't the typical rune-casting, spell-incanting mumbo jumbo you might have come to expect from elsewhere. No, here you have just a single icon to represent each spell, and one click is enough when you wish to use one.



Beneath the town, there are miles and miles of catacombs, and the inhabitants are even more unfriendly than they are on the surface.

There are three special items to be found in the town, and these appear in the empty icon slots on the left side of the screen as you find them. It wouldn't be fair of me to divulge or where they can be found, but they are there somewhere! Among the inhabitants of Mitteldorf there are dubious types you ought to avoid. The town guards will generally leave you alone, but cross one of them in a bad mood and you're liable to find yourself hauled up in front of the king on some trumped up charge like stepping on pavement cracks (all right, I made that one up, but the real charges are just as ridiculous). You'll then find yourself thrown into a cell for a day or so, which isn't very funny when you are in the middle of a quest. Stay out late at night and you may well encounter some of Mitteldorf's even less desirable inhabitants. Quite a few of them have rather too much facial hair and a taste for blood is not at all uncommon among the rest.

Legends of Valour is a very brave attempt to do something new with the RPG genre. It's certainly not going to be to everyone's liking, but many devoted RPG fans and some newcomers too should find this to be an entertaining and refreshing approach to this type of game.

■ Laurence Scotford

Techspec

Surprisingly you can get away with a fairly low powered machine and still get a playable game, although below 16Mhz you shouldn't expect too much. Note that, although you can use the keyboard for some functions, you will need a mouse to play the game.

Disk requirements

High density	✓
Hard disk only	✓
Space taken on hard disk	7Mb

Graphic modes

CGA	✗	EGA	✗	Tandy	✗
VGA	✓	SVGA	✗		

Soundboards

Ad Lib	✓	Roland	✓	Sound Blaster	✓

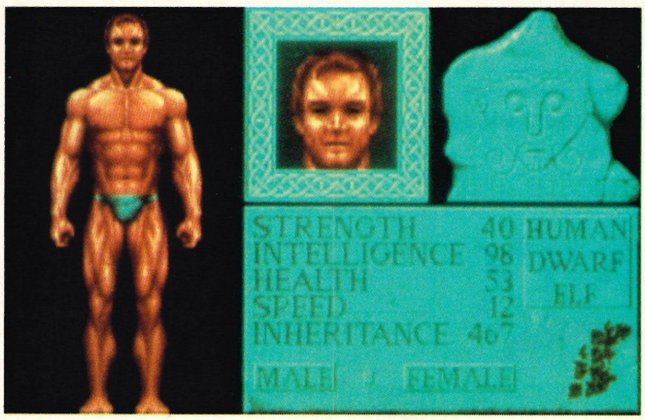
Control

Joystick	✗	Keyboard	✓	Mouse	✓

Performance

Optimum speed	20MHz
Minimum memory	640K
Free RAM required	520K

PCreview 8



Character generation works in a typical RPG way, although it isn't at all racist: you can play an elf or a dwarf too if you like.



If your PC isn't really up to it, you can still evoke a lick of speed from it by shrinking the display size and turning off some of the detail.

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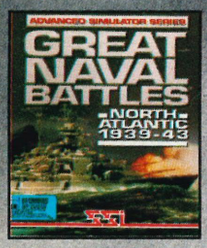
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Ned '92



Title	**Great Naval Battles**
Publisher	**SSI/US Gold**
Contact	**(021) 625 3366**
Price	**£39.99**

Great Naval Battles

Well, someone, somewhere, must have been listening, because the last six months or so has seen a veritable fleet of naval programs come down the slipway. First was Dr Peter Turcan's idiosyncratic Dreadnoughts, then SSI's good tactical/strategy release Carrier Strike, followed closely by SSG's graphically impressive Carriers at War — now SSI has fired another broadside with the thundering Great Naval Battles.

Great Naval Battles — North Atlantic 1939-43 is a 'simulation' of surface warfare in the Atlantic Ocean during the first years of the Second World War. It places you in command of either the Royal Navy, or the German Kriegsmarine. Play is available at several levels, in engagements, operations, or campaigns.

The engagement level is the shortest and simplest, simulating an encounter between two or more ships or task forces in a single 'battle'. At this level the ships start 'in contact' and the battle can last anything from five minutes to several hours. The engagements include re-enactments of the Battle of the River Plate (the Graf Spee), the Bismarck vs the Hood and Prince of Wales, the Scarnhorst and HMS Glorious, and many others including an intriguing 'Jutland II'.

The operational level puts you in control of entire operations, either responding to a particular enemy threat, or setting out on your own sorties. Ships and task forces are controlled here for days and even months, considerations are on a much grander scale, and the sheer size of the Atlantic battlefield becomes apparent. The scenarios here include 'winter sorties' (German pocket battleship and battlecruiser activity in 1941), Operation Rheinubung (the fateful voyage of the Bismarck and Prinz Eugen in 1942) and the Battle of the Barents Sea (convoy action with heavy German units 1942/43).

The campaign scenario in GNB should only really be attempted once engagements and scenarios have been mastered. It puts you in command of either the

Techspec ***Great Naval Battles comes on three high density 3.5" disks. Note that you will need extended memory for sound.***

Disk requirements

High density	✓
Hard disk only	✓
Space taken on hard disk	***9Mb***

Graphic modes

CGA	✗	***EGA***	✗	***Tandy***	✗
VGA	✓	***SVGA***	✗		

Soundboards

Ad Lib	✓	***Roland***	✓	***Sound Blaster***	✓

Control

Joystick	✗	***Keyboard***	✗	***Mouse***	✓

Performance

Optimum speed	***16MHz***
Minimum memory	***640K***
Free RAM required	***585K*** *(plus 700K EMS for sound)*

British or German naval surface forces during the first four years of the Second World War. The campaign starts in October 1939 and lasts until September 1943. You control all the major warships of your fleet, maintaining patrols, staging raids, mounting voyages, etc, to try and keep/disrupt control of the Atlantic lifeline. At the end of the campaign, your success or otherwise is decided by how you have affected the date of D-Day if the British do well it's brought forward, if the Germans succeed it is delayed (or even aborted).

Control levels are either at Captain (each ship), Fleet (each task force) or Grand Admiral (strategic). Each is supported individually by various screens and information, but the core of the game is the ability to control 'from the bridge' each ship.

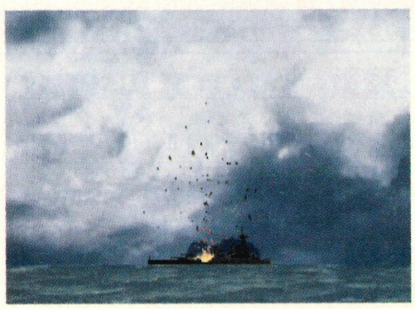
At ship level, control is primarily fire direction and navigation, although areas such as plane spotting, damage control and torpedoes are covered. The ships are divided into separate 'stations' which are placed on automatic or manual control. During combat you will flick back and fore between your gunnery stations and navigation. The main screens can show a window of the overhead map view, allowing you at all time to be aware of the wider picture, in particular the position of your, and the enemy's ships.

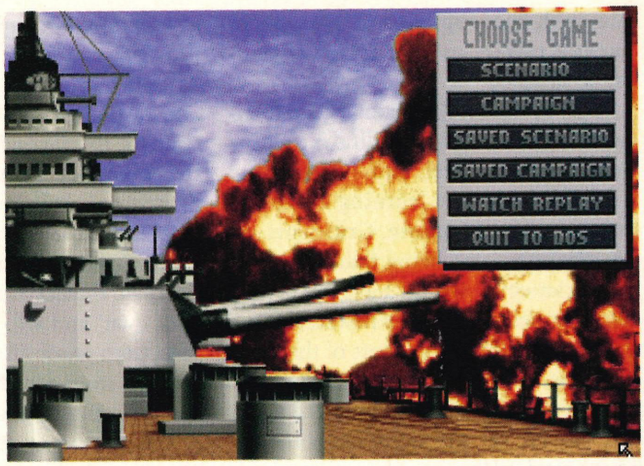
The displays are all well presented, with 'zoom' options, and the use of 'range circles' to show the effective range of primary and secondary armaments. The vessels in these conflicts were often not equally matched, so that the use of distance, or the chance to reduce it can be critical in some of these battles.

Gunfire direction is dependent on target selection, manoeuvring into the correct position and the relying on the abilities of your crew — in the real heat of battle you can almost smell the cordite fumes wafting over the keyboard!

Graphics throughout are of the highest standard, with a separate reference section, giving background on ship types, strategies and weapons. These are displayed together with high-resolution black and white graphics, and each of the friendly ships can also be displayed in a profile and overhead view.

Time is, of course, of the essence in warfare, but in computer games too much time can risk losing the attention of the user — naval warfare by its very nature involves huge distances and rather pedantic manoeuvres GNB allows you to play in 'real-time' or to use an accelerator, multiplying the passage of time by x2, x4 or even a rapid x8. This is interesting to see in a SSI product — in the old days realism would have been all, now they accept that 'playability' is also a pre-requisite, and allowing time contraction is in this vein. A word of caution though, at x8, time flies, as do high explosive shells — if you're not careful the flagship bridge you were sitting on a minute ago, may now "be a couple of fathoms e'er the foamin' sea".





One of the many graphically superb options screens.

Damage and damage control form an important part of GNB, a separate display being available, cleverly showing the ship in 'layers' — the attention to detail is extraordinary, with even the colour of the gun hits indicating whether they are from main or secondary armament.

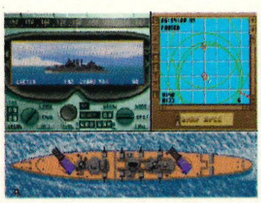
The manual is the usual work-of-art that is the norm for SSI — almost 200 pages, the first half being devoted to an historical treatise of the period, conflict and 'hardware'. Illustrations and line drawings adorn every page, with SSI again managing to dig up some of the more unusual photographs.

The remaining half of the manual is dedicated to a 'players guide' and in this department SSI are certainly fast improving — previous manuals have been very ▶

PC review 8

Two minutes *of the Battle of the River Plate*

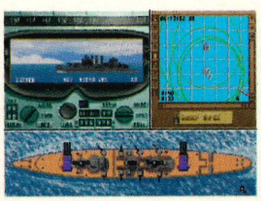
Recreates the famous clash in 1939 between three British cruisers, HMS Exeter, HMS Ajax, and HMS Achilles and the German 'Pocket-Battleship', the Admiral Graf Spee.



The KMS Graf Spee about to open up with her six 11" main armament on HMS Exeter. Range is 20,000yds and the Exeter is screening HMS Ajax, and Achilles.



The Exeter responds with her six 8" armament, but is at the extremes of their range. Is it enough to hold off the Graf Spee with it's bigger hardware.



The range has now reduced to under 16,000yds and the Graf Spee is able to bring to bear both her main and secondary armament in a full broadside.



The three lighter armoured British cruisers are now within the range of the Graf Spee's secondary armament, the range being reduced to 12,000yds.

thin, with poor explanation. No wonder potential players lose interest in the product before long.

In GNB, the combination of good manual, a full and detailed readme file with a step-by-step tutorial, and a 'beginners' scenario, make the learning curve the best yet in an SSI release. Criticisms are few, the main one being that a fraction more gameplay would have been welcome, something like the newsreel films in Patton Strikes Back, shots of the sinking ships, or (excuse the pun) a 'floating' camera view. These would make GNB very special, as opposed to being merely a very good release.

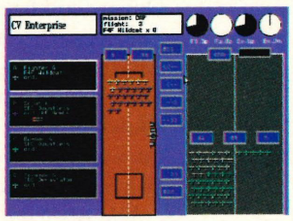
An interesting point to note, is that in the new SSI catalogue GNB appears not in the war games section (with Carrier Strike, Second Front, Conflict Korea, etc) but on its own in a simulators category. GNB is not purely a tactical/strategy game, but puts you on the bridge of these huge ships, simulating the actual combat, from navigation to damage control, fire direction and also grand strategy.

As regards the future, SSI have hinted at several GNB expansion disks, on the drawing board are 'Super Ships of the Atlantic' which includes many German and British ships that were not built in time for the Second World War (perhaps the 'Frederick der Grosse — the 'Super Bismarcks'), 'America in the Atlantic' featuring all the US ships that could be found in the Atlantic during WW2, and also a 'Scenario Builder' that allows you to 'make your own' and will include a brand new campaign game that will enable you to progress from a lowly destroyer captain to a full blown task force commander! 'Super Ships' is due at the end of 1992, the 'Scenario Builder' in January 1993, and 'America in Atlantic' in April 1993.

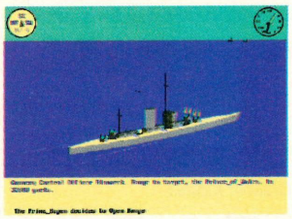
In conclusion, Great Naval Battles is what you would call a very well presented product, covering in detail a fascinating and unlikely to be repeated period of military history. The graphics are first rate, the interface is smoother than Casanova at a Brylcream convention and this is very much a quality release.

■ Robin Matthews

Alternatively...



Carrier Strike
SSI/US Gold, £39.99
Rated 6, Issue 10.
Another SSI release, the emphasis here is on carrier operations as opposed to surface action. The main plank of the product is the actual 'management' of the limited resources of the aircraft, ie, plane refuelling, use of elevators and the search procedures. CAW has the benefit of a slick interface, and includes some basic surface action. It lacks a 'campaign' option, but may have set the stage for GNB. Together they make a formidable 'combined operation'.



Dreadnoughts
Turcan Research, £34.99
Rated 6, Issue 9.
The only other contender currently in the 'surface action' stakes. Dreadnoughts uses a development of Dr Turcans land warfare system, and is equally 'orders' based as Great Naval Battles. We do have a completely different approach to the one that GNB offers, it's not as user-friendly, and is recommended more for the ex-table top wargamers. Crisp graphics, lots of what-ifs and some add-on disks covering the same period — and same confrontations as GNB.

"My palms were sweating as Italy surged forward"



SOCCER SUPREMO

THE WORLD CUP - THE ULTIMATE CHALLENGE

The ultimate challenge in soccer management is to take a ragbag of good club players and mould them into an efficient, organised squad that will take the rest of the world apart in the World Cup Finals. Why not join Michel Platini, Johan Cruyff and Franz Beckenbauer in the USA in 94?

Soccer Supremo puts you in charge of a European national squad preparing for the European Nations Cup qualifiers. You have an initial four year contract that may be extended to six or eight years, or reduced to two, as the results dictate. You'll be expected to qualify for the Finals, then put up a show against the best European teams. but this is just preparation for the big one:The World Cup!

Customisation. The game will allow you to take the European nation of your choice and you will be allocated an initial squad of 16 players. You can introduce a further 34 players, making 50 in all, whose names and skills (but not levels) You can define yourself. These players are introduced gradually as you discover the weaknesses in your squad and also to create the balance of skills that match your style of play. The original 16 players can be defined in the same way using the EDIT program (free with the game) if you wish as well as the teams that will make up the opposition.

With Soccer Supremo the soccer management game comes of age with a match display that not only gives considerable information about the performance of players and team, not only allows major tactical changes the state of the game demands, but is also entertaining and even exciting. The childish number juggling game has been replaced by an intelligent select - the - team and watch - the - match simulation.

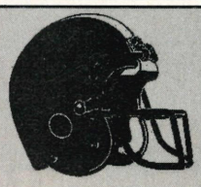
Oh ..yes..Italy equalised but England won on penalties.....

3D, 22 MAN MATCH DISPLAY

Continuous display of:
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PLAYER-WITH-THE-BALL INFORMATION

IN MATCH TACTICAL MOVES

SUBSTITUTIONS
POSITIONAL CHANGES
OVERALL WORKRATE
IND. PLAYER WORKRATE



HEAD COACH V3

"From my point of view , the game has kept me sitting up at nights through holidays and weekends for up to 12 hours at a stretch, with miniscule breaks for food and other necessities.....It is a game I have no hesistation in recommending to anyone with even the slightest interest in American Football"(ATARI USER)

Headcoach V3 has been described as "the best game ever put onto a computer". It is the complete American Football game, a multi season epic with the very best strategic elements of the real thing. You will call the plays, devise the gameplans and develop the team.
Use the first season (2 pre-season games, 16 regular season games, and the play-offs) to discover your 45 man squad of players. Then exploit the college draft to improve the team and expand your game play to beat the very best the NFL can throw at you.
56 Screens of stats are available tohelp you to judge your players and team performances.
Players will age and teams will fade (a player will last about 6 seasons), but you will stay and rebuild....

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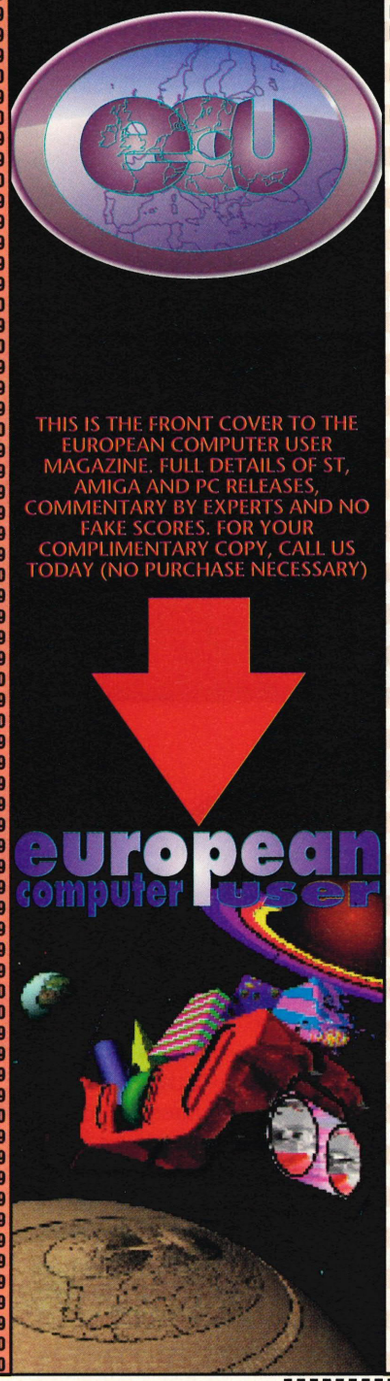
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Head Coach works with ALL PC/monitors
SS and DIV 1 require EGA/VGA colour monitor/TV.

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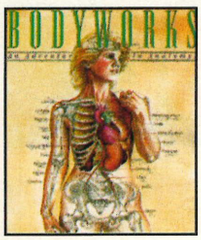
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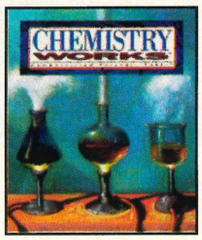
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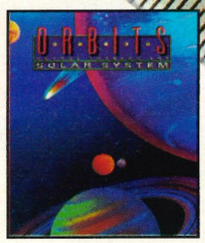
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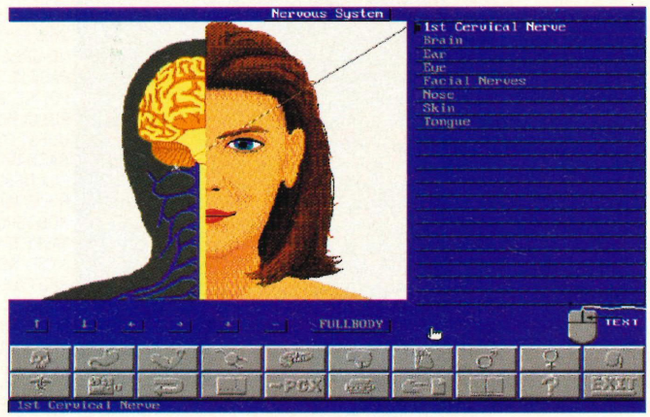
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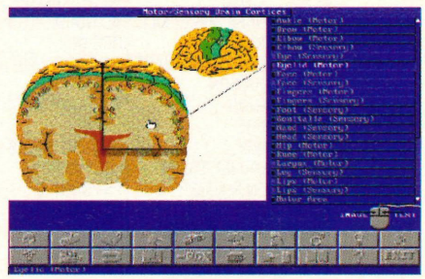




Titles	**Bodyworks, Chemistry Works, Orbits**
Publisher	**Guildsoft**
Contact	**(0752) 606200**
Price	*Bodyworks* **£59.95,** *Chemistry Works* **£49.95,** *Orbits* **£49.95**



Using Bodyworks you can find what goes on inside your head. To discover where any of the parts listed are click the left mouse button. Click the right button for text information.



Computer

Computers can bring science to life in a way that makes learning more fun and more effective – three packages from Guildsoft set out to tackle some weighty subjects

Bodyworks, as might be expected, is a pictorial exploration of anatomy. Colourful pictures of parts of the human body are displayed with reasonable clarity on a standard VGA screen. To make up for the shortage of resolution you can zoom in on any area of the body, by first zooming out to full body and then moving a selection box to the required place. The levels of detail that you can choose to display also make it easier to use than a standard text book.

As well as the graphic display the screen gives a list of anatomical parts. As you move the mouse over the display, diamonds appear: clicking on one of these produces an arrow to the relevant label. Similarly, clicking on an item in the list shows the link to a point on the diagram. Almost all the labels have associated text information, accessed by clicking the right mouse button, and all those preceded by a blue rectangle have further graphics. So, for example, by clicking on the eye you are shown another diagram with more detail.

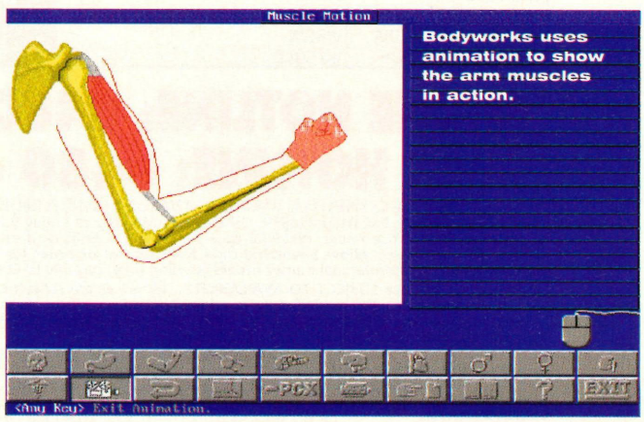
One of the problems with presenting human anatomy is the sheer wealth of information. Bodyworks deals with this problem by not trying to show it all at once. Instead it divides the information according to function — the skeletal system (bones), the cardiovascular system (heart, lungs, arteries and veins) and so on. There are 10 separate systems, each with an appropriate icon.

Bodyworks makes it easy to find the facts you require. The 'see also' button refers you to related topics and the Index Search button gives an alphabetical index to the entire program and will search for any word you type in. So if you want to know more about your femur or your carotid artery but have no idea where to start, then just ask Bodyworks.

Clicking the health information icon produces a menu of other topics for which there are text screens. Unfortunately these proved disappointing, particularly the screens on sports injuries which simply showed whether the occurrence of injury to eight different parts of the body, from head to foot, was high, medium or low for a long list of sports (including Cheerleading!) without giving any indication how to protect yourself.

Bodyworks scores over a book by being a more accessible source of information and has one more feature a book would find difficult — showing organs working. The animation button has a choice of three demonstrations — lungs breathing, heart beating and muscle motion — and on seeing how informative these were I felt the program could have provided more of these displays.

Bodyworks will be useful in any educational establishment teaching a human biology course. It is also being bought by ambulance stations who are now using their computers to give extra training to their paramedics.



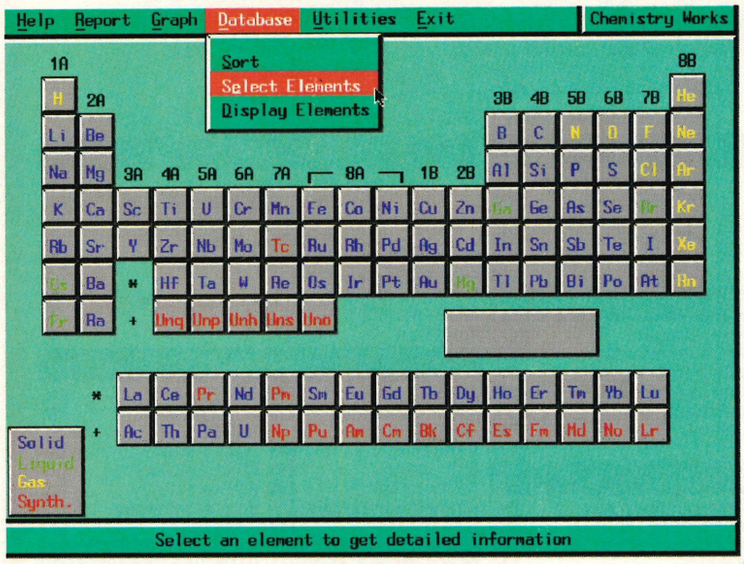
science

By comparison with Bodyworks, Chemistry Works is visually unexciting but anybody studying chemistry at GCSE, A-Level or beyond will find this 'active' periodic table interesting. Its initial display looks like a standard periodic table but clicking on any element takes you to a screen of information about that element.

