# PC REVIEW

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# SO REAL

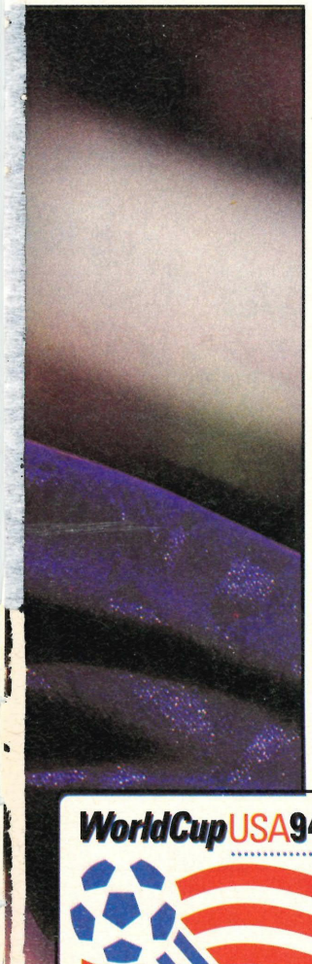



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Screen shots are from various formats and are illustrative of gameplay and not the screen graphics which may vary considerably between formats.

U.S. GOLD®

# IT HURTS

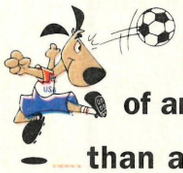


## nothing matches the anguish...

- MEGA-CD
- MEGA DRIVE
- MASTER SYSTEM
- GAME GEAR
- SUPER NINTENDO
- GAME BOY
- AMIGA
- IBM PC
- CD-ROM

...of a missed penalty in a SHOOT OUT that could take you to the World Cup final. That's the reality of World Cup USA '94 from U.S. Gold.

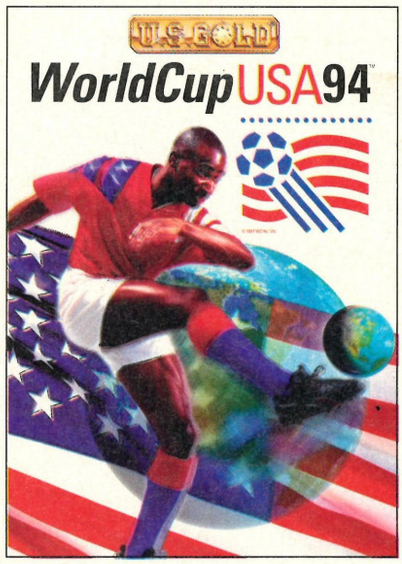
Serious game play and the only one serious enough to carry the official license.



You get *more* options, *more* CUSTOMISATION, *more* frames of animation and *more* playability than any game ever, plus a few unique SURPRISES guaranteed to keep your opponents guessing.

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**...this is a game for players.**

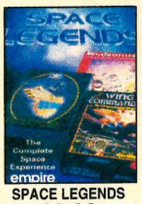
**It's out on *June 3rd* and it's the *only one worth waiting for***

# WorldCupUSA94™

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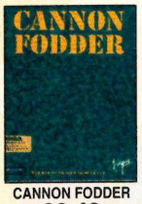
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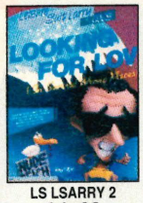
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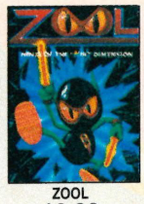
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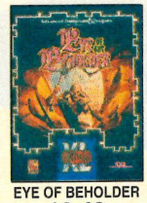
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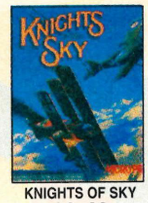
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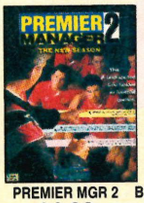
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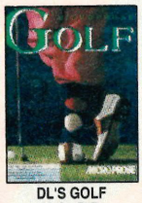
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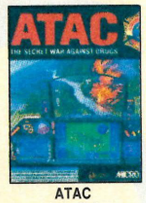
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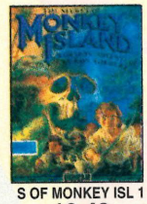
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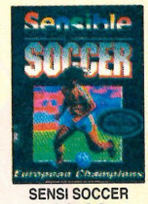
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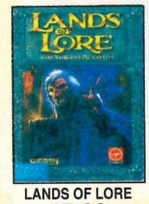
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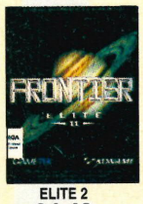
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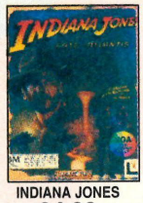
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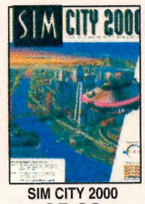
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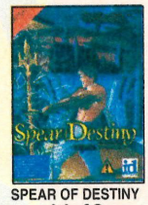
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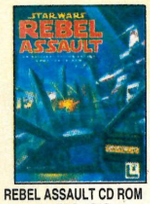
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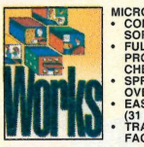
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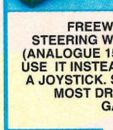
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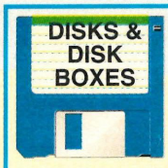


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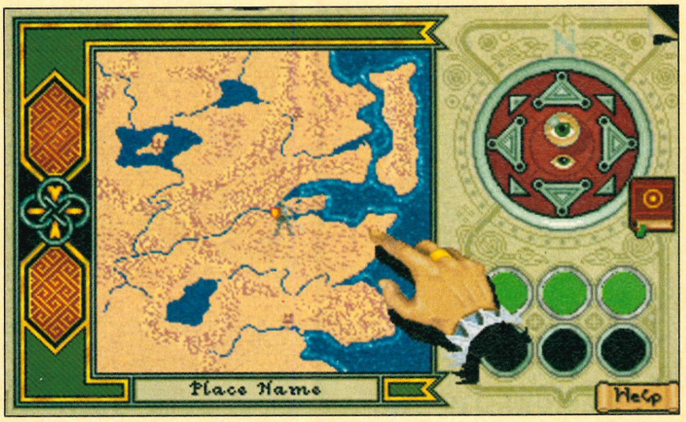



# Cover disks

**This month we present two of this summer's most eagerly awaited games: Lords of Midnight and Theme Park, both in exclusive preview form. Plus, Personality Matrix, which is designed to give you an insight into your character and pinpoint the ideal career for you.**



## Lords of Midnight: The Citadel




**3.5" disks only**

This is a completely new tale in the Lords of Midnight series, the much-loved and never-forgotten classic game from ten years ago. Creator Mike Singleton has taken the original characters and the world of Midnight and designed a new instalment in the saga with a 1990s style interface. PC Review is proud to present this exclusive preview to The Citadel.

This demo introduces you to the main elements of the new game. You have access to samples of all the information screens: the bestiary, the calendar, and the cast list characters. You can also scan the whole of the map of the Blood March and the programmers have made a small cheat available in this preview: you can teleport anywhere you like in the lands, which means you can go exploring and enjoy the view!

### How to start

Log on to the directory in which you installed The Citadel (the default is Lords), and type

CITADEL [Enter]

### How to quit

Hit the Enter key on your numeric keypad to return to DOS.

### Hardware required

386 PC (a 486 is recommended, but is not essential), VGA graphics, a mouse and 4Mb RAM.

You can decrease the landscape detail in order to speed up movement if you feel The Citadel is running slowly on your PC (see below for controls).

You will need around 560K of conventional RAM free and as much of the 4Mb free as you can possibly get. You should disable expanded memory and as many device drivers as possible in Config.sys, by adding REM to the beginning of the line in Config.sys. REM stands for 'remark' and it will temporarily disable the line rather than deleting it, so you won't have to reconstruct your Config.sys after playing The Citadel.

To do this, type EDIT CONFIG.SYS at the C:\ prompt. If you see the following line near the top of the file:

DEVICE=C:\DOS\EMM386.EXE

add the word REM at the start so that the line now reads:

REM DEVICE=C:\DOS\EMM386.EXE

In your Autoexec.bat file (from the edit screen, go to the File menu and choose Open, then type Autoexec.bat to bring up the file), you may well have SMARTDRV installed, with the line C:\DOS SMARTDRV, followed by a number to denote the amount of memory allocated to it. REM this line out as well just to be on the safe side. See page 12 for more details on running the disks if you are still stuck.

### Controls

| Key | Action |
|---|---|
| 1 | First person viewpoint |
| 2-9 | Various camera angles |
| T | Talk to person nearest you |
| Spacebar | Quit landscape movement |
| M | Minute key: this stops and starts the daylight clock |
| F9 | Step time on one hour |
| F10 | Step time on 10 days |
| Minus key on numeric keypad | Decrease detail |
| Plus key on numeric keypad | Increase detail |
| P | Teleport to new map position |
| Esc | Index |
| F1 | Almanac and bestiary |
| F2 | Map |
| F3 | Heroes and villains |
| F4 | Travellers' Guide |
| F5 | 'Here and now' (the game screen) |
| F6 | Fellowships |
| F7 | The Chronicle |
| F8 | The Alliance |
| Enter on numeric keypad | Exit to DOS |




### How to play

When the game screen appears, click on the rearing horse to start the action. You can look all around you and move by sweeping the mouse in the direction you want. You should find that you open the demo standing close to someone who you can talk to, by pressing T. You should also see the dragon fly across the landscape and over the sea.

**Problems with your cover disk? See page 12 for full instructions and helpline details**




You can quit out of the action by pressing the Spacebar. Click on the Index book and you can browse through the 'catalogues', above (note that these are unfinished in this demo).

If you want to explore the Blood March, click on the map icon to bring up the map. You can zoom in by clicking on the larger eye to the top right. To zoom out again, click on the smaller eye. To teleport to any part of the land that you wish, click on your chosen destination point and hit the letter P on the keyboard. Your character should now be shown on the map in that spot.

Exit to the index and click on the 'here and now' window. You will now find you start in your chosen destination. The lands are looking a little empty at the moment, since this demo is a sample of progress so far. The final version of The Citadel is due for release in June.

# Theme Park




**3.5" disks only**

Bullfrog's latest game is a light-hearted affair after the intensity of Syndicate. In Theme Park, you are charged with building the best, most exciting state of the art amusement park that you can — and making it profitable. In this special preview, you have access to all the main features of the game, except the R&D screens which in the full game, will enable you to devise bigger and more thrilling rides for your visitors, including a roller coaster and an amusement arcade. So fasten your seat belt, and prepare to create a mini-park of your own with this demo.

## How to start

Log on to the directory in which you installed Theme Park (the default is Tpdemo) and type

PARK [Enter]

## How to quit

Move the mouse pointer to the top left of the screen and click the right button. You should access the menus. Scroll down the leftmost menu to the Quit to DOS option. Click on the left button to select this option.

## Hardware required

386 PC, VGA graphics (VESA-compatible SVGA card needed for the hi-res screen), mouse, 4Mb memory.

If you have a Sound Blaster card, type SETSOUND at the C:\TPDEMO prompt and select Sound Blaster FM for music and sound effects. In the full version, all the sound cards shown will be available.

As with The Citadel above, Theme Park needs as much of your memory as possible to be freed up. See the memory instructions for The Citadel – they apply to Theme Park.

## Controls

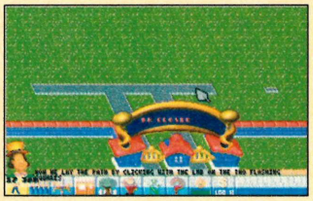
All movement is mouse controlled. The left button controls placement of objects on-screen and brings up information screens for the items available.

Click on the right button at the edges of the screen to scroll your view of the park; at the top of the screen for the options menu; and on the options bar at the foot of the screen for quick selection of items. And when following the tutorial, take care to differentiate between LMB (left mouse button) and RMB (right mouse button).

## How to play

We suggest that you follow the on-screen tutorial at least for the first few moves to get your theme park started, or else you will have trouble getting this demo to do what you want.

First you need to lay a path. You need to click on the leftmost icon at the foot of the screen, the one which shows a single person. Then click with the left button and hold the button down on the flashing path to the left centre of the screen. Drag your



path to the flashing icon to the right of the screen and release.

Next, you will be prompted to add a bouncy castle. Click on the flashing rides icon with the right button to bring up the abridged menu. Select the bouncy castle, and click with the left button over the flashing castle on-screen.

This procedure of 'right button to select, left button to place,' follows throughout the tutorial.



Having placed a ride on-screen, you also need an entrance (which looks like a small tent, see picture above) and an exit (a set of steps) for it. These appear on-screen after you've placed the ride and also need to be positioned where the tutorial suggests.

So long as you position the items where the program suggests, you should progress smoothly. (We've put these provisos in because one PC Review tester ended up with more staff than visitors due to not following the tutorial!) If you have difficulty placing the members of staff on-screen, try clicking the mouse a few squares down from the flashing position.

If your park does start looking messy or unergonomic at any point, you can restart by moving the pointer to the top of the screen and click with the right button to access the menus. Here you can also view the park in hi-res, if you have an SVGA card, which gives you a better idea of the scale of your effort.

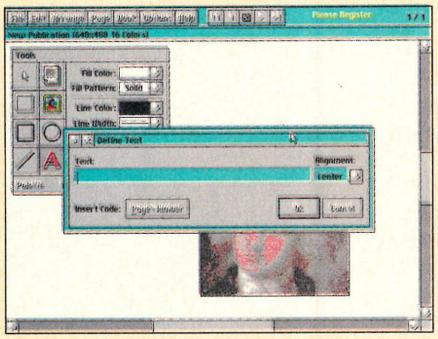
After you've placed a bouncy castle, ice cream shop, staff, handyman and mechanic, you'll be able to branch out on your own, and add other features from the demo: the gift shop, ghost train, tree house, more paths, queueing lanes and staff.

As your park gets bigger, you will find that your visitors give you feedback on what they think of your theme park. PC Review's parks were all deemed to be pretty boring, but we're sure you can do better. The demo has a time limit, and the research option has been disabled for this preview, so your park will not be able to grow to an immense size. However, you should get to see the mechanic in action at the bouncy castle!



Problems with your cover disk? See page 12 for full instructions and helpline details

# Neobook



**5.25" inch disks only**

Neobook is a menu-driven desktop publishing program for those of you who wish to try your hand at a little DTP. It's versatile and easy to use, providing you with access to your own page production system at home.

Neobook will also let you type in your own text – it uses the MS-DOS Edit program – or use ready-prepared ASCII files and you can also incorporate your own pictures, so long as they are saved in .PCX or .GIF format. These can then be arranged on the page any way you like, using Neobook's many font and illustrative effects.

## How to start

Log on to the directory in which you installed Neobook (the default is Neobook) and type

NEOBOOK [Enter]

## How to quit

Click on the File menu at the top left of the screen and select the Exit option.

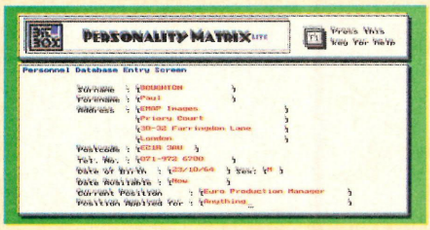
## Hardware required

386 PC, VGA graphics, mouse.

## Controls

All options are controlled with the mouse using the on-screen menus.

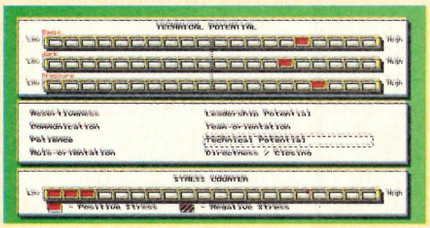
# Personality and Job Profiler

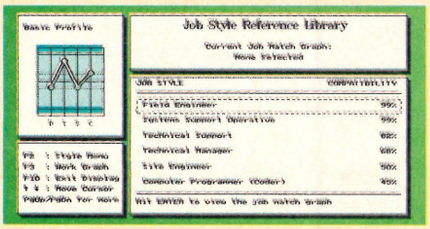


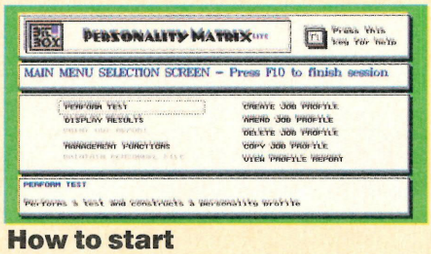

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Fed up with your job? Stuck in a career rut? Are your talents and skills being overlooked?

Well, why not try our Personality Matrix and Job Profiler. It could open up a new way of thinking about your career choices. And if you are an employer you might find it useful to try out this handy piece of software on job applicants.






## How to start

Log on to the directory in which you installed Personality Matrix (the default is Matrix) and type

PERMAT [Enter]

## How to quit

From the menu screens, press F10. If you want to quit in the middle of a test, you'll have to reset the PC.

## Hardware required

286 PC, EGA/VGA graphics.

## How to use

Personality Matrix is a mix and match between your personality, attitudes to life, work and play and the different qualities needed for different jobs. You may think you have all the qualities to be a managing director but in reality you may be more suited to being a field engineer. This program can help you identify your strengths and weakness when it comes to a particular career.

You get a choice of two tests – full or quick. New users should complete the full-feature to start with. Don't forget to answer the questions as honestly as you can.

You will then be presented with a series a screens – 24 in all – each with four phrases, such as "I don't often lose my temper" or "I can act without worrying about the consequences." Of these you must select the one which most describes you at work and the one which is least applicable. The time you take in deciding your answers is also measured too.

These answers are then analysed. Now it's time to face the truth.

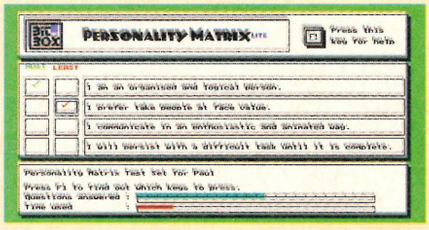
Press 1 and you'll see three Personality Profiles in graph form, covering Basic Profile, Work Profile and Pressure Profile. The graphs are then compared with job profiles in the program for close matches.

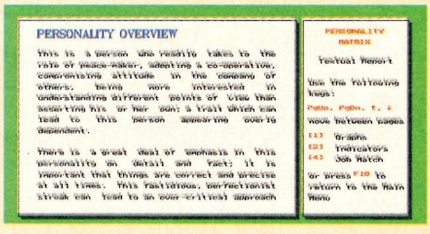
Now press 2 to view the skill indicators, which cover assertiveness, communication, patience rule-orientation, leadership potential, team-orientation, technical potential and directness. There is also an indication of how you are suffering from stress, both negative and positive.

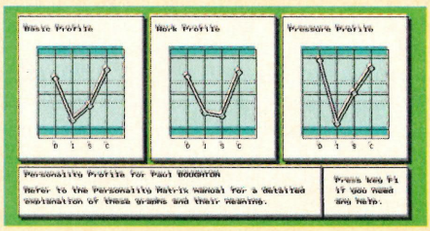
Now things become more interesting. Pressing 3 presents you with an in-depth personality overview, covering your strength, weaknesses, motivation, interpersonal skills, decision making, organisation and planning, handling pressure and stress analysis.

And for the crunch. Press 4 and your profile is matched to types of jobs. A score of below 70 per cent means you are not really suited to a particular job. The Job Match looks at a general job match and into four more precise categories, administrative, management and executive, sales and sales management and technical and scientific.

For employers planning to test job applicants there is an option to add or change new jobs and alter the 'job qualities' they may be looking for in a person.



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# How to use the cover disks

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## Lords of Midnight: The Citadel

1. Put PC Review cover disk A into your floppy disk drive and log on to the drive, ie, type
A:>
2. Type PCR [Enter] to bring up the installation menu.
3. Using the cursor keys, select The Citadel from the on-screen menu. Check the disk and PC requirements listed at the foot of the screen; you will get an error message if there is not enough space on your hard disk. Press Enter to confirm your selection.
4. The programs on the cover disk are compressed, to fit more information on a disk. The installer will decompress these files and save them to your hard disk. After choosing the program to install, you will be prompted with the name of the drive and directory that the installer intends to decompress the Citadel files to. There's no need to change this default drive and directory, unless, a) your hard drive is not called c:, or b) you already have a directory called Lords1.
If you do want to change this default, just backspace over the installer's suggestion and type in your own preferred destination, eg, D:\MIDNIGHT, instead of C:\LORDS.
5. The Citadel files will now be decompressed and copied to your hard disk. You will then see a screen explaining how to access the demo from your hard disk. There are also instructions for playing The Citadel on pages 8-9 of this issue. Press Enter to return to the installer menu.
6. Either press Esc to quit the installer, or use the cursor keys to select Personality Matrix (see below).

## Theme Park

1. Put PC Review cover disk B into your floppy disk drive and log on to the drive, ie, type
A:>
2. Type PCR [Enter] to bring up the installation menu.
3. Theme Park should be automatically selected on the on-screen menu. Press Enter to confirm the selection.
4. As with The Citadel, above, the programs on the cover disk are compressed. After choosing the program to install, you will be prompted with the name of the drive and directory that the installer intends to decompress the Theme Park files to.
If you want to change this default, just backspace over the installer's suggestion and type in your own preferred destination, eg, D:\THEME, instead of C:\TPDEMO.
5. The Theme Park files will now be decompressed and copied to your hard disk. After they have done so, you will see a screen explaining how to access the demo from your hard disk. There are also instructions for playing Theme Park on pages 8-9 of this issue. Press Enter to return to the menu.
6. Press Esc to quit the installer.

## Personality Matrix

1. Put PC Review cover disk A into your floppy disk drive and log on to the drive, ie, type
A:>
2. Type PCR [Enter] to bring up the installation menu.
3. Use the cursor keys to select Personality Matrix from the on-screen menu. Press Enter to confirm the selection.
4. You will be prompted with the name of the drive and directory that the installer intends to decompress the Personality Matrix files to. If you want to change this default, just backspace over the installer's suggestion and type in your own preferred destination, eg, D:\PERSONAL, instead of C:\MATRIX.
5. The Personality Matrix files will now be decompressed and copied to your hard disk. There are instructions for using the program on page 10 of this issue. Press Enter to return to the installer menu.
6. Press Esc to quit the installer.

## Neobook (5.25" disks only)

1. Put PC Review cover disk A into your floppy disk drive and log on to the drive, ie, type
A:>
2. Type PCR [Enter] to bring up the installation menu.
3. Neobook should be automatically selected on the on-screen menu. Press Enter to confirm the selection.
4. You will now be prompted with the name of the drive and directory that the installer intends to decompress the Neobook Park files to. If you want to change this default, all you have to do is just backspace over the installer's suggestion and type in your own preferred destination.
5. The Neobook files will now be decompressed and copied to your hard disk. After they have done so, you will see a screen explaining how to access the demo from your hard disk. There are also instructions for using Neobook on page 10 of this issue. Press Enter to return to the installer menu.
6. Press Esc to quit the installer.
7. Now put PC Review cover disk B into your floppy disk drive and log on to it as above. Follow exactly the same procedure as detailed above to install the rest of the Neobook files. Note: you will get a warning message saying that the directory you have chosen to install the files to already exists. The files on disk B must be installed to the same directory as the files on disk A, so press Y to confirm that you wish the same directory to be used.

## If all else fails ...

If you've tried everything, and you just can't get the wretched disks to work, try the PC Review disk helpline:

**Disk helpline: (0451) 860770**

The helpline operates between 3.00pm and 5.00pm weekdays.