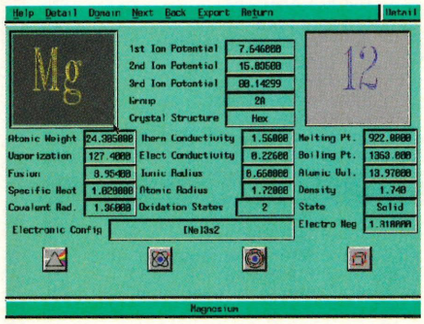
There are four further screens for each element — a list of all the selected elements radioactive isotopes with their half life/abundance and mass number; a spectrograph indicative of its colour spectrum; its electron configuration and its crystal structure. By roaming through the table you can find out random bits of data about your favourite element but more importantly you can also examine trends across the periods and groups.

The database command allows you to specify conditions of your choosing, by simply selecting operators and fields from a list so you can quickly discover all the elements that fit the criteria. Its Graph options enable you to chart the properties of one or two properties of all or a group of elements.

If you are interested, or studying chemistry, which aren't always the same thing, you'll appreciate Chemistry Works.



Clicking on any element, such as Mg for Magnesium, gives you all the facts and figures you need.



You can see the Electron configuration for each element — this is the display for Magnesium

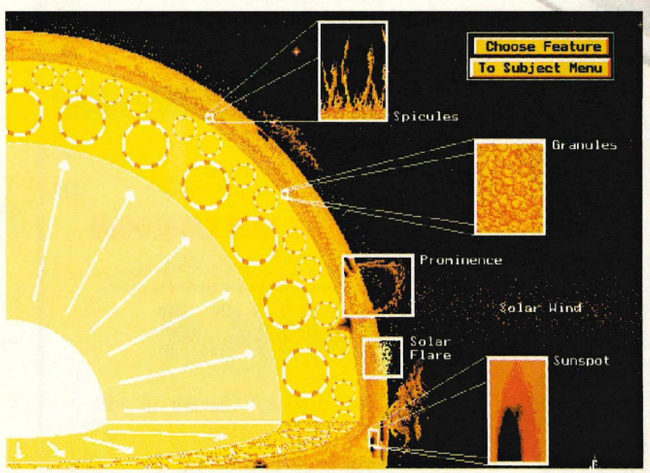
The third offering, Orbits, is likely to appeal to anybody who is interested in astronomy — whether as part of their studies or as a hobby. Although, like the other two, it is a DOS program, its graphics are fairly convincing and the ability to select which planets to view in relationship to one another or to involve in comparisons means that it presents information in a way that would be very difficult in any other medium.

It has sections for sun, moon, earth and planets — into which category come the other eight planets in the solar system plus asteroids and comets. You will find information about structure for every item — presented using text and graphics. There is generally a lot to read on each of a number of screens. Although there is a great deal of factual information the text is conversational rather than academic. The information given in the orbits option is statistical — each planet's distance to the sun; its eccentricity; orbital velocity; period and inclination. There is a lighter side to Orbits but its inclusion seems odd. If you ask for a 'solar-shuffle' the introductory screen of the planet concerned is mixed up as in a tile game and your task is to rearrange the squares to restore the original in fewer moves than the author's high score of 4.193. The catch is that even identical tiles have to be in their correct position! Maybe this would be light relief after contemplating the vastness of the universe but personally I found the challenge too incongruous.

Finally there is an orbital mechanics simulation. All you see is a little dot rotating around a circle but it is controlled by the laws of gravitation and making it do what you want is far more difficult than you would imagine. The problem is that you don't always move in the direction that your rockets are pointing! It makes you realise what clever people those astronauts are.

Given the amount of graphic data these three programs store you might expect that they would require hefty hardware. This is not the case — they all work on basic PCs using DOS, but they do need 640K RAM and for Bodyworks and Orbits a colour VGA display is advisable — although EGA is supported.

■ ***Sue James***



Orbits provides a comfortable and fascination way of looking at the sun.

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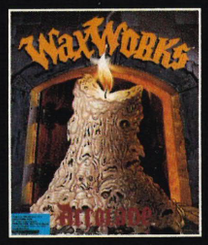
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Title	**Waxworks**
Publisher	**Accolade**
Contact	**(081) 877 0880**
Price	**£34.99**



Wax

Something nasty is lurking in the crypt — and in the graveyard, the mines and London fog too!

I must begin with a warning: if you faint at the sight of blood, don't buy Waxworks. It contains more blood, guts, and death than I have ever seen in any computer game, and it is *not* suitable for young children.

It all begins innocently enough. You have to investigate your late Uncle Boris's waxworks, in search of information that will help you lift a curse laid on your family. The curse has possessed your twin brother Alex who is lost inside the museum, where he is preparing to unleash diabolical forces of evil upon the world.

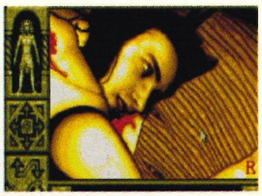
Entering the museum, you are confronted by four exhibits, which you have to enter in order to save both your brother and the world, from a fate worse than death.

The four adventure-type scenarios are set in different locations: ancient Egypt, 19th century London, a 1940's mine and a modern-day graveyard. Like Horror Soft's previous release, the Elvira role-playing game, Waxworks has a first person perspective and enables the protagonist to rotate smoothly through 360 degrees. The aim of the game is to investigate each location, overcome the challenges they provide, and eventually free your brother from the curse.

Each scenario is completed using a radically different method. The Ancient Egypt section comprises logical problem solving and combat, while 19th century London, based on the Jack the Ripper tale, is pure adventure material, with various objects to be found and used in specific locations. In the mine you have to combine of combat and exploration skills, while the graveyard is combat orientated. That said, the controls used to play the game remain the same throughout

The first thing to impress me about this game was the combat system. Once you have armed your character and are involved in a fight, you can aim your blows at any part of your opponent's upper body, with devastating results is you manate to hit.

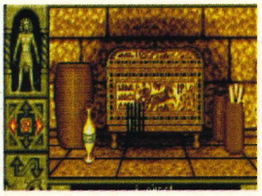
In the Egyptian stage, your primary aim is to find clues as to your brother's whereabouts. First, however, an ancient Egyptian lies dead. You won't find clues unless you examine the body



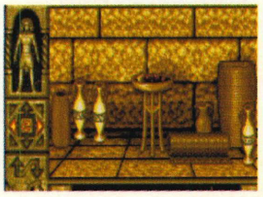
A close-up of the body reveals a potentially useful manuscript that could hold special clues.



Here is the manuscript. But what does it mean? Deciphering it is just one puzzle.



Don't forget the dagger and lamp, and once you have them it is time to examine the chest.



The chest has yielded various treasures, now it is time to search the other parts of the room.

works



An arresting development in East London! It's very easy for you to become the victim of your own investigations.

With regular practice you will able to decapitate Egyptian priests or dismember aggressive zombies, leaving them pathetically attempting to attack you with their bloody stumps, until you decapitate them too. Every dismemberment is displayed on screen with generous amounts of blood and gore!

I was also captivated by the way the game system worked. Although there are some ancient adventure clichés, involving finding artefacts at random and placing them in certain pre-determined locations, the way you solve most of the problems is quite novel. Not only do you have to combine several of the artefacts picked up on your travels to complete certain quests, but there are also a wide range of other puzzles to solve, including mathematical calculations. Although these can be quite tough, help is at hand in the form of your Uncle Boris.

Boris inhabits a crystal ball that you carry around, and you can talk to him whenever you like. He usually comes up with very useful advice, including tips on how to solve certain problems, so it is worth keeping in contact with him. However, asking him questions uses up psychic energy points, and these only increase when your character's skill level advances, so don't bother Boris unless you really need his advice.

Apart from combat, the main blood-filled sequences are invoked when you examine a body or when your character dies. Waxworks allows you to search various locations, and by doing so you are shown a large close-up of the object, area or person you are searching. If, for example, you have found a body with its throat slit and decide to examine it closely, little is left to the imagination.

Furthermore, if your character is unfortunate enough to be killed, an extremely detailed picture of your character's demise appears, once again in full colour and with no expense spared.

With Waxworks, Horror Soft has tried to amalgamate established, adventure story-lines, with more recent role-playing ideas, including regular combat combined with strategy, coming up with a hybrid that works most of the time. Although not perfect, Waxworks is entertaining and playable. It will appeal to players who like traditional adventure games with large amounts of combat and who are not at all squeamish!

■ ***Wayne Legg***

PC review 7

Techspec ***Waxworks takes up just over 11Mb of disk space in its fully configured version, and although you only need a minimum of 7Mb, I would advise you to make the extra 4Mb available in order to enjoy the game to the full. The game also works if loaded though Windows 3.1, but then it plays more slowly, with some jerky animation sequences.***

Disk requirements

High density	✓
Hard disk only	✓
Space taken on hard disk	7Mb

Graphic modes

CGA	✗	EGA	✗	Tandy	✗
VGA	✓	SVGA	✓		

Soundboards

Ad Lib	✓	Roland	✓	Sound Blaster	✓

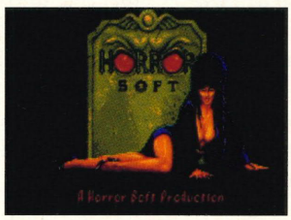
Control

Joystick	✗	Keyboard	✓	Mouse	✓

Performance

Optimum speed	16MHz
Minimum memory	640K
Free RAM required	550K

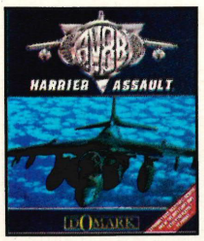
Alternatively...



Elvira, Mistress of the Dark
Horror Soft/Accolade,
£39.99
Rated 7, Issue 4.
Horror Soft's original product, which created a massive stir when it was first released. Elvira buys a haunted castle, populated with hundreds of monsters, all of which you must dispatch, and plenty of puzzles. Excellent graphics, great gameplay, a very usable magic system and over 800 rooms to explore: an adventurer's dream!



Rise of The Dragon
Dynamix/Sierra On-Line
£30.99
An exciting futuristic adventure, involving a drugs ring, religious sects, and a beast that feeds voraciously on victims' souls, all ensuring a highly entertaining game to play. Driven by the mouse and utilising icons, this violent, aggressive game oozes atmosphere and horror. It also contains some strong language, which some may find offensive, but overall this game is a real gem.



Title	**AV-8B Harrier Assault**
Publisher	**Domark**
Contact	**(081) 780 2222**
Price	**£39.99**



AV-8B *Harrier Assault*

After a shaky take off with MiG-29, Simis shows itself to be vertically mobile and creates a flight simulation the shoots everything else out of the sky

I was one of many people who were sorely disappointed by MiG-29 and its half-hearted sequel, MiG-29M. Domark had promised great things: a new team with a background in multi-million pound commercial simulators for British Aerospace, and the first serious simulation of a Soviet aircraft, but the finished product, while competent, turned out to be lacklustre and lacking in depth.

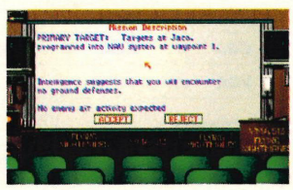
This won't make it easy for Domark to sell AV-8B to disillusioned armchair pilots, but my advice, if you number amongst them, is to forget that MiG-29 and MiG-29M ever existed; AV-8B is a whole new ball game.

It's rather surprising that the Harrier has been ignored by flight simulation development teams for so long. It might not have quite the glamorous appeal that makes aircraft like the F-15, F-16 and F-117A so attractive, but its VTOL (Vertical Take Off and Landing) capability makes it just as interesting for military plane buffs.

The connection that Simis has with BAe made it an ideal candidate for creating the definitive Harrier simulation, but Domark has wisely chosen to allow its own development team, The Kremlin, to take care of graphics, sound and presentational aspects of the game, leaving Simis free to concentrate on getting the flight model exactly right, and that decision has paid off in a big way.

Another good decision is to include just a single campaign in the game. If this sounds limited, then don't worry, this campaign is more detailed then anything I've ever played before. The what-if scenario is set in Indonesia. A right-wing faction of the Indonesian army has mounted a successful coup and is now in control of the country. This takeover has intensified the situation in East

Your first mission is to destroy the enemy installation on the tiny island of Jaco so that the ground forces can move in. This entails blowing up the two huts on the south-eastern side of the island.



Aboard the Tarawa you are given your brief: destroy the fixed targets at Waypoint 1, before returning to the ship.



The missile view can be impressive as you follow a Maverick gliding in towards its laser designated target, but don't stay out of the cockpit for too long or you'll get another quick trip to the ground.



Timor, the disputed territory which Indonesia claims as its own and which it invaded in 1975. The new junta has announced its intention to stamp out the rebellion in the colony once and for all, and reports have come back of atrocities and violation of human rights. The exiled legitimate Indonesian government has sanctioned UN intervention.

This is where you come in, as commander of a small amphibious force of US Marines. Your task is to sail to Timor and liberate the colony, then prevent further excursions of Indonesian forces into the area. This is no easy task since your force is not at full strength. The Indonesians will have superior fire-power in terms of numbers, even if they do have inferior equipment and personnel.

You will note my use of the word commander rather than pilot, from which you will probably have already surmised that AV-8B includes tactical planning at a command level as well as direct action at a pilot level. In fact, AV-8B is a competent war game as well as being a first class flight simulator, so you really do get your money's worth in this respect.

The strategic side of the simulation is carried out via TAWADS (Tactical Amphibious WArfare Data System), a computer controlled administration system, which keeps track of friendly and enemy units and which is used to set up sorties for the Harriers and to plan movements of the ground forces and helicopters. This system also stores gathered intelligence on enemy units and sites.

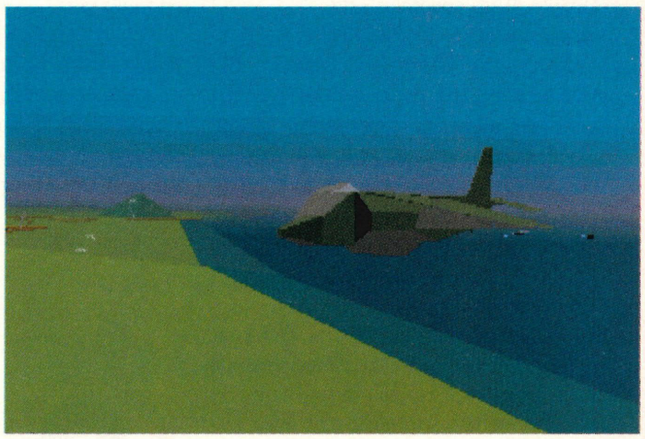
Planning your campaign is basically a matter of setting a series of waypoints for the task force and then setting up appropriate missions from each waypoint. The general pattern will be that the harriers will fly interdictions to destroy major installations, which will be followed by a ground offensive. Creating missions is as easy as setting waypoints for each of the task force elements and then establishing the purpose of each waypoint. For example, you might set up three waypoints for a harrier mission and designate the first as a navigation waypoint, the second as the primary target and the third as the secondary target.

The computer schedules the campaign automatically, although you can adjust the times and sequence of operations as you see fit. You might, for example, want to concentrate mainly on flying interdiction missions at night, when the pilots are less at risk, and then move your troops into the weakened areas the following morning. There is some latitude for doing this, although at the end of the day you must still stick to your brief, that being to make this conflict as short and painless as is possible.

You can have up to 99 battle plans on the go at once, so there's plenty of scope for trying different tactics, and you can replay them as and when you wish. This is quite a useful feature, because I can guarantee that this will be no pushover, even for hardened war gamers.

Once you get your battle plan up and running, you are put aboard the Tarawa, the carrier craft and dock landing ship which heads the fleet. From here you have access to various departments which allow you to monitor the level of your supplies, reserve troops and equipment. You can also go up to the command tower and watch Harriers landing and taking off from there.

One of the other areas you can visit on the Tarawa is the vehicle deck. This gives you a visual indication of the strength of your remaining forces.



Two Minutes *to take Jaco*



You've been lifted on to the deck and can now do a short take-off by angling the jet nozzles at 45 degrees.



The waypoint indicator on your multi-function display shows the heading to fly on. Jaco is just ahead of you.



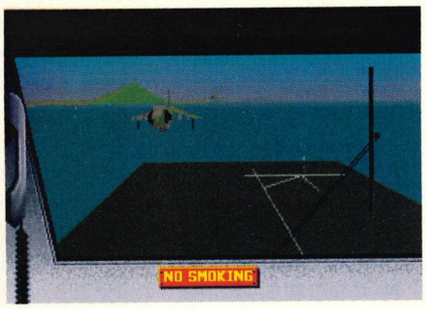
Let rip with a couple of salvoes of Hydra unguided rockets and the huts are soon just smoking wrecks.



Now you can head back to the Tarawa and practise your vertical landing, before being debriefed.



The mission is a success, but there are harder tasks ahead as you attempt to subdue the forces on the main island.



TAWADS is used to track movement of friendly and enemy units and to formulate your battle plan. Admittedly it doesn't have the friendliest interface you've ever seen, but it gets the job done.

The ship also carries five part-task simulators which allow you to practise take off, landing, simple weapons, guided weapons, and air combat without trashing multi-million dollar aircraft and killing yourself in the process. You'll get plenty of opportunity for that when you engage the enemy for real. Using the simulators is absolutely essential if you are serious about flying the Harrier properly because mastering the VTOL capability is no simple task.

Landings in particular present real problems for new pilots because, while converting from a hover to forward flight is not that difficult, doing the reverse operation with any degree of accuracy is very hard indeed, and you can be sure that you'll fluff your first few landing attempts quite spectacularly.

Once you do get the real thing into the air you're certainly in for a shock. This could well be the most realistic flight you've ever experienced on a PC, but be warned, once you've tried it, you may be much less enthusiastic about going back to your other flight simulations. The downside of this feature is that the plane is harder to fly well and success in combat is far from certain.

This is compounded by the fact that the AV-8B being a short range aircraft which operates with close support, doesn't have the sophisticated countermeasures and radar that other fighters possess. There is no active radar at all! You rely on passive radar to identify potential SAM sites and ground-based radar sites, and on radio transmissions to keep you informed of the movement and locations of enemy planes.

Flying over heavily defended enemy territory is a nerve-wracking experience. One second everything will be fine and the next there's a smoke trail on the horizon and within seconds a SAM goes whizzing past your nose. There is a genuine sense of a fierce battle going on around you, as Indonesian fighters are scrambled to intercept you and tracers from anti-aircraft guns stream into the sky around you.

At one point I was sitting in a harrier on the deck of the Tarawa, preparing to take off, and the flaming wreck of an Indonesian fighter came shooting across the sky, barely 25 metres above me. I don't think I've ever played another simulation that has invoked an adrenalin rush quite like that incident did.

At times, the visual aspect of AV-8B can be almost beautiful, as tracer fire lights up the evening sky and the sun hangs low and red on the horizon faintly illuminating the hazy hills in the distance. It's almost a shame that you don't have time to sit back and enjoy it. A moment's lapse of concentration and you are likely to get a missile up your tail pipe and you will suddenly get a far less attractive view of the ground rushing headlong to meet you.

At any stage of a mission you can choose to go back to Tarawa and let the computer continue flying the plane. Conversely, if the computer is already flying a mission, you can take over if you wish. This feature makes it possible to leave the mundane aspects of missions, like flying to navigational waypoints, to the computer, and then take over to handle the combat. You might also want to leave routine surveillance missions to the computer as well.

All in all, AV-8B Harrier Assault is far and away the very best simulation I have ever played. Just the flight aspects alone make this a tremendous game, but the addition of the superb strategic element puts it in a league of its own. However many flight simulations you own, put this at the top of your buy list.

■ Laurence Scotford

Techspec *AV8B Harrier Assault will be released for 386 or better processors, but if you have a speedy 286 and would like a copy you can call Domark direct for a special 286 version.*

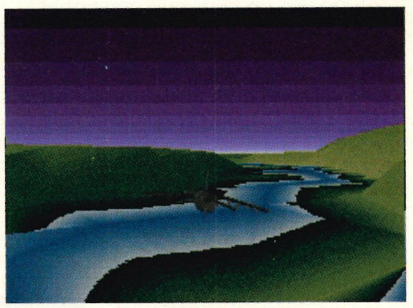
Disk requirements					
	High density	✓			
	Hard disk only	✓			
	Space taken on hard disk	*5Mb*			
Graphic modes					
	CGA ✗	*EGA* ✗	*Tandy* ✗		
	VGA ✓	*SVGA* ✗			
Soundboards					
	Ad Lib ✓	*Roland* ✓	*Sound Blaster* ✓		
Control					
	Joystick ✓	*Keyboard* ✓	*Mouse* ✓		
Performance					
	Optimum speed	*25Mhz*			
	Minimum memory	*2Mb*			
	Free RAM required	*560K*			

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Alternatively...



ATAC
MicroProse, £44.99
Rated 8, Issue 14.
ATAC is set in Colombia in which a largely covert operation has been set up to combat the drugs barons. Again the emphasis is on strategy, and you have eight F22s and eight AH-64 helicopters at your disposal. You can also choose the level at which you participate in the actual combat. ATAC is a very competent effort from Argonaut after the disappointment of Birds of Prey, and a good alternative if the Harrier doesn't turn you on.



Harrier Jump Jet
MicroProse, £44.99
Previewed in Issue 11
Details are a bit scant on this one at the moment apart from the fact that the whole thing is rendered in glorious Gouraud Shading, and very nice it looks too. As it's from MicroProse, it's bound to have a lot of impressive features, but the important thing will be how well its flight model compares with Domark's, and how detailed the campaign is. Release date should be within the next two months.

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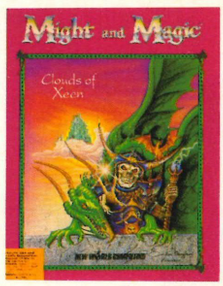
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Title	**Captive**
Publisher	**Mindscape**
Contact	**(0444) 246333**
Price	**£34.99**

Tony Crowther's huge, first-person 3D role-playing adventure is finally here - but do 65,000 levels add up to one great game?

Captive

Trill – a well-known brand of budgie food – is also the name of the hero of this game. Sentenced to 250 years' suspended animation for a crime he didn't commit, he awakes two years before his release date to discover he's in the middle of a war. He finds a computer in the corner of his cell, kicks it into life and sets about the job of escaping.

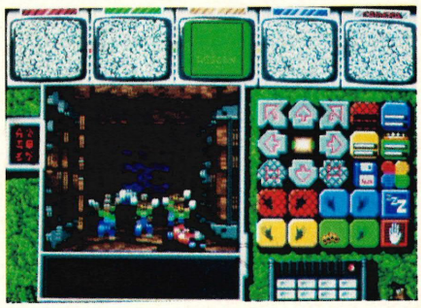
This is where you come in. The instructions are minimal, simply giving you a guided tour of the controls and a few basic hints, and you're left to cope as best you can. You don't get the medium-sized tomes of Dungeon Master or Eye of the Beholder, but the written accompaniment is both concise and entertaining.

On the level

Before we start though, let's get one thing straight. There are actually 50 planets to explore in the game, plus many nearby orbiting moons: the figure of 65,000 levels mentioned in the introduction arises because of a thing called the RDG. This is the Random Dungeon Generator, and it basically means that once you've completed the game your main character is recaptured, and you're asked if you want to rescue him again from a slightly different set of dungeons.

I've got two complaints about this. The first is that, assuming you play the game every single day and complete, on average, three levels a night, it will take you 59 years to finish them all. Why anyone would want to play a game for that long beats me – the limited number of levels featured in other, similar releases is much more sensible. The second is this: it's frustrating to finish the job only for your hero to slip up and get thrown back in jail. These gripes aren't that important, but they do take away some of the point of playing.

As you might expect with a game of this size, the levels themselves all have a similar feel. The 3D is smooth and barely noticeable when flick-scrolling, but the screen display itself is a little on the small side and some of the monsters are too cute to be threatening. On the whole however, a lot of imagination has gone into creating a believable network of dark tunnels, and some of the graphical effects are impressive indeed.

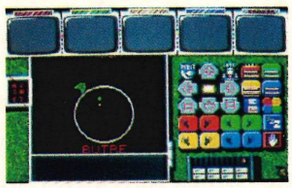


It looks as if time is running out for the droids - their visual relay systems have gone haywire. And it's all because of those little leprechauns.

Control yourselves

The basic game sequence runs like this. You set your planet probe loose on the holo-map (a screen grid containing all the planets and moons) and let it guide

After snoozing in cryogenic confinement for 248 years, Trill wakes up to discover that all his fellow-inmates have died in a serious fire-fight. He also discovers a portable computer in a corner of his room ...



After consulting his handbook and booting up the computer, Trill is shown a Holo-Map with details of 50 planets. He zooms in on a flashing green dot near the centre, summons a remote space ship and prepares to land.

your remotely-controlled orbiter to the next mission. Once there, you dispatch a landing craft manned by four droids to the surface and help them get on with the business of exploring the terrain (which usually, but not always, means a dungeon-like environment).

Once inside there are the usual obstacles and bonuses, such as monsters, moveable walls, hidden treasure, bags of gold, shops where you can buy weapons and other hardware or make repairs, and various miscellaneous goodies. In addition, there's always some mad scientist lurking around who has a password which gives access to the next planet probe, and you need to find enough dynamite to blow the base/dungeon sky high before you leave.

The controls for achieving this are excellent, even if it takes a while to get used to them. This is because many icons perform a different function, depending on whether you use the left or right mouse button: at first you end up making the wrong choice every time, but after a few hours' play you realise what an efficient and well-constructed system it is. As well as the usual movement and weapon controls, you have access to comprehensive status/inventory panels and special commands which can make use of objects you might find – such as an auto-mapper or a camera. You can also designate leaders, pause, rest, and load and save up to 10 games.

Zap the bad guys

If you're used to playing Dungeon Master, Eye of the Beholder or other 3D RPGs, you won't be expecting the sheer quantity of enemies thrown at you in Captive. Just when you think you've seen off one group of bad guys, another one lurches around the corner and starts laying into your metal friends. At its worst this can be tiresome, particularly if you're cornered early on without a weapon to hand; however, when you're fully armed and you're confronted by a clutch of ten-foot dragons, it sets your pulse racing. You start off with no weapons at all, but you can plug yourself into the mains for a bit of temporary firepower (don't try this at home, kids) until you pick up or buy the more serious pieces of kit. The sound effects accompanying combat are generally very good, if a little sparse, and do much to generate atmosphere in the game. The sound effects as a whole are more entertaining than the music, which is guaranteed to depress you – unless you're the kind of person who has no feelings whatsoever.



50 planets and their attendant moons await your exploration, but it's a good idea to start at your home base - a flashing dot near the centre of the grid.

Scratch your head

All dungeons have puzzles, and Captive is no exception: its brain-teasers are hardly original but no less enjoyable for all that. As well as the usual movable walls and mysterious closed doors, much of the head-scratching occurs when you wonder what to do with all the objects you find. The manual offers no help – which is actually a good idea, since a lot of the fun comes from experimenting. It can be a drawback when you find a shop and don't know what you're buying, but the shopkeeper always buys back anything you don't want at the price you paid for it, so it makes no difference in the long run.

Many of the game's excellent graphical effects occur when you make use of special items, and these help to raise Captive above the level of the average role-playing game. It adds a lot to your enjoyment when you buy a piece of equipment such as a top of the range optical device, install it in your lead droid, and suddenly find the viewing screen transformed. Other more minor touches – such as white noise interference

Techspec ***Captive takes very little time to load from either hard or floppy disks, and it runs reasonably smoothly even on the slower machines. You will, however, need a mouse, EGA graphics (at least) and a high-density floppy drive. If you've got any of the major sound cards you can listen to the musical accompaniment – but be warned! After several hours of listening to this melancholy tune you may be inspired to write self-indulgent poetry or to speculate on the nature of life and death. On the other hand, you could listen to the decent sound effects instead.***

Disk requirements

High density	✓
Hard disk only	✗
Space taken on hard disk	2.4Mb

Graphic modes

CGA	✗	EGA	✓	Tandy	✗
VGA	✓	SVGA	✗		

Soundboards

Ad Lib	✓	Roland	✓	Sound Blaster	✓

Control

Joystick	✗	Keyboard	✓	Mouse	✓

Performance

Optimum speed	12MHz
Minimum memory	640K
Free RAM required	540K

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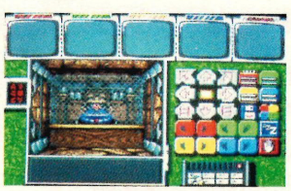
Two Minutes *of life inside*



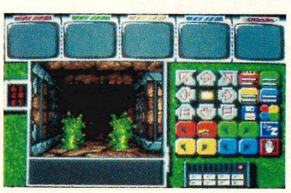
The lander, containing four droids under Trill's guidance, touches down outside a base. Unfortunately, the front door is locked, so our hero sends his trusty android chums in search of clues. Eventually they find one ...



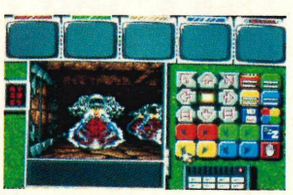
... and make their way inside. Trill decides to check on their status: a few simple mouse-clicks allow him to manipulate inventories, examine power levels, health and hit points, and to make use of the various weapons.



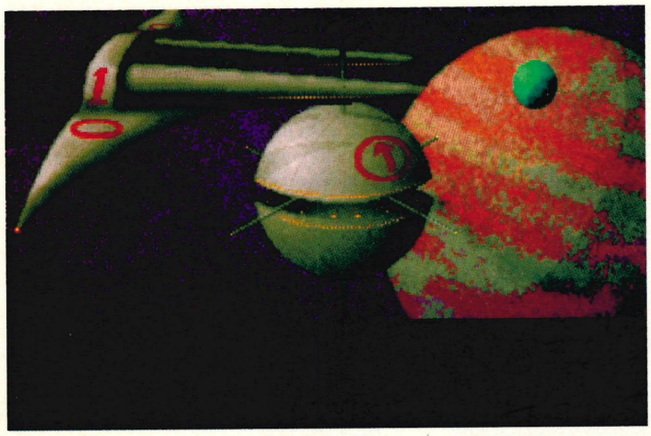
After zapping a few roving enemies and picking up rewards along the way, the droids find their way to a shop. Here they can buy, sell and fix a host of items, as well as repair any damage they may have sustained.



Trill already knows that his ultimate goals are to destroy the base's generators and find a planet probe, but he's constantly forced to engage in combat with the indigenous life-forms lurking about. The result is shocking.



The generators, at last! Having killed a professor and stolen his planet probe, Trill prepares to throw a bundle of dynamite at the Base generators. He has a few seconds to escape before his whole world turns to molten lava.



when your party bashes into a wall or is about to expire, and animated sequences announcing the death of a planet or your group – all add a touch of class.

On the whole though, Captive contains little that you won't have seen before in a slightly different disguise. It's a professional and well-programmed release which will appeal to many RPG fans, and it's certainly compelling enough to make you come back for more. Whether you'll do so for 59 years is another matter.

■ Gordon Houghton

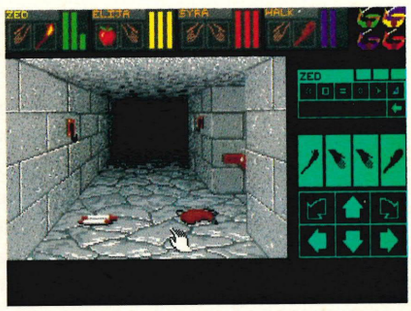
The animated story preceding the game doesn't tell you why you're doing what you're doing, but it does tell you what you've done.

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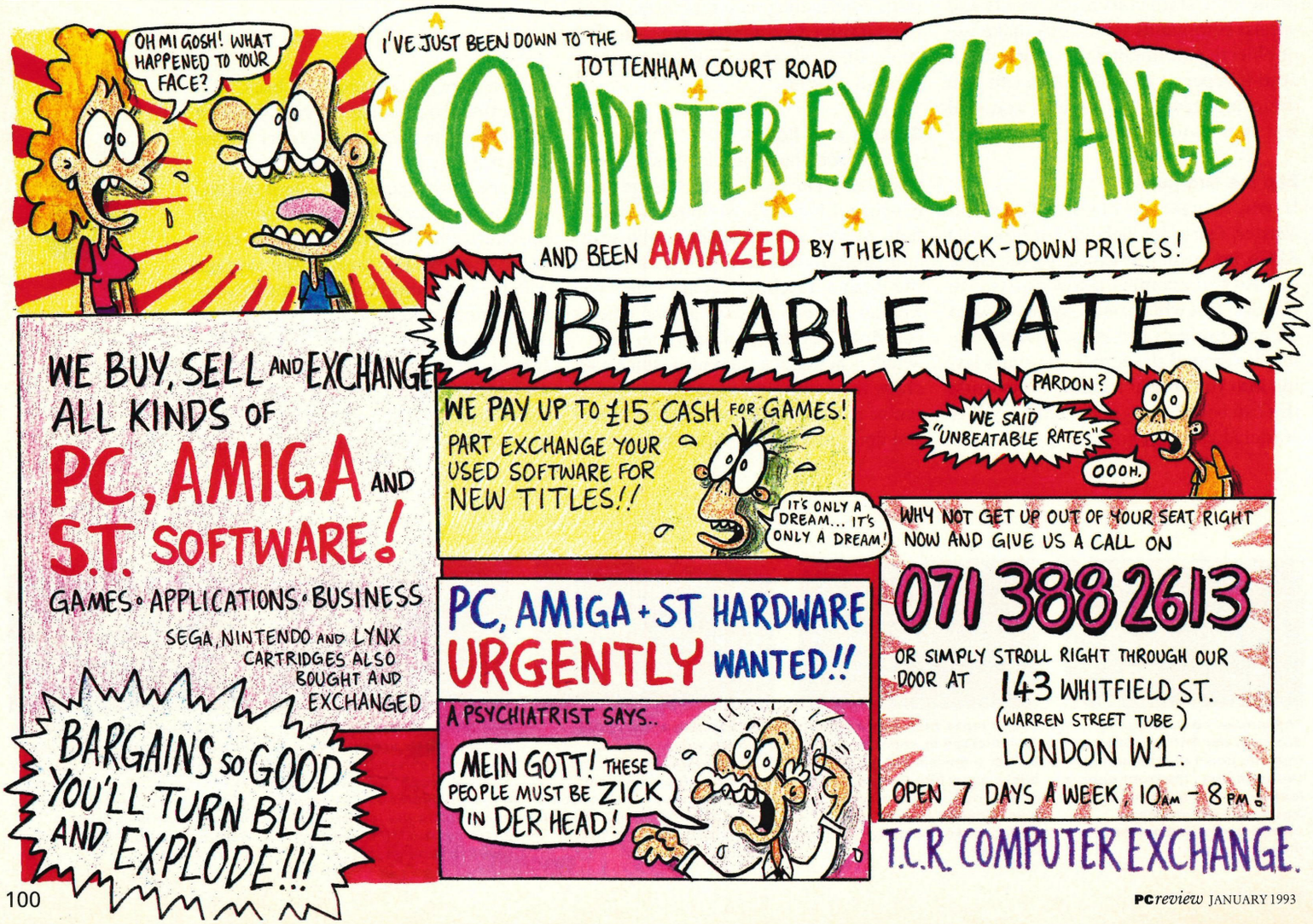
Ultima Underworld: The Stygian Abyss
Origin, £39.99
Rated 9, Issue 8.

The king of subterranean exploration games for many reasons. Its graphics are breathtaking, rejecting the conventional static, flick-screen effect for smooth-scrolling bitmap overlaid 3D, its presentation and storytelling are up to Origin's usual standards, and it is massive. The only drawbacks are the hardware requirements – at least a 386SX, VGA, expanded memory, 640K RAM (557K free for the full experience), and a minimum 8Mb hard disk space. It's well worth it.



Dungeon Master
FTL/Psygnosis, £34.99
Rated 6, Issue 12.

FTL's classic RPG set the whole first-person 3D ball rolling half a decade ago, but didn't reach the PC until earlier this year. Despite having more wrinkles than an elephant's rear end, it's still one of the best such games around. Part of this is because of its place in RPG history, but it's also a good, solid, 14-level exploration adventure with magic, combat and puzzles in good measure. It doesn't have the class of SSI's Eye of the Beholder II nor the depth of Captive, but its atmosphere is unique.



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Title	**Deluxe Trivial Pursuit**
Publisher	**Domark**
Contact	**(081) 780 2222**
Price	**£29.99**

Deluxe *Trivial Pursuit*



Trivial Pursuit was as much part of the boom of the 80s as red braces and mobile phones, and the computer version of the game has been a long steady seller for publisher Domark on a variety of formats. The PC version, however, was something of an afterthought, with nasty CGA graphics and the speed of a geriatric snail. It has taken until now for Domark to remedy this with a VGA (16 and 256 colour) version, which may be too late — does anyone actually play Trivial Pursuit any more?

Computerised board games will only work if they offer something extra since the computer program is pretty well bound to cost more than the original game kit itself. Usually this means the ability to play the game on your own against the computer, either because you can't find anyone else to play with, or in order to practise. This doesn't work in Deluxe Trivial Pursuit. For one thing, the computer doesn't take on the role of opponents; for another, the program trusts you to be honest about whether you get an answer right or not, and since there's no race to the centre circle if you're playing solo, the whole point of the game is lost.

So Trivial Pursuit is designed wholly as a multi-player game, with players clustered round the PC, and adjudicating is likely to lead to just as many arguments as it does with the original. What Deluxe Trivial Pursuit can and does do, is to incorporate visual and aural questions which would be impossible in the original format, and it also has an analysis option, where you can view, for each player, how many questions on each topic have been attempted, and how many correctly answered.

The questions (there are 3,000 in total on the disk) are also designed to be truer to the inventors' original concept than many of the supplementary packs that have appeared over the years. TP was initially intended to ask off-beat, essentially 'trivial' questions, not to be a straight general knowledge test (hence the infamous Otto Titzling spoof contained in the first TP question pack), and this program harks back to that. Thus there is more in the line of "In which sport are you not allowed to wear white?" and "Which paw is a polar bear most likely to swipe at you first, the left or the right?", than "Who won a gold medal at event x in the 1992 Olympics" or "What is the natural habitat of the polar bear?".

The music and picture questions work well, although I'm not sure they go far enough: for questions which require you to identify a snatch of music, a sound card is nigh on essential, predictably enough; the visual questions usually ask you to identify something from a rudimentary diagram which looks very bare compared to the more detailed EGA or VGA backdrops. Domark has produced a CD version of TP (though so far only for the Commodore CDTV, unfortunately), which makes much more widespread use of speech, music and pictures, and compact disc is an obvious medium for Trivial Pursuit (greater storage capacity to store a greater variety of questions).

This last is important, because TP's biggest drawback is that the program selects the questions at random, and it is alarming how soon you see questions being asked for the second, third, or even fourth time — a serious problem which should have been addressed.

The other 'extra', the analysis screen, is interesting in that players can find out which are their strongest and weakest categories, and useful, as the leader approaches the centre of the wheel for opponents to select a suitably taxing category for the final question. It's a pedantic point, but it's a pity that the stats screen can't be accessed when a player has landed on the centre, only before they throw the dice; also at the end of the game, you can't access the stats to see how everyone did in the six categories — the game is over and the analysis slate is wiped clean.

Graphically, Deluxe Trivial Pursuit is a giant leap from the original (as indeed, it should be), and should make for a raucous diversion at Christmas parties. One can't help feeling, though, that this is the PC version we should have seen three years ago.

■ Christina Erskine





Musical questions are posed in the piano room, left, while general knowledge comes from the study.

PCreview 5

Techspec ***You'll need a 256-colour card in order to see Deluxe Trivial Pursuit in its true glory; CGA owners should look for the original PC Trivial Pursuit package. A sound card is highly recommended in order to decipher the music questions.***

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PCR /01/93

BUDGET

Some budget games are born great, some are made great by their low price, and some are simply terrible. Gordon Houghton separates the good from the gruesome

Carrier Command

Publisher: Kixx Contact: (021) 625 3388 Price: £12.99

PCreview 5

Carrier Command is the oldest game in this selection of all that's cheap and cheerful in the budget world, but it's by no means the worst. It isn't the best either, but as a basic, low-cost strategy game with limited graphical power it fits the bill. It was designed almost five years ago for the Atari ST and Amiga, and was hailed as one of the first games to take advantage of 16-bit capabilities; but expectations have increased, and the simple 16-colour graphics, uncomplicated presentation screens and weak sound effects are old-fashioned by current PC standards.

If you dig beneath the surface, however, you'll still find a decent strategy game. The action takes place in the Southern Ocean, where extreme volcanic activity has created a new island archipelago. The islands in this group are rich in mineral deposits, and two carriers have been dispatched to harvest and populate the region. Unfortunately, one of the carriers has been infiltrated by terrorists — and you have 48 hours to stop them.

The tools at your disposal include a fully-functioning and fully-armed aircraft carrier, a collection of Manta Class airborne fighters and WALRUS amphibious vehicles, as well as a limited range of arms. Everything can be controlled manually or set to auto-pilot, and the basic aim is to liberate every island you encounter. This can be a little tedious, particularly when you're travelling between islands for such a long time, but for the price Carrier Command offers a decent tactical challenge and a fair amount of meaty action.



Kixx's Carrier Command, ageing gracefully.

Fun School 2

Publisher: Ocean Contact: (061) 832 6633 Price: for the under 6s: £9.99 for the 6-8 year olds: £9.99 for the over 8s: £9.99

PCreview 7

Europress Software has a good reputation on all computer formats for its Fun School series, partly because of the variety of games featuring bright, colourful graphics and partly because the games are graded to match the age ranges of the children using them.

The three PC versions reviewed here, like the versions on other machines, are cheaply priced and feature small but adequate manuals. You can also change difficulty levels, alter

Flight of the Intruder

Publisher: Action Sixteen Contact: (0276) 684959 Price: £14.99

PCreview 8

You rarely find a good flight simulator for under £15, so there must be something severely wrong with Flight of the Intruder — mustn't there? The answer is ... not really. Its major drawback is graphical power — at most you get 16-colour VGA which compares poorly to games such as Jetfighter 2 — but once you've become accustomed to the fact that the visual effects won't stun you, there's a substantial game underneath. The action takes place in a specific place and time: during the Vietnam Linebacker Campaign in 1972. The reason for the restriction is simple — the game is based on Stephen Coonts' novel, and was originally intended for coincidental release with the film of the book. You're stationed aboard the USS carrier Shiloh and given control of either an A-6 Intruder or an F-5 Phantom jet. In both you have to run the gauntlet of air and ground defences, and dog-fights with MiGs.

There are 13 different operations and 34 different targets, each yielding a unique strategy — planning the operation, arming the planes, photographing your successes and debriefing are all part of the process. You can also control up to eight aircraft in one mission, create your own missions and make use of a wide range of multiple internal and external perspectives.

There's nothing much that's new or outstanding about Flight of the Intruder, but it's a beautifully programmed game with an atmosphere all its own. The realism is superb (even down to the boredom of long flights), and the 216-page manual is a treat for fans of detailed technical analysis. If you've been looking for a good, cheap flight sim, here it is.



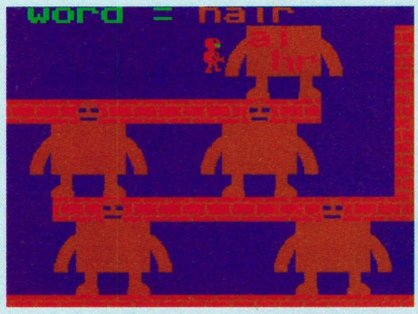
Based on the best-selling novel by Stephen Coonts: Action Sixteen's Flight of the Intruder.

GAMES

the message delay speed and turn the sound on or off.

Fun School 2 for the under sixes includes Shape Snap (a shape matching game), Find the Mole (guessing), Teddy Count (counting), Write a Letter (experimental), Colour Train (colour-matching), Pick a Letter (letter-matching), Spell a Word (spelling) and Teddy Bear Picnic (coordination and logical thinking).

The 6-8 year olds version makes some use of the above lessons but advances to mazes, words, using money and multiple decision-making.



Fun School 2: nice games, shame about the graphics.

The over eights version is the most advanced and includes games to test the above abilities, plus shape rotation, simple anagrams, object selection, logic, flags and exchange rates, codes and a password maze.

The graphics and sound in these games aren't exactly state-of-the-art, but if you're prepared to pay for the ideas rather than the effects, Fun School 2 is a worthwhile purchase.

Stunt Driver

Publisher: Action Sixteen Contact: (0276) 684959 Price: £14.99

PCreview 6

Have you seen this somewhere before? There are two reasons why you might think so. The first is its similarity to Hard Drivin', Atari's popular stunt drive coin-op: clones and home computer conversions of the arcade game were rife last Christmas. The second is that it featured in PC Review's very own 100 Classic Games booklets last year. There have been two major changes since then: Action Sixteen is now the publisher, not Mirrorsoft; and the game is now called Stunt Driver, not Crash Course.

One of the criticisms levelled at Hard Drivin' was its lack of lastability. The same can't be said of Stunt Driver: it features five courses in all, from the five-lap training oval to the three-lap Sidewinder, a track that appears to be made up entirely of loops, bends, bridges and traps. If you're so good at simulated driving that you complete these races with ease, you can fall back on the track editor and design your own. Like the rest of the game it's well supported by the 70-page manual.

Future Wars

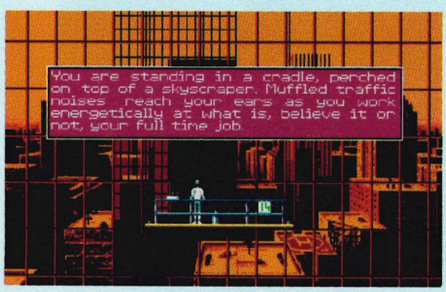
Publisher: Kixx XL Contact: (021) 625 3388 Price: £12.99

PCreview 6

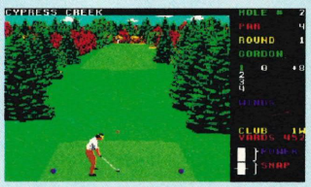
This was the first release in Delphine's Cinématique series and it carries the burdens of an experimental system. It's the 43rd century and mankind is under attack from a gang of marauding aliens — but the invaders are unable to penetrate earth's SDI defences until they hit upon the idea of travelling back in time and destroying SDI before it was even built. They have planted a series of bombs which could go off at any moment ...

The adventure actually begins in the present day when, innocently attempting to avoid your boss, you creep into his office and stumble across a secret teleport that throws you back and forward through history. The result is a journey into three time zones: prehistory, the Middle Ages and the distant future. The graphics throughout are superbly drawn and animated, and the Ad Lib musical accompaniment is excellent.

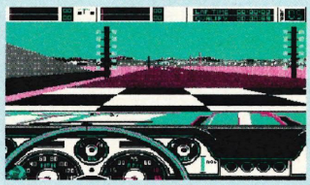
Future Wars uses a point-and-click interface that was quite innovative when the game was first released but is now beginning to look a little clumsy: the action is entirely mouse controlled, with the left click used to execute commands and the right click used to access them. This sounds fine in principle, but the range of commands is limited to examine, take, inventory, use, operate and speak — this puts a strain on credibility, particularly when you are asked to 'operate' doors. On the whole though, Future Wars is a neatly constructed game, and even if its puzzles are a tad frustrating at times, it should please graphic adventure fans on a limited budget.



Delphine's first Cinématique release — Future Wars.



16 bland courses await the players of Kixx's World Class Leaderboard series.


Action Sixteen's Stunt Driver gives you a crash course (not so hot in CGA, above).

World Class Leaderboard –The Series

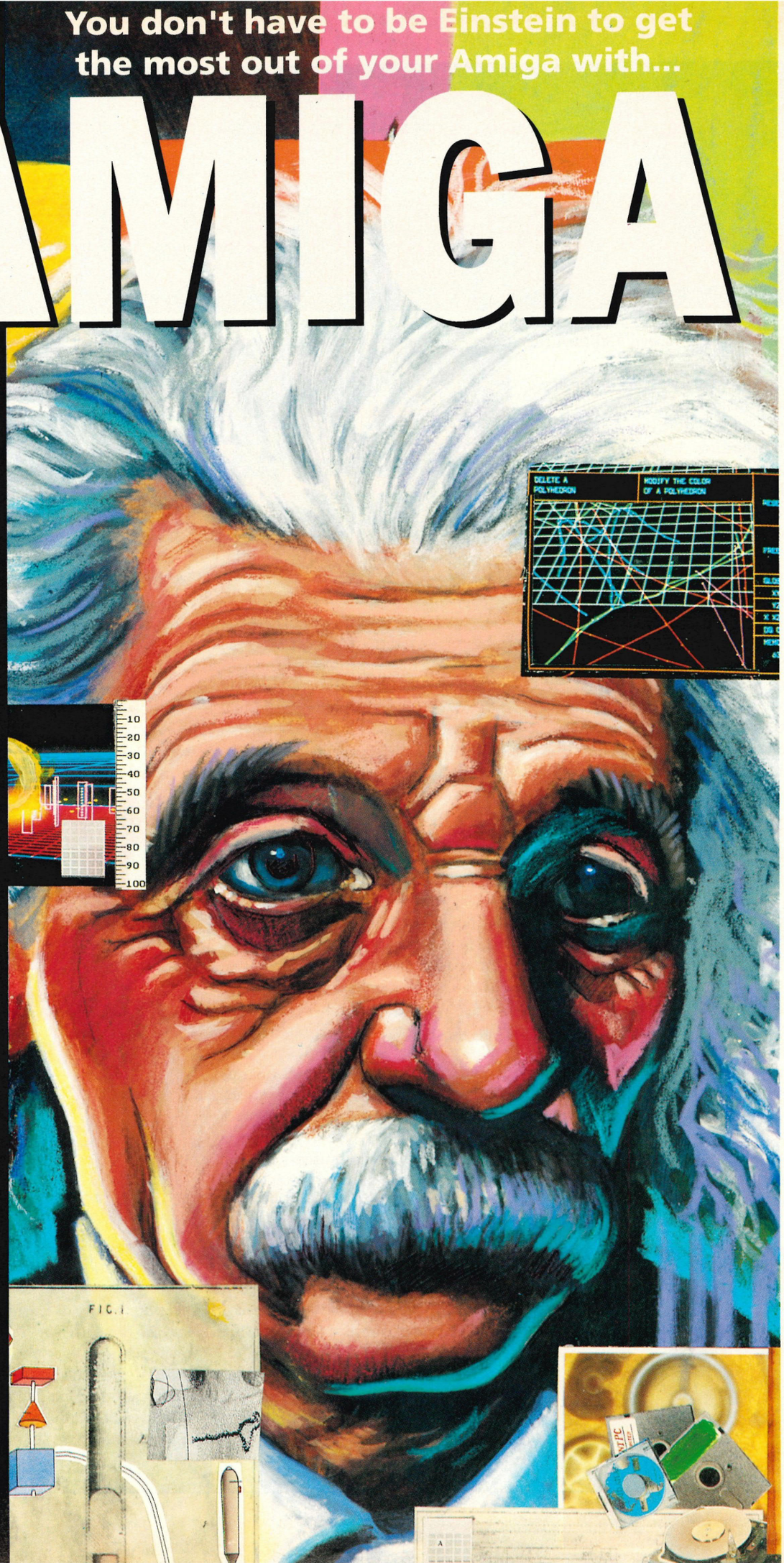
Publisher: Kixx XL Contact: (021) 625 3388 Price: £12.99

PCreview 2

The Leaderboard series introduced top-class computerised golf to the world, with the C64 version appearing over six years ago. Numerous variations have followed on a wide range of formats, but the least of them all is probably this PC version. There are a host of features, but the game itself isn't very good. the game itself isn't very good. The presentation and in-game graphics are crude, the player animation is sluggish, the ball movement is equally slow, there is no mouse control option, and you don't find the quality opponents seen in more expensive golf simulations. It really is worth saving up for the excellent golfing simulations covered in Issue 13.