## Please note:

- PC Review's cover disks are rigorously checked at each stage of production for all known viruses and duplicated under strict quality control.
- However, cover disks are used at the reader's own risk. PC Review can accept no responsibility for damage to either data or hardware caused by use of our cover disks.
- We also make every effort to ensure that the contents of each disk are exactly as advertised. If, however, circumstances should dictate that we are unable to supply the stated program we will endeavour to supply alternative software. PC Review, its distributors and retailers, will not be held responsible for any unnotified change to the contents of the disks.

## Faulty disk?

PC Review's cover disks are checked and validated, but if you have reason to believe that yours is faulty, pop the disk(s) in a jiffy bag with a self-addressed envelope and postage to the value of 28p (55p from overseas) and the form below (filled in), and send the package to the following address:

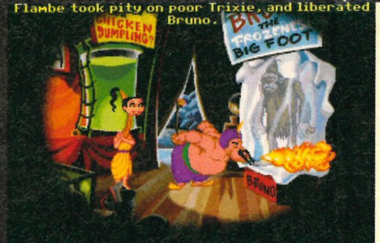
DiskXpress
Unit 3
Old Coalyard Farm
Northleach
Gloucestershire GL54 3EP

Please DO NOT send the disks back to PC Review — we don't hold stocks of spare disks.

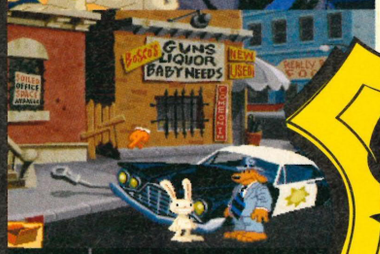
Name.....
Address.....
.....
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.....

The disk on my copy of PC Review was damaged. Please send me a replacement — I enclose return postage to the value of 28p (55p if overseas) and the original disk.

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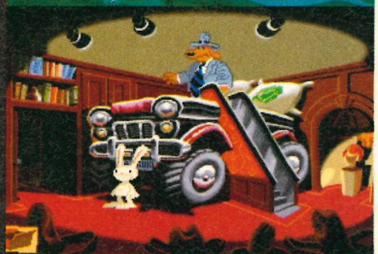








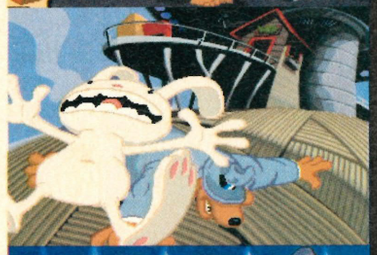





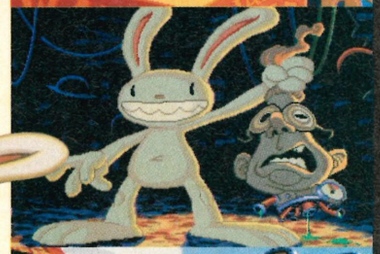


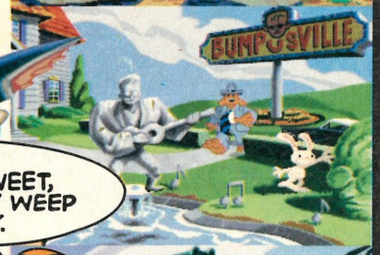






















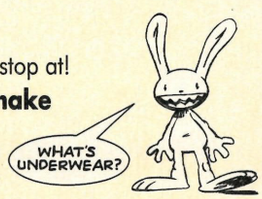

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# News





## Doom blasts opposition

Doom and its developer ID Software scooped three top awards at the European Computer Trade Show 1994 Awards.

The first-person perspective 3D action game won Overall Game of the Year and Computer Game of the Year. ID Software went on to receive the ECTS Game Innovation Award.

Best CD-ROM game went to the top-selling Rebel Assault (and creator LucasArts was developer of the year); Syndicate from Bullfrog/Electronic Arts was most original game; and Virgin Interactive Entertainment was named software publisher of the year.

In all 6,893 people, including visitors from Europe, the Far East and the United States, attended the show at London's Business Design Centre.

The twice-yearly show is an industry showpiece for the latest games and multimedia software, hardware technology and future developments.

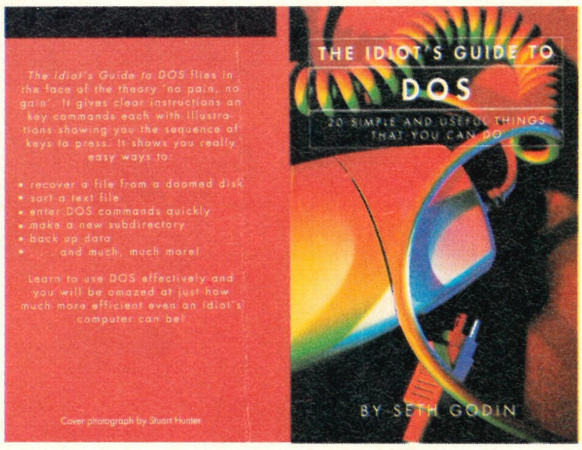
**More people, and more games on show at this years's European Computer Trade Show.**




## 3DO launch delayed

**The European launch of 3DO has been delayed until September. Plans for a spring launch were "over ambitious," 3DO president Trip Hawkins announced at the recent European Computer Trade Show in London. 3DO has already been launched in the United States and Japan.**

**3DO and Creative Labs are also at an early stage in discussions over a proposed internal 3DO card for the PC.**




## Pay attention, idiot!

A range of four new "idiot" guides, intended to make the complexities of some of the most popular PC software more accessible and understandable, has just been published.

The Idiot's Guide to Wordperfect, Windows, DOS and Lotus 1-2-3 each describe how to perform 20 simple and useful functions with step-by-step jargon-free instructions.

Priced at just £2.99, the MacMillan-published guides are written by Seth Godwin, a former brand manager with Spinnaker Software.

Godwin has also presented videos on how to use computer software and his experience includes teaching an Introduction to Computer Science course at Tufts University in the USA.

# Media giant snaps up Software Toolworks for £312 million

Software Toolworks, the California-based software house, has been bought by the international media group Pearson for £312 milllion. The buy-out is the latest in a series of takeovers of games companies by giant media conglomerates keen to exploit the growing potential of interactive software entertainment. Sony now owns Liverpool-based Psygnosis, MCA has taken a stake in Interplay and Polygram and Disney is currently bidding to gain control of Virgin's games division.

Pearson's business interests include The Financial Times and more than 100 UK regional newspapers; book publishing houses Penguin, Longmans and Addison-Wesley; Thames Television and stakes in Yorkshire-Tyne Tees Television and BSkyB. The company also owns Madame Tussaud's.

Software Toolworks, which produces cartridge-based software as well as PC-based software on both floppy disk and CD-ROM, holds licences for the Star Wars characters, Hulk Hogan, Mavis Beacon, Marvel Comics' Captain America, Battleship and the Grolier Encyclopedia. It also holds the licence to use Nintendo's Super Mario characters for educational purposes. Formed in 1986, Software Toolworks employs about 355 people worldwide and has its headquarters in Novato, California. Its European operation, Mindscape, is based in West Sussex.

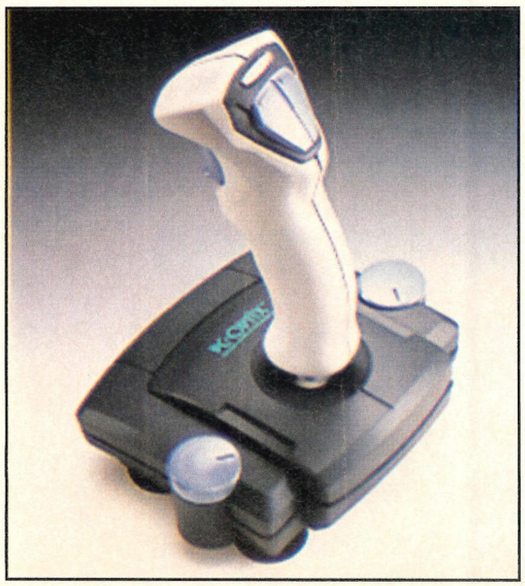
Pearson's chairman Lord Blackenham said the takeover was a "marvellous opportunity not only to buy an attractive stake in the market for family-entertainment software." Blackenham added: "As multimedia markets become a reality, we must grow the television and software capabilities that will be needed in the long-term to make the most of what we have."

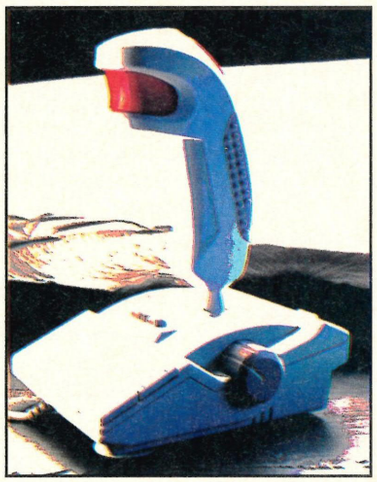
Meanwhile, games industry veteran Nick Alexander, who has worked for Virgin Games and was until recently chief executive officer of Sega Europe, has been appointed chief executive of newly-created Pearson New Entertainment Group.

# New joysticks

Top joystick manufacturer Quickshot is launching an aggressively priced new joystick specially designed for flight sims.

The Quickshot Super Warrior QS-201 (shown on the right) has four positive fire buttons to give you instant access to more weapons, and a built-in throttle control. It will be bundled with Quickshot calibration software for Microsoft Windows and will retail at £19.99.





SpectraVideo is also launching a joystick, the PC Optix (left). The PC Optix has four fire buttons and throttle control, and can be switched from analogue to digital input at the push of a button. Instead of potentiometers, the PC Optix uses more accurate optical sensors which SpectraVideo claims provide a better response to input signals as well as extending the life of the product. It will be launched in May, priced at £39.99.



## EDITOR'S COMMENT

**Is 'PC computing' down in your CV under Leisure Interests? I know this is a bit of a personal question, but for years now, I have been wary of introducing the subject on social occasions. Indeed, there was a time when answering the question, "And what do you do for a living?" was liable to send the questioner scurrying into the kitchen in search of a more interesting trainspotter to talk to. These days, of course, it's more likely that I'll be pressed for a public recitation of the level codes for Doom, but the technophobes are still out there.**

**The point I am trying to make is not that that I lead a thoroughly dismal social life, but that a huge gulf still exists between the cognoscenti, by whom I mean those who play computer games, particularly PC games, and know that they can provide a rewarding experience along the lines of reading a book, or watching a play or film (and this by default includes everyone reading this magazine), and everyone else. The trouble is that the number of people making up 'everyone else' is still far larger than those making up the cognoscenti, and that 'everyone else' is the mass market that hardware manufacturers and software publishers so dearly want to attract.**

**Somewhere along the line, it seems to have been agreed that the way into the hearts of the masses is through 'interactive movies'. Now I don't propose to get into a discussion about whether interactive movies can ever properly exist, or whether they are desirable in the first place — Steve Cooke does this better than I could in The Cooke Report — but I can supply more anecdotal evidence.**

**In my experience, people who see computer games as boring or childish completely fail to see the point of something like Lawnmower Man, or Rebel Assault. "Wow," they say, "That's amazing. Is that really the PC doing that?" But they make no attempt to play it. They're content to watch for some time, then go away and then ask why you can't just hire a video instead. But they do have an Achilles heel. You can hook them, reel them in and net them with Lemmings, or Tetris, or one of the simple golf games. Microsoft Golf is especially good because it runs under Windows, so it somehow looks more 'executive'.**

**Games designer Chris Crawford has always said the 'magic ingredient' of computer games is "interactivity", and I'm 100% with him. Duplicating the job that books, or films do isn't going to win over hordes of converts (certainly not as long as books and a trip to the cinema remain cheaper than a PC game). Offering something distinctively different, while still interesting and obviously not childish, is much more likely to do the job. Games like Doom, especially over a network, or SimCity 2000 will do far more to attract people to the cause than any number of "You'll really believe you're in a movie" style releases.**

**■ Christina Erskine**

# In Brief




● Kixx is launching a series of old games on CD for £14.99. Titles include Eye of the Beholder (above), Cruise for a Corpse, F-15 Strike Eagle III, F-19 Stealth Fighter, M1 Tank Platoon, Pirates!, Leisure Suit Larry 1, Police Quest 1, Space Quest 1 and Links: The Challenge of Golf. Each disks comes with a "storytelling screensaver" and more than 20 current demos.

● Windows for Workgroups 3.11 has become the world's best-selling retail operating system, according to makers Microsoft, with 300,000 copies alone sold worldwide in January this year. Microsoft Word 6.0 for Windows word-processor has also achieve sales of nearly 2million since it was launched in November last year.

● Fatty Bear's Birthday Surprise and Fatty Bear's Fun Pack are to be released on CD-ROM. Created by Washington-based Humongous Entertainment — previously responsible for Putt-Putt Joins the Parade and Putt-Putt Goes to the Moon — the games will be distributed in the United Kingdon by Electronic Arts.

● A Computer Games Development Centre is to be established at the Computer Graphics Expo at London Wembley Conference and Exhibition Centre, 8th-10th November. Exhibition director Gerry Murray said: "We have some of the best games production companies in the world and Computer Graphics Expo is a very natural place for these companies and individuals to find the very latest in graphics technology."

● PC manufacturer Elonex has signed a £1m three-year sponsorship deal with Wimbledon. Elonex previously sponsored Southend United.

● Computer retailers Silica is to launch a nationwide chain of shops selling home office and small business products. There will eventually be 20 shops, primarily in Debenhams department stores with a flagship store in London's Oxford Street.

# Time Warner rises to grab Robots

Time Warner Interactive, the company recently formed from Atari Games, The Time Warner Interactive Group and Tengen, has signed up Mirage's impressive beat 'em up, Rise of the Robots. The game is now to be released in October, four months after the coin-op is launched in the arcades.

Tony Adams, managing director of Time Warner's European operation, said, "The whole team at Mirage has done a fantastic job with this title and they have every reason to be very proud indeed. This is not just the best beat 'em up for 1994 — it is a work of art. We are planning a no-holds-barred marketing campaign that will make this simultaneous launch on all platforms truly phenomenal."

Peter Jones, managing director of Mirage said, "We have lived, slept, eaten and breathed Rise of the Robots for the past two years and this is an incredibly exciting moment for us. Time Warner Interactive's recent move makes them the perfect partner and we are looking forward to a very successful, long-term relationship."




**Mirage signs up with Time Warner Interactive for Rise of the Robots.**

Rise of the Robots was previewed in PC Review in October and November 1993 and January 1994.

● Time Warner Interactive Group, the Tengen video games arm and Atari Games' coin-op business have integrated to operate under the name Time Warner Interactive. It will continue developing products across current formats and future interactive TV projects.

# BBC goes live with computer show



Following the launch of The Net on BBC2 last month, the BBC is now launching a new computer entertainment radio programme, called The Big Byte, on its new 24-hour news and sports station Radio 5 Live.

The show, broadcast on Sundays at 12.15pm, is hosted by Gareth Jones (pictured left), perhaps better known as children's TV presenter Gaz Top.

It covers a wide range of computer entertainments including games, hardware and technical developments.

The Big Byte is scheduled to run for at least one year.

# Teachers blame games

Computer games are to blame for tiredness and inattention of children in class, according to a survey by the Professional Association of Teachers.

Teachers also blamed computer and video games for causing children to be aggressive and act out fantasies.

However, some teachers commented that computer games did have some beneficial effects for children, specifically those children with learning difficulties.

Computer games were also recognised as being useful in improving hand-eye co-ordination for youngsters.

# Dark screams and hunters

I Have No Mouth and I Must Scream, based on a short story of the same name by one of the world's top fantasy authors Harlan Ellison, will be released next year by Cyberdreams.

The adventure is set in a super computer where the player must live through the experiences of five different characters who try to defeat the computer which has destroyed humanity. Ellison, who has produced 48 books, has also written for television including Star Trek.

The creator of Advanced Dungeons and Dragons, Gary Gygax, is helping design a new series of role-playing games for Cyberdreams. The first is Hunters of Ralk, a first person perspective RPG set on the threatened planet of Ralk.

Meanwhile, development has begun on the sequel to Dark Seed and this psychological thriller will again feature the macabre artwork of artist H R Giger. Dark Seed II will should be released early next year. A Giger Windows screensaver product could also be in the offing next year.

All Cyberdreams' future releases will be available on CD-ROM only.

## Simply Simon

**Adventure Soft has conjured up a sequel to Simon the Sorcerer later this year with many of the characters from the first game returning for a second outing. The ghostly Sordid, released from hell, plots his revenge against Simon by luring him back to his fantastic world. Expect plenty more comic antics from this classy Monkey Island style fantasy adventure. The price has yet to be finalised.**

# Activison signs games deal with Peter Lenkov

Activision has signed up Peter Lenkov, the script-writer best known for his work on Demolition Man, to write and develop a new series of interactive games. The project will include the creation of a "cyberthemed universe" and a selection of characters and places which can be transferred to other entertainment media such as film and television.

Robert A Kotick, Activision's chairman and chief executive officer, said, "Peter will bring Activision the talent and creative resources needed to create a game universe that can be leveraged into a theatrical release. In addition to being a very talented writer, Peter is also a game enthusiast. Peter strengthens Activision's commitment to combining the Hollywood community's top creative talent with the Interactive community's most skilled game developers."

# THE COOKE REPORT

**If you want to know — definitively — what the future holds for interactive entertainment, read on: Steve Cooke believes he has the answer**

**Life is full of great unanswered questions. What is Julia Roberts' telephone number? Where exactly lies the wreck of the Flor Del Mar and its £5,400 million worth of oriental gold? Which new hardware platform will succeed in the next few years?**

**Let's try and answer the last one. Current betting is on the Sony PSX. That's because it's technically superior to the Sega Saturn, 3DO and PC, and because the Nintendo Project Reality system is going to use — gasp — cartridges! And doesn't everyone know that CD is the great silver future of games?**

**But, as usual, it isn't as simple as all that. None of us has the answer.**

**First, remember when the Atari ST launched in the UK? That was in 1985. Yet it was 1987 before decent software started appearing for 16-bit machines. Product development cycles then were around nine months, so two years represented nearly three generations of software development. It also took about three software generations to get the best out of the Spectrum when it first appeared.**

**Software generations now run at about 18 months. On that basis, it could take four and a half years to get the best out of the Sony PSX and its relatives. Since they're not due to arrive here in force till the end of 1995, that could mean waiting around till the end of the millennium for really decent software. But let's be generous. Let's assume that developers start belting out some astounding product that really kicks 32-bit ass after only one and a half generations: that's two years. So by the end of 1997, we'll be seeing great stuff on these new machines.**

**Unfortunately, that will give these systems a shelf life of around 12 months. How come? Because hardware technology is now outstripping software technology at a frightening rate. Just producing the development systems for these new machines takes months (as Sony is now discovering), and all the time other hardware geniuses are popping up with new ways of defining state-of-the-art.**

**Informed opinion now firmly states that by the end of 1997, we will be hearing about games machines so awesomely powerful that the Sony PSX will seem more like a Spectrum than a world-beating example of 3D-potent games technology. Systems due for release before the year 2000 will be able to gulp in data and spit it out at the most fantastic rate, enabling us to — for example — process every pixel on a high-res screen with a 16 million colour palette and pixel-dependent rendering and texturing at over 50 frames a second.**

**Cor! Your average Sony will look as sick beside that as your average SNES currently looks besides the PSX. No-one's very interested in the SNES right now, because of all that fab 32-bit kit round the corner. Why should anyone in Christmas 1997 be so hot about PSX with a 64-bit monster waiting in the wings?**



**Of course Sony will do OK. It will sell machines, and so will Nintendo and Sega. The point, however, is that the console business is basically a strange blend of impulse purchase, fashion, and toy-market mechanics. Kids want a Sony one day. Mum buys it. Next day, kid wants something new. And so on. The console business has always been like that, and always will be.**

**So what about the PC? Well, just when Sony is launching its new machine, the worldwide installed base of multimedia PCs with CD-ROMs and 486 processors will be about 30 million and growing very fast. Those machines will, by the end of 1995, come with built-in real-time MPEG video (that's movies on the screen, taken direct from the CD), stereo sound, telephone links, and big, fast (unlike CDs) hard disks. With the millions of users already using PCs for business and pleasure, you can expect that figure to grow exponentially for the next ten years.**

**So now you know the future of the games market. What a bit of luck that you bet your money on the right horse. And when you and umpteen million other punters have got your fabulous all-singing, all-dancing PCs, are you going to buy one of the 32 bit consoles as well? Or are the lost dollars going to add up to ... well ... not far short of Julia Roberts' telephone number?**

# PC has designs on the future



A design for a child's portable computer to bridge the gap between school and homework has won student Sebastian de la Hamayde, 25, of Leicester's De Montfort University, a top art and design award.

The Pitney Bowes Attachment Award in this year's Royal Society of Arts Student Design Awards, gives Sebastian the opportunity to work at Pitney Bowes' design offices in America.

His computer design (pictured on the right) is now on display at the 1994 RSA Student Design Awards Exhibition at the Design Museum, Butlers Wharf, London, until 30th August.

## Fauve Matisse faux pas



If you're scratching your head over the PC Review Gallery competition in the last issue (page 123), particularly over picture B, don't worry. It's not you, it's us. We have been exposed as a bunch of complete and utter philistines, since the correct artist for picture B does not appear in the given list.

Because of this, we have extended the closing date by a week, to May 31, and picture B will be discounted for the purposes of judging the competition.

So, if you've already entered, sit tight. If you haven't, you can still do so. You may do whatever you wish with the answer to picture B: leave it blank, insert the correct answer, whatever.

# British Telecom signs on with ELSPA

British Telecom, which recently announced it is to trial interactive entertainment — games, films and home shopping service — to the home over the telephone, has joined the European Leisure Software Publishers' Association (ELSPA).

ELSPA general secretary Roger Bennett said: "Games no longer occupy a niche market. The market is broadening and deepening rapidly. BT is just the latest of a series of companies not normally associated with the video games market that has understood the convergence of technologies will place video games in the mainstream of home entertainment."

Editor's note: In fact British Telecom has been involved with the games market before through Telecomsoft and its then labels Firebird, Silverbird and Rainbird.

# Laying down the law — by letter

If your complaints don't seem to get you anywhere, it could be that you are complaining properly, according to the Consumers' Association.

"Complaints are only as effective as the letters you write", says the association's Ashley Holmes, Head of Legal Affairs. "They depend on the legal basis for your complaint, following procedures and using the right jargon".

Now you can have a 'solicitor on software' with the 120 Letters That Get Results program, based on the best-selling book of the same name.

It provides standard letters you can adapt to suit a particular case and which use the most appropriate legal phrasing.

The letters cite relevant legislation, state clearly the desired outcome and prompt the user to set deadlines. And if your problem is not reasonably resolved, there are guidelines for taking your complain to court.

"Don't be fobbed off with feeble excuses which have no legal basis. You can avoid being taken for a ride", says Holmes.

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# Sign of the Times

**One year ago...**

Virgin's 7th Guest caused a stir as one of the few multimedia CD games to come on to the market. We predicted such games would "multiply over the next few years." The flourishing of CD has not taken years, just months. The follow-up to 7th Guest, 11th Hour is due out this summer.

**Two years ago...**

The boom in PCs specially packaged for games players was starting. Top rated games of the month were Ultima Underworld: The Stygian Abyss and Dune, based on Frank Herbert's classic sci-fi novel.