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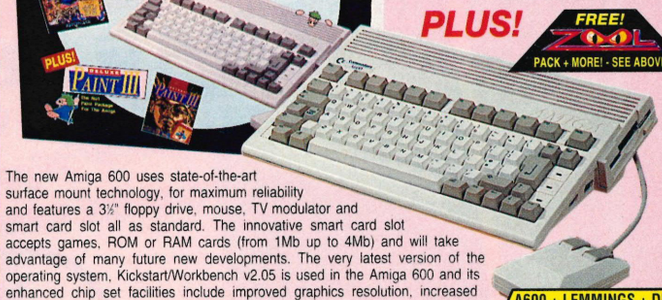
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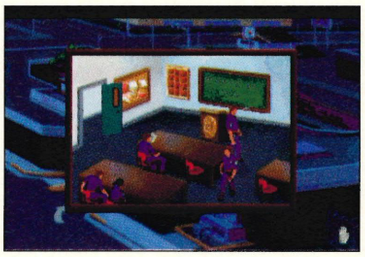
Reviews extra

The games that got away





Ween: The Prophecy





Police Quest I

It's time once again to take a look at all the games that slipped by the wayside and failed to get full review coverage in this month's issue. We've got French games, American games, English games, Russian games ...

As with Inca last month, Ween (Coktel Vision, £34.99) features some revolutionary graphic techniques which unfortunately, in this case, aren't complemented by the best of games.

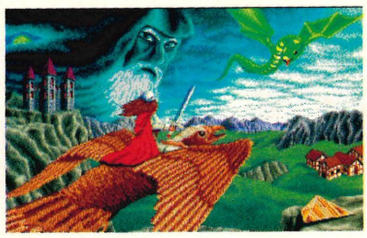
It's not a bad game and indeed the puzzles and story are actually quite good. What tends to let it down is the somewhat bland control system and the feeling that a lot of the time more thought went into the quality of the visuals rather than into the design of the game.

Ween is an odd mixture of good and not so good moments. At times it looks very impressive, at other times it fails to go much beyond the traditional graphic adventure boundaries.

Speaking of traditional graphic adventures, one of the first companies to start developing them big-time was Sierra and one of its earliest titles was the brilliant Police Quest. Now, bringing the original 16 colour EGA game up to the standards of today's titles, Police Quest: In Pursuit of the Death Angel (Sierra, £39.99) is a re-issued and re-vamped version, featuring 256 colour VGA screens, fully updated soundboard support and Sierra's

Reviewed this issue

AV8B Harrier Assault	9
Populous 2	8
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Formula One Grand Prix	8
Great Naval Battles	8
Legends of Valour	8
BAT II	7
Fun School 2	7
Waxworks	7
Captive	6
Future Wars	6
King's Quest VI	6
Stunt Driver	6
Carrier Command	5
Trivial Pursuit	5
World Class Leaderboard	2



Amberstar



Dune II



F-15 Strike Eagle III

new icon interface system. The contents of the game remain unchanged, which should be welcome news for the many legions of Police Quest fans (myself included) that still regard the first in the series to be the best. Sierra's updated classics (others including the King's Quest and Leisure Suit Larry range) are actually a great way for the newcomer to PC games to be shown all that is best in PC adventuring – strong plots and puzzles and excellent quality presentation. It has to be said that many of Sierra's newer titles don't always come up to scratch in both areas (King's Quest V and Space Quest IV being notable examples).

Also from Sierra, although along a different route to its usual adventures, is Johnny Castaway (Sierra, £24.99), a screen saver for your Windows 3.1 environment. Set it up, boot up Windows, leave it alone for a short while and hey presto, up pops the adventures of Johnny, stranded on a desert island, putting up with one bizarre, animated situation after another.

I haven't heard of any other storytelling screen savers of late (although there is a similar product on the way from Origin) and as with most screen savers, at first Johnny is quite good fun. It's nicely animated and fairly humorous but after a while you tend to find that the amount of work you've achieved is minuscule as you tend to keep waiting for the next adventure to pop up on screen. Still, it's quite a nice little novelty product.

Amberstar (Thalion, £35.99) is basically an attempt to jump on to the current RPG bandwagon that's racing across the world of PC games developers. It's certainly large enough to run with the big guns, with over 150 separate maps, automapping systems, 90 magical spells and items and a long and involved storyline.

What it doesn't do is create the same kind of atmosphere that you get from, say, an Ultima or an Eye of the Beholder, despite the fact that Amberstar attempts to combine the two. I'd only really recommend it to those of you that are really in need of a new challenge and can't wait for Ultima VIII.

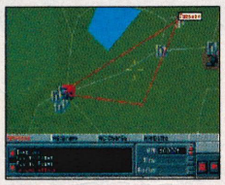
Finally we have Perestroyka Putsch (ParaGraph, £19.99) which simply proves that not every game to come from Russia is up to the standards of Tetris. Avoid.

PC Review's best buys

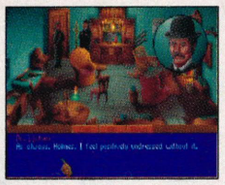
What are the best games currently available? PC Review's Best Buys are taken from the last three months of reviews in order to give you a good idea of what to shell out for.



Alone in the Dark
Infogrames, £44.99
Quite simply one of the best games to arrive on your PC for a long, long while. A truly atmospheric (and therefore scary) romp through a haunted house, filled with zombies, demons and creatures from other dimensions. Simply brilliant.



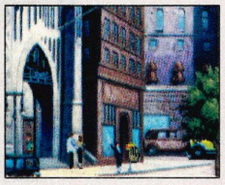
ATAC
MicroProse, £44.99
A flight simulator with a difference from the undisputed kings of the genre. ATAC features F-22s, Apache helicopters and a full anti-drugs campaign in which you are in full control. Superb graphics and plenty of excitement make for a superb game.



The Lost Files of Sherlock Holmes
Electronic Arts, £39.99
Not Icom's Consulting Detective on CD-ROM that everyone is raving about, rather the floppy disk game that everyone is raving about. A challenging murder and impressive atmosphere make up a thoroughly absorbing game.



Wizardry VII
US Gold, £45.99
The latest in the long line of American RPGs takes the series into the nineties with fantastic graphics, an all-new interface and some highly detailed magic and combat systems. Role-playing at its finest.



Laura Bow II: The Dagger of Amon Ra
Sierra, £39.99
Murder, mystery and suspense in this sequel to The Colonel's Bequest. Once again Laura Bow is caught up in a web of 1920s deceit as she tries to prove whodunnit, what the murder weapon was and where the nasty business took place.



Hong Kong Mahjong Pro
Electronic Arts, £29.99
As ancient Chinese games go, Mahjong is one of the most popular. Electronic Arts gives you the chance to play this intense game of skill in your own home, without the annoyance of losing all the tiles.

In the works

The following games are titles that just missed our reviewing deadlines and are scheduled to be covered in full reviews next month. Below are our first impressions of the product just to give you an idea of what to expect.

Dune 2
Virgin Games
Oddly enough, Virgin's sequel to the suprisingly playable game-of-the-film-of-the-book is neither programmed by the same team nor set after the first game. Dune 2 – Battle for Arrakis has this time been developed in the States by Westwood (Eye of the Beholder) Associates and covers more or less the same period of the Dune tale, but in a more strategic manner.
You'd be forgiven for thinking that this was Civilisation at first glance and what lies beneath isn't too far from that.

F-15 Strike Eagle III
Microprose
The third in MicroProse's award-winning flight sim series takes the previous two titles, throws them away completely and starts from scratch with a look, feel and design that is all it's own.
What sets F-15 III apart from the rest of today's simulators is simply the graphic quality. In a field where graphics are important to the game, MicorProse has included some really nice effects – realistic looking clouds, texture-mapped ground terrain, the minutest of detail on the objects (including a fully animating air brake).

Comanche
US Gold/Novalogic
Another flight sim that is breaking new ground when it comes to graphic quality is the astounding Comanche helicopter sim from little known programmers Novalogic. With some of the most realistic looking ground terrain you have ever seen on a PC (it almost feels as though you're playing a fully digitised game), Comanche looks set to take the helicopter simulation into a new dimension.
If there is a problem then it lies with the sprite/object graphics. These tend at times look as though they've come straight from an Atari VCS cartridge.

Gobliins 2
Coktel Vision
The second in the series of oddly-spelt cartoon capers from those French funsters. This time around you are reduced to just two characters, but are granted more freedom to wander around and solve puzzles. It's still just as silly/wacky/zany (pick your own descriptive pronoun) and is surprisingly humourous in places.
Gobliins 2 looks like being one of those minor gems, a game that you tend to come back to now and then, long after your hyper realistic space battle simulators have sunk into oblivion.

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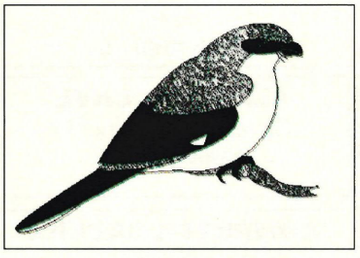
Shareware Reviews

An anthology for ornithologists, a world time zone atlas, and two new versions of classic games pass under the beady eye of Sam Mackenzie this month

Atkins Birdpix

This is a set of 75 drawings of birds (mainly American) on two disks. The pictures are in black and white PCX format, so you need a package that supports PCX, like PC Paintbrush, in order to look at them. The pictures are a mixture of cartoons, and stylish line art, and they take around 1.5Mb of disk storage.

Some images are simple, and with effort you could produce similar pictures for yourself, though to be fair all have been obviously drawn by someone with artistic talent.



The pictures are standard 640 by 480 pixels in size, and some are very attractive. The drawings are probably best thought of as computer art rather than as a method of identifying birds using your computer, though they are fairly ornithologically correct. They make an interesting novelty if you are interested in birds and bird watching, and perhaps a way of seeing what you could do with a computer painting package.

This disk offers a rather odd choice of extras if you register, including unpublished books by the author, more bird pictures, a book called 13 ways to slice an onion, a book by the author that didn't win a competition, a disk of stained glass windows designs, and so on!

Product:	**Atkins Birbpix**
Supplier:	**Shareware Marketing**
Tel:	**(0297) 24088**
Product code:	**gx35a**
Price:	**£5.00**
Registration Price:	**£29.00**
What you get for registering:	**See above**
Specification:	**Requires Windows**
Disk space:	**1.5 Mb**
Graphic modes:	**EGA or better**
Soundboards:	**n/a**
Control:	**n/a**

Geo Clock

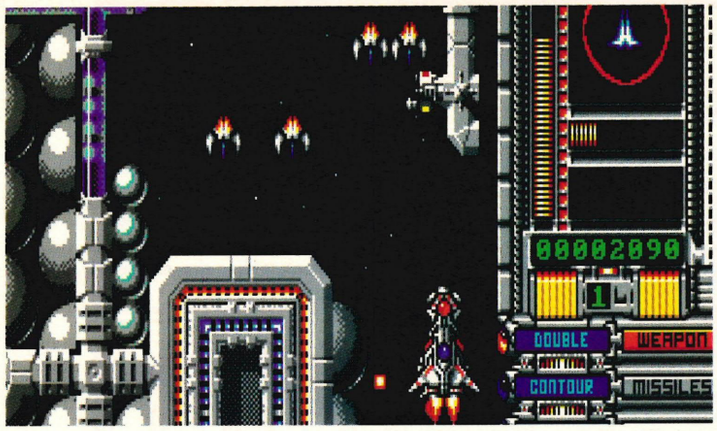
Geo Clock gives a display of the world showing you which areas are currently in daylight. This version has been customised for the UK and the sunrise and sunset times are shown for London. The current position of the sun is shown both by a symbol on the display and in terms of its latitude and longitude given in the panel at the bottom of the screen. The other item of information provided is the sun's azimuth and its elevation.

There are four maps provided with this – the one shown here is a rectangular map of the world. There is a similar display showing just Europe, a polar display of the world from the North pole and an orthographic display – that is a view as if from space – of the North and South American continents.

The program contains interesting incidental information hidden away in its help files. For example it tells you that Great Britain adopted Greenwich Mean Time as the first standard time by Act of Parliament in 1880. The four standard time zones in the United States were adopted in the US in 1883. The registered version of the program has an add-in intended for radio amateurs and the shareware version is fun to look at.



Product:	**Geo Clock**
Supplier:	**Testware**
Tel:	**(0424) 886415**
Product code:	**C3317**
Price:	**£3.00**
Registration price:	**£300**
What you get for registering:	**137 extra maps;extra features, instruction book**
Specification	**XT**
:Disk space:	**minimum 200K**
Graphic modes:	**any, colour VGA recommended**
Soundboards:	**n/a**
Control:	**n/a**



Overkill

At first sight, you may think this is just another version of Space Invaders with impressive graphics and sound effects. At the opening screen you can move left, right, up and down and shoot invaders with relative ease — the only noticeable extra is the high quality animation. The surprise is that when you have shot enough of the first wave of aliens down, the screen starts to scroll and you are into a shoot 'em up game with a difference. You now have to pilot your ship through narrow space lanes, dodging obstacles and shooting whatever comes into view.

There are many types of aliens in Overkill, all of whom behave in different ways — watch out in particular for certain green creatures that cling to the side of the space station. The other new element is the amazing range of bolt-on goodies you can acquire as a result of picking up bonus pods which appear after some aliens have been shot. The bolt-ons are either new weapons, some dramatic and wonderfully weird in their effect and the others are additional modules for the ship itself. The bigger your ship the more fuel it uses and while the bolt-ons have their own armour, if you scrape them along too many walls while you scroll your way through narrow passages they will eventually blow up. The problem is that it if your ship becomes unbalanced by having unequal numbers of bolt-ons on each side, it will become difficult to control.

Your ship has four force fields and a strength bar for each field — so you can tell at a glance exactly how much damage it has sustained. The fuel bar is on display at the right of the screen and decreases vertically. You can obtain more fuel by shooting particular aliens and picking up the fuel pods from them. This is one of the most exciting and addictive games of its type and it demands a lot of stamina to get though the levels. My only criticism is that the levels are a bit too long for a game that is quite uninterruptible — you can pause it by pressing F10 which provides a very good safety net but the game itself is so compulsive I could only bring myself to do so in extreme circumstances.

The four-level version, ie, the shareware version plus two additional levels you can get by registering, is even more demanding. The combination of a good fast-paced sound track, excellent graphics, well drawn backgrounds, and a diverse variety of aliens, make it an exciting experience. If you like this type of game, then Overkill is worth a go.

Product:	**Overkill**
Supplier:	**Precision Software Publishing**
Tel:	**(0223) 208288**
Product Code:	**overkill**
Price:	**£3.00 on 3.5 disk £2.50 on 5.25 disk**
Registration price:	**£25.00**
What you get for registering:	**four more levels, free bonus game**
Specification:	**XT with 720K floppy**
Disk space:	**720K**
Graphic modes:	**CGA, Tandy, EGA, VGA**
Soundboards:	**Roland LAPC1, Ad Lib compatible internal speaker**
Control:	**mouse, keyboard, joystick**



Galactix

This is a version of the classic game Space Invaders but unlike OverKill (see previous review) it goes to some lengths to hide this fact! In charge of a ship at the bottom of the screen, you can move left and right and fire your cannons, missiles, and bombs. The opposition comes at you in waves, and you have to shoot them all down while avoiding the bombs that they are dropping on you. If you live through all the waves of invaders, the command ship of the entire fleet is launched against you, and this is much more difficult to shoot down: your best bet is two bombs but bombs are usually in short supply.

Both the graphics and sound support are impressive. The invaders, their missiles and a control panel that opens and closes between the waves of invaders are well finished and the writers have gone to the trouble of adding a scenario complete with sound and speech. It is the year 2019 and the newscaster reports that the very last tree in the Brazilian rain forest has been cut down. Suddenly the screen fills with white noise. The television station has been overrun and an alien with a gruff, mechanical voice appears to give his message of doom: cultural war has been declared and the planet faces obliteration by the Xidus. This introduction is worth watching once but as it is an option on the menu you do not need to go through it every time you play.

There are a couple of refinements on the basic idea of space invaders in this version. As you shoot down the aliens, your score goes up, and also you see bonus items appear among the invaders. These might be more energy, extra missiles or bombs, or a special cannon which delivers streams of bullets and is greatly satisfying. The bonus items are denoted by capital letters that appear among the invaders. At this point you can extend a claw from your ship to grab the bonus item, and if the claw connects before the item disappears, you gain whatever it is.

You shouldn't expect anything new and revolutionary from Galactix but it is a well implemented version of an old game. It's worth while remembering that classic games get to be classics by being great fun to play! My only criticism is that the invaders are entirely relentless and very predictable. After wave 20 they start raining down meteorites and although I survived as far as wave 44 there was still no sign that I could defeat them. There is a graphical ending describing the destruction of the earth after I failed but I do not know if there is an alternative. Galactix is fun for a while but there is nothing to keep you interested.

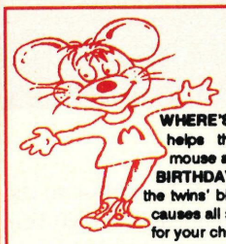
Product:	**Galactix**
Supplier:	**Transend**
Tel:	**(0274) 622228**
Product code:	**7310**
Price:	**£5.00**
Registration price:	**$15**
What you get for registering:	**latest version**
Specification:	**286 or better**
Disk space:	**2.5Mb**
Graphic modes:	**VGA, SVGA**
Soundboards:	**Sound Blaster**
Control:	**mouse, keyboard, joystick**

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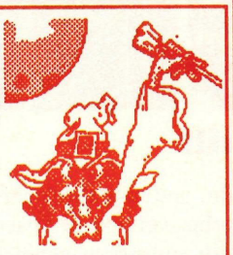
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NEW RELEASES

Here are some of the new titles that we have recently received. We have hundreds more, so if there is something else that you want, 'phone us to see if we have it.

TASK-PRO (1)(HD) Project management/job scheduler.
ORGANIZE YOUR BUSINESS (1)(HD) Client database, sales management and mailing list manager.
DATAWORKS (1)(HD) Fully relational database.
TAPCIS (1)(HD) For saving on-line time on Compuserve.
CHINESE CHECKERS (1)(EGA) Favourite board game.
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ANIMATED SERIES These programs won the 1992 Shareware Industry Award for Best Educational Software. We now have the latest versions of the full series and registered versions are available from ourselves. Try one or two of these amazing Shareware discs, then get the full registered series from us. Full details on the discs.
ANIMATED ALPHABET (2)(HD)(EGA)
ANIMATED WORDS (2)(HD)(EGA)
ANIMATED MEMORY GAME (1)(HD)(EGA)
ANIMATED MATHS (1)(HD)(EGA)
ANIMATED SHAPES (1)(HD)(EGA)
They are all for age range 2 to 6 and registration brings more extended games and personalised versions.



We have recently extended the range of registered programs that we publish or distribute for the authors. You can obtain these directly from us, here are some of them:

EASY STOCK MANAGER £23.50	SHARESPELL £23.50
FINGERPAINT £30	POPSAURUS £23.50
FINGER VGA £45	WORD TRANSLATOR £45.83
GEOCLOCK UK £30	ORGANIZE! £59.50
WAMPUM £76.38	PUZZLER £11.75
ZEPHYR £64.63	BROTHER'S KEEPER £45
PCX-SUPERSHOW £59.50	TEXT SHOW £49.50
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PRINTPARTNER £23.50	ORGANIZE/BUSINESS £69.50
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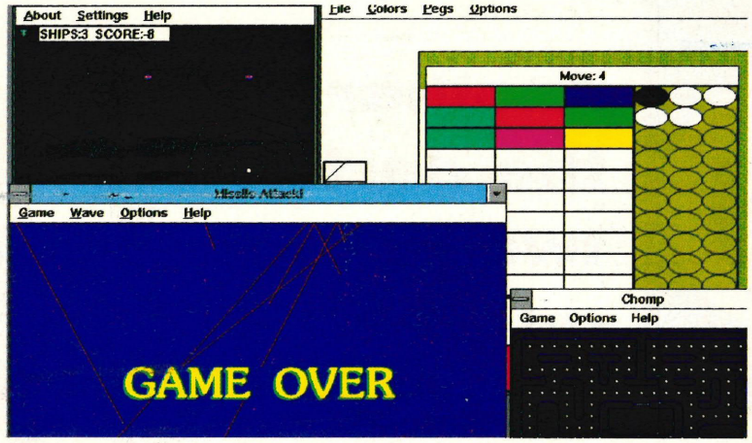
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CICA MS Windows CD-ROM

This is the entire collection of shareware and public domain software for Windows from Indiana University, the US repository of Windows shareware. So the programs included are also available on many bulletin boards. Much of the software is serious stuff – updates to windows drivers, some TrueType and ATM fonts and a range of other utilities – including "official" programs from Microsoft itself. Programmers will find plenty of interest including specific directories for Turbo Pascal, Visual Basic, C++, Asymetrix ToolBook plus general Windows programming utilities and examples. There are also utilities for applications such as Word and WordPerfect for Windows.

Its leisure section offers a large collection of games but most are modest attempts at entertainment. I recommend the classic Pac Man type game, the alternative version of Tetris and the MasterMind. There are many fun items, such as a worm which crawls across your screen leaving an irritating trail, and eyes and cats that follow your mouse.

This collection is ever growing – by the time you read this the October '92 version will be available. It is certainly worth having if you are programmer, as you get a lot from the serious CD items and even a few hours' fun from the trivia. If you are interested mainly in its games content there may not be enough to justify spending £34.95.

Product:	**CICA MS CD-ROM**
Supplier:	**Unica**
Tel:	**(061) 429 0241**
Product code:	**CICA**
Price:	**£34.95**
Registration price:	**various**
What you get for registering:	**lots of goodies**
Specification:	**Windows with CD-ROM**
Disk space:	**n/a**
Graphic modes:	**as Windows**
Soundboards:	**any Windows**
Control:	**any Windows**



If you would like to take advantage of the Shareware Finder Service, fill in the form, right, or reproduce it in letter form, and send it to PC Review, Shareware Finder Service, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. You can also fax your request to (071) 972 6710, or e-mail it to pcreview@CIX.compulink.co.uk.

Please note that PC Review doesn't undertake to supply you with the software we come up with, but we will identify the product we believe will suit your purpose, and make our own, necessarily subjective, evaluation of it.

Shareware Finder Service

I am student at university, who is constantly being hassled by lecturers to word-process my essays. I am looking for a DOS word processor that has most basic functions and can save files in a format that can be read by Word For Windows. I suppose I could always save my document in AscII, but I would lose my page layout. My other requirement is a French-English dictionary — although this could be a separate program. Is there a template I could place on my keyboard if when using another country's Keybfr.com to use with a word-processor?

Dave Thomas
Glasgow

There are so many shareware word processors it's hard to know where to start! Even so, I don't know of any that save a file directly into Word for Windows format. Nonetheless, Word for Windows will read in many other standard word processor formats. Galaxy Lite (disk WP13 from Shareware Marketing (0297) 24088) is a fast WordStar compatible program that is easy to use with all the features you need for day-to-day use. You can also open a window to look at other documents and can cut and paste between documents, a invaluable facility if you keep your lecture notes as word processor documents. Given that you want to write in more than one language the multilingual word processor Intext (Disk 062 from The Disk Park (0525) 841731) might be another suitable choice.

In looking for a French/English dictionary I came across Word Translator (two disks from Benetech (0533) 611231), a pop-up bilingual dictionary that works inside a word processor and translates words with just a few keystrokes but this covers Danish, German, Spanish, Russian and Portuguese, not French. As to a template for the French keyboard layout, one possibility is to photocopy the layout diagram in the back of the MS-DOS manual and stick it somewhere you can see it while typing. For a shareware solution, have a look at Euro Keyboard (from Transend (0274) 622228, Order Code: 5500). This solves the problem of accessing the accented characters: you type them simply by holding down Ctrl-alt and pressing the letter you want, for example 'e', and then you select a style of accent.

I have recently moved over to the PC market from the ZX Spectrum. I have many Spectrum games and would like to run these games on my PC. I would like to also transfer these games to 3.5" disk instead of from cassette. You can get 'Emulators' for the Amiga and I would like to know of a PC shareware equivalent.

Sam Fox
Powys
Wales

The simple answer is I don't know of a Spectrum emulator for the PC at all. In fact, emulators for any other machine on the PC seem a bit thin on the ground. The only one I can find emulates a 8080 running the CP/M operating system. It can't be that emulators are more difficult to write for a PC so it must be that there isn't much call for them. Can any reader suggest any solutions to this or any other emulation on the PC?

Name .....
Address .....
.....
.....
Daytime tel no (in case we need more details).....
PC system specifications:
Processor.....RAM .....Hard/floppy disk.....
Graphics .....DOS. .....Windows .....
I am looking for software which will perform the following task.....
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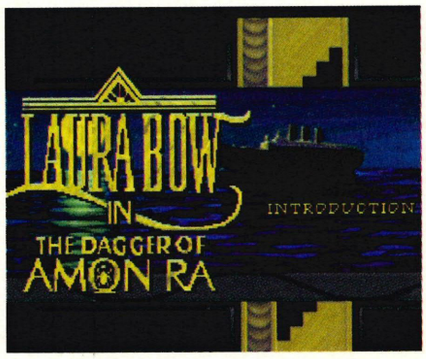
QED

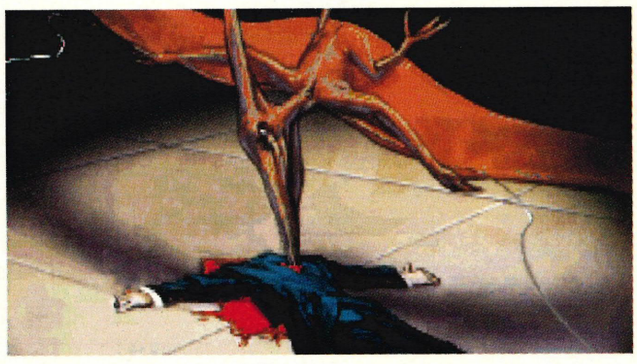
Another stab in the dark. Part two of our cryptic guide to The Dagger of Amon Ra - Laura Bow II, prepared by veteran gamer Robin Matthews.

Laura Bow II
The Dagger of Amon Ra

Part Two

Act III – on the cutting edge





Following on from the first instalment, you should now have discovered the first body, and will be moving in to Act III.This is the single largest act in the game and the locations are limited to those away from the main hall.There is a lot of ground to cover,with much to-ing and fro-ing, but it seems that you can ignore the main hall area – the gift shop is locked also.

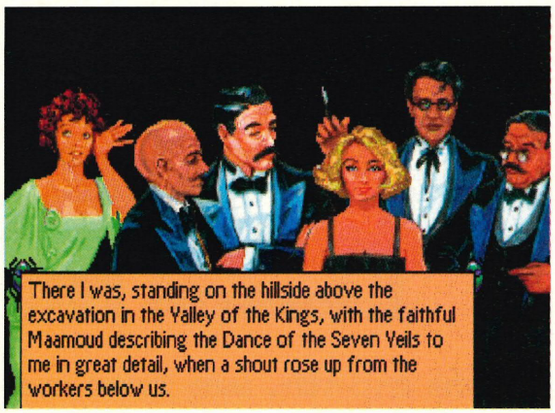
The game proceeds on the basis of certain completed actions or observations triggering the next scene, and there are also several conversations that can be overheard – behind the hanging standard in the armour room is the perfect spot!

Examine all items and people (and especially any bodies) both with the eye icon, and using the magnifying glass, starting with Pippin's notebook. This has been in so many films you must recognise the technique, but basically you are in a position to capitalise on an earlier impression!

Locations need to be visited, and revisited regularly, with Dr M's office a good place to start. Grab the snake oil (this appears in several locations, so don't worry if you can't get it straight away – just take it whenever you can) and take care to examine all objects, including those 'undercover'.

Next, go to the nearby office of Yvette, examine the paper cutter (and do this later) and also have a good nose around – a turn off will serve you well later when things have cooled down! Adjoining Yvette's office is that of Carrington, where lots of goodies are to be found, plus a dirty solution to an earlier puzzle. All should now be revealed, and you should make a note of any times and places.

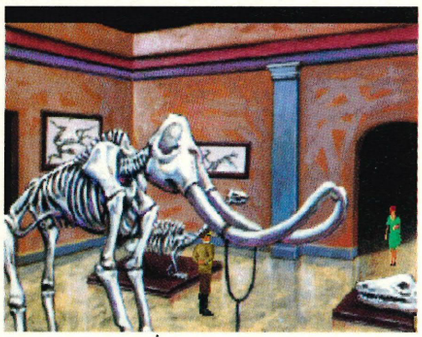
Take your time with Carrington's desk as there are two items to be examined, one being a pretty safe bet. Back to Yvette's and collect your prize.



There I was, standing on the hillside above the excavation in the Valley of the Kings, with the faithful Maamoud describing the Dance of the Seven Veils to me in great detail, when a shout rose up from the workers below us.

If you now keep the 10.15 appointment you may hear things to your advantage, and with others say cheers for the help, 'behind closed doors'. In the pterodactyl room another little accident may have occurred, and take your time with close observations of this stinking crime!

Note the wire for later use, but you must certainly apply yourself to this one later on. You need to keep ahead of the action, and in these situations the more heads the better. Check for footprints in other places, and





also go back to previous spots in order to locate the murder weapon.

Carrington's office will move the clock on, so visit everywhere else first – then at Carrington's, he's certainly got the point. Check all clues. It should now be 12.45.

Every time you pass through the armour room, pause behind the standard in case you can eavesdrop, but now it's time to sink to new depths, and a classic piece of art will be ahead of its time! There are several triggers in Laura Bow II that in fact open a door in another location, so don't keep on looking for more in things that are obvious. If Alvei sought the help of the 'little grey cells' you're now right down the track.

If this takes you forward, but you are still in the dark, an earlier illuminating experience will avoid pitfalls. Downstairs there are four locations : Heimlich's office, the alcohol lab, The mammalogy lab and Ernie's storeroom.

First of all this is an emergency situation, so react accordingly. In the alcohol lab note your tipple and go right to Ernie's. Collect the arresting device, get your tools, and if you're lucky the intercom will give you a clue to something you want. If you are right on the button things will open up in other places and it's all down hill from here.

Follow the numbers next door and elevate your aims for a big find, and then into the mammals lab (snake oil may be here) and really get your teeth into things.

Heimlich's can be tough, it's true, but trigger things from afar to avoid getting the bullet, take the cheese, check reading material carefully, in particular for books that may be replaced the wrong way round, and then search for buttons in all the best places, but make sure you can see what's in store – in an emergency!

Now it's back up to higher levels and appreciate the works of art – close-up appreciation is needed, although you are given clues about wet paint. Ernie's tool will help with something once suspended, and removing a piece will help recover the artistic key.

You now have the key to an earlier found locked trunk, but beware, some little blighters will be rather hungry, so have your red blooded fare ready. This should put time on your side, and now it's time for more eavesdropping.

2.00 am or thereabouts, and in one of the older exhibit rooms another problem has arisen: use real care when making your examination, picking up all relevant clues and using all your senses.

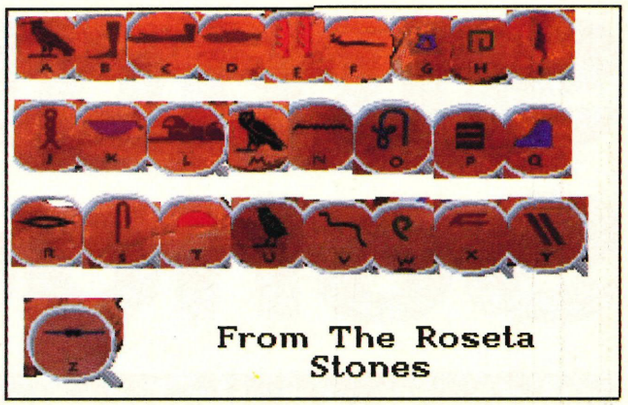
At 2.15 the old masters room is worth a visit to catch up on recent events and to see how well the police investigation is going, This should also conclude Act III.

Act IV – Museum of the Dead

Go to the doctor's room and pull the skull (when you enter this room, you must pull the statue as your first action – anything else seems to cancel this facility). Follow the secret passage and go to Yvette's to hear her theory and the iceman mentioned. Leave to then overhear another useful conversation and use the same method as before 'behind closed doors'. A visit to the alcohol lab triggers time , and then return to Yvette's to find a disturbance has taken place. Examine the shoes, clothing shreds, typewriter and hairs.

The old masters room is the new port of call, and look out for nouveau art. A bone-jarring smashing time is what's next, to reveal another shocker (clues abound so take your time). It's now about 3.15. The bodies are eliminating suspects infinitely quicker than you can say 'lead piping' but significant clues are still to be found – what's afoot in the armour room?

A 'meanwhile scene' may get you scuttling in one direction, but pause for breath as a Conan Doyle 'speckled band' awaits. Make sure you are well oiled and thrice you'll fend off the vicious foe – the lasso now plays its part, and put our friend back in his home. The obvious thing is to be 'the expert', but wait – check your supplies, some need replenishing and the alcohol lab just hit's the spot! Do this before examining the body, as once you finish looking at the corpse the curtain comes down on Act IV.



For those of you having a bit of trouble with your ancient translations, here's a complete list of all the symbols and letters.



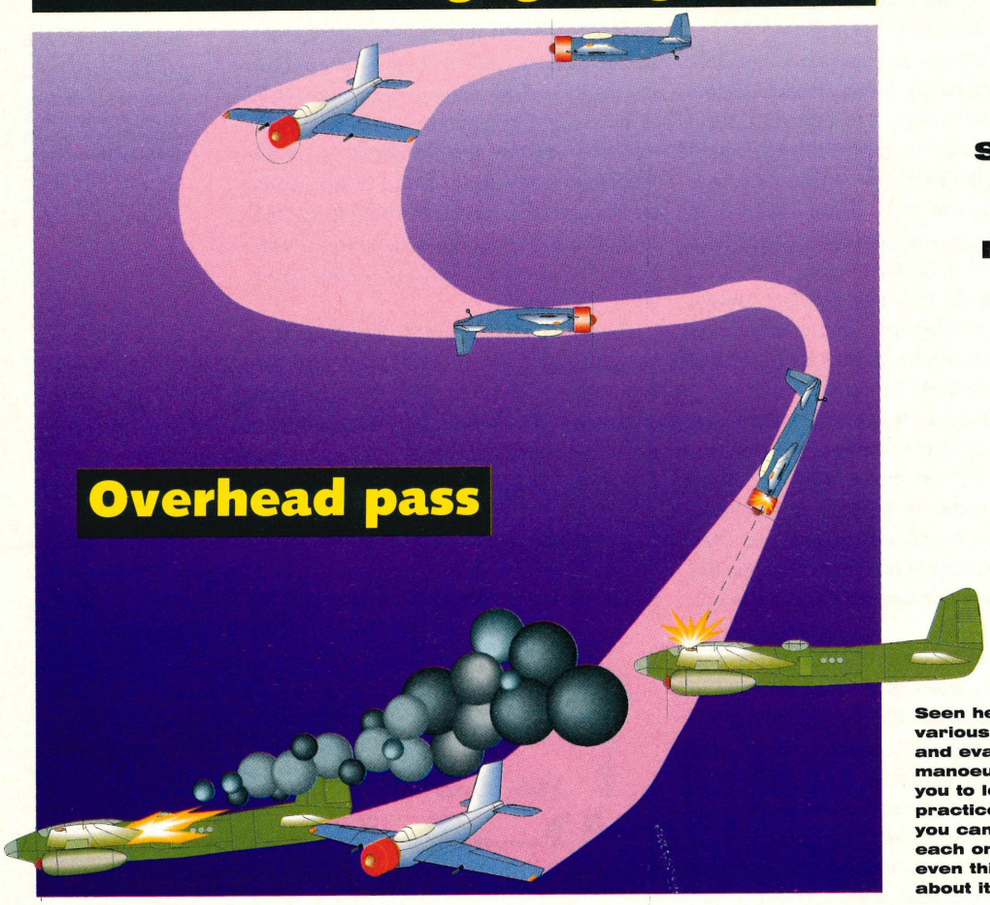
QED

Simulation School 4

Lesson

World War II dogfighting tactics

This month, we turn our attention to the planes of World War II, with a series of tips and tactics specially compiled by Rod Hyde, author of the original Falcon, and Reach for the Skies



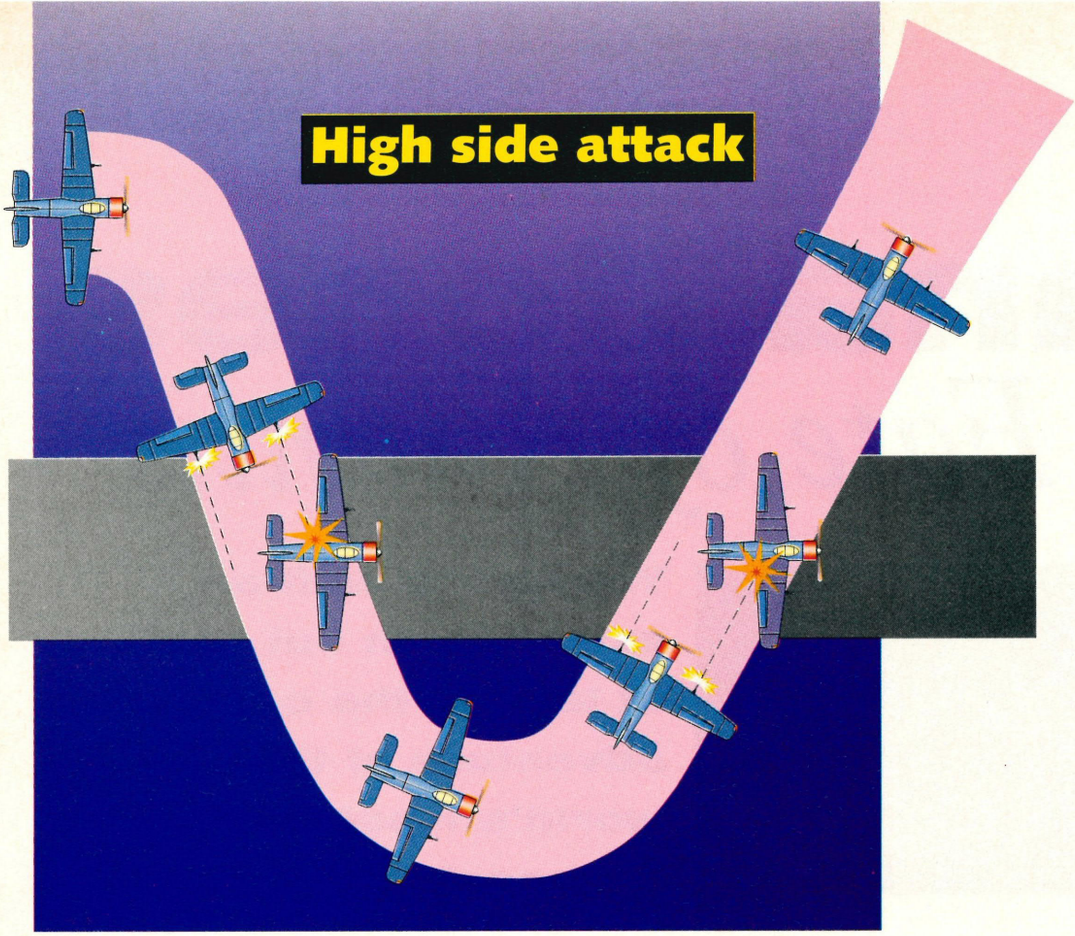
Seen here are various attacking and evading manoeuvres for you to learn. Try to practice each until you can perform each one without even thinking about it.

In the real world of air combat, over eight out of ten kills are foregone conclusions by the time the victim is aware of a problem. Once you get involved in a dogfight, you have already given up your single best weapon, that of surprise.

It is essential that you become a hunter and not one of the hunted. A modern jet fighter has radar, TV with magnification and threat indicators to help detect the enemy. In comparison, the Battle of Britain pilot was limited to the Mark I eyeball. Good eyesight was essential, far more important than it is in today's flying.

It was so important to use the gift of good eyesight properly; this comes with experience. Inexperienced pilots would be concerned with flying and not fighting. So here are some tips to help you live long enough to gain your experience.

- Keep the sun behind you. If you have to fly away from the sun, 'tack' away at 45 degrees from the direct course.
- Remember to keep your eyes out of the cockpit. Don't get fixated on the instruments. Relying on the 3D view displayed on the cockpit screens of a typical flight sim will also lead to trouble. In a real aircraft the pilot is not limited to a short funnel of vision, he moves his head to cover as much of the sky as possible. In a simulation, you need to move to an outside view and rotate to get the same effect.
- Look for relative movement. At the edge of visibility where a stationary aircraft would be invisible, the relative motion of a moving aircraft against the backdrop will give it away. In many flight sims, designers include layers of dots to enchance the impression of speed and perspective. These make it more difficult to pick up aircraft. However, relative motion will give away a moving aircraft every time.
- Battle of Britain aircraft did not fly as high as modern fighters. This therefore means that a pilot can also look for aircraft shadows over the ground and sea. Sometimes it is easier to see the shadow than the aircraft casting the shadow.
- Watch out for the messages from your ground controllers and fellow aviators. These should help you to make your search even more profitable.
- Watch your six and don't rely on the rear view mirror. More often than not, danger comes directly from behind you (your six). Although your mirror gives a view of the area, it is only a very narrow view. Use the outside view.
- Fly in pairs. A man on his own is a liability, a pair is an asset. Having a buddy close by is like having an extra pair of eyes. Not only that, it complies with the ancient doctrine of concentration of firepower. However, this doctrine resulted in the RAF adopting some very poor tactics in the early months of the World War II. Large wings of fighters were instructed to fly so close to each other that only the leader could spend any time looking out for the enemy. Many 'tail-end Charlies' were shot down before the tactics were discarded in favour of the approach adopted by the Luftwaffe. It is essential that you should fly close enough to provide mutual support but not so close



that the act of formation flying requires too much attention.

Once you have spotted the enemy, you should attempt to keep out of his sight. If you have not already done so, move up sun and gain more and use any cover provided by the clouds or high ground. Some aircraft had rear facing crew with guns. This is a real sting in the tail for an unsuspecting pilot coming in for the kill.

So it is important to identify the aircraft before adopting attacking tactics. For aircraft bristling with guns, an aggressive fast slashing attack would make the most sence. This doesn't give the gunman a chance to take aim. Sometimes air crew were left at home to increase aircraft range. Once discovered, this would be an unexpected bonus for RAF pilots.

After the attack, get away as quickly as possible using all speed. Only go for the deck as a last resort. At low altitude, small arms fired from the ground are dangerous.

A pilot is at his most vulnerable when he is attacking another aircraft. He needs to concentrate his attention on the attack and does not have much time to look around. So get away as soon as possible, there could be a bandit on your tail. Incidentally, target fixation is a real problem in its own right. Pilots have collided with other aircraft, been shot down and hit the ground when they have concentrated on the target to the exclusion of everything else. All this strengthens the argument of flying with a buddy.

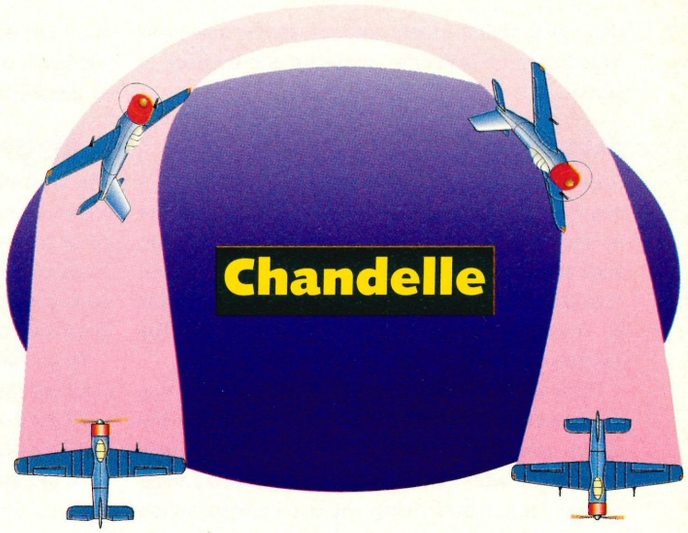
You should attack suddenly and aggressively. Be sure of the shot before you open fire. Once the shells start to fly, your position will not remain a secret for very long. One wartime commander ordered that tracers be removed from his squadron's calling card increased the kill rate significantly

An exception is when in a tail chase where you have an enemy aircraft in front and you are not gaining on him. Give him a burst of your gun fire. This may frighten him into weaving about.

Once you have made visual contact, don't let the bandit out of your sight. There are two basic problems:

- When you start a manoeuvre, the bandit will respond. If you are not looking at him, he certainly will not be where you expect him to be when you finish your manoeuvre.
- The bandit can turn away during the moment of your inattention. This could make him almost invisible as he represents a smaller area to you. Also as he is moving away, relative motion will not be enough to pick him out of the backdrop. The distance that the bandit covers in the few seconds you are not looking could give him enough of a lead to get away.

When flying most sims, it is not easy to keep your eye on the bandit at all times. However, some more recent publications have addressed the problem. Knights of the Sky from MicroProse and Virgin/Rowan's Reach for the Skies have a simple combat view which locks the bandit to centre screen. making it possible to preform very complex three dimensional manoeuvres and always keeps the bandit in view.





To end with, take a look at the diagrams on these pages. These were typical attacking tactics for WWII fighter aircraft. Learning to use these effectively will improve your combat skills, add to your kill ratio and, most importantly, keep you alive longer.

Next month: An in-depth look at space flight by the people that brought you the ultra-realistic Shuttle.

QED

Indiana Jones *and the Fate of Atlantis*



You had to wait an extra month but here, at last, is the continuing adventure of the world's most famous archaeologist

Part Two

Continuing with the team path you should now be in possession of Trottier's sunstone and be back in sunny ...

Algiers

Issue 13 showed you how to get into the balloon. To negotiate the desert you'll have to keep landing at the nomad camps and asking for directions. North, east, west and south refer to the edges of the screen while "considerably" means two or more screens, "slightly" means the same screen and simply "to the east/west/north/south" means one screen.

Once you've landed at the dig site and Sophia has become trapped, your first step is to climb down the ladder and feel around in the dark for different objects. To work the generator, find the clay thing and the long, tubular thing and use them to siphon gas from the Nazi truck. This is fed into the generator to turn on the lights.

Using the ship's rib, clear away the crumbling wall to revel the map of Crete. This is where you have to use the sunstone (with the appropriate text from Plato's diary) to free Sophia. To get the truck to work you'll need the distributor cap from Sophia and the spark plug from behind the panel on the generator.

Crete

To enter the labyrinth in Crete you'll need to find a moonstone to work in conjunction with the sunstone on the pedestal. First get hold of the surveyor's instrument: then search the ruins for a mural. This shows the position of the horns and the correct stone piles in town. Push the piles of stones until you uncover the bull's head and tail. Use the surveyor's instrument on both of these (lining up the sight with the edges of the horns) to reveal the moonstone. To open the labyrinth, set the sunstone to the same position it was in at the dig site and the moonstone as described in the diary.

Labyrinth

The labyrinth is very open-ended and most of the puzzles can be encountered in any order. Here is a list of answers to some of the more tricky situations: To be able to close the gate from the inside use your whip to collect the third statue head. You'll need all three later on so collect them all.

To get back upstairs after finding the worldstone, climb up the chain behind the waterfall.

To get back downstairs again, use your whip with the large statue's head.