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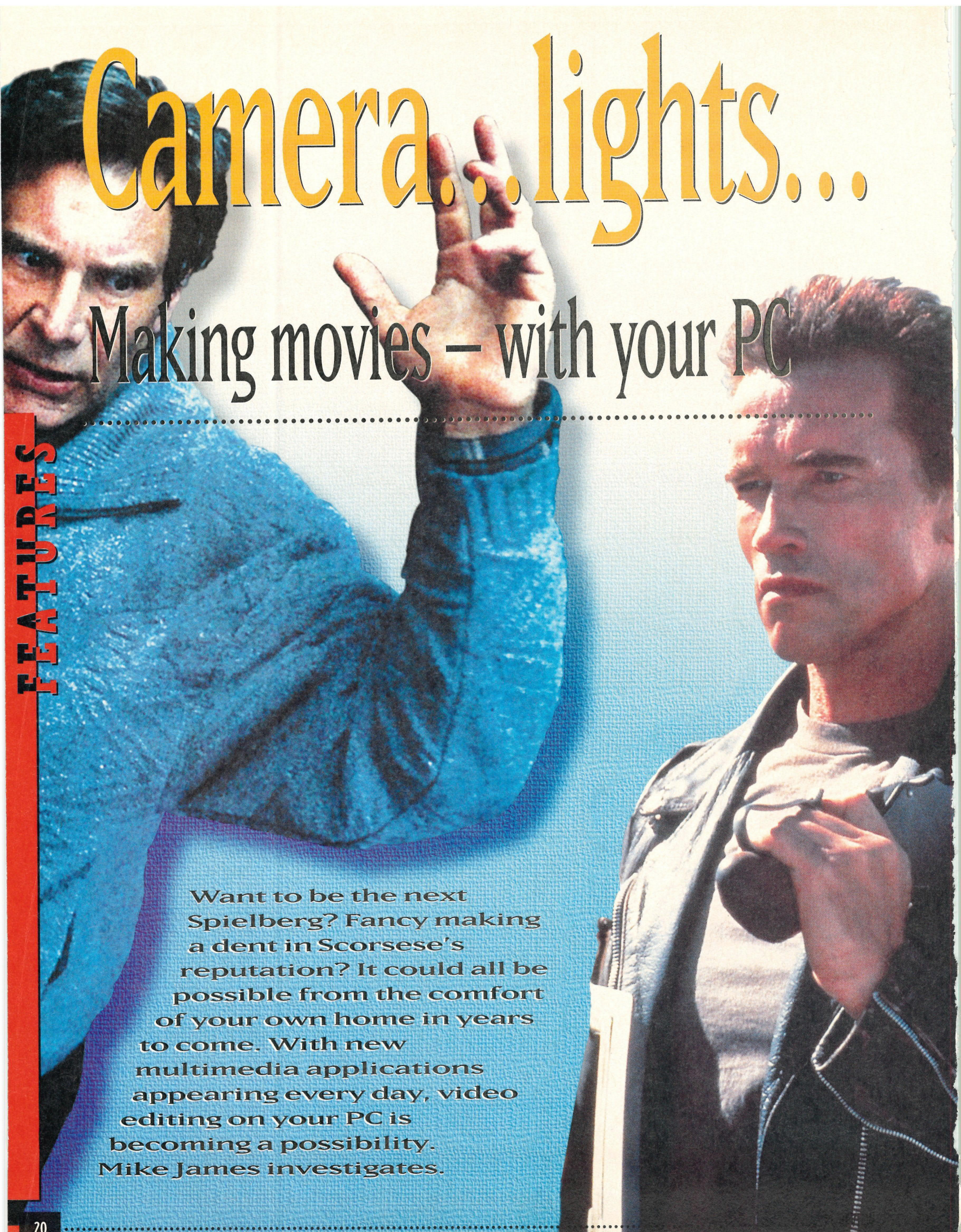
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MICROPROSE

# Camera...lights...

## Making movies – with your PC



**Want to be the next Spielberg? Fancy making a dent in Scorsese's reputation? It could all be possible from the comfort of your own home in years to come. With new multimedia applications appearing every day, video editing on your PC is becoming a possibility. Mike James investigates.**

# action!



Not so long ago, the PC led a simple life. Its natural habitat was the corporate jungle, where it led an undemanding life of leisurely spreadsheeting and word processing, and generally didn't get any ideas above its station. Because of this, games companies viewed it as a sort of pre-ball Cinderella, and generally ignored it. Then along came multimedia, and suddenly, the PC was being feted like a rock star and dragged from corporate obscurity into people's homes. The realisation that it was capable of dealing with the demands of multimedia proved to be the Fairy Godmother that the games companies were waiting for.

Multimedia has become one of those words that means pretty much whatever you want it to mean, but there's no question about the bedrock on which multimedia is founded, its most important element: the ability to play back full-motion video on the PC. The games companies, of course, have had a field day, using sophisticated techniques involving live video footage to make the latest generation of games infinitely more appealing than anything that went before. And the possibilities offered by a tie-up between computer technology and full-motion video are rich and exciting. Video on Demand services have arrived in the US and are undergoing pilots over here, using powerful computers to provide the equivalent of a video shop at your fingertips. Banks are looking at building live video links into their PC-based ATMs, leading to a radical change in banking as we know it. Videophones are here, if barely noticeable yet.

But the most exciting possibility is the potential access to near-professional video editing capabilities that affordable PC products offer to a generation of would-be Spielbergs. But let's not get too previous. Remember, this is sophisticated technology, and the demands of full-motion video currently push the PC right to its limits.

### Just plain embarrassing

So exactly what stage has the technology reached, and where will it have to go from here? If you have a camcorder then you already have the input device, but you also know how difficult it is to create a finished movie. At first you may be happy to watch the 'rough cut' complete with all the boring, out of focus and just plain embarrassing bits! The solution is to edit the tape — but how? The simplest approach is to re-record the tape using a second video recorder. If you try this you will quickly discover that it is so difficult and fiddly that it takes any pleasure out of using the camcorder in the first place. The main difficulty is in synchronising the starting and stopping of the two video recorders. It is all too easy to miss the first few moments of a clip or include a bit that you didn't want to.

Even if you can put up with the frustration you are also very limited in what you can achieve. At best you can take sections from the original and put them together in a different order. You can't use any fancy transition effects — fades and wipes, for example — to go from one clip to the other and you can't add titles or other graphics. You can buy special hardware to provide most of these facilities but it isn't cheap and is usually for the professional only.

## DON'T BE FOOLED BY VIDEO OVERLAY!

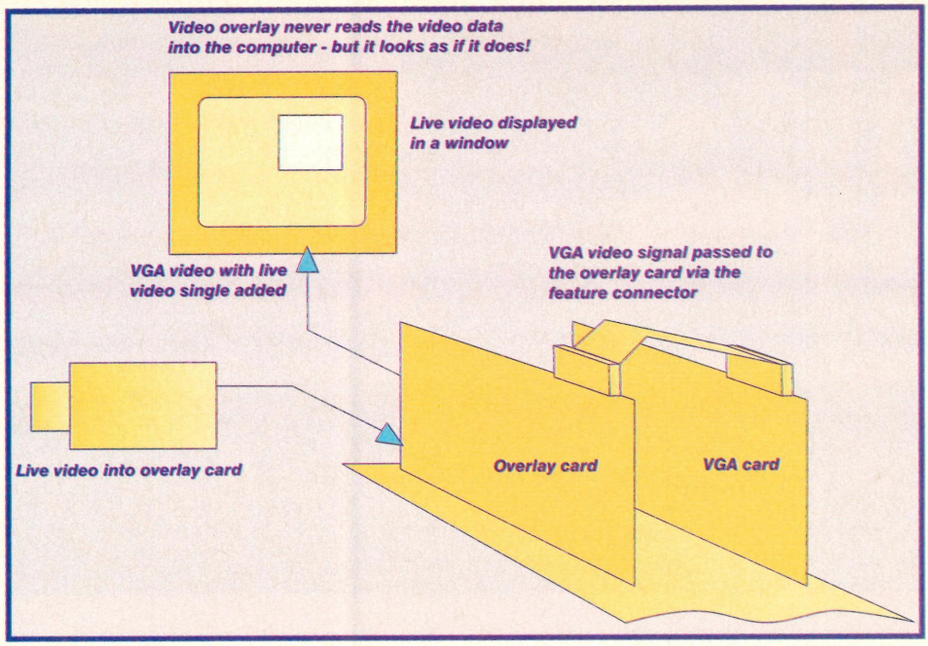
**If you are puzzled by the statements that most PCs can only handle quarter screen video at slow and irregular frame rates — then you have probably been taken in by video overlay cards. A video overlay card is often indistinguishable from a full video input card, but the way that it works and what it does is very different. If you have seen full-screen TV pictures that are as smooth and even better than what you can see on a domestic TV it's not surprising that you think that video input is better than it actually is. What is going on here is a simple trick that allows a live video signal to be mixed with the signal that goes to your VGA monitor. The video signal is never digitised and never read in or stored on disk. All you are doing is using your high quality VGA monitor as a domestic TV set, which is why it sometimes looks better.**

**Video overlay normally works by using a colour key. Part of the VGA screen is set to a precise colour — usually purple. The overlay card intercepts the VGA signal and everywhere it detects the key colour it replaces it by the live video signal. Finally the combined video signal is fed on to the VGA monitor where you see it. It looks as if the live video image is actually being produced by your PC — but of course it isn't. If you try to take a screen dump you will soon discover the difference. Instead of the TV picture all you will see is a patch of purple!**

**Although video overlay can be confusing it is very useful. This is exactly how many TV in a window cards work. The card contains all of the electronics needed for a colour TV and simply splices the TV signal into the VGA signal as an overlay. You are given the impression that you are watching TV in a resizable window but in fact, from the PC's point of view, the window is just a patch of purple! If you have a genlock card then video overlay can be used to add titles and other special effects to live video. What you have is something like a software controlled video mixer.**

**Many video input cards make use of video overlay to show you the "live video" while they get on with the digitising and storage of each frame. This is a bit of a cheat because it doesn't really give you any idea of the quality of the input ... until you see it played back, that is!**

The potential access to near-professional video editing capabilities that affordable PC products offer to a generation of would-be Spielbergs, means exciting possibilities are ahead.




Given how good the PC is at graphics it should be possible to use it to help with editing, titling and special effects of all sorts. Your first thought on how to do this is probably to get hold of an expansion card that enables you to read the video into your PC and store it on disk. Once it is stored on disk it could be edited using nothing but software and titled using your existing graphics packages.

This is the ideal but there is a problem. The amount of data needed to store even one second of high quality video is huge. Even if you could afford the disk drive needed to store the data it couldn't move it fast enough to create the impression of smooth movement.

To give you some idea of the problem a single frame of a video needs 1Mb of storage and there are 25 or 30 frames per second. This means that you need 30Mb of storage for every second of video and the disk drive needs to be able to move 30Mb every second. Even the fastest disk drives can only manage 2Mb/sec or so and CD-ROM drives generally work at 150K/sec.

## The cold compress

Clearly we have no hope of storing video on disk and making use of it now or in the near future – unless we can come up with something clever.

The clever trick is to use data compression. The same sort of technique that allows you to pack more data on your disk drive can also be used to reduce the amount of disk space and the data rate needed for video. Typical compression ratios of 20:1 reduce the storage needed to around 1.5Mb per second — still a lot, but possible.

The need to use compression causes a problem in its own right. It takes a lot of time to perform the compression. It isn't possible to read in the video data using a video card and perform the compression at the same time. To achieve video input and compression at the same time the video card needs to have special compression hardware — usually called a 'codec' COmpress/DECompressor. A codec is a very expensive piece of hardware and lower cost video cards generally do without. Instead what happens is that you first read in the video without compressing it and then use software to compress and decompress it. Soft-

**Given how good the PC is at graphics it should be possible to help with editing, titling and special effects of all sorts. But there is a problem – the amount of data it needs ...**

# TRIED AND TESTED

**Until recently, all reasonably priced video cards used software compression and as a result were very limited in quality and how long a video clip they could input. If you wanted hardware compression then you needed to find £2,000 or more. All this has suddenly changed because Intel has reduced the price of its Smart Video recorder to just less than £550. Now you really do have a choice of software or hardware compression — and it is an important one.**

**When choosing a video input card, after the software/hardware compression split, the other features that you need to look out for are what demands it makes on your PC. Some video cards claim that they work with 386SX machines and 4Mb of RAM. They may work but I doubt you would work with them for long! For video work you really need a 486DX2-66 and even this isn't fast enough. The more RAM the better and the same goes for disk storage.**

**As well as these general demands you also need to look out for specific requirements such as a VGA feature connector. A few years ago nearly all VGA cards had either an edge connector or a small plug which was to be used to intercept the video signal that they produced. Today many VGA/SVGA cards have abandoned this facility — because it was rarely used. However many video input cards need it so that they can perform video overlay and they simply will not work unless the VGA or SVGA card they are in harness with has a feature connector. Many also demand that you set the video resolution that you are using under Windows lower than the SVGA card or monitor can handle.**

### Intel Smart video

**The important thing about the Intel Smart Video Recorder (SVR) card is that it has a hardware compression chip. This makes it possible to read in very long video clips using only tens of megabytes of disk space. The card itself has more processing power on it than a typical PC — Intel's own Codec and a pair of i750 processors. All you need to run it is a machine running Windows, 486SX-25 is the minimum suggested, 4Mb of RAM and 30Mb of hard disk space. The recommended hardware is a 486DX-33, 8Mb of RAM and 50Mb of hard disk space.**

**When you first see the on-screen display produced by the SVR you might be disappointed. The image seems jerky and jumpy – this is because it isn't overlaid video but fully digitised and passed through your machine's RAM and VGA card. The SVR doesn't need a VGA feature connector because it doesn't use video overlay. The real proof that this is a powerful input device comes when you try digitising a video clip. Where other cards run out of storage space after a few seconds or start dropping frames as they pause to save to disk the SVR just keeps going.**

**A 60 second clip (160x120) needs only 9Mb of disk space compared to 50Mb using boards that don't have compression hardware. In testing the SVR didn't drop frames and saved the data directly to disk in compressed format.**

**As well as the hardware you get a copy of Video for Windows, MediaBlitz (a multimedia presentation package) and a CD-ROM of video clips.**

*Price £645.08*

*Contact: Intel (0793) 696204*

### Media Vision Pro MovieStudio




**This video input card also uses hardware compression but it isn't quite as stuffed with extra processing power as the Intel Smart Video Recorder. For £179, though, it does a good job of keeping up with it! It will input at 25 frames per second at quarter and half screen resolutions. It is only when you demand the highest quality at half screen resolution does it start to miss**

ware compression/decompression takes a lot of time and video cards that use it are not as good as cards that have hardware codecs. This said I have to warn you that even the best and most expensive video cards leave a lot to be desired if full screen high quality video is your target.

Even with hardware compression the size of the image and the number of frames per second still have to be limited to avoid overwhelming the hardware with data.

Professional video equipment works at a resolution in the region of 1,000 by 650 and domestic video recorders work at between 300x300 to 600x600. For smooth motion at least 25 frames per second are needed. Even the best video capture boards can only manage 15 frames per second at 320x240. This is generally reckoned to be equivalent to roughly half a standard TV image. If you watch the results of such a video board on an 768x1024 SVGA display the video clip looks like a very small window. If you expand the window to full screen the quality looks awful. And remember — this is what the best video boards give you. Boards without hardware compression can usually only manage a lower resolution or frame rate and are limited in how long a video clip they can record.

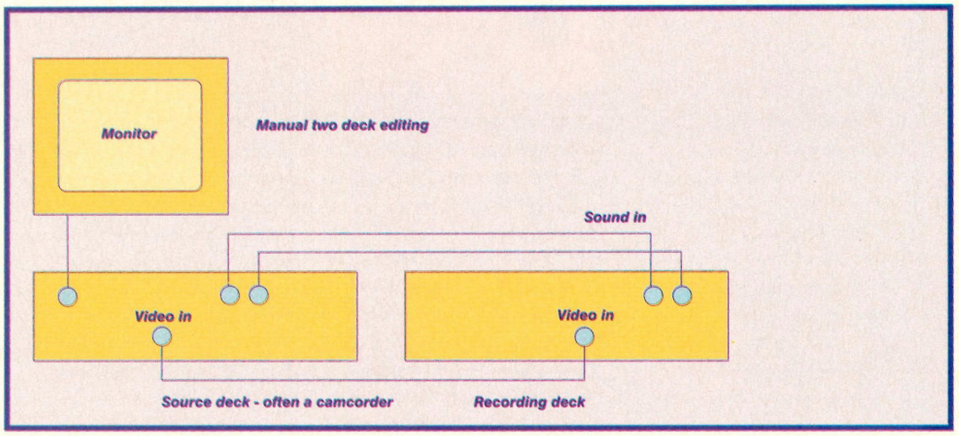
What happens when the hardware cannot cope with the data rate is that it misses frames. Missing frames show up as a jump during playback. Even if frames aren't missed during input they can still be missed when the clip is played back. It all depends on the speed of the disk drive used to store the video data.

What all this means is that, currently, video input cards cannot handle video at a sufficiently high quality to make video editing a reasonable proposition. Once you have the video clip inside the PC it is only really suitable for use where video in a window is acceptable.

If you are willing to accept working at half-screen resolution then it is possible to produce good videos. Editing packages such as Adobe Premiere give a tantalising glimpse of how the future might be. Using it you can put together video and sound clips by picking them up and dragging them to their correct location. You can use transition effects, special effects and include graphics from animation and general purpose graphics packages. When you have finished you can output the result as a computer playable video file or transfer the result back to video tape. This really is the way to work — if only the output resolution was high enough even for an amateur video maker.

Transferring the result of editing in Premiere back to video tape brings us to another problem. You cannot record the output of a VGA video board directly on tape: it simply isn't the same sort of signal. To produce a TV signal you need a video output board, sometimes called a 'genlock', to convert the signal. For example, Creative Labs' TV Coder and the Trust Video Encoder will allow you to record PC-generated video and even mix this with video from another video recorder. A genlock allows you to use PC graphics packages to add titles and some effects, but it doesn't help with editing.

A video input card also has a new role to play with a genlock card. It can read in single frames from a video tape to provide special effects which can then be re-recorded via the genlock. If the video input card also supports overlay, ie, where the live, non-digitised, video picture is shown on the VGA monitor, it can also act as a video mixer.






frames. It also doesn't quite manage to squeeze the data as much as the Intel Smart Video Recorder. Again, it doesn't use video overlay to show live video so the quality of the on screen image may at first appear to be lower than that of alternative cards. Its hardware requirements are more or less the same — although it does seem to benefit more from a faster processor.

The software included is Video for Windows, Authorware Star and an MS-DOS playback utility. This card is almost as good as the Intel Smart Video Recorder and half the price – what more is there to say!

*Price £210.33*
*Contact: Datrontech*
*(0252) 316060*

### The Video Blaster FS200

The name Video Blaster suggests that this software based compression card is a natural companion to a Sound Blaster card — it might be but you have to be very careful about what you want to use it for. This is the very latest version of the Video Blaster — the FS or Full Screen 200, not to be confused with the original. The packaging suggests that this card will work with full screen motion video — it does but only as a video overlay. In real input mode it only manages 160x120 at 30 frames per second and 320x240 at 15 frames per second – which is hardly full screen. To make use of this card you need an MPC level 1 system — ie, 386SX — but I would recommend at least a 486SX-25. You also need a VGA graphics card with a feature connector and it needs to be set down to work at 800x600.

What this card is best at is video overlay and frame grabbing. If you couple it with the Creative TV coder (a genlock card) you can feed the VGA output to a standard TV or VCR. This allows you to use the VideoBlaster as a special effects titler and video mixer – you can use the overlay to superimpose video on graphics. Of course you will need two video recorders – one to feed the live video into the VideoBlaster and the other to record the overlaid VGA signal.

The software that you get with this card is Video for Windows, a copy of PhotoStyler and Aldus Gallery Effects and a range of Windows and DOS utilities.

*Price: £TBA*
*Contact: Creative Technology*
*(0743) 248590*

### Video Spigot

This is Creative Lab's alternative video capture card. It was developed by SuperMac technology and it seems like only yesterday that it was the best low cost video input card available — now it has been overtaken by the Intel Smart Video Recorder and the Media Vision Pro MovieStudio. The hardware requirements are for at least a 386SX with 8Mb of RAM. I think that the recommended hardware or 64Mb of RAM and 200Mb of hard disk is more realistic! It doesn't use a VGA feature connector.

Video Spigot uses software compression and so the length of a video clip that you can input is limited. At quarter screen resolution it can handle 25 frames per second but at half screen this drops right down to below 10 frames per second.

The only software that you get with the Video Spigot is a copy of Video for Windows — enough to capture, playback and perform simple editing.




*Price: £339.58*
*Contact: Creative technology*
*(0743) 248590*

### Vidiola




This is an interesting video input card which, while it doesn't have hardware compression, does offer hardware assistance with playback. The SuperZoom chip aims to solve the problem of those tiny windows without increasing the amount of data you need to store. It does this by zooming a quarter or half screen video to full screen in hardware. The SuperZoom chip expands the image without introducing the loss of quality and speed that software zooming involves. You can easily see the loss of quality when you turn the SuperZoom off.

Given that Vidiola can store 25 frames per second at quarter screen and 15 frames per second at half screen does this mean that we at last have the full screen video card we have been looking

for? The answer is no because the quality still isn't good enough and having no hardware compression soon limits the time of a video clip.

This card uses video overlay to show live video and so the VGA card that you use it with must have a feature connector. Apart from this a basic MPC level 1 system will do — but again the more processing power the better the performance. Vidiola comes with Adobe Premiere and the Compel Multimedia program.

*Price: £410.08*
*Contact: Orchid (0256) 817722*

### ReelMagic

The ReelMagic card isn't a video input card, it's an MPEG output card. At the moment this probably isn't



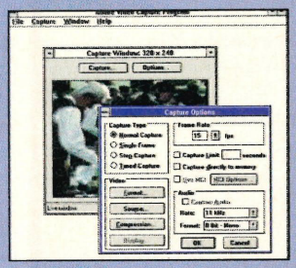

the sort of add-on card that's top of your list of wants but this might change. What it does is read MPEG compressed video movie clips from CD-ROM and display them at a full 25 or 30 frames per second at full screen size. There is a version that can be added to a machine with an existing CD-ROM and versions with CD-ROM interfaces. It also has enough audio hardware to produce 16-bit stereo sound. It's hardware requirements are any MPC level 1 machine that has a VGA/SVGA card with a feature connector.

At the moment there aren't many MPEG CD-ROMs to try this card out with and so a CD-ROM of sample video clips is included, as is a CD-ROM game. In the case of the review product this was Dragon's Lair , a cartoon-based game that doesn't really show the card off to its best. All I can tell is that the video was smooth and well up to feature film standards. As well as games and video clips ReelMagic can play VideoCD feature films.

*Price: £304.33*
*Contact: Silica Shop (081) 309 1111*

### Adobe Premiere

This is the leading video editing software on the PC. It also includes a capture utility that works with any video input card supported by Video for Windows. Editing with Premiere is as easy as it can be. Two video tracks can be used and you can use a variety of transition effects from one track to the other. A



superimposition track allows two video clips to be mixed. You can cut, move and splice video clips as if you were working with film — only it's much easier. Audio tracks can be manipulated in the same way and you can adjust the fader controls below each track to fade from one to another. It only takes a few minutes to master Premiere enough to begin putting a video together. A little longer and you will start to think up special effects and all manner of creative things. The only problem is that Premiere runs very slowly if you don't give it enough RAM and a fast processor. You can run it on a 4Mb 486SX system but even a 16Mb 486DX2-66 will still keep you waiting!

Premiere gives you the equivalent of a very expensive editing suite. If only the video input cards were capable of working at near broadcast quality then this would be the near perfect solution.