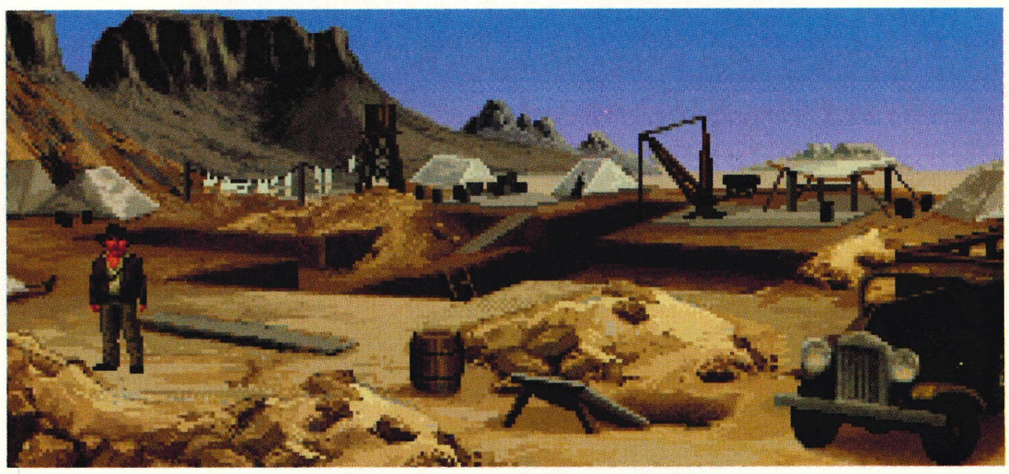
To get the gold box, find the room directly below and use Sternhart's staff in the statue's mouth to free the counterweight.

To get through the closed gate, convince Sophia to climb through the hole (select the answers 2, 2, 1, 4 and 2).

To get out of the maze, you'll first need to put all the orichalcum you have (including Sophia's necklace) into the gold box, then use the amber fish to find the secret door.

Once you've found the map room, use all three stones on the pedestal to open one of the doors. The correct combination is again found in the diary. After the subsequent confrontation has finished (and you should have lost both the girl and the stones) you'll need to use the ship's rib on the wall to get out of the maze. From there it's on to the submarine and further excitement ...

Will Indy ever see Sophia again? Will Indy ever see the stones again? Will Indy ever use his "Hi, I'm selling these fine leather jackets" line again? You bet, next time in the concluding episode.



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QED Ultima VII

So you've been wandering around the land of Britannia trying to find the best bargains for some time now, eh? Well let's all give thanks to shopper extraordinaire Andrew Roper of Baughurst for providing us with these handy price lists for Origin's latest and biggest RPG.

Provisions	Item	Cost
Britain (Gregg)	Backpack	15
	Bag	8
	Bucket	8
	Hoe	20
	Lockpick	10
	Oil Flasks	72
	Powder Keg	35
	Shovel	20
	Torch	5
Trinsic (Dell)	Backpack	12
	Bedroll	15
	Bucket	2
	Lockpick	8
	Swampboots	40
	Torch	4
Paws (Old Woman)	Bell	6
	Cradle	10
	Hourglass	5
	Lute	20
	Sextant	20
	Rocking Horse	12
	Spitoon	1
Vesper (Eldroth)	Backpack	10
	Bag	3
	Hoe	10
	Oil Flasks	48
	Powder Keg	30
	Shovel	10
	Torch	3
Vespar (Aurvidiem)	Bucket	4
	Cloth	3
	Jar	2
	Powder Keg	25
	Oil Flasks	60
	Torch	4
Buck's Den (Budo)	Lockpick	10
	Torch	5
Serpent's Hold (L J)	Backpack	13
	Cannon Ball	10
	Jug	3
	Lockpick	10
	Oil Flasks	60
	Powder Keg	30
	Torch	4
Terfin (Betra)	Bag	6
	Bucket	3
	Oil Flasks	72
	Powder Keg	35
	Shovel	14
	Torch	4

Wizard	Spell	Cost
Yew (Nicodemus)		
1st Circle	Cure	25
	Detect Trap	25
	Great Ignite	25
	Locate	25
2nd Circle	Destroy Trap	45
	Enchant	45
	Protection	45
	Wizard Eye	45
3rd Circle	Paralyse	65
	Peer	65
	Poison	65
	Swarm	65
4th Circle	Mark	85
	Recall	85
	Seance	85
	Unlock Magic	85
5th Circle	Dispel Field	115
	Explosion	115
	Invisibility	115
	Mass Sleep	115
6th Circle	Fire Ring	135
	Magic Storm	135
	Poison Field	135
	Tremor	135
7th Circle	Death Bolt	155
	Delayed Blast	155
	Energy Field	155
	Energy Mist	155
8th Circle	Death Vortex	185
	Mass Death	185
	Summon	185
	Swordstrike	185
Reagents	Blood Moss	3
	Garlic	2
	Mandrake Root	5
	Nightshade	5
	Spider Silk	3
Vesper (Wis Sur)	Great Douse	30
1st Circle	Great Ignite	30
	Light	30
	Locate	30
2nd Circle	Destroy Trap	50
	Enchant	50
	Fire Blast	50
	Great Light	50
3rd Circle	Curse	70
	Paralyse	70
	Poison	70
	Swarm	70
4th Circle	Conjure	90
	Lightning	90
	Mass Curse	90
	Reveal	90
5th Circle	Dispel Field	120
	Explosion	120
	Fire Field	120
	Mass Sleep	120
6th Circle	Clone	140
	Fire Ring	140
	Flame Strike	140
	Tremor	140

Wizard	Spell	Cost
Britain (Nystul)	Create Food	35
1st Circle	Great Douse	35
	Light	35
	Locate	35
2nd Circle	Enchant	55
	Mass Cure	55
	Protection	55
	Telekinesis	55
3rd Circle	Heal	85
	Protect All	85
	Sleep	85
	Enswarm	85
4th Circle	Conjure	95
	Mass Cure	95
	Reveal	95
	Unlock Magic	95
5th Circle	Dispel Field	125
	Fire Field	125
	Great Heal	125
	Invisibility	125
6th Circle	Cause Fear	145
	Fire Ring	145
	Flame Strike	145
	Sleep Field	145
7th Circle	Death Bolt	165
	Energy Field	165
	Energy Mist	165
	Mass Might	165
8th Circle	Death Vortex	195
	Invisibility All	195
	Mass Death	195
	Time Stop	195
Reagents	Black Pearl	10
	Blood Moss	6
	Ginseng	4
	Mandrake Root	10
	Sulfurous Ash	8
Cove (Rudyom)	Awaken All	25
1st Circle	Cure	25
	Detect Trap	25
	Light	25
2nd Circle	Destroy Trap	45
	Fire Blast	45
	Great Light	45
	Telekinesis	45
3rd Circle	Curse	65
	Heal	65
	Paralyse	65
	Poison	65
4th Circle	Lightning	85
	Mark	85
	Recall	85
	Seance	85
5th Circle	Charm	115
	Dance	115
	Explosion	115
	Great Heal	115
6th Circle	Clone	135
	Magic Storm	135
	Poision Field	135
	Sleep Field	135
7th Circle	Create Cold	155
	Delayed Blast	155
	Mass Charm	155
	Restoration	155
8th Circle	Armageddon	185
	Resurrect	185
	Summon	185
	Swordstrike	185
Reagents	Black Pearl	5
	Blood Moss	3
	Ginseng	2
	Mandrake Root	5
	Sulfurous Ash	4

Wizard	Spell	Cost
Moonglow (Mariah)	Create Food	60
1st Circle	Cure	80
	Detect Trap	100
	Light	40
2nd Circle	Destroy Trap	100
	Protection	80
	Telekinesis	60
	Wizard Eye	40
3rd Circle	Heal	40
	Peer	60
	Protect All	100
	Sleep	80
4th Circle	Mark	40
	Recall	60
	Seance	80
	Unlock Magic	100
5th Circle	Charm	60
	Dance	100
	Fire Field	80
	Invisibility	40
6th Circle	Cause Fear	80
	Clone	40
	Magic Storm	100
	Sleep Field	60
7th Circle	Energy Field	100
	Energy Mist	60
	Mass Might	40
	Restoration	80
8th Circle	Invisibility All	100
	Resurrect	40
	Swordstrike	80
	Time Stop	60
Reagents	Black Pearl	8
	Garlic	1
	Ginseng	2
	Mandrake Root	7
	Nightshade	6

Armourers	Item	Cost
Britain (Grayson)	Dagger	20
	Mace	20
	Sling	20
	Spear	25
	Sword	100
	Throwing Axe	25
	Two Handed Sword	250
	Two Handed Axe	100
	Leather Armour	50
	Chain Armour	150
	Plate Armour	30
	Leather Gloves	20
	Crested Helm	75
	Spiked Shield	60
Britain (Iolo's Bows)	Bow	40
	Crossbow	125
	Triple Crossbow	400
	Arrows (dozen)	25
	Bolts (dozen)	30
Trinsic (Dell)	Bow	30
	Club	15
	Dagger	10
	Mace	15
	Sling	10
	Sword	50
	Two Handed Sword	80
	Two Handed Hammer	60
	Arrows (dozen)	10
	Bolts (dozen)	15
	Leather Leggings	25
	Chain Leggings	35
	Leather Armour	40
	Leather Helm	25
	Wooden Shield	15
Minoc (Zorn)	Dagger	12
	Mace	15
	Sword	70
	Throwing Axe	20
	Two Handed Sword	125
	Two Handed Axe	70
	Chain Coif	80
	Chain Armour	100
	Chain Leggings	50
	Plate Armour	300
	Plate Leggings	120
	Gauntlets	20
	Crested Helm	60
	Great Helm	150
Jhelom (Kliftin)	Club	5
	Dagger	10
	Halberd	150
	Mace	15
	Main Guache	20
	Morning Star	15
	Sword	60
	Scale Armour	120
	Gorget	30
	Crested Helm	150
Buck's Den (Budo)	Bow	40
	Club	20
	Dagger	20
	Halberd	250
	Sword	100
	Arrows	25
	Bolts	30
	Plate Armour	325
	Plate Leggings	200
	Scale Armour	100
	Gauntlets	25
	Gorgets	40
	Great Helm	200
Serpent's Hold (Iolo's)	Bow	35
	Magic Bow	400
	Crossbow	110
	Triple Crossbow	350
	Arrows	20
	Bolts	20
Serpent's Hold (S R)	Dagger	12
	Halberd	200
	Mace	20
	Morning Star	25
	Spear	25
	Sword	65
	Two Handed Sword	175
	Gauntlets	18
	Greaves	40
	Plate Leggings	160
	Gorget	175
	Great Helm	150
	Buckler	18
	Curved Heater	35
	Spiked Shield	22

Place	Potion	Cost
Britain (Kessler)	Awakening	30
	Curing	150
	Healing	150
	Illumination	50
	Invisibility	100
	Poison	15
	Protection	150
	Sleep	15
	Silver Serpent Venom	50
Moonglow (Mariah)	Awakening	15
	Invisibility	90
Vesper (Wis Sur)	Awakening	10
	Curing	150
	Protection	150
	Sleep	30

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QED TIPS

"I say, sir. You did say tip, did you not?" Chester Tofflewhip moved closer to the edge of his seat, inflamed with the excitement generated by the foppishly dressed man before him. "Aye sir, I did," replied Sandy Pixhandle with a flourish, a tip of his gaily feathered hat and a bow that bordered on the ridiculous. "A veritable menagerie of information guaranteed to aid the most needy of souls."
"This all sounds most interesting," commented Chester, reaching out his hand. "May my eyes have the pleasure of observing the document just once?"
"By all means, sir. Peruse away."

Jimmy White's Whirlwind Snooker

Ah ha! The infamous 147 tip finds its way to the PC. Basically, to watch your computer perform a maximum 147 break in the intro demo (instead of the usual boring little game) do the following. Enter trick shot mode and start the trick shot editor. Press F7, then F4, then F1, and you should hear a noise akin to the balls being racked up. Enter demo mode and the 147 break option should be available to you. Thanks to Kevin Egris (sender of the Star Tip) for that one.

Heimdall

Nordic warrior descendant Matthew Sexton of East Grinstead has discovered how to get a maximum score in runelore in Core Design's wonderfully little romp. Visit the island illustrated above:

Disembark with a powerful player, making sure you have someone else backing him up. Once on the island, you must attack and kill the sorcerer, taking the potion and nothing else. Bring up the menu screen and drink the potion to increase your runelore by five points. Return to your ship then disembark again and go through the same routine until you have drunk enough.

Stellar 7

Ian Bendesh of Cheshire can consider himself to be a masterful Raven pilot and saver of the universe (part time). Apparently whilst driving around the play area you will come across two grey and blue objects standing next to each other. Blow them both up with your strongest guns to reveal a pulsating diamond. Drive into this and you will be transported to a later level where you can do the same again until you reach the end.

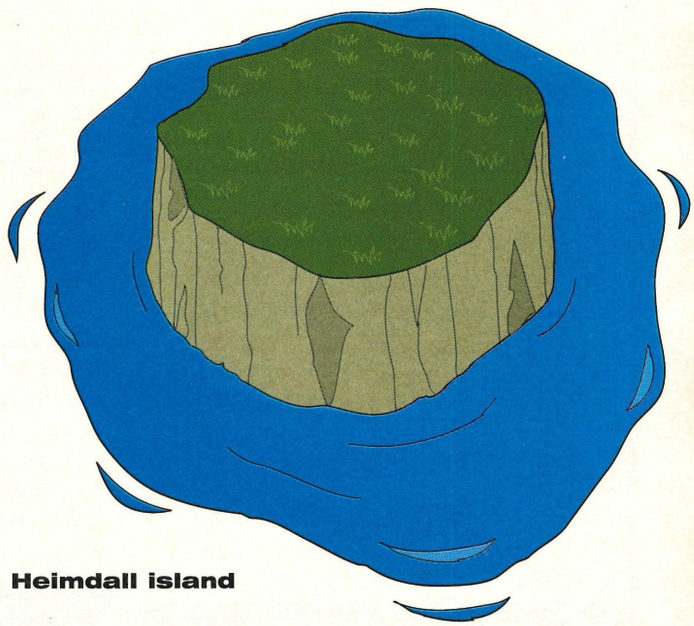
A-10 Tank Killer

Also from the lad Bendesh (see above) comes a handy way of gaining life everlasting in Dynamix's Thunderbolt simulator. Normally you are unable to soft reset your machine during the game (a procedure achieved by pressing Ctrl, Alt and Delete together). However, whenever you fail a mission there is a period where it loads in the next section. Resetting is possible here and won't affect your character.

STAR TIP

Laser Squad

Having trouble with wayward shots? Sharpshooter Kevin Egris of Kent may have the solution to your misaimed misery. Trust him, even though the solution does appear to involve shooting yourself.
When aiming shots that are at right angles to yourself (ie, 90 degrees), instead of placing the cursor on the target, place it just to the left, right, top or bottom of yourself (depending on the target's position). When the cursor is a grey cross (indicating an inability to fire) move it as close to your body as possible and when it allows you to shoot, let 'er rip. Every shot will be on target and it allows you to save action points that would otherwise be wasted on aimed shots.



Heimdall island

"Well I must say," said Chester placing the document upon the waiting tabletop, "that was without a doubt one of the most helpful tomes I have ever had the pleasure of reading. But my mind burns with questions."

"Aye, I thought it might," said Sandy with a smirk that grew on his face as a grin might surface on the face of a cat that's discovered a fresh bowl of milk. "You wish to know how to contribute your works to such a volume. Notice, on the page marked Contents there is an address. I would theorise that sending a letter to this place, marked with the heading of this very column would result in your efforts being published. Care to give it a try, sir?"

"By all that's mighty! Yes sir, yes I would like to give it a try."

"Good, good," said Sandy quietly to himself, fully aware that yet another had fallen into his trap ...

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Upgrading your PC

Installing a

These days you'd be lucky to find a game that supports EGA, and CGA has almost become a dirty word. If you're a serious games player then you need to be equipped with either a VGA or SVGA card, but what is the difference between them, and how do you go about installing and setting them up? Laurence Scotford explains

No wonder the PC languished so long before coming into its own as a games machine – for the first half of its life to date, it has had woefully inadequate graphics. While one can produce some very fine work with the EGA's 16 colours from a possible 64, the resolution of this system is really not up to it. It took the 256 colours of the VGA system, and its higher resolution 16-colour mode, to capture the imagination of games designers.

VGA wasn't actually the first video subsystem to boast 256 colours from a possible 262,144; the MCGA (Multi-Colour Graphics Array) subsystem came first. This was the graphics adaptor that IBM packaged with its PS/2 systems. VGA came into being when later models of the PS/2 began to appear.

The step up from EGA (Enhanced Graphics Adapter) to VGA (Video Graphics Array) really is a tremendous one. As well as emulating all of the EGA and CGA modes, VGA boasts a 640 x 480 16-colour mode, and, more importantly for games, a 320 x 200 256-colour mode. Whereas the EGA employed six bits to store the red, green and blue values for each colour, which gives a total of 64 colours, VGA sets aside 18 bits for each colour, which boosts the maximum number of colours to a far more impressive 262,144.

A by-product of having a larger number of colours at higher resolutions is that the graphics adapter needs more local memory to store all the image and colour data. One thing to be aware of when purchasing a VGA card is that they come with varying amounts of local memory, anything from 256K to 1Mb. Although a 256K board may be attractively cheap, it won't support the higher resolution modes.

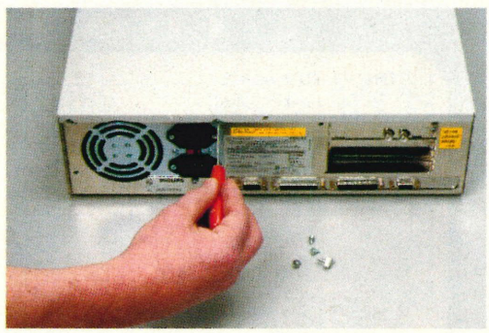
VGA is still the most popular choice of graphics card for new PCs, but it is very rapidly being overtaken by SVGA (Super Video Graphics Array). In brief, SVGA also offers 256 colour modes but at much higher resolutions. Depending on how sophisticated an SVGA board is, and again, how much on-board memory it has, the additional high resolution modes offered will be 640 x 480, 800 x 600, and 1024 x 768.

If you are considering using your PC for sophisticated graphics work or desktop publishing, then you should certainly consider buying an SVGA rather than a VGA card. SVGA modes are also proving more popular with games designers, and there are already a few games that just won't work with ordinary VGA modes.

The problem with SVGA is that it isn't an official IBM upgrade. Each manufacturer of SVGA cards, of which Paradise, Tseng, and ATI are just three examples, uses its own proprietary format for the way that video data is stored and manipulated by the card, and very few of these are directly compatible. This does mean that SVGA cards are slightly more complicated to set up and use. Whatever card you use, you will require a driver of some sort so that programs can write to and read from the SVGA sub-system, although games and applications that are written specifically to use SVGA modes are often supplied with a range of drivers for the popular makes of SVGA card. The driver is a very short program that is installed by the Config.sys file and intercepts calls to the SVGA subsystem from the CPU and converts the data to a form that it can understand, and vice versa.

The confusion over SVGA formats has been lessened to a small degree by the creation of the VESA SVGA standard. VESA is the Video Equipment Standards Association, which has formulated a standard protocol for using SVGA cards. This is just a recommended protocol, however, nothing more, and, as with any standard in computing, software or video hardware can't be guaranteed to comply with it.

If money is no object, and you have sophisticated graphics applications in mind for your machine, then you might want to consider going one better than SVGA and purchasing a true-colour card. Normal video cards work by setting up a palette of colours and then having the actual image data reference the entries in that palette. This does mean that, although the video circuitry might be capable of generating many thousands of colours, the limited palette size restricts the range of colours that can be displayed simultaneously, typically to 256 discrete colours.



Before you start work, switch everything off and unplug all the leads before removing the machine's cover. Make sure that you correctly identify which screws to remove, otherwise you may find yourself loosening the power supply or

VGA/SVGA Card

True-colour cards avoid this problem by cutting out the use of a palette altogether. The disadvantage of this is that 16 or 24 bits are required to store each pixel as opposed to 8 bits for a standard card. The advantage is that the card can display 65,536 colours simultaneously in the case of 16-bit cards, or an extravagant 16,777,216 colours simultaneously if it is a 24-bit card. This is more than enough to display images of photo-realistic quality, but don't expect to find any games that make use of true-colour capabilities. Once again, you will require a suitable driver to be installed from your Config.sys file, and you can expect to have to pay a hefty amount for a suitable monitor.

Whichever card you choose to purchase, that is only half the story. You also have to be very careful in selecting a monitor. There are as many variations of VGA monitors as there are of VGA and SVGA cards. Common or garden VGA monitors are pretty cheap these days, but the inexpensive variety are usually capable of reproducing the standard VGA modes and nothing more. If you have an SVGA card with higher resolution modes, you are going to need a more sophisticated, and therefore more expensive, monitor. If you want a monitor that can clearly display the top 1024 x 768 resolution, be prepared to shell out some serious dosh.

The important detail to note when shopping for monitors is the maximum horizontal and vertical resolution. Most cheap monitors can cope with the basic 320 x 200 256 colour mode and the higher resolution 16 colour mode but that is as far as it goes. It's a very good idea to buy a monitor with as high a maximum resolution as you can afford, even if you only plan to purchase an ordinary VGA card. This way, you've removed the expense of upgrading your monitor if you decide to upgrade your card at a later date.

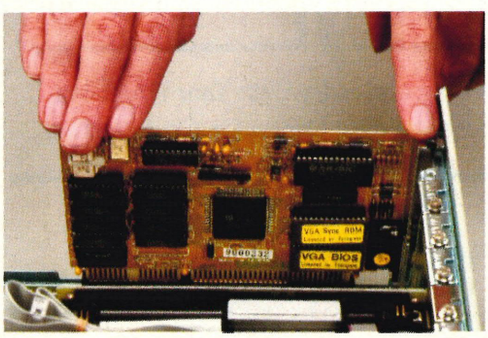
A word of warning is applicable at this point. You may well discover that certain monitors can be driven beyond their stated maximum resolution. You will be aware that a monitor is being overdriven because the picture will become unstable or there will be noise when the picture is updated. Noise, in this case, is the appearance of flickering white lines or spots on the displayed image. You might be tempted to take advantage of this anomaly to display graphics modes that your monitor is not strictly capable of supporting, but you are well advised not to. Repeatedly overdriving a monitor will eventually cause irreparable damage to the monitor and may even damage the card that is generating the signal.

When upgrading the video capabilities of your PC, you might want to consider an option that many users aren't aware of. Most PCs are capable of supporting two video sub-systems. All that you need to do is have two video cards installed in your PC, each attached to a separate monitor. When you turn your PC on, part of start up self-test sequence involves checking to see what video sub-systems are present, so both systems will be recognised.

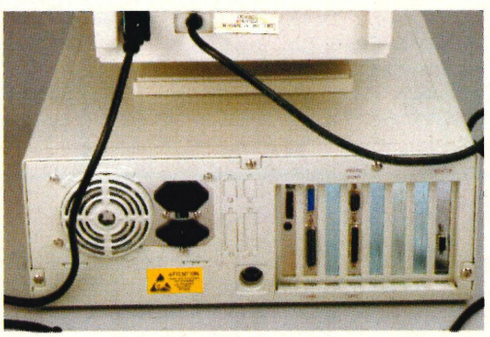
There is, however, one proviso to this dual video set-up: only one of the systems can drive a colour monitor, the other must be mono. This isn't a great drawback, since there is very little point in having two VGA or SVGA displays. There are plenty of applications, however, which can make use of a VGA or SVGA display, and a Hercules display.

To be fair, if you use your PC for games and nothing else, then you probably won't find any use for a dual display set-up, but if you are a graphics artist, or dabble in programming or music generation, then you may well find it to be a godsend.

When installing two video cards in one PC, be careful to read the documentation thoroughly because, in many cases, there will be a set of DIP switches or jumper blocks which need to be set to configure each card correctly. If you fail to do so then the two systems may conflict with each other, in which case neither of them will work properly. Care must also be taken when upgrading the video capabilities of some systems, particularly certain Amstrad models, in which the original video circuitry is not designed to be removed. In this case you must simply make the original circuitry redundant by setting DIP switches or jumper blocks.



Choose a free expansion slot in which to fit the card, and remove its blanking off plate. Put this in a safe place in case you need it again. When fitting the card, make sure that it is pushed firmly into place and that none of the sockets on the outward end are obscured by the chassis.



In most cases the monitor will be supplied with a power lead which connects it to the power supply in the PC. The second lead connects to the socket on the card, and it is this one that carries the video signal. Do not bend the pins on this lead when you insert it.



Now install the driving software and run any set-up programs supplied. If the results seem odd, check the monitor's brightness, contrast, horizontal and vertical hold, mode switches; connections between monitor and CPU; settings of DIP switches and jumper blocks on the display card.

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14 inch monitor stand	10.49	B
Sigma Ray Analogue Joystick	09.99	B
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Dual Port Adjustable Speed Games Card	13.99	B
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Buyers' guide

If you are thinking of upgrading your video then it is usually worth moving to SVGA — Super VGA — rather than standard VGA. There is now very little price difference between the two, and, indeed, very few VGA monitors currently available, so our advice is only to buy a VGA card if it is at a rock bottom price!