*Price: £327.13*
*Contact: Adobe (081) 547 1900*

### VideoDirector

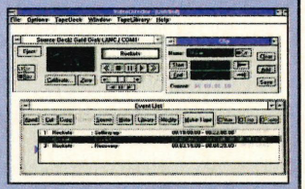
Until video input cards are good enough then the best practical solution to video editing is VideoDirector. This automates the two recorder editing described in the main article. You are supplied with a special "smart cable" that connects to a LANC control jack on the Camcorder. The record deck is controlled via an infra red link. You just point the end of the cable at the VCR and VideoDirector will start and stop it just as if you were using an infra red remote controller.

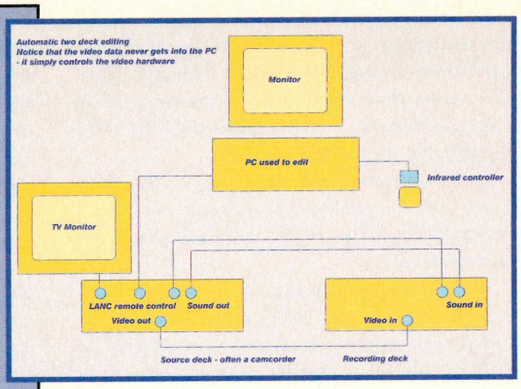
The video is never read into the PC. Instead the video output from the Camcorder is connected to the video input of the VCR via standard cables — which are not supplied with VideoDirector. You have to set up VideoDirector so that it knows how long the record and playback decks take to get started once they have been told to. After this the pulses that are stored on all video tapes are used to tell where the playback tape is wound to. This is reasonably accurate but if the tape is moved quickly it is possible to miss some pulses and lose track of where it is. A better method is to use a camcorder that has time coding — the time of each frame is written on the tape and can be used to locate exact positions.

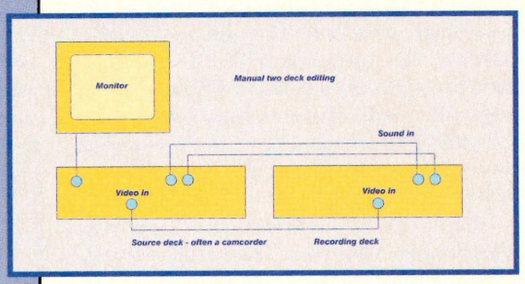
Your first job is to review the source tape and give suitable names to clips: VideoDirector remembers where they are on tape. You can then put together an event list which gives the desired order of the clips. Once you are happy with the way the clips are ordered let VideoDirector make up a final tape by re-recording them.

This is about as easy as manual editing gets and VideoDirector plus your PC are easily the equal of a specialised editing machine costing £500 or more. However notice that there are no special effects and you don't see the video clips on the PC's screen unless you have a video overlay board as well. If you are serious about your video then its biggest limitation is that it will only control two decks. Other editing software is available that will control up to five video sources including titlers, etc.

*Price: £175.08*
*Contact: Gold Disk (0753) 832383*





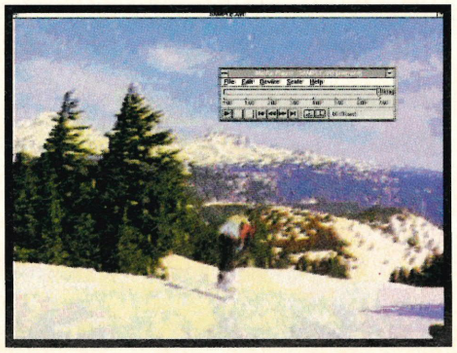




### Automatic for the people

So if video input cards are not yet the answer to video editing, what is the solution? The answer is that it can help you by automating the manual "two recorder" editing method. By using a special cable you can use it to control the video recorders — one being the source deck used to play the tape and the other a deck to record it. The source deck is often just the camcorder used to make the video in the first place. As long as the source deck has the right sort of control connection — LANC, Control L or Remote — then the PC can start, stop and position the tape accurately so that an edited version can be re-recorded.

This is essentially an automated version of the manual editing described earlier. Software such as Gold Disk's VideoDirector allows you to make a list of video clips and assemble an event list which indicates the order in which they are to be put



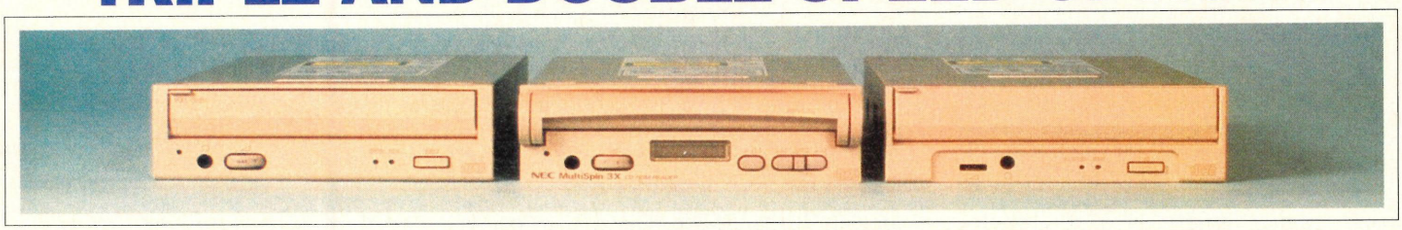
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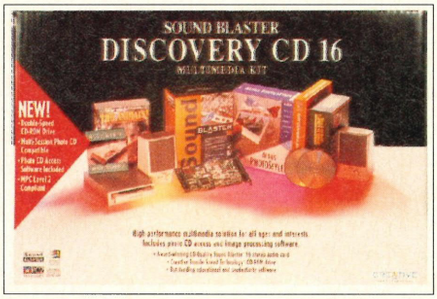
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## WHAT ABOUT SOUND?

**Most of the time it is taken for granted that sound will accompany a video clip. Well it doesn't unless you have a sound card. Surprisingly none of the video input cards reviewed had a sound input facility. If you want to record sound a separate sound card, such as a Sound Blaster or compatible, is necessary. You plug the audio signal from the camcorder into the audio card and it's up to you to decide if you want 8-bit mono, 16-bit stereo or whatever. It is also up to you to make sure that the sound card is correctly installed and set up to work with the capture program — usually Video for Windows. Once you have the sound captured along with the video you will still need a sound card to play it back. Editing programs like Adobe Premiere allow you to edit video clips along with their sound track or substitute any WAV format sound that you have recorded separately. Video for Windows also supplies a sound editor.**





together. When you click on Make Tape the two recorders start working and automatically assemble the edited tape for you. This is a great advance over manual editing and, as long as you already have the PC, it is a lot cheaper than a specialised edit desk which does exactly the same thing, only not as well. You do need the right sort of video hardware to make the editing accurate — a time coded camera and VCR with a LANC connector is a good choice.

### The future

The current state of PC video is really tantalising. As long as you can tolerate the low resolution 'video clip in a window' then video editing using a PC is not only possible but wonderful. However if your aim isn't to produce a multimedia promo or something educational then the novelty of the quarter screen movie rapidly wears off. After all this is the age of high definition TV and home cinema. So how can we continue to be impressed by postage stamp sized videos that jerk and jump their way from the beginning to the end? The problem is of course the hardware. PCs and home computers in general have slowly worked their way up from 8-bit low resolution machines to high power 32-bit machines complete with colour and sound. Only a few years ago even sound on a PC would have been thought of as something for the future – so it's not surprising that full motion video is taking a little longer. There are lots of companies working frantically on making the PC as good as a domestic TV set in terms of image quality but thousands of times more flexible in what it can do. It is in this sense that it is often said that TV and PC are coming together.

**The current state of PC video is really tantalising. There are lots of companies working frantically on making the PC as good as a domestic TV in terms of image quality, but more flexible in what it can do.**

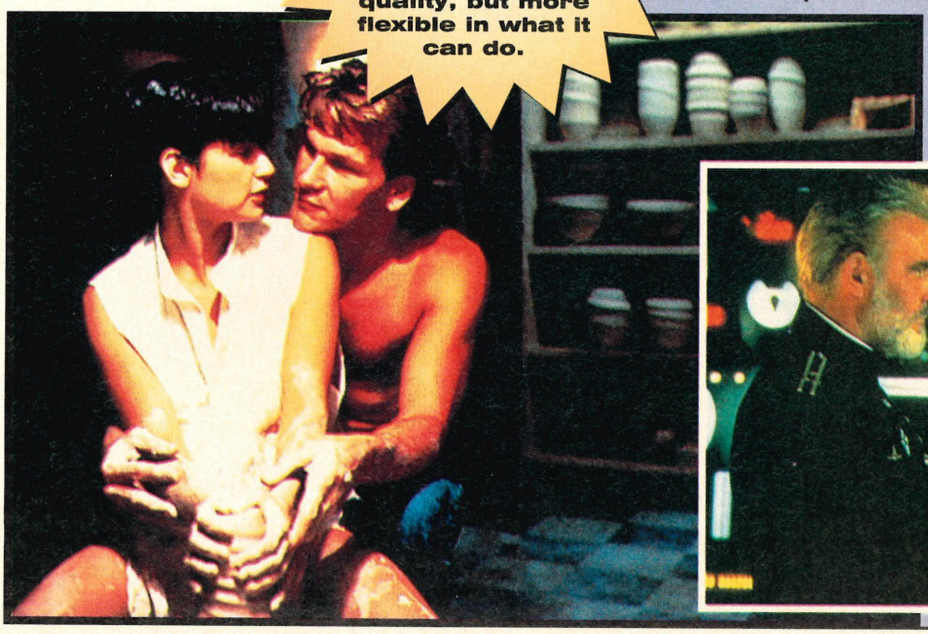
## VIDEO CD AND MPEG

**First there was the audio CD, then the CD-ROM and now the Video CD. There have been a number of attempts to sell us the idea of video on disc but none have caught on, and to be honest I have my doubts about Video CD. The idea is that you take a CD-ROM which can hold about 600Mb of data and squash on to it a 75 minute feature film. Of course to do this you have to use compression and in this case the standard method is MPEG, the Motion Picture Experts Group, who were, as the name suggests, a group of experts who defined the standard! MPEG is a very good compression method but it takes a lot of processing power to compress video using it. This has to be done using minicomputers to produce a master disc, but it still takes 40 minutes to compress a single minute of film. Fortunately it doesn't take that long to decompress the data. Games such as Dragon's Lair, and Return to Zork, shown above, have also been produced in MPEG versions.**

**Video discs are primarily aimed at the CD-i player market. CD-i is Philips' attempt to bring CD-ROM into the domestic market — not so much a games console with a CD-ROM, more a CD-ROM with a sort of games console! Until video disc you could use CD-i mostly for games but now you can use it to watch feature films. Even if you have a CD-i player you will still need an add-on unit to watch a video disc, such as Ghost, and Hunt for Red October, pictured here. Alternatively you could buy a ReelMagic card for your PC, which will play any MPEG movie at full screen and stereo sound.**

**Currently some 50 films from Paramount are scheduled for video disc and 30 MGM movies are to follow soon. The quality of video disc reproduction is variable. Perhaps it depends on the quality of compression used or how much compression has had to be used to fit the entire movie on one disk. The resolution is no better than a VHS player and in many cases worse. Moving objects often seem to judder their way across the screen and lettering is often blurred.**

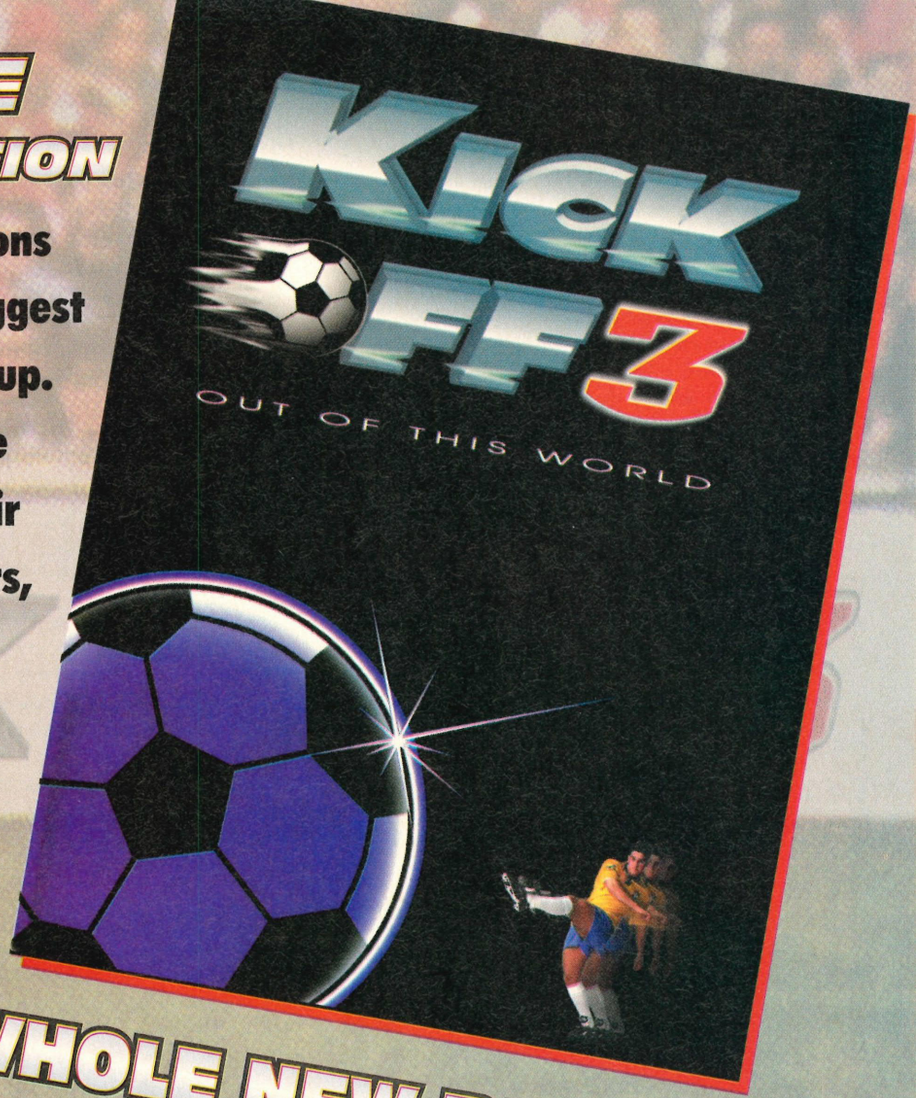
**The question is, why would you prefer a video disc and player to a VHS tape and video recorder? And I can't thnk of a reasonable answer. It's only when the video becomes interactive, as in a game or edutainment, that the video disc has anything to offer. I don't care whether Star Trek is on tape or disc — unless, that is, it happens to be a game.**





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ANCO

The target is being able to record and play 640x480 full colour images at 25 or 30 frames per second.

At the moment this can be achieved but only at a cost which puts it out of the mass market product. You can play back video at this quality — but only if you use an add-on card like Sigma's ReelMagic.

You may completely miss the point of ReelMagic unless you know about what is happening in the video world. A new standard for video compression, MPEG, is being adopted.

This achieves very high compression ratios but it requires a lot of number crunching power to implement.

If you try playing an MPEG movie on your PC then, even if it is a powerful machine, it will only manage quarter screen resolution at seven to 10 frames per second.

What the ReelMagic card does is decompress the MPEG video using hardware — in much the same way as a video input card uses hardware to compress the data stream. Add a ReelMagic card to your system and full screen motion becomes a reality – but only from pre-recorded MPEG compressed video files.

Clearly if ReelMagic can achieve full screen playback it should be possible to achieve full screen recording also ... of course, all we need to d o this is the hardware.

## IS IT YOURS?

**One of the problems with the ability to capture video is that it might not be your video that you are capturing. With the increased popularity of home video, film makers have become very sensitive about the use of their property.**

**Essentially if you capture video from TV or a film then you have to assume that the copyright to the images isn't yours. What this means is that while you could get away with using the captured material for private viewing, anything more will involve a royalty payment. Recently, even companies providing Teletext data have warned that screens captured using PC/TV boards are still their copyright and not be distributed, say, over a network.**

**If you want to stay clear of the copyright problem then you need to buy tapes or disks of video clips specifically created to be used as stock shots. Adobe Premiere, for example, comes with one sampler disk of clips and an order form for more.**

## THE ALTERNATIVES

**If you're not impressed by the idea of using your PC to edit your video, what are the alternatives? Perhaps the simplest is to hire an editing suite. There are many video companies around the country who hire out their production facilities for around £100 per day. You might even manage to beat the price down if you are prepared to use their equipment when no one else is! This may sound expensive but what you get is professional quality. Obviously this is overkill for your holiday videos, but perhaps not for the movie of the wedding or amateur dramatics.**

**If this isn't good enough for you then you could buy your own editing suite. A computer-based editing system would cost around £40,000 and it still wouldn't give broadcast quality ... depressing, isn't it?**

## THE BUS FACTOR

As has been stated repeatedly, the big video problem is the data rate and traditionally the ultimate bottle neck on moving data from one part of a PC to another has been the bus. The ISA bus is definitely far too slow to move uncompressed video data and even too slow to move compressed full screen video data. The VESA Local (VL) bus is better and the PCI bus even better but in the future something more powerful is needed. The need is for an advanced bus that will allow large quantities of data to be moved within the machine without the processor having to be involved.

This is where VESA — the Video Electronics Standards Association — enter the fray for a second time. Not content with their first attempt at a new bus, the VL bus, they have now defined the VESA Media Channel , VMC. The VMC bus has been designed to cope with the huge volumes of data that video hardware produces. The ISA bus can manage a transfer rate of around 1Mb per second whereas the VMC bus can work at 120Mb per second. This gives it about the same raw data moving abilities as the PCI bus.

What makes it different is that the VMC bus can handle 15 data streams so that video and other peripherals can exchange data simultaneously. For example, a video input card could be sending compressed data to a disk drive and uncompressed data to the screen for viewing. At the moment you cannot buy a PC with a VMC bus but VideoLogic has announced the first VMC bus video card — let's hope that someone builds a VMC bus PC for it to plug the card into very soon!

### Screen scene

It is worth adding at this point that how quickly full screen recording becomes low cost depends very much on the development of better compression methods and the ever increasing power of the average PC. For example, when 32Mb of RAM, one gigabyte of disk and a processor faster than the current best Pentium become the specification for an entry level machine then full screen video looks a lot easier!

Even with increased hardware power specialised compression chips will still be needed. A single speed CD-ROM drive can transfer data at between 90K and 150K per second and though double and quad speed drives are becoming common this data rate will be the target for some time.

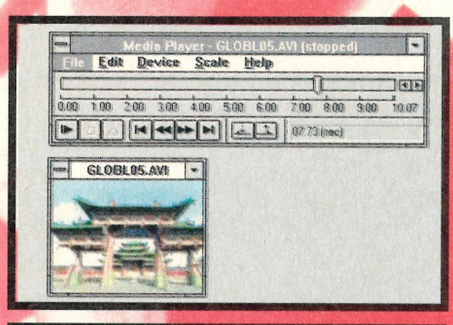
No matter how powerful the PC is you need very effective compression to reduce the video data flow down to 90K to 150K per second. A by-product of this low data rate is that it makes it possible to transmit video data over a network or down a digital telephone line. To transmit video data over an ordinary telephone line you need to get the data rate even lower and then the result is more like a series of stills shown in quick succession. Why would anyone want to send video over telephone lines? The answer is anyone who wants a video phone, video conferencing or a video on demand service. For video on demand you dial up the film you want to see and it is sent to your TV/PC at once — no need to set the video recorder.

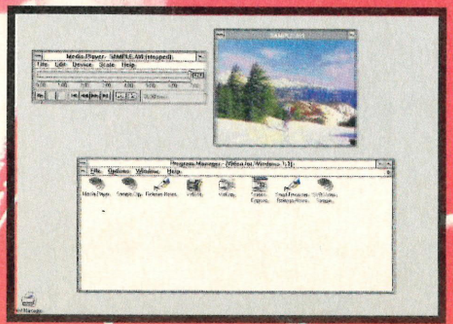
### Digital video

The whole video world is trying to go digital — not just to make editing easier and cheaper. The move is exactly like the change from analogue records and tape to digital audio CDs. The advantages of working in digital form are higher quality, lower noise, no reduction in quality on copying and of course easy integration into the digital world of computers and communications.

At the moment all camcorders and VCRs are analogue devices. They record continuously varying signals on tape. A fully digital camcorder has just been announced which uses a new standard: DVC (Digital Video Cassette). This new standard is supported by Philips, Sony, Panasonic, Thomson, JVC, Hitachi, Mitsubishi, Sanyo, Toshiba and Sharp — and so it has to be a success! The first cameras are expected at the end of the year or early in 1995. The tape used is smaller than 8mm or VHS and the system should produce better quality than the best domestic camcorders — ie, Hi8 and S-VHS — and perhaps even up to broadcast quality.

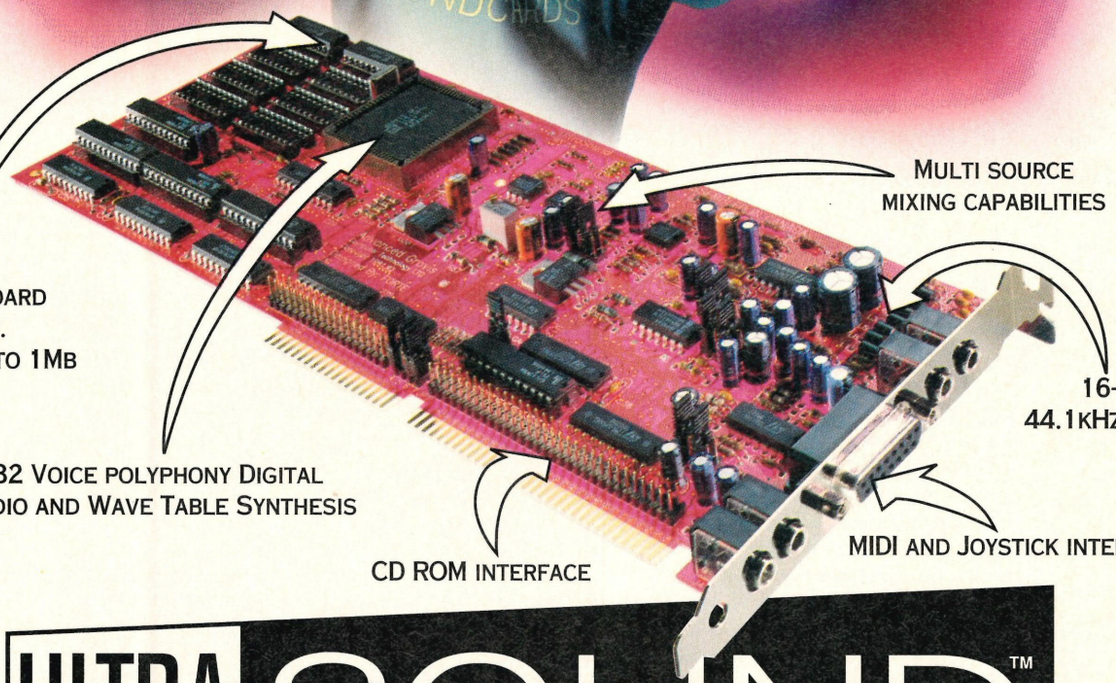
Of course. compression is a key element in squeezing four hours of video plus four CD quality audio tracks onto a small cassette. The importance of this switch to digital video from the PC user's point of view is that it will make the technology cheaper and should allow us to read a DVC tape directly into a PC! Who knows ... one day soon perhaps DVC tape drives will be as common on PCs as CD-ROM drives are now!



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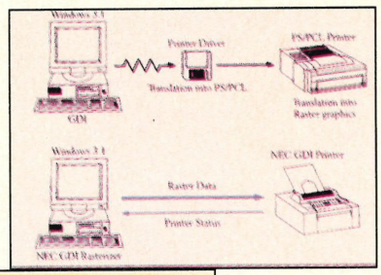
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COMPETITION

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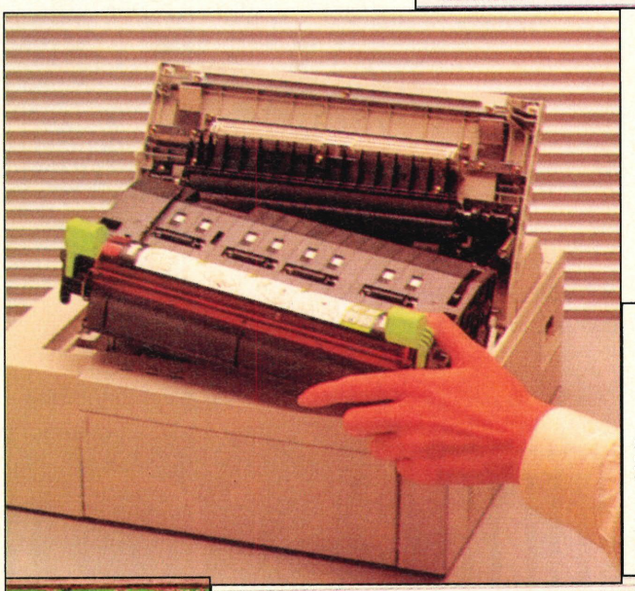

The NEC SuperScript 610 takes a radical approach to printing. Designed specifically for Windows, it's driven by your PC's processor rather than its own, and so when you upgrade your PC — you're also upgrading the printer for free! It'll get faster as the years go by.

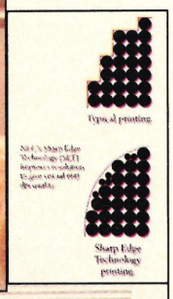
The SuperScript directly converts GDI into dot graphics and thereby skips out a stage in the conventional process. In other words, it prints out your images and documents that much quicker than its rivals. In quality terms, the SuperScript 610 offers virtual 600dpi printing, TrueType and ATM font compatibility for WYSIWYG type.

This small, quiet printer — packed with energy saving features — is going to revolutionise the way you print from your PC. What more could your documents ask for?

As a stunning second prize, we have two copies of the £400 Picture Publisher 4.0 to give away. This amazingly sophisticated image-editing package, from drawing specialist Micrografx, will enable you produce professional quality visual effects with scans and Photo CD images and create top quality PC art from scratch.

And 10 lucky runners-up will walk away with a copy of The Settlers from Bluebyte. This charming, but massively challenging kingdom-builder was a smash hit on the Amiga this spring and is now set to repeat its success on the PC. There will be a full review of Settlers in the next issue of PC Review.








# HARDWARE REQUIRED

**The NEC SuperScript 610 requires a 16Mhz 386 PC, DOS 3.3, Windows 3.1, 4Mb of RAM and a free parallel port. Picture Publisher 4.0 is much the same as regards Windows and DOS requirements, but it also needs a mouse, and a 486 PC is recommended. Settlers needs a 386PC, 585k free base memory, 4Mb of RAM, and a mouse.**



# HOW TO ENTER

**All you have to do for the chance to team your PC up with the super-fast NEC SuperScript 610, or win a copy of Micrografx Picture Publisher 4.0, or Bluebyte's Settlers is to answer the following three questions correctly.**

**1: The NEC SuperScript 610 uses, a) GDI; b) DIG; or, c) IDG technology?**
**2: Name one other NEC PC product ;**
**3: Picture Publisher is a ray-tracing package. True or False?**

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# Why is the PC such a pain in the butt?

**Christina Erskine argues that the PC will never be as popular as the video recorder or compact disc player as long as we have to put up with "not enough memory" errors, device drivers and differing standards.**

FEATURES

There are a large number of mainly CD-based console style machines in development which are all waiting to take over the PC's mantle of premier interactive entertainment system. On the other hand there is an equally large number of people pointing at that great survivor, the IBM compatible PC, and saying, no, this is the future of home entertainment, the home office and everything. But the PC has one major flaw.

Put bluntly, it is a pain in the butt to use.

### The case for the prosecution

I submit, m'lud, that the PC is so difficult to set up, configure properly — and keep configured properly — so fiddly to expand, and so frustrating to use on a regular basis, that it stands no chance of winning over the hearts, minds, and wallets, of the majority of the population.

For example, we put a disk on the cover of PC Review every month, and every month the calls to our disk helpline cover much the same issues, which are also the same issues that are the subject of general queries to the PC Review office. There seem to be five main areas of confusion with regard to using the PC.

### The five most common misunderstandings

> "Configuring PCs has become a significant problem in the PC industry" Microsoft, 1993

1. System memory vs free base memory vs hard disk space.

Along the lines of "When I try to load game x it says 'not enough memory' but I've bought a PC with 8Mb of RAM."

2. Expanded memory vs extended memory and how to configure either.

"Which one's XMS, which one's EMS, why are there two of them, and how do I get one and not the other?"

3. Mouse drivers and compatibility.

"What do you mean, my mouse is incompatible? It works with everything else." You could substitute 'graphics mode', 'sound card', etc, for 'mouse' here.

4. Keeping track of files, deleting, copying and moving files and directories.

"What file? Where? ... well, it says C, with a colon after it. If I type CD GAMENAME? ... no, it still says C, colon."

5. Inexplicable error messages.

"Bad command or filename" is not the most helpful response that Microsoft could have come up with. Data error, sector error, seek error, fatal error are similarly obtruse. Would it really have been so difficult to substitute "You have either typed the command incorrectly, or you are in the wrong directory", and "There is something wrong with the files on disk" for the first messages, above.

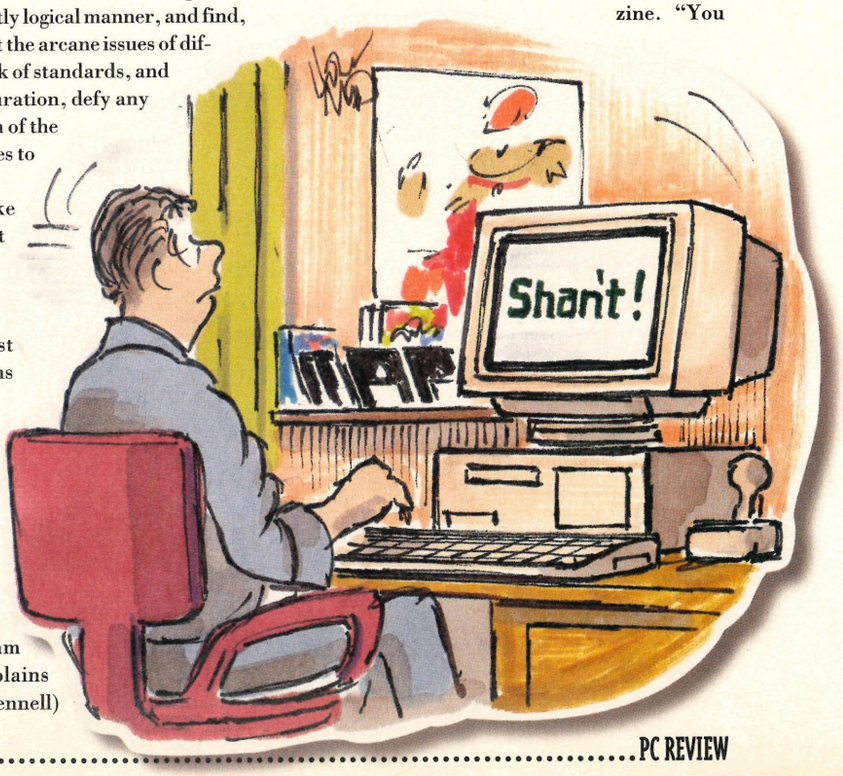
I cite these examples not to sneer or snigger at the people making the inquiries. They are (apart from the odd nutter, of course) intelligent people who have been led to believe that computers behave in an inherently logical manner, and find, understandably, that the arcane issues of differing standards, lack of standards, and finickeries of configuration, defy any reasonable definition of the word logic as it applies to human experience.

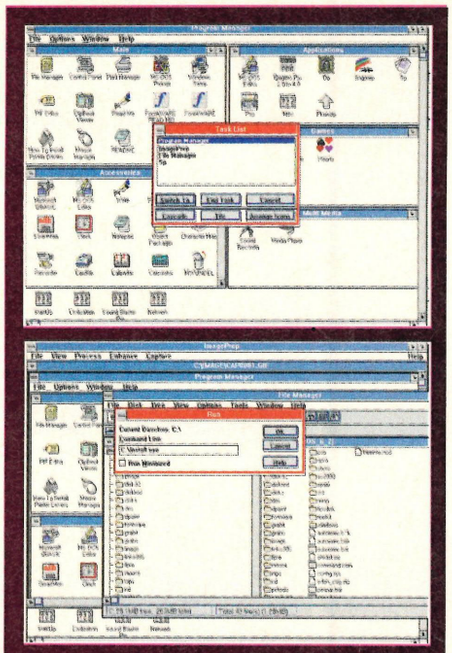
Anyway, don't take our word for it. At Amstrad, which sells thousands of PCs in the High Street, the two most common problems asked of its telephone support line are people getting lost in Windows ("They think they've lost applications when in reality it's either minimised or sitting behind the Program Manager," explains Amstrad's David Hennell) and "bloody memory" — the quote is again from Hennell, who adds, "it's the games which are the problem because they are all so different. Until recently, many games required a high amount of base memory to run. Newer games aren't so fussed there, but want a whole load over one megabyte.

"On our new 9486 Multimedia machine, we've added an alternative to our custom front end, so that it will say, 'do you want to quit to DOS?', 'do you want the Amstrad Desktop?', and now, 'do you want to play a game which wants lots of extra memory?'"

Compare this to the way in which console owners get to play games on their Megadrives and SNES machines. You insert the cartridge — into an unmistakably cartridge-sized slot — and the game loads automatically. Put a compact disc game in the Sega Mega CD, and an introductory screen for it then appears straightaway.

"The console market has always concentrated on ease of use," explains Steve Merrett, editor of Mean Machines magazine. "You





*Even Windows isn't always as intuitive as it could be. There are four applications running in the top picture, although you wouldn't necessarily know it without pressing Ctrl-Esc.*

can even buy an 8-bit adaptor for the Megadrive, so that you can play your Master System games on it. The only problems come with old import Megadrives being incompatible with newer non-Japanese software."

The counter-argument to this is that consoles are inevitably simpler to use, because all they were ever designed to do is play games on proprietary cartridges. PCs, on the other hand, were originally designed as an 'empty box', specifically so that items such as sound cards, mouse drivers and more advanced graphics hardware could be added to them at a later date when the technology was affordable and the demand was there. This system, so the argument goes, provides flexibility and future-proofing (let's face it, the Sega Megadrive isn't going to last for over a decade). And anyway, the PC was designed as a business machine, for the sort of programs that are demanding as far as number-crunching and storage space goes, but not in need of pretty graphics and a full orchestra playing out of the machine. If games players insist on taking advantage of the flexibility of the PC to add joysticks, SVGA cards and Sound Blasters, then they've made their bed and had better just lie in it.

But this won't wash. Firstly, the fact that IBM didn't envisage a future in which any screen other than text would be desirable is no longer here nor there: what we're talking about is the PC as entertainment machine, and whether it will hold its own against the likes of Sony, Sega, Philips and Nintendo between now and the end of the century. Secondly, many, though not all, of the complications of the PC as they appear to the user could be solved through software.

### A software solution

Much could be alleviated if publishers incorporated detection routines in their software. Thus, for a program requiring 4Mb RAM, with as much configured as extended memory as possible (eg, both SimCity2000 and Doom, the most popular games of this year so far), the installation routine would detect how much memory the user had in their PC, and then configure it to run the program correctly. It would also auto-detect the mouse connected and load the driver. Ditto the sound card. If it couldn't find any of these, the error message that was displayed would state the problem in plain English: "memory error" is not good enough.

Ideally, all publishers would adopt the same system, and the same command would be used for installation each time. Even when installing a program in Windows, which is usually a case of double-clicking on the .EXE file in File Manager, or typing in the pathname at the Run command, you still find some files are called Install, some Setup, some Winstall, etc. This is silly.

Now, DOS4GW is a DOS extender program which is designed to configure memory automatically. If you load up a program and see an on-screen message saying "Professional Protected Mode Runtime Version 1.95", or similar, then DOS4GW has been included in the program and will attempt to configure your memory accordingly. Unfortunately it can be confused by the Config.sys set-up, which rather defeats the object of the exercise. It looks for the largest segment of continuous memory and uses that. Fine, if your set-up is all expanded, or all extended. But if you have 4Mb, 2Mb of which is configured as extended and 2Mb as expanded, DOS4GW can't work it out.

"What would be ideal is for a memory manager to work out what each application needed, tweak the PC's start-up files so that it's all OK, re-boot the machine, start up the application, and then re-boot again when you exit, so that you've have the original Config.sys back again," suggests David Hennell.

Perhaps it would be too much to ask for software publishers to come up with a common set of stan-

## COMMON PROBLEMS

**A straw poll of manufacturers and publishers asking for the most common problems reported to their helplines by PC users yielded a remarkable consensus. A representative sample appears below. Frankly, the only conclusion that can be drawn is that if the PC is ever to become easy to use, someone (Microsoft?) is going to have to do something about the way that DOS manages memory.**

### Elonex

**(PC sales mainly to corporate and small business users)**

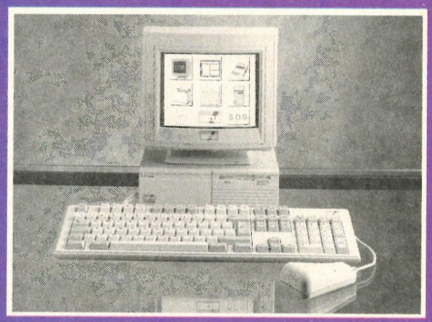
- **How do I set a device driver to do 'x'? – where 'x' is to 'loadhigh', or set VGA card parameters, etc**
- **How can I add this second hard disk drive that I've just bought? – where the first may be an IDE device and the second a SCSI model.**
- **How do I connect up a network using Windows?**



### Amstrad

**(PCs mainly to individual buyers for home/leisure use)**

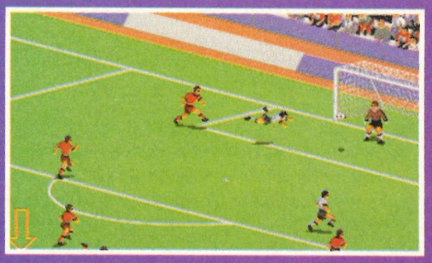
- **I've installed all the software that came with the machine, and I've set up all the device drivers and now it doesn't work. (Amstrad is now putting a red label on its PCs telling buyers not to do this, since software and hardware comes ready-installed.)**
- **I get lost in Windows: one (or some) of my applications seems to have gone missing.**
- **I can't free up enough base memory/How do I free up enough base memory?**

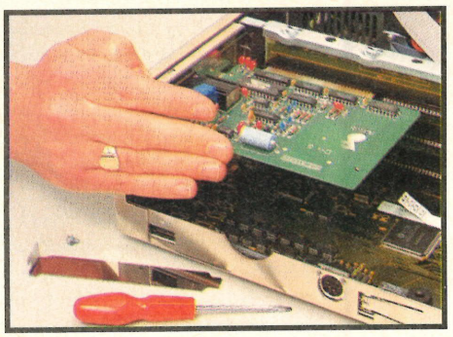


### Electronic Arts

**(entertainment software sold to individuals)**

- **What's the difference between XMS, EMS and base memory? (or, simply, what are they?)**
- **I can't free up enough base memory/How do I free up enough base memory?**
- **What's an IRQ number and why won't my sound card work with your game?**





dards to adhere to. That the installation file for programs should always have the same name, so that when you take the disks out of the box, you know that the command will be "Install", or "Start", or whatever. That programs shouldn't need more than 600K of free conventional memory. That we can do without two different standards for memory over 1Mb.

Not that this would not go down very well with program designers, who would find the whole process too restrictive. Somehow, the name Origin springs to mind. Origin's games have always been processor-heavy and memory-hungry, and the company makes no apology for it.

"Right from the start, Origin has always been aiming at the cutting edge of technology and pushing it to the limit. They're catering for the top-end PC owner and they're not going to compromise their graphics and gameplay," says David Wilson of Origin/Electronic Arts.

The one company with enough clout on its own to dispel anxieties is probably Microsoft. Microsoft, after all, already owns the standard operating system (MS-DOS), standard graphical

## 10 REASONS FOR PCS BEING A PAIN IN THE BUTT

### - AND HOW THINGS COULD BE IMPROVED

| Problem | Solution |
|---|---|

**1. PORTS NOT LABELLED**

Label the ports at the back of the PC. It's so simple. And it wouldn't cost much. But it would save a few minutes and no little confusion for new users when they first put the PC together.

**2. DIY DEVICE INSTALLATION**

OK, so the installation software will usually make all the right configuration changes. But what a faff it is to disconnect the PC, clear away all the surrounding clutter, find the right type of screwdriver, worry about snapping the expansion board in half as you force it into its slot (as in the picture, above), connect up again and so on ad nauseum. Roll on Plug and Play, Microsoft!

**3. DIFFERENT INSTALLATION ROUTINES**

Now this is one of my real bête noires. Setup, Go, Start, Run, Install, Winstall, Game, Main ... take your pick of the right command to begin installing software to your hard disk. Let's stick with just the one: Install seems to be the current favourite.

**4. INSTALLATION TIME**

If you spend £50-odd on Mega Thargoids, you want to play it now, not in two hours time when it's finally installed, decompressed and you've fiddled around with the configuration so that it will actually play the background music and emit an occasional sound effect. CD-ROM could be the answer to this one.

**5. IMPENETRABLE DOS**

REN, CHDIR, MKDIR, CHKDSK, PROMPT $p$g ... I'm sorry, but this is the language of an alien. I suppose we're stuck with DOS, for the time being, anyway. Encourage publishers to enable more programs to be run from Windows 3.1 is about the only feasible solution I can come up with here.

**6. VARYING HARDWARE STANDARDS**

No sooner do people settle down with MPC for CD-ROM software than MPC II comes along. The VGA graphics mode was at least an IBM standard, but SVGA is anybody's. Some Microsoft-compatible mice are more Microsoft-compatible than others. We no longer need both XMS and EMS. More than anything else, the PC needs standardisation if it's going to be the future of interactive entertainment.

**7. MEMORY CONFIGURATION**

The whole business of conventional memory (the first 640K) and extra memory (the stuff over 1Mb — and note the upper memory, that 640K gap in the middle) needs to be simplified and clarified. We need a memory manager that comes with each application that will automatically set up your system correctly — and invisibly, as far as you're concerned.

**8. AUTO-DETECT FOR MICE, SOUND, ETC**

Perhaps this amazing memory manager could perform this task as well. To be fair, many, if not most, installation programs will now auto-detect mice and put up a sound card menu for you to pick your model from. But these should be watertight: you don't want a "Sound Blaster not found" message when you know damn well there's a Sound Blaster in there.

**9. POOR AFTER-SALES SERVICE; DODGY SUPPLIERS**

We'll be dealing with after-sales service in more detail in our next issue, but the image of the PC as all-round, leading edge entertainment system is hardly helped by reports of fly-by-night mail order companies and sales assistants who don't know DOS from a hole in the ground. Quite apart from anything else, it unfairly taints the reputations of reliable, honest and knowledgeable suppliers.

**10. POOR IMAGE: TABLOID FAVOURITES SUCH AS SPACE INVADERS, VIRUSES, KIDDIE PORN, ULTRA VIOLENCE, ETC, HAUNT PEOPLE'S PERCEPTIONS OF THE PC**

If you see someone using a computer on TV or in a film, you can bet it'll either be an antiquated DOS version of a spreadsheet, or something that looks like Space Invaders. Never a groovy graphics package, or Myst, or Rebel Assault. PCs can be relied on to hit the headlines every Friday the 13th with tales of City computers being wiped out by viruses. And while I'd hate to gloss over the reality of hard porn being distributed on disk, it isn't lurking in every computer store or freely downloaded off every bulletin board. As for ultra violence ... the only game I've seen that didn't look like Tom and Jerry style bashing is Doom, and we had more complaints about Body Blows than we've had over Doom. Possibly because Doom is such a good (technically, graphically and to play) game.




**Above: the Escom PC may be designed to look unintimidating, but it's still a PC. You can't just take a disk, put it in its slot and see the loading screen appear immediately, as you can with the Sega Megadrive, left.**

## OVER TO YOU

**You've read the case for the prosecution; now, do you think there's a case for the defence? Do you think PCs are unnecessarily difficult to use, or do you think we're making a fuss about nothing? Write to PC Review at Priory Court, 30-32 Farringdon Lane, London EC1R 3AU, with your views on the subject and we'll print a selection in the magazine.**

user interface (Windows) and the standard mouse driver software. Microsoft is on record as saying that PC configuration causes customer dissatisfaction, "possibly affecting PC market growth". And, together with Compaq, IBM, Hewlett-Packard and a host of other heavyweight companies, Microsoft is heavily involved in the 'Plug and Play' initiative, which aims to standardise the way that add-on devices are set up on the PC so that configuration is automatic. That's the theory, anyway.

Not only is Plug and Play designed "to enable changes to a PC configuration with no intervention by the user", but "... it must be inexpensive to implement. In particular, it must not significantly increase the per-unit cost of PCs or devices". It sounds great – but Plug and Play is still very much 'in development'.

### The summing up

PCs were not meant to be used at home. They have arrived there largely by accident not by design, and original PCs were designed with no architecture defined for installing, identifying or configuring hardware devices, nor for integrating hardware and operating system software. This may be all very well in a corporate set-up with a data systems department for maintenance, but the advent of PC games, and individual ownership of PCs, have muddied the waters no end.

Nonetheless, the PC is currently the prime entertainment computer. It has a huge worldwide installed user base, and a large software publishing base. Sales of PCs into the home in the UK are increasing at a rate that leaves all other formats standing.

The key to the PC's continued health is its versatility. However spectacular the specifications on the forthcoming 3DO, Sony Playstation, et al, the PC will be able to match it technologically through more add-ons and faster processors, while retaining the ability to do more besides. There is PC software for just about every application you can think of; there are PCs in nearly every office in the country and increasingly in homes as well.

But none of this excuses the fact that the PC is a pig to use.

## NEXT MONTH

**We'll have an in-depth report on after sales support, for hardware, software and games. What can you expect suppliers to do for you after you've bought their products? What is the best deal to go for? How can you protect the purchases you make? Find out in next month's special guide.**

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| 4. | MS Musical Instruments | (-) |
| 7. | MS Dinosaurs | (-) |
| 8. | TFX | (-) |
| 9. | Day Of The Tentacle | (9) |
| 10. | Global Explorer | (-) |

*Brackets show previous position*




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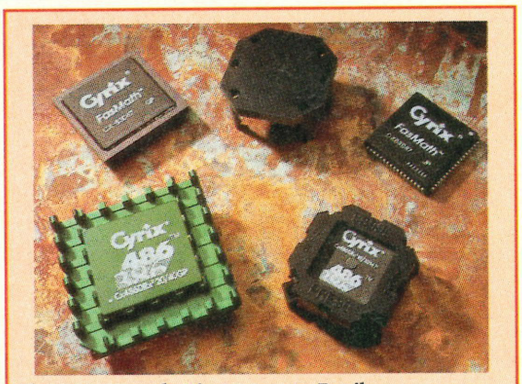
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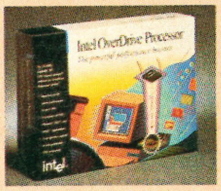
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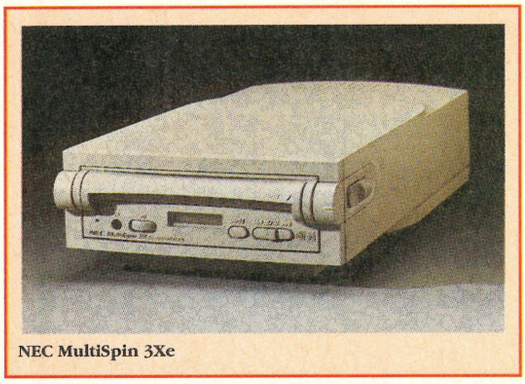
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# Virtual reality: PART TWO

**Can the Forte VFX1 succeed where all other VR systems have failed before? John Bennett finds out.**

Last month, I took a very long look at the Forte VFX1 headset. All in all, it was an extremely impressive piece of machinery, the first PC virtual reality headset with the potential to become a genuine mass-market system.