A big distinction between SVGA cards is whether they work with interlaced or non-interlaced displays at the higher resolutions. An interlaced display is cheaper, but flickers. A non-interlaced display is almost flicker-free, but you have to pay more for a non-interlaced SVGA card and a monitor. Some cards also offer higher frame rates (also called refresh rates), up to 75Hz and this can reduce flicker still further. Since the introduction of Windows 3 many graphics cards use special hardware to speed up Windows drawing operations. These are sold as "Windows accelerators" and if you use Windows 3 a lot they are worth the extra cost.

When you have selected your video card you need a monitor to go with it. The most important thing is that the monitor must be capable of working with all of the extra features, non-interlaced, higher frame rates and resolutions, that the video card offers. It is all too easy to buy a non-interlaced video card and discover that you cannot use this feature because the monitor will only work in interlaced mode.

There is also a slight distinction between SVGA and multi-scan monitors. A monitor that is sold as an SVGA monitor will work at all of the current SVGA standards. A monitor that is sold as multi-scan will work at all current SVGA modes and perhaps some that are yet to be invented. However it is very difficult to tell the difference between the two types of monitor and you need to read the small print very carefully. In most cases a simple SVGA monitor (1024 x 768 max resolution) is all that is needed.

From the end of 1992 all monitors will have to be manufactured to the low radiation standard but at the moment this feature tends to add £50 — in some cases more — to the price of a monitor. ■

Display cards

Name	Price (ex VAT)	Max Res	Max Colours	Interl'd (Non/I)	Windows Acc (Yes/No)
Corporate VGA	£25	800x600	16 cols	Non	N
Corporate Ultra VGA	£39	1024x768	256 cols	I	N
Corporate HiColourSVGA	£99	1024x768	32,000 cols	Non	Y
Corporate S3	£149	1024x768	256 cols	Non	Y
Diamond Stealth S3	£210	1024x768	256 cols	Non	Y
Eizo VA31	£79	800x600	16 cols	Non	N
Mentor 9406AB	£109	1024x768	256 cols	Non	Y
Orchid Fahrenheit 1280	£279	1280x1024	32,000 cols	I	Y
Orchid ProDesigner II	£129	1280x1024		I	Y
Paradise Accelerator	£289	1024x768	256 cols	Non	Y
Taxan GTS595	£139	1024x768	256 cols	I	Y
Taxan GTS695+	£219	1024x768	256 cols	Non	Y
Trident	£36	1024x768		I	N
Tseng (ET4000)	£59	1024x768	256 cols	I	N
Western Digital	£59	1024x768		I	Y
WD911 S3	£134	1024x768	256 cols	Non	Y

VGA monitors

Name	Price (ex VAT)	Screen size	Max res	Dot pitch	Inter'd (Non/I)	Low Rad (Low/N)
Eizo 9060M	£519	14"	800x 600	.28mm	Non	Low
Nec Multisync 2AN	£459	14"	800x600	.31mm	Non	Low
Microvitec VGA Scan	£399	14"	800x600	.28mm	Non	N
Microvitec VGA Plus	£449	14"	800x600	.28mm	Non	Low

SVGA monitors

Name	Price (ex VAT)	Screen size	Max res	Dot pitch	Inter'd (Non/I)	Low Rad (Low/N)
Aries	£178	14"	1024x768	N/A	Non	
Aries	£205	14"	1024x768	N/A	Non	Low
Aries Alphascan Plus	£295	14"	1024x768	.28mm	Non	N
Aries Alphascan 17+	£495	17"	1024x768	.28mm	Non	N
Aries 7000	£595	17"	1280x1024	.28mm	Non	N
Aries MC3000	£345	14"	1280x1024	.28mm	Non	N
BluePoint 1428	£185	14"	1024x768	.28mm	I	N
BluePoint Cad 256	£258	14"	1024x768	.28mm	Non	Low
Dell Ultrascan 14C	£305	14"	1024x768	.28mm	Non	N
Eizo 9065M	£519	14"	1024x768	.28mm	Non	Low
Goldstar CQ44D	£224	14"	1024x768	.28mm	I	N
Goldstar GS1460SSI	£237	14"	1024x768	.28mm	I	Low
Goldstar GS1465SSI	£279	14"	1024x768	.28mm	N	Low
Goldstar GS1470SSI	£349	14"	1024x768	.28mm	N	Low
Goldstar GS1510SSI	£429	15"	1024x768	.28mm	N	Low
Goldstar GS1720SSI	£734	17"	1280x1024	.26mm	N	Low
Interquad AC1435	£395	14"	1024x768	.28mm	I	N
Interquad AC1495	£590	14"	1280x1024	.26mm	Non	N
Hitachi 14MVX+	£395	14"	1024x768	.28mm	Non	Low
Hitachi 15MVX	£545	15"	1024x768	.28mm	Non	Low
Microvitec Plus	£425	14"	1024X768	.31mm	I	Low
NEC Multisync 3FG	£599	15"	1024x768	.28mm	I	Low
NEC Multisync 4FG	£749	15"	1024x768	.28mm	Non	Low
Panasonic C1381	£209	14"	1024x768	.28mm	I	N
Panasonic C1381iE	£299	14"	1024x768	.28mm	I	Low
Philips 7CM3209	£199	14"	1024x768	.28mm	I	N
Philips 7CM3279	£199	14"	1024x768	.28mm	I	Low
Qume	£259	14"	1024x768	.28mm	Non	Low
Samsung	£189	14"	1024x768	.28mm	I	N
Taxan 787	£399	14"	1024x768	.28mm	I	N
Taxan 787LR	£449	14"	1024x768	.28mm	I	L
Taxan 795	£699	14"	1024x768	.26mm	Non	N
Taxan 875	£759	17"	1024x768	.26mm	Non	N
Tatung	£219	14"	1024x768	.28mm	I	Low

Suppliers

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Chipboards plc, Almac House, Church Lane, Bisley, Surrey GU24 9DR tel (0483) 797959, fax (0483) 797702

Dell Computer Corporation, Millbanke House, Western Road, Bracknell, Berks RG12 1RW tel (0344) 860456, fax (0344) 860187

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Bemused, befuddled, or bewildered about your PC? If your hardware gives you headaches and you're stricken with software seize-ups, share your problem with Q&A's Mike James and he'll endeavour to help

Just to prove me wrong?

Q Mike James' otherwise excellent column in your October issue contained one small error. He said in his reply to Mark Sear that all programs that will run on a 486 will also run on a 386.

Alas, Intel never made anything that simple! They took the opportunity to slip in a few 'improvements' such as a new instruction, Bswap, that is very useful for fast graphics. The end result is that not all programs that run on a 486 will run on a 386, though it is unlikely that any mainstream PC programs will have this problem in the near future.

Michael Horne
Bucks

A *I'm glad you think that the column is excellent but one of the reasons I hope it is good is that I try not to get too bogged down in technical detail. I try to give enough of an idea for non-expert readers to make sensible decisions. For example, when I said that all programs that run on a 486 will run on a 386 I was aware that there are slight differences between the two processors: you only have to read the 'differences' section in the Intel manual to find out exactly how they differ, but as you state it is unlikely that any mainstream programs will make use of these variations. Indeed it would be commercial suicide to create a program that made use of the Bswap command and so rendered itself unusable on a 386 machine. If a program did make use of the tiny speed advantage of the Bswap command then it would certainly also contain a test for the type of processor it was running and substitute something that does work on a 386 when necessary.*

You could say that the differences are theoretically, but not practically, significant and so you are safe in assuming that a program that runs on a 486 will run on a 386 and vice versa unless someone goes out of their way to prove me wrong!

CD-ROM is different

Q I have seen CD-ROM drives advertised for around £240 which is considerably more than audio CD players. Could you please tell me if a normal audio CD player could be connected to my 286 system to make use of the CD-ROM software. Also, some of these drives have been advertised as being able to play both audio CD's and computer CD's; does this mean that it plays the CD through the computer and the sound card or can it be connected to a hi-fi or cassette player to play audio discs?

A J Smith
Malvern
Worcs

Q I would like to be able to connect my XT (with 21Mb hard drive) to my CD player so that I could use it as a CD-ROM drive. I want to be able to use my PC for word processing but still be able to play memory eating games such as Wing Commander II. Can I use my CD player using a serial port (RS-232C)? Otherwise, how can I connect it?

Johnny Ryan
Dublin

A *If you want to know all about CD-ROM then see last month's PC Review but the following should clear up the mystery.1) A CD-ROM drive is of a higher quality (or should be!) than an audio drive and it has different electronics. You cannot connect an audio drive to your machine.*

2) A CD-ROM will play audio CDs usually via a headphone socket on the front of the drive or via a connection to a hi-fi at the back. You will need some additional software to control the playing unless the drive has standard 'play' buttons. This software is usually, but not always, included with the drive.

3) You cannot use a CD-ROM to store your own data and so having one has no impact on any RAM or disk drive problems you may be having. Indeed as you always need some special software to run the drive, having one is likely to make your RAM/disk shortage ever so slightly worse rather than better!

A CD-ROM drive is only useful if you want to gain access to data or programs that are distributed on CD-ROM disks.

CD-i isn't CD-ROM

Q 1) If I buy a CD-i player, can I use CD-ROM CD's on it?

2) Do you use CD-i as you do CD-ROM player and with a CD-i player can you write to the CD's?

3) Do you need a sound card to use CD-i?

4) Can I use CD-i CDs in the way I use my hard disk with DOS?

I hope you can answer my questions because I am considering buying a CD-i player but I need to know more about it.

Magnus Aase
Mathopen
Norway

A You seem to have slightly the wrong impression of CD-i. It isn't intended as an add-on to anything else but as a whole system in its own right. A CD-i player includes a computer and you can play games and make use of its software without connecting to anything else other than a TV. A CD-i player will work with audio CDs, special CD-i format CD-ROMS and later on, when they become available, you will be able to use Photo CDs. A CD-i player isn't a substitute for a CD-ROM drive connected to your PC.

To answer your specific questions,
1) CD-ROMs intended for use with a PC or Mac are unlikely to work in a CD-i player (unless they are to XA standard which is rare at the moment).
2) You cannot write to a CD-ROM disk.
3) You don't need a sound card as the CD-i unit is a complete system.
4) There is no similarity or particular relationship between CD-i and any PC hardware or software.

When is enough, enough?

Q At present I have a 386SX running at 16 MHz, I'm fairly new to this PC business, so ....

What I want to know is is it worth my passing on my old machine to my sister and getting a very powerful 486 machine? Bearing in mind that I mostly play games and I intend to branch into using it for sampling and music applications. Am I really going to get much more out of the 486 with say 8Mb RAM SVGA, Sound Blaster, etc, none which I have at present for my 386SX?

Mark C Wilson
Ongar
Essex

A This is a difficult question because it is all a matter of what you are trying to run on the machine. Although I have a reasonably fast 486 as my main 'work' machine I use a 20MHz 386SX to run games and other leisure software. The reason is partly that I need to form an impression of how things run on a fairly typical machine. I certainly wouldn't like to use anything less than a 386 but a 16MHz 386SX isn't that much slower (about 20%) and I find that most games are acceptable at 20MHz.

I have slowly upgraded my own games machine and I have to say that the biggest change in usability resulted when I added a sound card – a whole new dimension of fun if that doesn't sound too much like an advert.

When it comes to SVGA, while I would advise anyone buying a new machine to opt for it, at the moment it doesn't make a great deal of difference.

The reason is that the majority of games just don't make good use of it. So my advice is to upgrade your existing machine by adding a sound card and see how things go from there.

If you do find that you do need a more powerful machine – a 33Mhz 486DX is at least five times faster – you can move the sound card to it – so there is no chance of it being a waste of cash.

Joystick problems

Q I am writing in response to an answer in the November Q&A regarding the difficulties that David Combes was having with his joystick. Although the make of the stick was not mentioned I would bet that it was manufactured by Suncom using their 'Injected Resistor Technology' (IRT).

I would agree with your failed gamecard deduction in normal circumstances, but a Suncom IRT stick is by no means normal! I have owned four different Suncom models and they have all failed in a similar way. On inquiring at my local computer store and PC user club nearly every owner of one of these joysticks has had similar problems – those who hadn't were not running flight simulators.

On opening the failed sticks I discovered what IRT is actually all about – a set of carbon tracks fused on to the circuit board. Normal analogue sticks use standard potentiometers (the things that control the volume and tone on a radio) to vary the resistance. These are proven to work reliably in all sorts of applications.

Suncom's arrangement is to place the carbon tracks on the printed circuit board and move two springy metal wipers to vary the resistance. On inspecting the failed sticks large deposits of carbon had been scraped from the tracks and mixed liberally with the greasy lubricant evident on the board.

This is the cause of the hyper sensitivity in some regions and lower sensitivity in others. It also makes calibration difficult, because the joystick has a good chance of producing different resistances each time it is moved to the same position, as the deposit is shifted around the track.

Even though these findings were fairly conclusive I did persevere with two more Suncoms but to no avail. It is a shame because the sticks have a nice action and pleasant appearance. I exchanged my last Suncom Analog Extra for a Quickshot Warrior. which has given me five months of superbly controllable flying at less than half the price.

John Beardon
Taunton

A Many thanks for your comments concerning the nature of this particular type of joystick. I haven't tried a Suncom Joystick on a long term basis so I can't add any observations but what you say makes excellent sense and accounts for the problem.

Ordinary joysticks can suffer from the same 'gunge' problem when used over a longish period of time and in this case the solution is to clean the contacts – see this month's joystick article on page 36 – but it is unusual for the problem to occur so rapidly and in a replacement stick. Perhaps Suncom has something to add to this story?

Programming in C

Q I am 14 and started programming in Borland C++ around a year ago now. My major problem is that my big programs had to be scaled down due to lack of memory. This problem is not caused due to my computer's power because I have a quite powerful 386.

When making a small game or quiz how do you make the music continue to play while the computer gets down to checking answers and calculating scores? Where do I find out about keycodes, etc?

Brian Cullen
Dublin

A If you want to learn to program, then unless you have access to a human expert, you don't have much choice but to read a book. While it's possible to 'pick up' languages such as Visual Basic, C isn't at all obvious. I can't go into detailed answers to your question because it wouldn't be appropriate to cover programming in such depth in PC Review, but the solution to your memory problem is to change from a 'small' to a 'medium' or 'compact' model.

You need to look up 'memory models' in the manual to find out more. I would also urge you to invest in a book on C programming. My own favourite is The Waite Group's Turbo C Programming for the PC, published by SAMS. You can order it from Computer BookShops on (021) 706 6000, which will also supply you with a catalogue of suitable books on request.

Screen swapping

Q I own an Amstrad 2386 PC which has Paradise 256K VGA built into the motherboard. I have put up with 640 x 480 in 16 colours for too long and I think it's time for a change. Can you upgrade the Amstrad 2386 video memory to 512K or even 1024K? If I can't upgrade, can I buy an accelerator card, such as the Orchid Fahrenheit – now with 24-bit colour, and disable the Amstrad's video memory and chip?

I know a few ST/Amiga programmers who claim that the PC cannot screen-swap. This is where the video pointer points to a blank screen while the image is calculated and drawn. Once that operation is complete the screen swaps back to show the display. This results in no update-flicker in animations and screens. Can the PC screen swap in this manner?

Peter Flynn
Hartlepool
Cleveland

A The sad part of this answer is that the video hardware can be used in one of the standard SVGA modes – 800 x 600 – but

only in 16 colours. To do this you need to change the monitor to an SVGA monitor and change DIP switch 1. You can also get 256 colours at 640 x 400 but to go the whole way to 640 x 480 in 256 colours you need more than 256K of video RAM and I don't know of any way to fit more video RAM to a 2386. You can disable the video hardware completely by removing the jumper on option link 28 which is right by the numeric co-processor socket. To get at the option links simply remove the small panel on the bottom of the case.

Once the on-board VGA hardware is disabled the 2386 will behave like any other machine and you can add and make use of any video card you like. Notice that if you want to make use of increased resolution as well as just more colours you will also need a new monitor. There are lots of special offers on bundled SVGA cards and monitors at the moment so shop around.

The second part of your question sounds like a PC vs Amiga vs ST type of argument that I do my best to avoid. But to answer your specific point – yes the PC can do 'screen swaps' and has been able to since the very early days of CGA graphics. The trouble is that to use this sort of screen swapping you need additional graphics memory and this usually means that it won't work on the highest available resolutions – which of course use all of the memory anyway. For example, if you have a VGA display then swapping is possible at 320 x 200, 640 x 200 and 640 x 35 but not at 640 x 480 which uses all of the available memory. A more realistic answer would be to say that this isn't a common technique to use on a PC but it is possible.

Send your queries to Q&A, PC Review, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU, or, if you have access to CIX, the Compulink Information Exchange, you can e-mail us at: pcreview@cix.compulink.co.uk.

Mike James can only reply to your problems on this page, so please don't enclose SAEs or requests for personal replies.

Q&A *update*

How fast is your disk drive?

Although lots of questions concentrate on the speed of the processor needed for a particular application, many readers are unaware that the speed of the disk drive that you are using is sometimes as important. So if you have just been thinking of disk drives in terms of how much data they can store, ie, how many megabytes, then think again.

Although speed is something that we could talk about in connection with floppy disks, they are so uniformly slow it isn't worth the trouble! Speed is something that matters and varies significantly only when it comes to hard disks. Hard disks are used to store programs and data. When you want to run a program it is read from the hard disk into RAM. So the only thing a hard disk can slow down is the initial program loading – after that, how fast everything works is determined by the processor. If this were the whole truth then we wouldn't worry too much about the speed of a hard disk. While there are many games that do load in one chunk from disk and then never use the disk again, the trend is towards ever larger games that repeatedly make use of the disk drive to read background images, sound files and even specialised sections of program as and when they are required. What this means is that for games programs a fast hard disk isn't an issue at the moment, but it looks like becoming one in the near future. If you are working with other applications, particularly Windows applications, then a fast hard disk is already an important performance factor.

So how do you measure the speed of a hard disk? The most often quoted speed characteristic is the access time. This is measured in milliseconds and the smaller the better. Disks with access times greater than 40ms are slow, 40 to 25ms are medium to fast and better than 25ms is very fast. However access time isn't the most important measure of speed. All it measures is the time it takes to move the disk drive head from one track to another. Obviously, being able to move the read/write head about the disk quickly is important when the machine is looking for data, but once the data has been located then what matters is how quickly it can be read from or written to the disk. This is the data transfer rate and, surprisingly, it isn't often quoted! Part of the reason is that the data transfer rate depends on the speed at which the disk is spinning. You can't read data from a disk faster than it passes under the head and this is just a matter of the rate of spin. Until recently all hard disks spun at a standard 3000rpm and so their maximum transfer rate was fixed. However now there are a range of types of disk and a range of transfer rates. The slowest are the old ST-506 models which turn in a sluggish 0.5Mb per second. Next come the slightly more expensive ESDI drives at 1.25Mb per second. If you want a fast bargain then look no further than an IDE drive which can get up to 3Mb per while remaining the cheapest type of drive available. The only type of drive which is as fast an IDE drive is a SCSI which is also expensive but has other advantages that make it very useful for networking, etc.

So it looks as though the message is that if you want a fast disk drive, buy an IDE which happens also to be the cheapest! However there is another way to speed up a disk drive. By adding some fast memory to the drive, either directly or on the controller that connects it to the machine, a drive can be made to seem better than it is. This fast memory is usually referred to as a cache but you shouldn't confuse it with the processor cache which acts as a buffer between the processor and slower RAM. A disk cache speeds up disk operations by acting as a buffer between the machine and the disk. When data is sent to the disk it is immediately accepted by the cache and only written to the actual disk much later. In other words, as long as there is some cache memory free the disk works incredibly quickly, but if you try to write so much data to the disk that cache fills up before it can be emptied to disk then transfer rate drops. A similar speed increase works when reading the disk and so a disk cache is a worthwhile overall speed up.

Now for the good news. Even if you don't have a disk cache built into the drive or the controller you can add one. All you need is a software cache which will make use of some of the machine's main RAM as cache. If you are using Windows 3 then you will automatically get the SmartDrive disk cache but there are a number of others – there's one in Norton Utilities, PC Tools and DR-DOS 6. Using a software disk cache with enough RAM allocated to it can make your disk drive appear to work up to 10 times faster.

■ ***Mike James***



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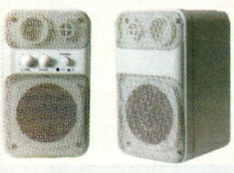


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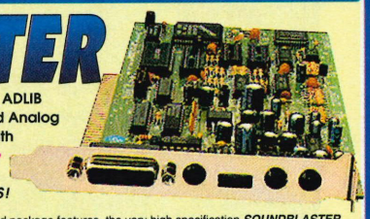
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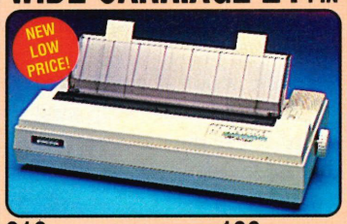
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Letters

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Falcon update

Many thanks to Dr Johnathan Cobb whose letter regarding the availability of a Falcon 3.0d upgrade patch disk was published in the October issue of PC Review. I've now obtained a copy of the patch test from Microprose, whilst at the same time questioning why all registered users of Falcon 3 were not contacted individually. Isn't that called customer support? Predictably, after some weeks, I'm still waiting for some reply from Microprose.

If this is the action of a respected software house I wonder what kind of "support" one of the less reputable companies deliver.

S R Price
Clwyd

MicroProse informs us that it is currently in the process of organising its Gold Club customer support line, and this is expected to be operational in the new year. Once this service is up and running there should be no delays in informing customers of software updates, and registered customers will also receive MicroProse's own magazine.

Wrong tactics, Brian

I've just read your review of Championship Manager in the November issue. It's interesting and encouraging to see the more critical line taken by the PC press to this game than the Amiga/ST magazines. I don't believe, though, that your reviewer has succeeded in pinpointing the real problem. Perhaps you'll allow me, as the author of several soccer management games over the last nine years, to articulate the fault in these games.

When Kevin Toms wrote the original Football Manager he wrote it for the Sinclair ZX80/81 computers. Memory was a real problem and Kevin ingeniously solved it by giving players 'skill levels'. This eliminated the need for a soccer match and allowed him to concentrate his efforts on league tables and results which quickly used up the somewhat limited resources. When the 48K Spectrum became available the game was already suffering from its commercial success and the extra memory was used up in giving the all-important graphic appeal by adding 'match highlights'.

It was all a good idea at the time, but led the soccer management game into a cul de sac. The basic simplicity of the game didn't really allow any meaningful expansion of the idea when memory capacity ceased to be a problem. The current crop of games can only be described as more rather than better: more teams, more players, more competitions and even more 'skills', despite the fact that this destroys the basic logic of the game. The appalling delays in Championship Manager are a direct result of the deluded need to be bigger and (therefore) 'better'. The Manager fails because it is a dressed up version of Football Manager, Championship Manager isn't even dressed up much more, and the forthcoming Graham Taylor's Soccer Challenge (as if he hasn't enough problems) expands the irrelevant 'highlights' into an even more irrelevant match.

In 1983 I wrote a game called League Division One for the BBC Micro which used what one reviewer described as a "more lucid description of management". Another described my Mexico 86 as the "thinking man's soccer management game". The philosophy is simple: pick the team, watch the match, but the implementation is very difficult. If any of your readers would like to see if it works, my latest attempt, Soccer Supremo, should be available from all PD libraries in demo form.

There is without question an incredible game in the soccer management idea, but I believe that your reviewer and many of your readers recognise that it isn't going to come from the number juggling idea originated by Kevin Toms. A much more intelligent concept of management is needed, then the game can be compared with the very best God games that you should be comparing it with.

Malcolm Howard

One advantage that you have in writing for the PD market, Malcolm, is that the people who obtain and play your games don't expect quite the same level of graphics and presentation as they would do from commercial software, so you can afford to devote most of your attention to the strategy and gameplay aspect. It is a sad fact that much commercial software is sold on the gloss of the package and this applies just as much to football management games as it does to the most sophisticated action games or graphic adventures.

More monkey business

With reference to your letters pages in Issue 13, could you please convey my thanks to Alisdair Coull (Monkeying Around). Within two hours of reading his letter I was finally getting past the 'digging up Grandad' sequence in Monkey Island 2 for the first time. The only trouble is, now I can't work out how to get a laundry ticket for Largo's clothes. As a word of warning to other SuperStor users, the sound in Ultima VI is available to me now, as is a consistent save facility in Civilization.

Thank you once again, and keep up the good work.

Nick Knowles

We're glad that you found some relief in the pages of PC Review, Nick. Can anyone help Nick out with his second problem though?

Too much combat

I have been reading your magazine since before it was called PC Review, and have noticed one glaring omission in your reviews and features: non-combat flight simulations.

I know that you have done features on flight simulators before, but they always get lumped in with the seemingly never ending list of Saddam bashing, Tom Cruise simulators, and usually only as a postscript.

Flight Simulator 4 is not a new program, but it seems to represent state of the art in realistic flight on a PC. Since it was released a host of add-on modules have become available, and new ones are being added to the list all the time. Most offer a genuine, worthy enhancement of the program. To my knowledge none has ever been reviewed or even referred to. Consider also the recent releases of scenery modules like the British, Tahiti, Western and Eastern USA scenery.