But the article was necessarily open-ended — open-ended because the VFX1 system was a pre-production model, and open-ended because unless the system gets the software support it needs it'll go the way of the BetaMax video recorder — straight into technological oblivion.

As I wrote at the time, the support for the VFX1 will depend not so much on new and original titles appearing especially for the system (because there's too much at stake for money-minded games publishers to risk massive development costs on something that isn't necessarily going to sell in the thousands straight away), but how easy the software conversion is for existing PC games.

All I could do was take Forte's word for it that the conversion was as easy as they said it was — so easy in fact that it ought to make the VFX1 a no-lose option for games publishers.

Well, Forte was back at the ECTS games industry trade show in Islington, London, last month — this time with the headset — and a number of interesting developments which answered many of my questions about the software conversion *and* prompted this follow-up feature.



## UPDATE

**There's still no firm news on exact UK pricing of the VFX1, or a decision on who will be handling the distribution in the UK. Advanced Gravis is still courting Forte in a manner which verges on heavy petting, but Forte is playing hard to get ... Versions of the VFX1 will appear under various guises — probably rebadged through other suppliers.**

**But some new technical details on the headset specification have come to light. First off, the all-important LCDs. Forte now plans to produce two versions of the headset. The standard version will be the one that we looked at last issue, with the 428x240 resolution displays. The other, more expensive version will have enhanced resolution LCDs, which will give an even crisper, clearer image. This is all very much in keeping with Forte's plan to design a modular, upgradable headset.**

**Secondly, the CyberBat floating controller *is* going to be available separately as well as bundled with the headset for around £99. So if you're looking for a very different type of games controller, it's worth checking out.**

**Games supported**

| | |
|---|---|
| Ice and fire | Zombie |
| System Shock | Looking Glass Technologies/Origin |
| KA range | Knowledge Adventure multimedia range |
| "Several" | New World Computing |
| Delta V | Bethesda |
| Magic Carpet | Bullfrog |
| Bounty Hunter | Origin |

## The UK perspective ...

Most interesting was to see the VFX1 on display (at an Electronic Arts/Intel post-show presentation) running Bullfrog's stunning Magic Carpet, complete with motion tracking and full stereoscopic 3D. I'd a fair idea that Bullfrog could only have had the VFX1 to work with for a couple of days at most, so I took the chance to collar Bullfrog's creative boss, Peter Molyneux, about how long it had taken to do the conversion. "Oh, two and a half hours or so," was the nonchalent reply. "Problems? No. Should there have been?"

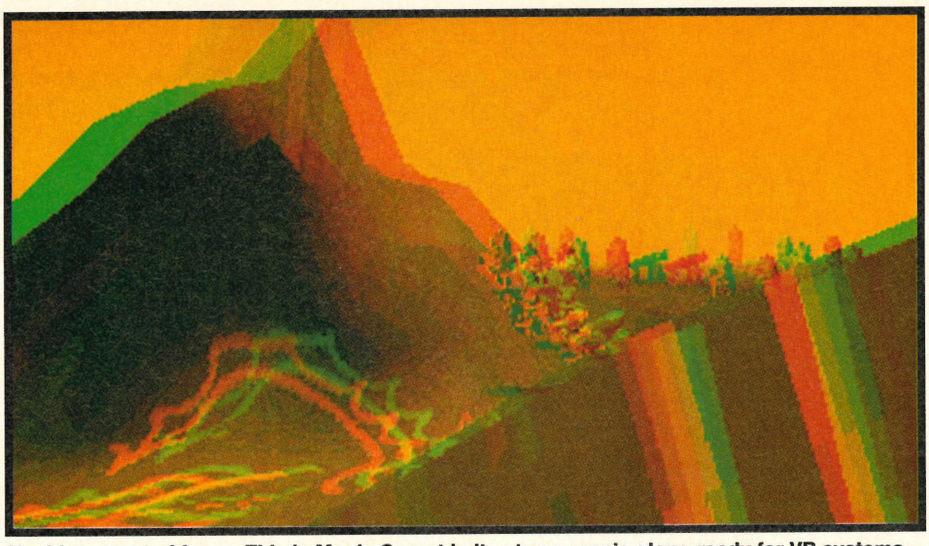
This was not exactly the reply I was expecting. Two and a half hours programming time means next-to-nothing costs for a games publisher. It'd be no skin off its nose to stick out a Forte-based VR version of its existing games, which is a huge step in the right direction for the Forte VFX1.

According to Glenn Corpes, head of research and development at Bullfrog, it actually took a little longer than a couple of hours. More like a couple of days. Even so, Glenn still felt it was a relatively painless job: "It was so simple because Magic Carpet already supported stereo visuals. And, if we'd have done it in a lower resolution it'd have taken even less time — it is very easy to do. The way the screen is double-buffered is very nice, and actually makes it a lot easier than working with the old red-and-green-glasses type of stereo 3D.

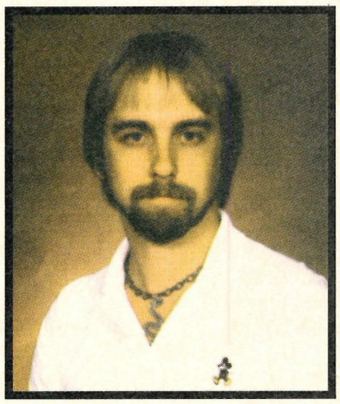
What was also interesting is that according to Glenn, the VFX1 support would not have to come in a separate format version of the game, complete with new packaging. It amounts to a mere 500k of extra code, and will be a selectable option in the standard version of the finished game — much as you'd select a particular sound card.

"The only reason I can see that VFX1 support wouldn't be in Magic Carpet would be that we hadn't got our hands on the headset again to test it thoroughly before releasing the software in late summer. After that we have another game with the same engine as Magic Carpet which will also most likely support the VFX1 with too."

He adds, "Personally, I'd love to see the VFX1 succeed because we're very excited about VR. We (Bullfrog) will definitely be looking at adding VFX1 compatibility to future releases where possible.But we need to keep an eye on the commercial aspects to ensure there's enough demand to make it more than a party-piece."



**No, it's not out of focus. This is Magic Carpet in its stereoscopic glory, ready for VR systems.**



## Straight from the States

Richard Garriott, director of Origin Systems (pictured right) is a keen observer of the VR scene: "We (Origin) are probably the most enthusiastic, pro-VR people around. We've been watching VR hardware for over a year — including hardware up to $25,000.

"But we were starting to get very disappointed with the lack of progress made in this area. For a start, the quality of the image and the latency of the movement were not even close to acceptable levels. Then there's a also conceptual difficulty in persuading people to accept headsets."

According to Garriott, the hardware has always been the problem rather than the software. The software support is apparently relatively easy to do, and the sound card analogy is a good one: supporting VR hardware is as easy as supporting multiple sound cards. It's just a menu-selectable option (although making a patch for previous titles is not as easy as adding VR support into the code of a game that hasn't shipped yet).

From Origin's point of view, the VR hardware just wasn't good enough to handle a decent game to make it worthwhile commiting to. And, the VR manufacturers were caught in a vicious circle — until the installed VR hardware base is big enough, developers won't produce software specifically for it. Until the software is available in large numbers, the hardware won't sell to a mass market. And until the VR systems can sell in large numbers, the price of the hardware remains sky-high because of its specialist nature.

That, according to Garriott, may have changed significantly: "Maybe we're about to turn the corner.










There are four major companies coming out with viable headsets — Forte being just one of them. All of them have similar resolutions, they've all solved the latency problems of the motion tracking, and they each have a different approach to the ergonomics and the steroscopic imagery.

"The Forte headset has two main strengths. The ergonomic design makes it definitely one of the most comfortable and user friendly. And, the refresh speed of the device resolution is as good, if not better, than its competitors."

He believes that with this generation of headsets the resolution and speed is finally just about good enough to start VR off. And, the next generation will definitely make it a mass-market product.

This is why Origin is looking to support the major VR systems, including the VFX1, with its new games. The company has two new titles in production, Bounty Hunter (due summer '95) and System Shock (due summer '94), which already work with the VFX1 and other VR systems.

Bounty Hunter is particularly interesting in that it has been designed as a virtual reality game in the truest sense. Garriout describes it as: "Wing Commander meets Ultima Underworld. You move around and collect items on a planet, using a first person view. But you can also get in and fly ships, looking around independently like you do Strike Commander."

"We're designing the game so that every aspect of its interface is designed for VR hardware. Bounty Hunter is going to be the definition of a VR game. It'll be playable on normal screens but the interface is tailored for VR. In the first VR conversions you'll probably need to start the game out of VR, and there will be points in the games when you have to come out of VR and use the monitor normally. This won't happen in Bounty Hunter."

## Last words

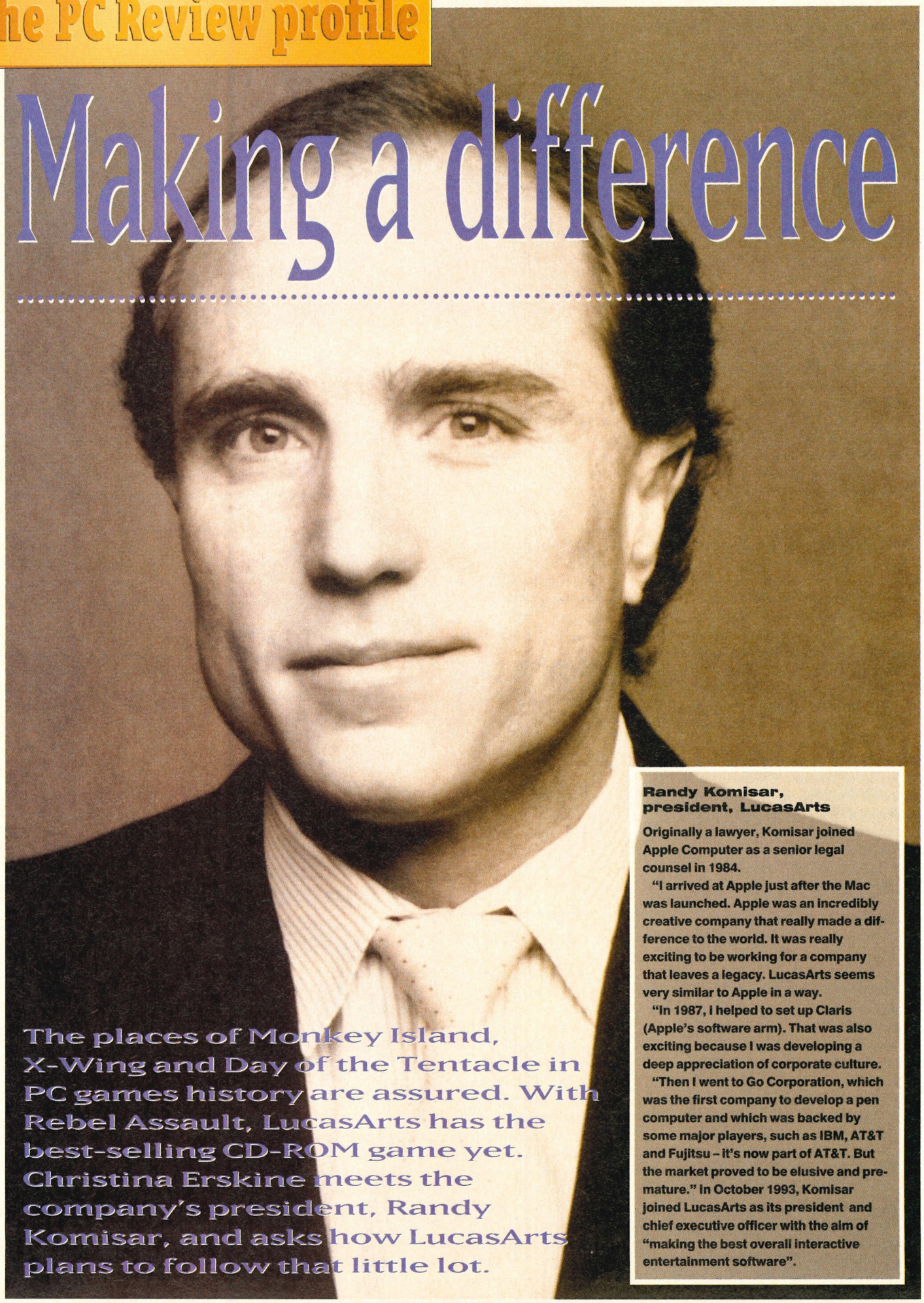
Back in New York, Forte is working away persuading as many publishers as it can shake a headset at that they should support the VFX1 right now.

From what I've been told by the likes of Bullfrog and Origin, the software conversion isn't going to provide a major obstacle. And that was my biggest concern when I first reviewed it. Of course, the VFX1 could still prove to be as big a flop as the Sinclair C5. Maybe we aren't ready for VR headsets adorning every desktop. Maybe people will consider that £650 is too expensive to justify. Maybe not.

But at least it looks as if it won't be for lack of software support, and that has always been the crucial factor in deciding the success of any new computerised hardware products.

The PC Review profile

# Making a difference



The places of Monkey Island, X-Wing and Day of the Tentacle in PC games history are assured. With Rebel Assault, LucasArts has the best-selling CD-ROM game yet. Christina Erskine meets the company's president, Randy Komisar, and asks how LucasArts plans to follow that little lot.

**Randy Komisar, president, LucasArts**

Originally a lawyer, Komisar joined Apple Computer as a senior legal counsel in 1984.

"I arrived at Apple just after the Mac was launched. Apple was an incredibly creative company that really made a difference to the world. It was really exciting to be working for a company that leaves a legacy. LucasArts seems very similar to Apple in a way.

"In 1987, I helped to set up Claris (Apple's software arm). That was also exciting because I was developing a deep appreciation of corporate culture.

"Then I went to Go Corporation, which was the first company to develop a pen computer and which was backed by some major players, such as IBM, AT&T and Fujitsu – it's now part of AT&T. But the market proved to be elusive and premature." In October 1993, Komisar joined LucasArts as its president and chief executive officer with the aim of "making the best overall interactive entertainment software".

LucasArts, it seems, can do little wrong. Four years ago it brought out Monkey Island, a graphic adventure which managed to be clever and funny and challenging as well as pretty to watch. Two years later, it released the sequel, and everyone said it was even better. Not only that, but through LucasArts impeccable connections, it has access to the material and characters from the original Star Wars films, and has used them to magnificent effect. When did you last hear anyone say that X-Wing was "just another boring movie licence"?

But then you could say that LucasArts was born with a golden spoon in its mouth. It was founded as part of Lucasfilm twelve years ago by movie producer George Lucas to provide an interactive strand to his vision of an all-embracing entertainment company. "He had a vision of multimedia entertainment. In the movies, he needed to create new technology for digital media in films," explains Randy Komisar, LucasArts's president and CEO, who joined the company last October.

Using digital effects in films has paid off handsomely for Lucas's special effects division Industrial Light and Magic. The team has won 12 Oscars, most notably recently for its work creating the dinosaurs in Jurassic Park (and some of the humans: when the lawyer is shaken in the tyrannosaurus rex's mouth and later plucked off the lavatory, he is an ILM-created 'virtual' character). The sound post-production division Skywalker Sound has won eight Academy Awards, including , again most recently, which it received for its work on Terminator 2 and Jurassic Park. The pedigree is enough to make LucasArts look pretty minor by comparison.

Randy Komisar, with his experience in the computer industry, was drawn to LucasArts for its vision of the future and the freedom it gives its creative teams.

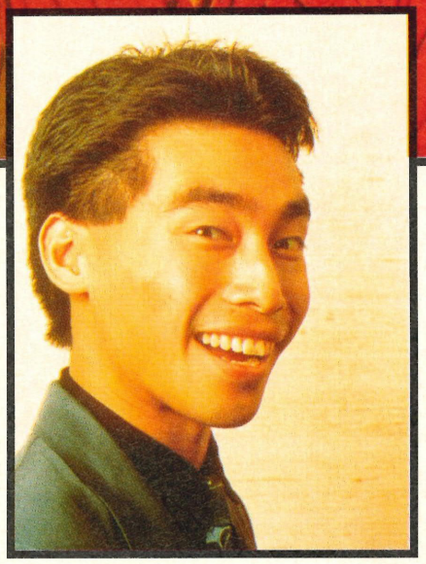
"It was games like Monkey Island that drew me to LucasArts. I like games although I'm not a hard-core games player. I enjoy Sam and Max and Rebel Assault, but not so much things like Mortal Kombat. Monkey Island seemed to me to be a different direction for games, with a different audience."

Komisar is also committed to the idea of keeping LucasArts as a sanctuary for creative talent. While the company has had an enviable track record for attracting some of the best creative talents in the industry (Ron Gilbert, Hal Barwood, Brian Moriarty, Lawrence Holland all spring to mind), it has also lost some of the best creative talents in the industry, Gilbert having moved on to set up Humungous Entertainment, and Moriarty departing late last year.

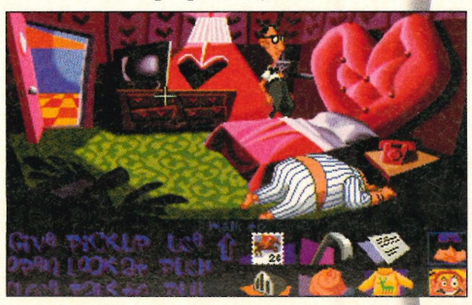
"I think Lucas is seen as a creative haven – at least creative people *today* see that. Possibly it's been confused in the past. It's unfortunate to lose a Ron Gilbert or a Brian Moriarty, but you must set up an organisation so that people can grow, move out, and then come back. They do come back. They do that a lot."

Having begun his computer industry career at the creative hothouse that was Apple Computer in the mid-1980s, Komisar is only too happy to cater for the sensitivities of artists and designers.





**Above (from left to right): the Sam and Max design team, Sean Clark, Steve Purcell and Michael Stemme.**
**Right: Vince Lee, programmer of Rebel Assault.**



## 10 things to know about LucasArts to help you break the ice at parties

1 The company is owned by George Lucas, the producer of the Star Wars movies, and is a sister company to 12-times Oscar winner ILM, which produced the dinosaur effects in Steven Spielberg's Jurassic Park.

2 LucasArts *has* released a turkey: the quite hopeless Willow.

3 In Rebel Assault, the men staring worriedly on-screen after Rookie one crash-lands of the planet are Wayne Clue, associate pro ducer of Tie Fighter and Steve Purcell, the designer of Sam and Max.

4 Its first titles, Ballblazer and Rescue on Fractalus, were published by Activision.

5 LucasArts has also published specially commissioned educational programs on laserdisc, such as Life Story: Race for the Double Helix, and Choices and Decisions: Taking Charge of your Life

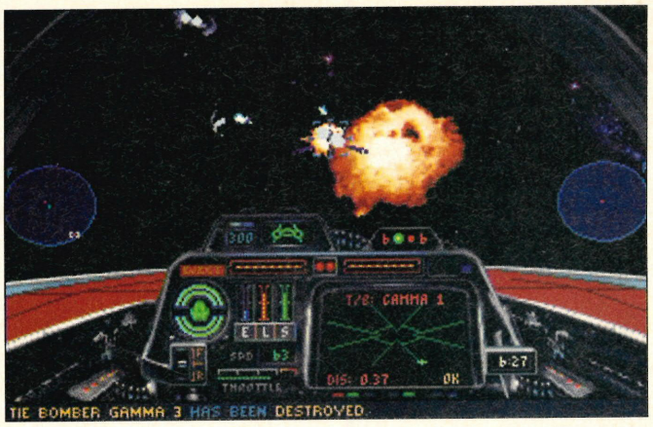
6 SCUMM is the 'engine' which drives the LucasArts adventures. It stands for Script Creation Utility for Maniac Mansion, and was first used in Maniac Mansion.

7 iMUSE is LucasArts' proprietary sound system, which – broadly speaking – matches the music played to the events on-screen, so that you get tinkly bits when nothing much is happening, and slower, more portentious crescendoes when you're about to discover something momentous. It stands for Interactive Music and Sound Effects, and was first used in the game LeChuck's Revenge.

8 Indiana Jones and the Fate of Atlantis is based on a comic book story rather than a film. (Come on. I think *everybody* knows that. Ed)

9 OK. How about the fact that George Lucas is working on another Star Wars film which is rumoured to be coming out in "the next five or six years"?

10 Steven Spielberg is stuck in Day of the Tentacle.




"When you work with creative people, you must let them work in the way that makes them most comfortable." says Komisar. "LucasArts now employs 70-80 creative people out of 120 in total, and we've always been predominantly creatively led. We have our in-house facility, then Larry (Holland) has his group of ex-Lucas people a mile or so away. That's fine by me. Larry is fully dedicated to working with LucasArts."

## Rebel, rebel

For the last couple of years, LucasArts' output has seemed fairly settled. We've had comic adventures (Sam and Max, Tentacle), and we've had Star Wars games (the three X-Wing tales and Rebel Assault). Of these, only Rebel Assault sprung any surprises, with its stunning 3D graphics, created in not-too-dissimilar fashion to the techniques used for those Jurassic Park dinosaurs. But while its animation, sound and speed were all universally praised, it was also criticised in some quarters for the limited controls. Komisar readily agrees that the game wasn't perfect.

"Rebel Assault was clearly a first try. No-one else had done anything like it, and it was an opportunity to push the art forward. By good fortune it came out just as CD-ROM was taking off."

More than good fortune, one suspects. Rebel Assault spent around two years in development, and came out six months after 7th Guest had kick-started the CD-ROM market into action – and in time for Christmas. But, unlike many people who perceive CD-ROM as the only way forward for PC entertainment, Komisar is pragmatic about its potential.

"CD-ROM is unfortunately very slow. To work successfully, you must design the game to work around its weaknesses, and I think Rebel Assault tries to do this.

"CD-ROM is not the Holy Grail of the industry. There's room for floppy disk and cartridge-based games as well, because CD suffers from its limitations.

"Arcade-based games using polygon graphics will work very well on 32-bit and 64-bit cartridges. You look at some of these cartridge characters, and the figures look very static, but when they move, the connection between the movement and control is very different to that on floppy or CD-ROM."

Nor is he about to bandy the term 'interactive movie' about at will. Komisar believes that since LucasArts was set up as part of a group of companies involved in film production and effects, it has a better idea of just what can and can't be achieved. He reckons that games and movies will co-exist, rather than the two forms of entertainment merging in some way, and as he told the recent Intermedia conference in San Jose, California, "I can't imagine sitting on my hands and watching a game roll by for two hours ... I also can't imagine sitting down and watching a movie, no matter how great the story or fantastic the cinematography, for 40 to 100 hours."

Thus, Komisar continues, LucasArts must rely on its most important differentiator, the ability to deliver a truly interactive first person experience.

"Given that interactive entertainment and movies were very different things, George divided the companies into three: one to create characters, which was Lucasfilm, one serving film and TV – Lucas Digital, which includes Industrial Light and Magic and Skywalker Sound, and thirdly LucasArts, to explore interactive media and understand what could be accomplished."

The technologies are converging now. Computers and advanced rendering software are used extensively in films like Lawnmower Man to create characters, and famously, the Jurassic Park dinosaurs were created entirely by computer. Movie actors venture out of Hollywood to Silicon Valley to be filmed and digitised in games. Komisar believes that LucasArts has a distinct advantage in that while established software publishers are primarily technological companies dabbling in film, Lucas is a movie outfit with a technological division – "possibly Lucas understands interactivity better."

## Understanding interaction

At any rate, Komisar seems to see four main strands to LucasArts' development in the next couple of years.

"Adventures and puzzle games are one area. Then there's the simulation games – for example, Larry Holland's X-Wing titles; cartridge games, and, well, the Rebel Assault type of game which uses a completely different engine to the others and is really a cinematic arcade game.

"We'll explore other areas, too. But we need to be different: it doesn't make sense to us to do things the same as other people."

And what sort of other areas might he have in mind?

"Well, first person type games, for example, like Doom. That's *very* interesting to us. Also on the cartridge side, we're not that interested in fighting games, but those that use polygon graphics. We could do very different styles of arcade game."

LucasArts is working actively with its sister companies to find a way to create computer games with the same sort of fast interaction as cartridge titles: – "interactive video as a production tool, not a delivery medium". According to George Lucas himself, while the company will "focus in the short term, on the PC market, ovbviously with the CD-ROM capabilities ... the so-called information highway and black box" is the way forward, although some years away.

But then, several years ago, LucasArts produced a networked game, Habitat, before networks were in place the way they are today (it's since found a cult market in Japan). And a Lucas team, Rebel Arts, developed early Virtual Reality arcade systems, which Randy Komisar maintains "rivalled and even exceeded the VR experiences today".

## THE DIG

**The story so far ... in 1989, movie-maker – and now double Oscar winner – Steven Spielberg contacted LucasArts with the idea of creating a graphic adventure based on archaeology in space. A script had already been written for Spielberg's Amazing Stories TV series, which is transmitted in the US, but proved too expensive to film for TV. After many false starts and discussions, production began at LucasArts, spearheaded by Brian Moriarty. Moriarty has since departed and the project has been taken up by Steve Dauterman and Hal Barwood (the latter of Indiana Jones fame).**

**"The Dig is now coming out on CD-ROM in October this year. After looking at Rebel, we wanted to use more in the way of imagery to tell a complex story. In The Dig, the depth of character is very, very important, because it's a Steven Spielberg story. It will actually help it to be on CD-ROM – it's not just a question of it getting too big for release on disk," explains Randy Komisar.**

**Spielberg himself apparently came up with several of the puzzles and scenarios, while ensuring that the tale stayed centred on character development and motivation. The question of just how much input he has had frequently comes up. At the time that development was getting underway at LucasArts, Spielberg was finishing off Jurassic Park before starting shooting work on Schindler's List. Surely after a day on the Schindler's set, coming back to a computer game about space archaeology would be the last thing he would want?**

**"Steven Spielberg himself has been working with the team and giving them direction. He sees clips from the game periodically. He's a big arcade game player himself anyway. We'd love to work with him again, obviously, but that's pretty much up to him."**



**The Dig will be the first game to use a new LucasArts system, called StoryDroid. This has been developed from the LANDRU system created by Ed Kilham to illustrate the cut-scenes in X-Wing, and enables — among other things — very big, very detailed locations with parallax scrolling in any direction. It is also both memory and processor-hungry, so be warned! LucasArts, naturally, hopes to use it and refine it for use in future games as well.**

# THE COMPLETE PC LUCASARTS

**Maniac Mansion**
**1987**
Seminal graphic adventure and the first to use SCUMM.



**Battlehawks 1942**
**1988**
Battlehawks 1942 was the first of Larry Holland's World War II trilogy, with the action taking place in the Pacific War.

**Master Blaster**
**1988**
Collaboration with Rainbow Arts, a sort of air hockey meets Pong with shooting.

**Zak McCracken and the Alien Mindbenders**
**1988**
A forerunner to Tentacle rather than Monkey Island. You play an investigative reporter investigating the sort of things that usually only happen to people after they've ingested something possibly illegal.



**Willow**
**1989**
In the film, morphing techniques were used by Industrial Light and Magic for the first time in film or television. The game was not such a happy ground-breaker, being a loosely connected series of arcade games. One to chalk up to experience.

**Pipedream**
**1989**
Known in the UK as Pipemania, this was a jaunty, if unambitious, game of connect-the-pipes-before-the-water-gushes-through. Licensed from the UK's very own Empire Software.

**Their Finest Hour: Battle of Britain**
**1989**
Action-packed simulation of Germany vs Britain in World War II. Larry Holland again.

**Indiana Jones and the Last Crusade**
**1989**
Puzzle-solving and action game based more or less on the film of the same name.

**Their Finest Hour: Missions**
**1989**
A further 23 missions to play with the above.

**NightShift**
**1990**
Quirky but appealing arcade style game in which you must keep a lumbering machine running through the night.

**Loom**
**1990**
Attempt by Brian Moriarty to get away from the standard adventure game and create more of an interactive folk tale. Not entirely successful, but interesting.



**Secret of Monkey Island**
**1990**
Classic adventure by Ron Gilbert. This set a standard for plot, style and humour which many have found hard to reach ever since.

**Secret Weapons of the Luftwaffe**
**September 1991**
Last of the Holland-developed WW2 games, this has the added interest of including some of the advanced Luftwaffe prototype planes.



**LeChuck's Revenge: Monkey Island 2**
**November 1991**
Ron Gilbert took the characters – Guybrush Threepwood, Largo LeGrande, LeChuck himself – and extended the story and in-jokes even further.

**SWOTL: He-162 data disk**
**1992**
New aeroplane for the above.

**SWOTL: P-38 data disk**
**1992**
As above.

**SWOTL: P-80 data disk**
**1992**
As above.

**Indiana Jones and the Fate of Atlantis**
**September 1992**
Take control of both Indy and his helpmeet Sophia and beat the Nazis to the lost world of Atlantis.



**X-Wing**
**April 1993**
Best-selling PC game in 1993 in the US, and the first PC game to make use of the Star Wars characters and craft. A tough set of missions to undertake on behal of the Rebel Alliance.

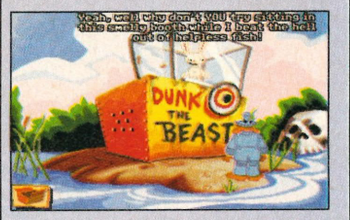
**Imperial Pursuit**
**August 1993**
Add-on missions for the above.

**Day of the Tentacle**
**August 1993**
Very funny graphic adventure, ostensibly the follow-up to Maniac Mansion, but several light years ahead in terms of polish and presentation.

**B-Wing**
**November 1993**
More missions, more craft – now you're in charge of the B-Wing.



**Sam and Max Hit the Road**
**November 1993**
A dog and rabbit private eye team, plus clever cartoon-style graphics and some of the weirdest premises for puzzles ever made this a great game.




**Rebel Assault**
**December 1993**
Arcade 'movie' on CD-ROM only, this takes you through a potted history of the Rebel Alliance. The graphics are to die for.



## FORTHCOMING

**Star Wars Screen Entertainment**
**June 1994**
A comprehensive screen saver based on Star Wars characters and themes, with several modules. You can even type in your own message and see it scroll off into the galaxy just like the film's credits!

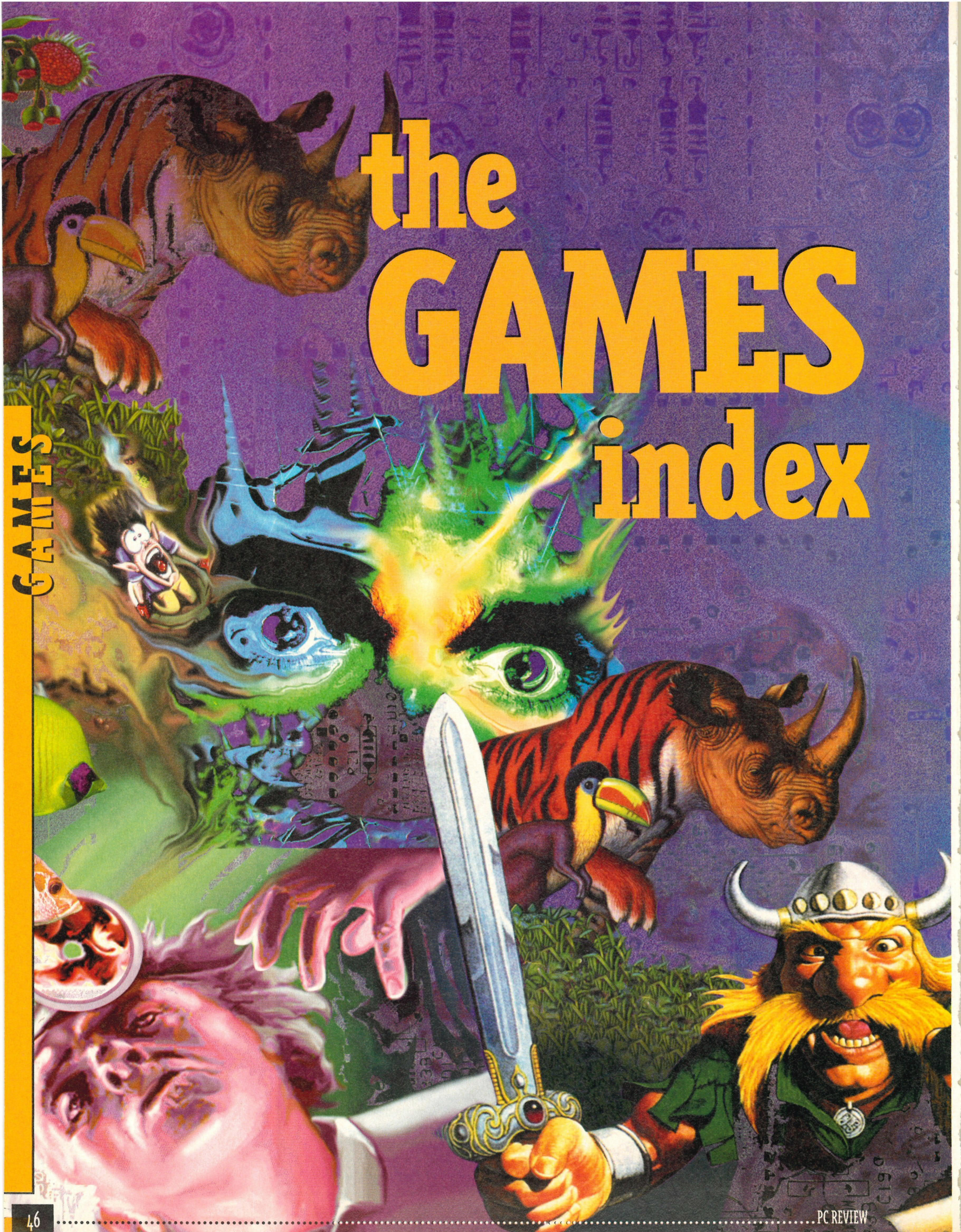


**TIE Fighter**
**June 1994**
The sequel proper to X-Wing, except this time you're on the side of the Empire.

**The Dig**
**October 1994**
Adventure co-designed by Steven Spielberg. See separate panel opposite.

## LASER DISC GAMES

Treasury of Literature:
Tiger Tales
Planetary Manager
The People
Life Story: Race for the Double Helix
Choices and Decisions:
Taking Charge of your Life
Night of the Living Statues
Paul Parkranger and the Mystery of the Disappearing Ducks



# the GAMES index

# Reviewed this month GAMES

Welcome to PC Review's games section, 50 pages of reviews, news, previews and tips covering absolutely everything that's happening in the world of PC games.

We know from our surveys and correspondence that you consider the reviews not only the most important part of the magazine, but also the best games reviews in the business. That's why we take the trouble to include additional information such as the Alternatively panels which are there to place the title being reviewed in context. We'll tell you about similar types of game which may be more – or less – to your taste. We also include playing guides to many of the games we reviewed, designed to give you a feel for what the game is really like.

## The ratings

PC Review gives a single mark out of ten to rate games. We chose ten because it's succinct, simple and because there's little point in haggling over the odd percentage point between an arcade game and a war game which can't really be directly compared anyway.

We can be pretty tough on games when we put our minds to it – since 'five' is the average mark, any rating above five means the game is above average and vice versa.

0 A game without absolutely nothing to recommend it to anyone.

1-2 Poorly implemented game, badly programmed, very disappointing.

3-4 A game with some good ideas but serious drawbacks: poor controls, poor animation, maybe just plain tedious.

5 A solidly average game. Competent without being anything special, probably enjoyable in the short term.

6 Won't disappoint any fans of the genre; an above average title but probably one which doesn't break any new ground.

7 Good, imaginatively programmed game which should appeal to the majority of players.

8 Very good indeed — a game will need something special in the way of gameplay, innovation, graphics or sound to worth an eight.

9 Outstanding as an all-rounder. Few, if any, failings, in graphics, sound, atmosphere, playability, ease of use, etc.

10 Sheer perfection.


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# Myst

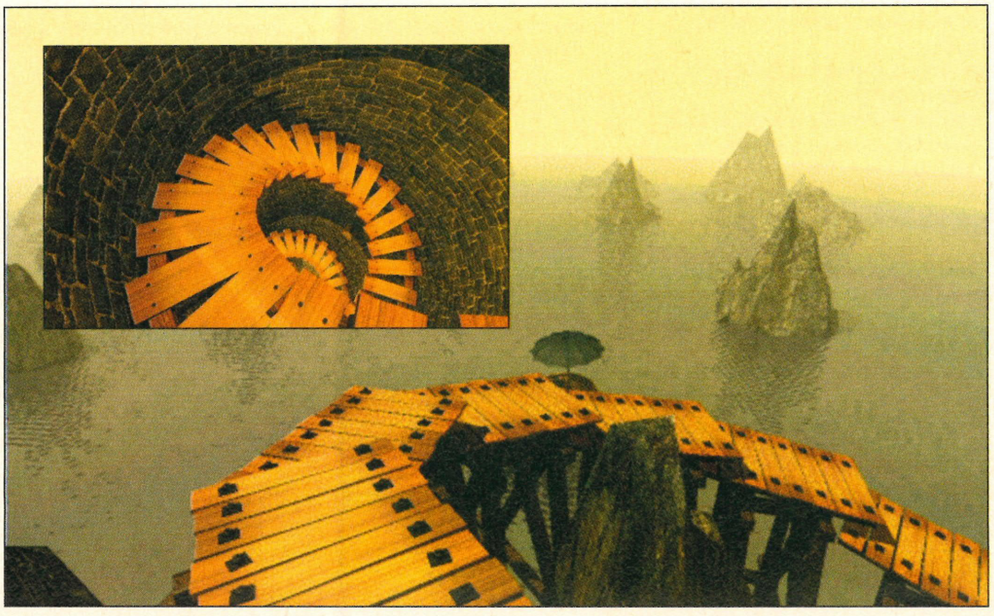
If you're wondering why you should invest in a CD-ROM drive, take a look at Myst. Here, at last, is a true multimedia game.



At the top of the stair is a key chained to the floor. At the bottom is a chest. How do you get one to the other?

It looks beautiful. Myst is quite possibly the most attractive game to have appeared so far on the PC, CD-ROM or otherwise. Yes, I know what you're thinking. There have been quite a few good-looking games on CD, but many of these have been lacking in the gameplay department. Myst, however, is different. Not only does it look amazing, but it's original and challenging as well. And that, really, is about as much as you can hope for in a game.

Myst has a plot, but it adds flavour to the game rather than governing every event. It begins when you discover an intriguing book which tells the story of a strange and fantastic island world. As you turn the last page your surroundings begin to fade and you find yourself magically transported to the world described in the book. Myst Island is a surreal place – the first thing you see when you arrive is a giant cog perched on top of a cliff. In fact, there are cogs everywhere. Other islands have novelty gift shops: Myst has cogs. Don't ask me why. Perhaps the guys at Cyan have a fetish for machine parts or something.



## Mysterious

As you begin to explore you'll discover that the island is deserted. Apart from the various buildings hidden amongst the trees, the only evidence that anyone has been here at all is a letter you'll find lying on the path to the docks. The letter has been written by someone called Atrus, and a quick trip to the nearby library will help you to find out more about him. The library contains many books, but most of these have been damaged and are unreadable. A few journals remain, however, and these detail Atrus's visits to other exotic lands.

It transpires that Atrus is a writer of magical books which, when read, transport the reader to the fictional world described in the pages. It doesn't, therefore, take a huge amount of reasoning to work out that the book you were reading at the start of the game was, in fact, one of his creations. If anyone can help you return home, Atrus can, but he has disappeared along with his wife and two sons.

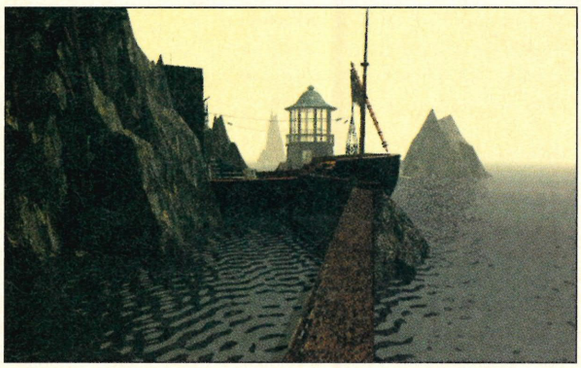
Unless you can unravel the island's many mysteries, you're stuffed.

Myst is strikingly different from other adventures. Sure, it has its fair share of exploration and puzzle solving, but you don't need to take objects away from locations and there are none of those "stick the banana on the metronome to distract the monkey" type problems. It's very straightforward. The puzzles are solved through logic rather than trial and error or pure luck, and I must admit I found many of them quite difficult.

> "Myst is quite possibly the most attractive game to have appeared so far on the PC, CD-ROM or otherwise."

For example, in the Stoneship Age, you'll find a building which has a key at the top of the stairs and a locked chest in the basement. Since the key is chained to the floor, you need to find a way of getting the chest upstairs, but you're unable to move it yourself. When you first enter the building, the basement is flooded and you have to press a switch to pump the water out. Once you've done that, you must go downstairs and examine the chest carefully. Because the chest has been submerged, water has seeped in making it too heavy to shift. A valve on the side will empty it. You're still unable to move it, however, but it might just be light enough to float. Simply return to the pump switch and press it to let the water back in. On return, you'll find that the chest has indeed floated up to the top of the stairs and you will now be able to use the key to unlock it. And so on.

Although all the puzzles require the same logical approach, they are varied and interesting, making the most of your PC's multimedia capabilities. Some of the puzzles are visual, whilst others are sound-based instead.



**The Stoneship Age is moody and atmospheric, but although it lacks Myst Island's bright sunshine, there's still no sign of rain.**

## ALTERNATIVELY



**Labyrinth of Time**
**Electronic Arts, £39.99**
**Rated 6, Issue 28**

Labyrinth of Time is very similar to Myst: both are multimedia products, both boast superb graphics and both are very surreal. Although Labyrinth is visually stunning, it lacks Myst's air of mystery and intrigue, and puzzles are solved by trial and error rather than logic. Great looks, but unfortunately the gameplay misses the mark.



**Lost in Time**
**Coktel Vision/Sierra, £44.99**
**Rated 8, Issue 25**

Lost in Time is visually very different from Myst, using digitised backgrounds and video footage rather than ray-traced graphics. It is, however, very attractive, and the logical but challenging puzzles are refreshingly different from those in most other adventures. It's a nice, original game and is available on floppy disk as well as CD-ROM.

### User friendly

The puzzles may be mentally taxing, but the playing interface is so simple that anyone could use it, irrespective of whether or not they've played a graphic adventure before.

Moving around or manipulating objects is simply a matter of clicking on the relevant part of the screen.

This means that you can get straight into the game without having to spend time mastering an awkward control system.

If only all games we played were this user friendly, eh?

## MYST ISLAND



**This building is a power station (so where are the cooling towers?). But what does it power?**



**The central puzzle involves the toy boat which has been sunk in the bird bath. How do you get it to float?**



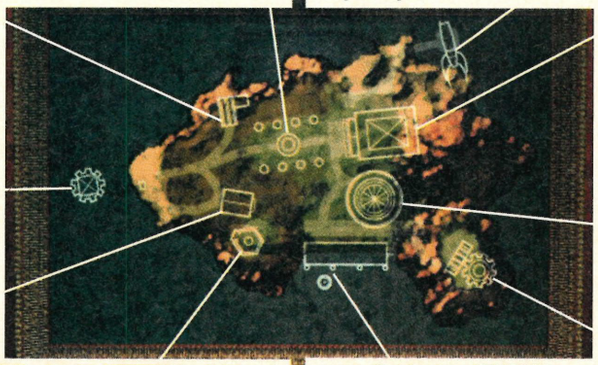
**It looks as though Flash Gordon has parked his spaceship here. You'll have to find a way to open the door.**

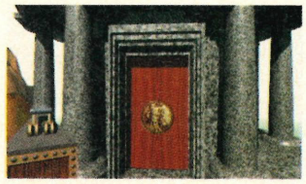


**The library is the centre of all knowledge, so it stands to reason that you'll find many clues here.**



**The clock tower stands on an isolated island, but a causeway will appear if you set it to the right time.**

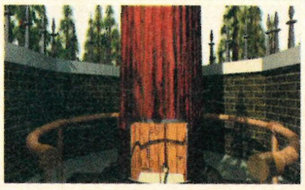




**You'll be able to indulge in a spot of star gazing inside the planetarium. Watch out for the dentist's chair, though.**



**The furnace inside this log cabin powers the lift in the tree nearby. All you need is matches...**



**The largest tree on Myst contains a lift which will take you high above the island.**



**Is there a link between the sunken ship in the dock and the toy boat in the birdbath?**



**Myst Island is famed for its beauty, its sunny weather and its, er, cogs. And what are they for? Dunno, mate.**

## FLOAT YOUR BOAT

**In addition to Myst Island, there are four worlds to explore, each of which is concealed in one of Atrus' books. The books are well hidden, however...**



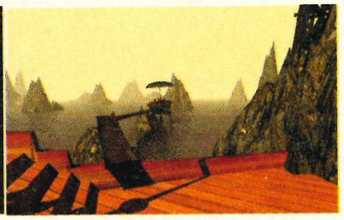
**The idea is to get the toy boat to float to the surface of the bird-bath, which I've managed to do. The planetarium holds the key to this problem.**



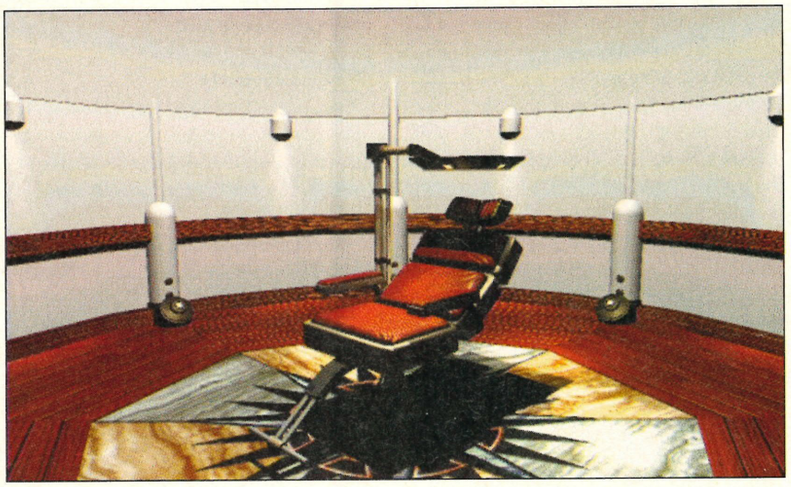
**It turns out that the toy boat mirrors this ship, which you first find sunken in the dock. If you can get the toy boat to float, the ship will follow suit.**



**Once you've succeeded, you'll be able to have a nose around on board. Hidden away in a cabin, you'll find a book which will lead you to another strange world...**



**This is the Stoneship Age, a land which contains, funnily enough, a lot of stone and quite a few ships. More wonderful graphics; more infuriating puzzles.**



**Left: This may look like a dentist's surgery, but it's actually the planetarium on Myst Island. Sit in the chair and you'll be able to look up at the stars.**

The most outstanding feature, though, is the graphics. The world of Myst is viewed from a first-person perspective, and although it is represented by a series of still rather than scrolling screens, it is visually breathtaking. The photorealistic backgrounds have been created from scratch using the 3D art package, StrataPro, and have none of that irritating graininess which you get with digitised pictures. Every object has been light-sourced, lending it a convincing solidity, and the use of light and shade have adds atmosphere to the game. The whole feeling of the game is one of tranquillity laced with intrigue, making it accessible to almost anyone. Anyone, that is, except for John, our deputy editor, who isn't happy unless he's blasting some poor creature to bits with a large gun. Myst is non-violent, so if death and mayhem appeal to you, then Myst probably won't.