If you wish your magazine to appeal to the more discerning PC pilot, of which there must be a great many, then perhaps it's time that a thorough appraisal of Microsoft, Sub-Logic and Mallard products(and others) of this genre appear in a forthcoming issue. While you're at it, don't forget to mention ATP.

Nick Edelsten
Bucks

Our Top 100 Games supplement, which came free with Issue 13 of PC Review, rates Flight Simulator 4 higher than any other flight sim. To be honest, it's a little difficult keeping track of all the scenery and data disks because they are so prolific, but I think a detailed look at Flight Simulator would be well worth doing in the near future. Watch these pages.

Starletter

Lazy games

I think the latest generation of PCs has made games programmers lazy. Far too many games require a minimum of a 386 processor in order to run at an acceptable speed.

Don't get me wrong, I've got a 386/40, with a big hard disk, SVGA, Sound Blaster, etc, so I'm not moaning because my machine can't run its software. What does annoy me is loading one of these games, wading through a few megabytes of jerky graphics, then being presented with gameplay not dissimilar to stuff I used to run on my 48K Spectrum. For example, the space combat in Mantis XF5700, from MicroProse, closely resembles that seen in old 8-bit games, such as Time Gate, Starion, Elite, and so forth, and runs at a similar speed !

Why can't we have games which actually use the special features of the 386, rather than just using its speed to cover up inefficient programming? 20Mb of code running on a fast 386 or 486 ought to be really special, when you consider what they used to be able to do in the olden days in 32K or so. Remember Knightlore on the Spectrum? Far too much of today's stuff is padding, in the form of graphics which are mildly interesting the first time around, but tedious thereafter.

To end on a positive note, I can thoroughly recommend Wolfenstein, published by Apogee as a shareware program. Do get the registered version, it really is worth every penny. The big boys could learn a lot from this outfit.

Richard Pitman
Worcester

To a certain extent I'd have to agree with your comment. The speed of the newest generation of PCs does allow sloppy programmers to get away with badly designed and structured code. On the other hand, there are some development teams who are using the additional powers to create some technically sophisticated games with plenty of gameplay. Legends of Valour, reviewed in this issue, is a perfect example, as is Alone in the Dark, from Infogrames, which was reviewed in issue 14. What do other readers think?

Quod erat what?

I refer to the article Sounding Off written by Laurence Scotford (PC Review, Issue 13). Although it is a comprehensive article there is one point that should have been made more clear.

In the final verdict Mr Scotford recommends the Roland LAPC-1 as a companion to a Sound Blaster to give the best music and sound effects for PC games. However in the discussion of the Roland SCC-1 on page 34 with an accompanying table, he suggests that the SCC-1 is compatible with the LAPC-1 for use with PC games. Unfortunately this is not true. I commend to you the staff of Turnkey Sound Centre Shop on 114 Charing Cross Road who demonstrated the differences to me.

Although the SCC-1 is an upgrade of the LAPC-1, using resynthesized pulse code modulation to provide more accurate instrument sounds than the linear arithmetic hardware of the LAPC-1, Roland issued a statement to the managers of Turnkey that the SCC-1 would not be downwardly compatible with the LAPC-1. Turnkey advised me that whereas the SCC-1 is ideal for music composers it would not play the correct sounds on PC games as its instrument set is different from the LAPC-1/MT32 cards. Customers who had bought the SCC-1 for games alone invariably returned them as the wrong instruments are used to synthesise the game sounds, producing very oddly composed music.

Instead Turnkey sold me a CM32L sound module with midi interface for £258 which is £80 cheaper than the SCC-1. If you already own a midi interface, for example on a Sound Blaster Pro, the CM32L sound module,which is directly compatible with the LAPC-1, retails for only half the price with the LAPC-1, retails for only £165, half the price your article quotes for an LAPC-1. I trust this ends any confusion over the uses of the Roland SCC-1 sound card; since it is an excellent music composers' card for PC games.

Re Neil Cobb's advice (Star Letter, Issue 13) to buy directly from America. This only held when the exchange rate was two dollars to the pound. At current rates, once you factor in Vat at 17.5% and duty at 4.9 %, it is no longer worth the effort.

Also from Letters, Issue 13, your translation of quod erat demonstrandum is a gerund, not a past participle. It is better translated, as "that which had to be shown". In fact, the phrase owes more to a training in mathematics than the classics as you suggest, being the formal way of ending a solution to problems in algebra.

Desmond Coutinho
London

I just knew that someone would write in about the QED translation. All I have to say in our defence is that the translation given in Issue 13 ("which was shown") comes straight from Chambers' Twentieth Century Dictionary, which is regarded as the PC Review bible for style, spelling and meaning.

Dud disks

It had to happen, but three dud disk programs in one issue seems a bit over the top for an expensive magazine. The snooker demo was both graphically inept and the indicated control not a patch on any golf game one would like to mention. Hope the actual game's better. The KGB demo was a little more than a text adventure and in any case very similar to existing games. Finally the real dodo was Legends of Valour. Perhaps it was the poor demo which appeared to be some kind of Castle Master, but it was so slow and the control incredibly clumsy.

When Snooker was reviewed in September you gave it a 9, and KGB gets a 7 in Issue 13. What you'll give Valour, I hate to think. I think your demo programmer/reviewer must be going through some kind of game blindness. Yes I know it's all a matter of opinion, but I suggest that opinion sells magazines. I buy a lot of games, but I wouldn't touch this lot.

A J Burgess
Devon

I'm genuinely sorry about this, because we were rather pleased with the quality of the demos on Issue 13's disk: plenty to do, a reasonable variety of playing styles, and with an 'extra' in the form of a competition around the rolling Jimmy White demo. What I'd really like to know, Mr/Ms Burgess, is what games do you like?

Completely clueless

Having just battled my way through Might and Magic III, puzzled my way through King's Quest V, and laughed my way through Monkey Island 2, I wonder how long it will be before cluebooks for this type of game are sold with the game automatically.

Being your average bean brain, there is no way I could have completed these games without help.

I could, of course, write to you, or phone the supplier, but I find my patience would be expended whilst waiting for an answer.

Those clever types who do not need help may take the option of not opening the cluebook, but it is my guess that the majority of people would like to know how to get round the maze from hell in Might and Magic III, or what to do with a plate of cheese squiggles in Monkey Island 2.

So, before I resort to putting a brick through the screen of my terminal in frustration, how about cluebooks packaged with the games!

Malcolm Reade
Kent

Your comments are perfectly reasonable, Malcolm, but you forget one very important fact: software publishers are in the business of making money, and the sale of clue books is a useful source of additional income for them. If they packaged clue books with the games, they might make you and other game players less frustrated, but they would be throwing away a potential money-earner!

VGA only?

I feel that a few comments would not go amiss with regard to the revamping of your magazine.

It is very good! It is a pity, though, that whoever worked out the format for the colour in the Q&A section couldn't have done a better job and made some space round the capitals. Maybe the person was not a compositor.

The only other point I would like to make is that the two demo disks are only for VGA screens. Surely it would have been a good idea to have had at least one of them to be EGA compatible.

B G Clark
Essex

Our surveys and research indicate that the overwhelming majority of our readers have VGA cards and screens (something like 85%-90%, in fact). While we don't deliberately source VGA demos only, it is becoming difficult to commission programs which have CGA, EGA and VGA modes and which will still fit into the available disk space. This month, however, there is plenty available for people without VGA – I hope you find at least some of it to your liking.

Disk danger

Recently I purchased Falcon 3 and Operation: Flying Tiger from a reputable games dealer advertising in your magazine and installed it on to a 80486DX-33 IBM compatible machine with 8Mb of RAM, 240Mb hard disk and Sound Blaster Pro, which I also use for business.

Two days after installation, I rebooted my system manually by pressing Ctrl-Alt-Del while I was in the war room screen. When I returned to play Falcon 3 the next day, the system went through the intro sequences and then stopped with cryptic green writing on the screen and totally hung my system, requiring a hard reset before function could be restored.

Falcon 3 is what could be described as a cheeky piece of software in that it carries out disk operations without the users knowing when, where and what. In general, behind the screen disk operations are essential to any large program where new data is loaded into disk memory. The problem with Falcon 3 is that it saves information back to the disk drive at several points in the program. Should you reboot your system, turn it off or suffer a power failure during this point in the game; there is a distinct likelihood that game files will be damaged causing your system to fail when Falcon 3 is loaded again.

While this is not always the case I would recommend that Falcon 3 users do not exit any other way than the routes provided during game play. Incidentally Falcon 3 is not the only culprit regarding behind the screen disk saves: Wing Commander 2, F29 Retaliator and Windows also seem to love tucking data away without informing the user that they are doing so.

As for corrective action, should you reboot during game play try running the DOS Chkdsk command in the Falcon 3 directory. I had an error in the File Allocation Table: the first unit was corrupt in a *.SQU File. Typing Chkdsk /f in DOS 5 may fix it, or using the Norton Disk Doctor might help, but often the result is a garbled mess. I ended up deleting the file and everything works again, although I lost a squadron I had started in the process.

The moral of the story is to exit the game or application and go back to DOS before turning your computer off if you wish to avoid potential data loss or damage. It is worthy of note that I found no mention of this in the troubleshooting section of the installation guide.

As for Falcon 3, if you have 11Mb of disk space, a fast machine with lots of free memory and a sound card, then buy it – it really is an experience.

John C Raby
Glasgow

COMPETITION*WINNERS*

When you Wish Upon a Star (Issue 11)

This competition, with a snazzy Star 24-pin colour printer up for grabs as first prize, proved very popular, and identifying the different print styles reproduced in the magazine didn't trouble too many of you.

First out of the hat and thus the winner of the Star LC24-200 is A M Renshaw, of Bushey, Herts. The second correct entry we drew came from Lee Carrotte, of Teignmouth, Devon, and Lee wins a 9-pin Star LC-200 colour printer. Congratulations to the pair of you; your printers will be thudding on to the mat any day now.

The answers were as follows:

a) 2 (24-pin draft mode)
b) 1 (9-pin draft mode)
c) 5 (Sans Serif)
d) 3 (Script)
e) 4 (Times Roman)

Multimedia Upgrade Competition (Issue 12)

Plenty of you tried your hand at this one, with a Creative Multimedia Upgrade Kit and Sound Blaster Pro on offer to two lucky winners. However, the questions obviously stumped quite a few!

First out of the hat with that all-important correct entry was Christopher Ward, of Andover, Hants, who wins the Multimedia upgrade kit; second was C E Bradley, of Reading, Berks, who walks away with the Sound Blaster Pro.

Answers: 1) "The dog did nothing in the night-time" — from the Sherlock Holmes short story Silver Blaze (Holmes deduced that since the dog hadn't barked, it must have known the intruder), 2) There were 15 Soviet republics before the 1991 disintegration of the Soviet Union, 3) 20 FM voices.

The results of the Lord of the Rings competition will be announced next month.

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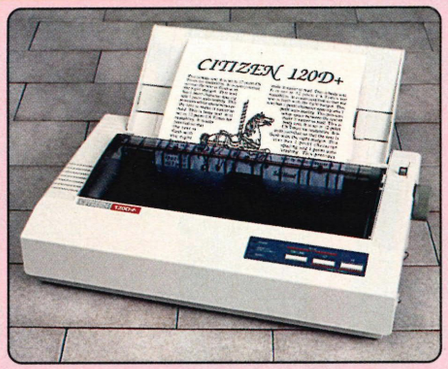
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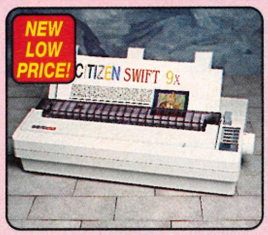


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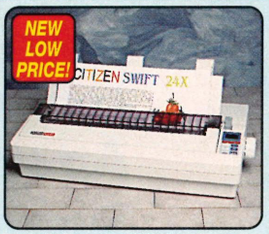


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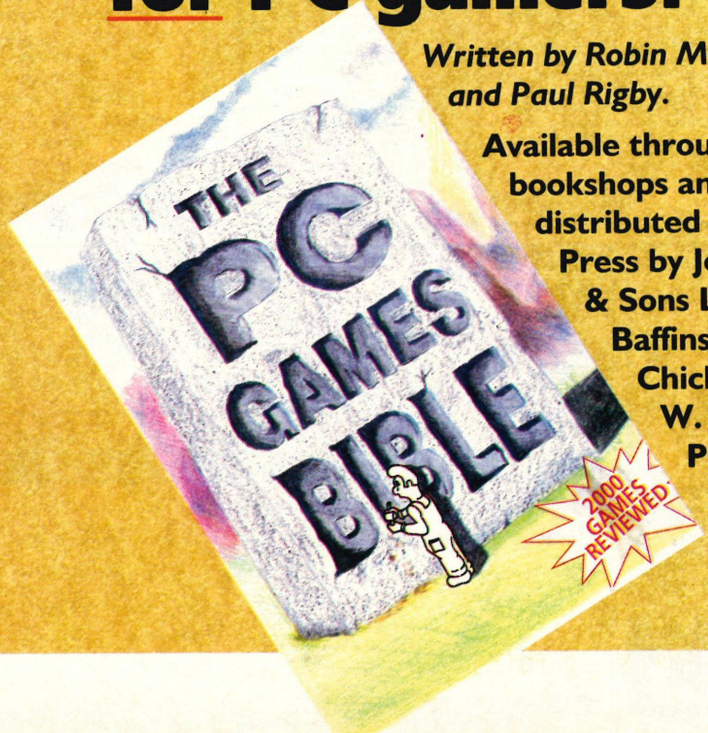
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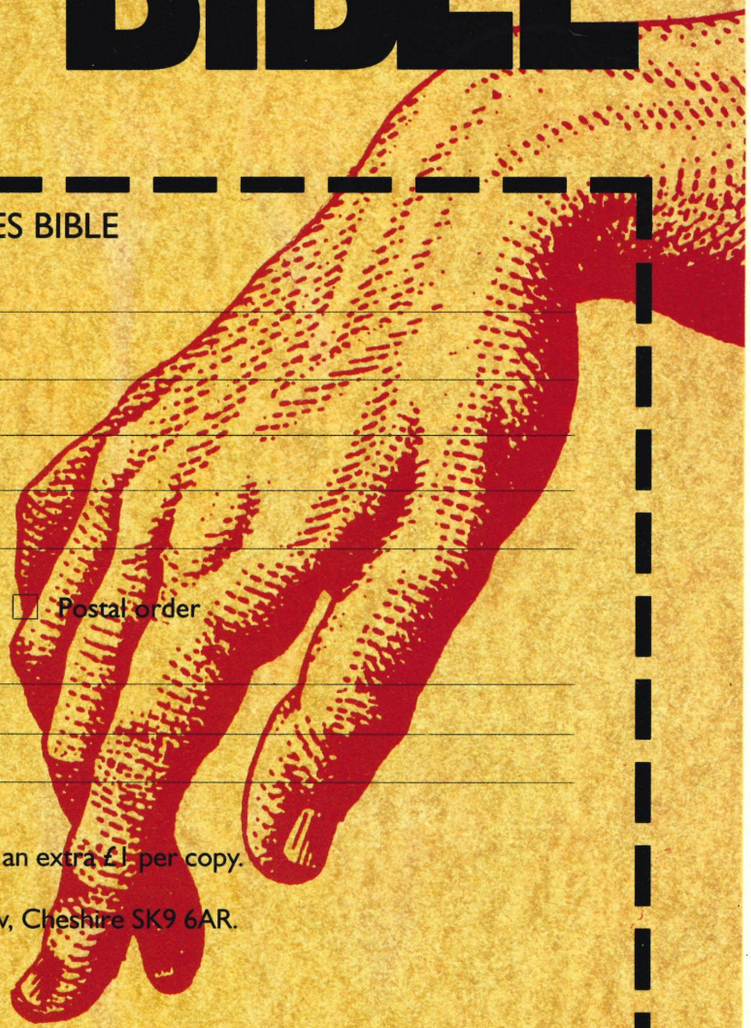


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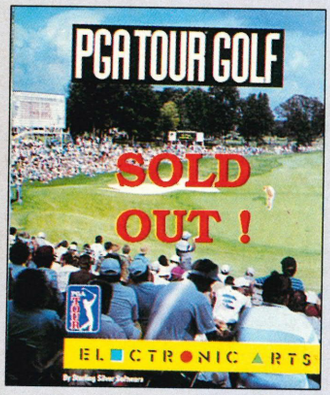
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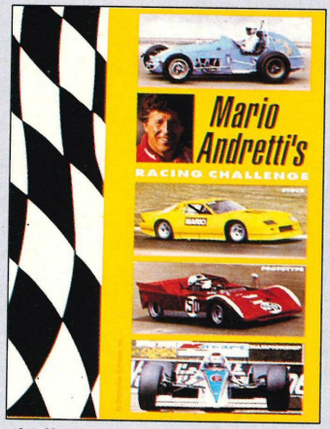
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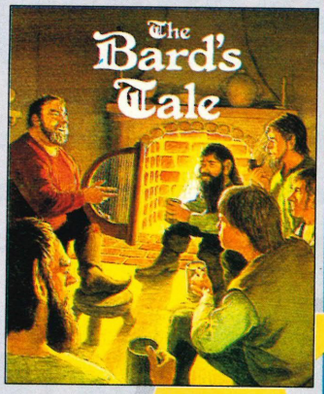
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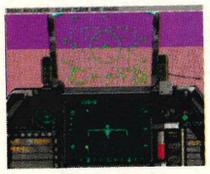
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Reviews compendium

We're often asked if, when, and how we've reviewed a particular game in the magazine, and with over a year's worth of PC game reviews under our belt, we thought this would be as good a time as any to print a grand index



Falcon 3.0



Alone in the Dark



Fate of Atlantis



Monkey Island 2



Ultima Underworld

This index covers only titles dealt with in the main reviews section of PC Review. In response to readers' requests PC Review will be including a full index to all issues of the magazine on next month's cover disk, and this will be the place to look for reference to shareware titles, mini-reviews within game genre guides, previews, etc. The Classic Game of the Month returns next issue.

Title *Publisher*	Rating	Issue no
A-Train *Maxis/Ocean*	7	12
Aces of the Pacific *Dynamix/Sierra*	8	11
Advantage Tennis *Infogrames*	6	4
Adventures of Willy Beamish *Dynamix/Sierra*	5	1
Alone in the Dark *Infogrames*	9	14
Another World *Delphine/US Gold*	8	7
ATAC *MicroProse*	8	14
B17 Flying Fortress *MicroProse*	6	12
Bard's Tale Construction Kit *Electronic Arts*	7	3
Battle Isle *Ubi Soft*	7	3
Battletech: Crescent Hawk's Revenge *Activision*	5	3
Big Deal *Accolade*	4	1
Birds of Prey *Electronic Arts*	5	13
Bloodwych *Mirror Image*	5	2
Cadaver *Bitmap Brothers*	7	3
Carrier Strike — South Pacific 1942-44 *SSI/US Gold*	6	10
Carriers at War *SSG/Electronic Arts*	7	13
Casino Gambling *Accolade*	3	1
Castle of Dr Brain *Sierra*	8	4
*CD-ROM Games Pack *Software Toolworks*	-	3
Championship Manager *Domark*	4	13
Chessmaster 3000 *Software Toolworks 9*	4	
Civilization *MicroProse*	7	1
*Compton's Multimedia Encyclopedia *Britannica*	3	
Conan the Cimmerian *Virgin Games*	4	4
Conquests of the Longbow *Sierra*	7	3
Crisis in the Kremlin *Spectrum Holobyte/ MicroProse*	6	11
Cruise for a Corpse *Delphine/US Gold*	8	6
D/Generation *Mindscape*	7	6
Dagger of Amon Ra: Laura Bow II *Sierra*	8	12
Darklands *MicroProse*	5	14
Darkseed *Mirage*	4	9
Disney Animation Studio *Disney/Infogrames*	8	7
Double Dragon III *Storm*	2	13
Dreadnoughts *Turcan Research*	6	9
Dune *Virgin Games*	7	8
Dungeon Master *FTL/Psygnosis*	6	12
Dyna Blaster *Ubi Soft*	7	14
Earl Weaver Baseball 2 *Electronic Arts*	6	2
Eco Quest *Sierra*	7	8
Elf *Ocean*	6	7
Elvira: the Arcade Game *Accolade*	7	4
Elvira II: Jaws of Cerberus *Accolade*	7	6
Epic *Ocean*	4	10
Eternam *Infogrames*	8	10
European Championship 1992 *Elite*	7	10
Eye of the Beholder 2 *SSI/US Gold*	7	4
Falcon 3.0 *Spectrum Holobyte/ Microprose*	9	4
Falcon 3.0c *Spectrum Holobyte/ Microprose*	9	9
*Family Choice *Britannica*	-	1
Fantasy World Dizzy *Code Masters*	5	12
*Fascination *Coktel Vision*	6	9
First Samurai *Ubi Soft*	7	14
Floor 13 *Virgin Games*	7	2
Fort Apache *Impressions*	3	7
Free DC *Cineplay/US Gold*	4	5
Games: Winter Challenge *Accolade*	7	3
Global Effect *Millennium*	4	11
Gods *Bitmap Brothers*	8	4
Golden Eagle *Loriciel*	7	5
Grandmaster Chess *Accolade*	7	12
*Great Cities of the World *InterOptica*	-	4
*Guinness Disk of Records *Britannica*	-	1
Hare Raising Havoc *Activision*	6	5
Harpoon Datadisks *360/Electronic Arts*	8	5
Heimdall *Core Design*	8	7
Heroes of the 357th *Electronic Arts*	8	10
HeroQuest *Gremlin*	5	4
Home Alone *Accolade*	4	3
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Indiana Jones and the Fate of Atlantis (adventure game) *LucasArts/US Gold*	9	11
Jack Nicklaus Golf and Course Design: Signature Edition *Accolade*	6	9
Jimmy White's Whirlwind Snooker *Virgin*	9	11
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*King's Quest V *Sierra*	5	8
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Leather Goddesses of Phobos 2 *Activision*	6	10
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Lost Files of Sherlock Holmes *Electronic Arts*	8	13
Lure of the Temptress *Virgin Games*	8	10
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Magic Candle 2 *Electronic Arts*	6	7
Magic Pockets *Bitmap Brothers*	7	11
Magnetic Scrolls Collection *Virgin Games*	7	1
*Mammals: a Multimedia Encylopedia *Software Toolworks*	-	2
Manager, *The US Gold*	6	11
Mario Teaches Typing *Interplay*	5	14
Martian Memorandum *Access/US Gold*	6	1
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MiG-29M SuperFulcrum *Domark*	7	2
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Mike Ditka Ultimate Football *Accolade*	7	3
Moonstone *Mindscape*	6	13
*Multimedia Beethoven *Microsoft*	-	6
*New Grolier Electronic Encyclopedia *Grolier*	-	5
NFL Football *Konami*	6	10
NFL Pro League Football *Interplay*	5	1
*North Polar Expedition *Virgin Games*	4	8
Nova 9 *Dynamix/Sierra*	6	4
Oh No! More Lemmings *Psygnosis*	7	5
Omar Sharif's Bridge *Oxford Softworks*	6	9
Pacific Islands *Empire*	7	7
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Patton Strikes Back *Broderbund/ Electronic Arts*	8	2
Perfect General *Ubi Soft*	7	8
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Pit-Fighter *Domark*	4	4
Plan 9 from Outer Space *Gremlin*	5	8
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Powermonger *Bullfrog*	8	3
*Presidents, The *National Geographic*	5	13
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Reach for the Skies *Virgin Games*	7	14
Realms *Virgin Games*	7	8
Rex Nebular and the Cosmic Gender Bender *MicroProse*	8	14
Road & Track Presents Grand Prix Unlimited *Accolade*	7	13
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*Sherlock Holmes Consulting Detective *Icom*	-	7
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Siege *Electronic Arts*	7	13
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*Software Toolworks Space Ace II: Borf's Revenge	2	5
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Spellcasting 301: Spring Break *Accolade*	6	14
Star Trek: 25th Anniversary *Electronic Arts*	7	6
Steel Empire *Electronic Arts*	5	7
*Stellar 7 *Sierra*	-	7
Storm Master *Silmarils*	5	7
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*Town with No Name *On-Line Entertainment*	3	11
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Utopia *Gremlin*	7	12
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*Wing Commander/Ultima VI *Origin*	6	6
*Wing Commander + Secret Missions 1 & 2 *Origin*	7	6
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Wrath of the Demon *Readysoft*	4	1
Wreckers *Audiogenic*	6	6
XF5700: Mantis Experimental Fighter *MicroProse*	3	14

* CD-ROM titles

NEXT MONTH

PC review

Issue 16 on sale January 15

Lemmings 2
History of adventures
Origin interview: Richard Garriott and Chris Roberts on the future of PC gaming
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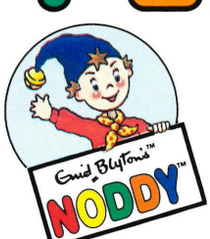






IBM PC screen shots

NODDY'S™ PLAYTIME



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