Other than that, I find it hard to fault the game. As with all adventures, once you've completed it you probably won't go back to it, but it's very enjoyable while it lasts. The only thing that you might find off-putting is the level of difficulty – the puzzles are so different in style from those in other adventures that it takes time to get into the swing of things, and it's easy to get disheartened if you aren't making any progress.

The one thing I did find irritating was that, no matter where you save the game, you always end up back at the start of that world when you restore. If, for example, you saved your game half way up a tree on Myst Island, you'll find yourself back in the library on return. I can't really understand why this is the case, because I doubt that Myst would be any less challenging if you could restore to the exact location where you saved the game. Beyond that, it's an exemplary CD game.

### Windows 3.11

One word of warning. Like many CD-ROM products, Myst does not work well with Windows 3.11. I found that it ran very slowly, and bombed out on several occasions. These problems didn't seem to occur (not yet, anyway) with Windows 3.1, and I recommend that you use this instead. You should also have at least a double-speed CD-ROM drive.

If your PC meets these requirements, then do yourself a favour and go out and get a copy. Myst is so fresh and original that even the most jaded adventure hack will be enchanted by it. It is visually, aurally and mentally stimulating – the first CD game I've played which scores highly in all the categories. All I can say is, "At last!"

"Myst is so fresh and original that even the most jaded adventure hack will be enchanted by it."

■ **Cal Jones**

**TECHSPEC**

**9**

**RATING**



Beautiful and challenging – a real treat.

| | |
|---|---|
| **Publisher:** | Electronic Arts |
| **Price:** | £44.95 |
| **Contact:** | (0753) 549442 |
| **Minimum PC:** | 386, MS-DOS 5.0, Windows 3.1 |
| **Minimum memory:** | 4Mb |
| **Minimum graphics:** | SVGA |
| **Sound:** | All MPC compatible cards |

## CYAN

**Myst is the creation of brothers Rand and Robyn Miller, whose company, Cyan, was founded six years ago. Up until now they have concentrated on producing educational software for the Apple Macintosh, and Myst is their first adult-oriented release as well as their largest product to date. The Cyan team started work on Myst two years ago, and a 14 minute-long "Making of Myst" QuickTime video has been included on the CD along with the game.**

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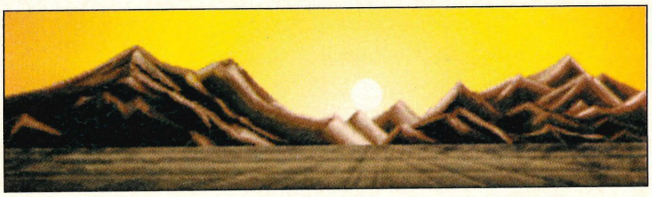
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**Reunions always sound like a good idea but rarely are. You can never go back...**



# REUNION



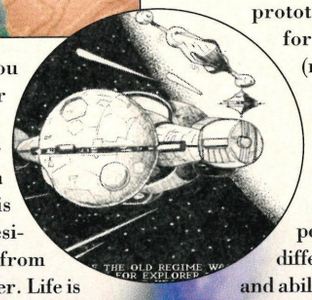
**Stars of the show, right. You can decide who you want to be.**



There are games which appear to be mind-bogglingly vast, so daunting in their scope and complexity that you feel the need for another lifetime to even begin to do them justice. Such a game is Reunion, a heady mix of strategy, exploration, conquest, political deftness and endurance. It is Frontier meets SimCity and much more.

But it takes perseverance. Seldom have I ever seen a more tedious, long-winded, over-long, pointless introduction sequence to a game. It goes on... and on... and on...

And many of these intro images are in black and white, enough to make you question why you ever needed to invest in an SVGA card in the first place. But just as the eyelids begin to droop — it ends and you discover that not only do you wish to conquer the universe, you also need to rediscover your ancestral roots.



The setting is the year 2927 on New Earth, a community which is thriving under your Presidential leadership, free from conflict, friction or hunger. Life is good. Unshackled from the pressures of everyday survival, attention is turned on space exploration. Just what is out there?

Well, what is in the vastness of the cosmos is Old Earth, the planet from which your ancestors left more than three centuries before. After years of prosperity and peace a sudden, mysterious and bloody conflict erupted with the rebels overturning the ruling regime. But before the established order was destroyed, a spacecraft, Explorer 2, was sent to find a new life and hope. They found what became New Earth and prospered.

What caused the uprising on Old Earth and what became of the survivors remains unknown.

The people of New Earth have decided to reach out into space and colonise its immediate Solar System. But the ultimate goal is to attempt a reunion with Earth.

So you must venture boldly into space, at the same time creating good living conditions for your people on New Earth and the space colonies, protect them from invasion and also refrain from oppression and heavy taxation. It's a delicate balance to maintain.

But you will not be able to achieve this all on your own. You must appoint a team of advisers, who must be paid, to help you.

These advisers fall into four categories: construction (help develop and maintain colony installations); development (create prototype machinery necessary for survival); fighting forces (responsible for the direction of battles); and, finally, the space fleet (which co-ordinates all the movements of space fleet pilots).

Each category has three people to select from, all with different character, experience and ability. Their wage will depend on how good they are. Whether you will be able to afford their services depends on how much money you have. Personally, I had doubts over appointing the fearsome but inexperienced Michael James to be in charge of my fighting forces. But he had a persuasive approach: "Hire me or I will kill." Welcome aboard, Mike!



**Production line: To survive you must produce. Here a satellite is made ready.**




**Work carries on in the mines but unrest grows throughout the population.**

## AGONY AUNTS










**These are the selection of advisers at your disposal. Providing you have enough money you can hire the best brains. If cash is a problem, you will have to make do with less talented helpers. But you can fire and hire if you have the means.**

From then on it was a matter of planning a coherent strategy and making sure it worked. Luckily, the point and click interface of the game works really well. It's clear and uncomplicated and allows switching between tasks easy and fuss free. It is the decision-making which causes the complications.

The heart of the game is your control room It is here you stand – playing either a male or female central character – surrounded by your helpers, making policy decisions and putting them into action.

The colony building phase of the game is nowhere near as extensive or complex as SimCity. But, building power plants, hospitals, houses, parks, food and medicine "factories", is quite entertainingt.

But you must always remember to carry the people with you. A too-heavy tax burden and poor living conditions will cause a backlash, leading to open rebellion, even your eventual overthrow.

There is quite a novel, if a little annoying, game protection device installed in the game. Every so often there is a "security check" where you have to input a word from the manual. Get it wrong three times and the program quits.

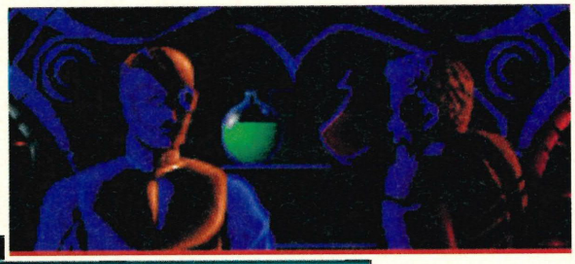
The music is a tedious, uninspiring unmelodic plod, adding nothing to the atmosphere or tension.

Graphically the game is nothing to shout about and, as I have pointed out earlier, a lot of the introductory sequences are little more than black and white sketches. But that's not really what is needed in this style of game.

If you liked Frontier — or indeed any exploration/space/strategy game — and loved the power SimCity gives you, then undoubtedly Reunion should be towards the top of your next buy list.

Reunion is very complex, absorbing and intricate. Always decisions, decisions ...

**■ Paul Boughton**

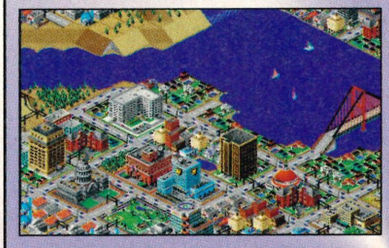





**It pays to keep in touch with what the people think. Gossip is freely available in this New Earth bar.**

**Conference time. You are your advisers gather in the control centre.**

## ALTERNATIVELY



**Sim City 2000**
**Maxis, £39.99**
**Rated 9, Issue 29**

Updated version of the classic "town planning" simulation Sim City, has enormous depth of game play.. From sewers to skyscrapers, from zoos to prisons, this has the lot. It's simply the best simulation around at the moment. State of the art.



**Frontier: Elite 2**
**Gametek, £39.99**
**Rated 9, Issue 26**

Space trading and strategy game par excellence with 100,000,000,000 million star systems to visit, each with between one and 20 planets.

Frontier:Elite 2 is a truly classic game which will last for years.



**President in waiting.**

## BUILDERS







**Building a brave new world. This is the "SimCity" phase of the game. Clicking on a particular building accesses its facts and figures and enables you to build or demolish.**

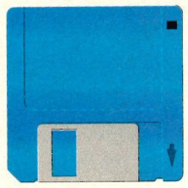
## TECHSPEC



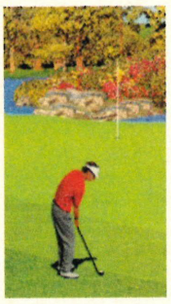
**7** RATING

Great gameplay and value for money.

| | |
|---|---|
| **Publisher:** | Grandslam |
| **Price:** | £29.99 |
| **Contact:** | (081) 688 7533 |
| **Minimum PC:** | 386, MS-DOS, Windows 3.1 |
| **Minimum memory:** | 586K free RAM, 256K expanded memory, 22Mb on harddisk |
| **Minimum graphics:** | VGA |
| **Sound:** | Ultrasound, Ad Lib, Sound Blaster |



# Castle Pines Golf Club
## (Links Championship Course)



Time to don the loudest pair of trousers you can unearth, plus your Grandad's soft pink sweater and get right on into the swing of things at the 18th hole.

Castles Pines Golf Club was opened in 1981, the realisation of an 11-year dream of Jack Vickers to create a world class course near Castle Rock, Colorado. Its setting is certainly spectacular — 5,000 acres of pine-clad land at a height of 1,000 feet just south of Denver. Vickers enlisted the genius of Jack Nicklaus as the course architect.

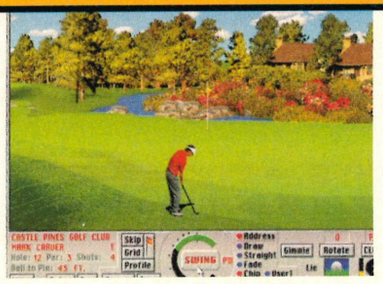
In 1986 Castle Pines was selected to host The International, part of the PGA Tour, which attracted golfers from all over the world. It is, in fact, the longest course on the Tour. Now you can play the course providing you have one of the following three programs — Links, Links 386 Pro and MicroSoft Golf.

Those who have these games will know exactly how the game plays. It's a visual delight. The programmers go into exacting detail. Course plans, topographical maps, video footage, and photographs are all used. The result is thoroughly enjoyable.

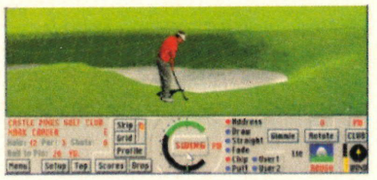
The course opens with a 644 yard par five downhill hole (the PGA Tour's longest, apparently); the 477 yard uphill fifth is allegedly the most difficult; and the 18th has typically 'menacing' Nicklaus bunkers. Even if you're not familiar with Links itself, you'll pick up the control fairly quickly: the control interfaces in most golf games are remarkably similar.

The only slight annoyance is the constant re-drawing of the screen, which somewhat disrupts the flow of the game. However, there are now over a dozen Links add-on courses, and you could argue that The Belfry is more interesting for European players, and Mauna Kea or Banff Springs more scenic. But if you're after a new golfing challenge, Castle Pines won't disappoint you.

■ **Paul Boughton**



Once the course is up and running, it's just dear old Links, of course, gorgeous digitised graphics and all.

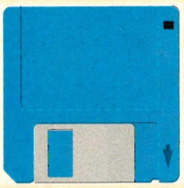


**· TECHSPEC ·**

| | |
|---|---|
| **Minimum PC:** | 386SX (33MHz recommended) |
| **Minimum memory:** | 2Mb (8Mb recommended) |
| **Minimum graphics:** | SVGA |
| **Sound:** | Ad Lib, Sound Blaster and Pro |
| **Publisher:** | Access/US Gold |
| **Price:** | £24.99 |
| **Contact:** | (021) 625 3366 |

RATING 7

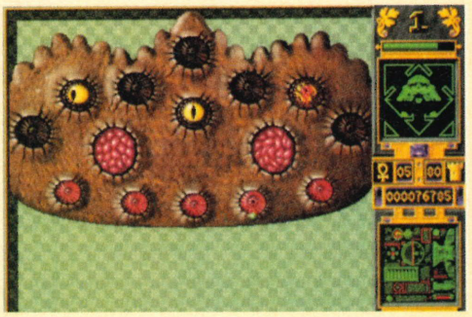
# Breakline



**· TECHSPEC ·**

| | |
|---|---|
| **Minimum PC:** | 386 , DOS 3.3, mouse |
| **Minimum memory:** | 2Mb |
| **Minimum graphics:** | VESA-compatible SVGA |
| **Sound:** | Sound Blaster, Gravis UltraSound |
| **Publisher:** | Mindscape |
| **Price:** | £24.99 |
| **Contact:** | (0444) 246333 |

RATING 4

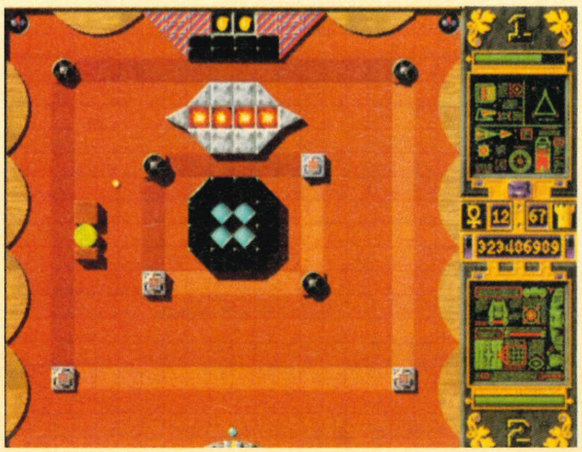


Breakline is actually a Breakout update, which means it should have been much better than this.

For 'Breakline' read 'Breakout'. Though the instruction manual tries to deny it with its madly-authored tale of smashing the evil trader's empire with your torpedo-deflecting spaceship and the gameplay is tarted up with unintelligible runic balderdash, this is simply an update of Atari's elderly bat/ball/bricks game. Just clear a screen full of bricks by hitting them with a ball which bounces off the bat at the bottom of the screen. Your mouse controls the bat, and if you let the ball fall off the bottom of the screen you lose a life.

In these enlightened times, though, you'd expect more than that, especially from a game that demands 2Mb of RAM, 1.5Mb of hard disk space and SVGA graphics. So as well as the unfathomable rune stuff Breakline gives you 100 convoluted courses of gullies, warps and ramps, surrounded by various brands of bricks, some of which crumble after one collision, most of which take two or three. And as well as being able to rebound the 'plasma spheres' your 'spaceship' can launch its own (guided, unstoppable or which split into six balls) from the cannons mounted on each 'wing'. There are other little wrinkles, such as special tiles which warp your ball's trajectory and the ability to buy other weapons as you progress.

I've a feeling I'm making Breakline sound more exciting than it actually is, and no doubt you have visions of something like Taito's Arkanoid coin-op in your head, but Breakline isn't half as interesting.



The normal game starts off very slow, so after five screens or so, you'll be dozing off or sitting there with glazed eyes, drooling aimlessly into your keyboard. Trying out the higher levels in the program's training mode isn't much better because you always seem to spend ages trying to hit the very last brick.

OK, so nearly all Breakout-style games suffer from this, but Breakline's twisty-turny layouts augment the problem — until you press the Reset button.

Much as I hate to twist the knife i n the wound, I must also report that Breakline's SVGA graphics caused my graphics card some confusion, and even though the VESA driver included correctly identified it as a Trident 8900C, flickering garbage pixels filled the bottom two inches of my screen throughout the game. Fortunately they didn't interfere with the action, but it certainly didn't earn Breakline any extra Brownie points.

■ **Paul Glancey**

And so it was that during the age of Ragnarok, Heimdall, beloved of the Gods, came to Earth from Valhalla to find the pieces of a Sacred Amulet - the power of which would banish the evil Loki from the viking lands.

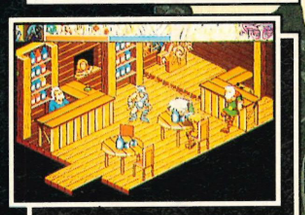
It came to pass that Heimdall's quest was revealed in the mighty saga that is....

# Heimdall 2











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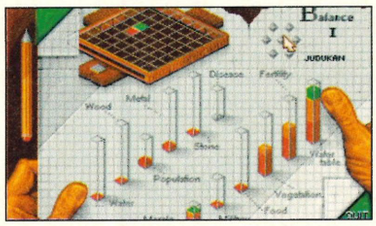
# Genesia

## The latest game for omnipotent beings.



**Genesia will be released on CD-ROM in June priced £39.99**

Genesia is a French-designed isometric God Sim which bears more than a passing resemblance to Populous and Powermonger. It borrows heavily from other sources as well, but it mixes up all the ingredients engagingly enough and boasts some original touches too. You start the basic game controlling one underdeveloped and underpopulated land. You have two opponents in the same position, and your first priority is to build up your power-base. Ultimately your land can support up to 96 inhabitants, but you start out with only four or five. Your immediate task is to select occupations for them.




**There are various charts to keep you informed of the state of play on your lands. If you sink too many wells or chop down too many trees you could cause an ecological disaster.**



**The seasons play a big part in Genesia. You can't perform outdoor functions like farming during winter, but if you build a workshop you can employ all spare hands in inventing or building.**

Obviously you'll need food so you'd better make at least one of them a farmer. A farmer needs a field, so click on the relevant menu and give him one. Unfortunately excess production will be lost, so it's vital to make one settler an architect and instruct him to build a warehouse, where you can also store other raw materials, such as wood.

> "The artificial intelligence, alas, isn't going to win any prizes from Mensa."

The key to the game is the way you employ your architects. Leave them to their own devices and they'll automatically build houses, but if they use up all your raw materials you won't be able to build the bigger constructions vital to winning. These include a drill, to mine stone and metal, a barracks, needed to raise armies, and a workshop, which is the only location from which your inventors and blacksmiths can operate.

The inventors play a crucial part. At the beginning you know nothing, and only by investing in research can you acquire crucial technologies. Many of these have military applications, such as metal-working which leads on to swords and armour, but it's dangerous to ignore the more peaceful advances, like medicine – sick workers don't produce anything.

When you've got your first community thriving you can expand on to neighbouring lands, or, if you're feeling strong enough, send out an army to duff up the opposition. You can also scour the countryside for the jewels of Neort.

The jewels of what? Well may you ask. Unfortunately Genesia isn't just a strategy game, it's also a fantasy game, and it comes complete with a tedious sub-plot, which I really can't be bothered to go into. Suffice to say that there are seven of these sacred jewels scattered about, you need to build a temple in which to keep them, and if you succeed in nabbing all seven you win the game. Despite this, you'd be well advised to forget all about them.

It's much easier, you see, to win the game by defeating your two opponents, and if you can emerge victorious without possessing a single jewel why waste the expense and effort in looking for them?

There's another equally annoying factor too – the artificial intelligence. Playing only at advanced level, I've found that every time I start badly and the opposition races ahead of me, developing their lands into prosperous teeming conurbations while my pitiful handful of sims eke out a miserable diseased existence in scattered mud huts, I still win. The computer opponents just haven't a clue what to do with their massive advantage, and you don't need to be a brilliant strategist to run rings round them. Fortunately there are two and even three player options, but it's a great pity the computer can't give you a better game.

The AI is bad, the interface crude, the scrolling inaccurate, the graphics poor, the manual clumsily written ... I ought really to be giving this a lousy mark, but despite all these reservations I've really enjoyed playing Genesia. It's almost an excellent game, and if you can find at least one human opponent to pit your wits against I'd recommend it.

■ **Simon Shaw**



Quirky and fun but won't tax your brain.

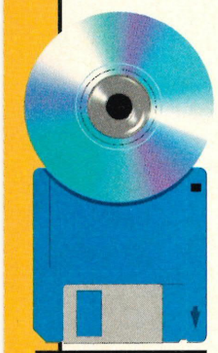
**•TECHSPEC• 6 RATING**

| | |
|---|---|
| **Publisher:** | Mindscape |
| **Price:** | £34.99 |
| **Contact:** | (0444) 246333 |
| **Minimum PC:** | 286, mouse |
| **Minimum memory:** | 640K |
| **Minimum graphics:** | VGA |
| **Sound:** | Ad-Lib, Sound Blaster |



# Ravenloft: Strahd's Possession

**SSI's follow-up to the Eye of the Beholder series has a brand new game engine, but have we seen it all before?**



The CD version features digitised speech.

With the release of Ravenloft, SSI is attempting to combine technical quality with an in-depth role-playing experience. Although Ravenloft begins with a conventional enough introductory yarn about destroying the evil Strahd von Zarovich and escaping this benighted world, once you begin the game you may notice some differences.

The character generator is where the fun begins. You can either create your own characters or use the computer-generated predefined heroes.

### Raven mad

Once you've selected your characters it's time for action. It's a good idea to read the manual quite thoroughly beforehand, since there are some fine points about spell-casting, weapon use, exploration and object manipulation which aren't immediately obvious. As you progress you also discover it's wise to save the game often, at least until you've got into a rhythm of generating protective and combative spells, using your firepower to defeat enemies and resting when you can.

The interface is similar to that found in the Ultima Underworld series. Movement is controlled either by using a panel of direction arrows at the foot of the screen, or by clicking on the appropriate direction in the game window itself. One minor irritation is that you can't look up or down – something which greatly added to the atmosphere in the Ultima games.

> "SSI is attempting to combine technical quality with an in-depth role-playing experience."

The direction controls are flexible enough, although there are times at the beginning of the action when you can easily click on the wrong mouse button and do something stupid, such as throwing away an object you've just picked up. Also, there are plenty of areas in the game where you get stuck behind a clump of trees or other objects when the graphics indicate you should be able to pass. The search for the perfect interface still goes on ...

Apart from the main game screen with its sizeable first-person 3D viewing window, there is only one other major screen in Ravenloft: the inventory. This is impressively designed, capably balancing detailed information





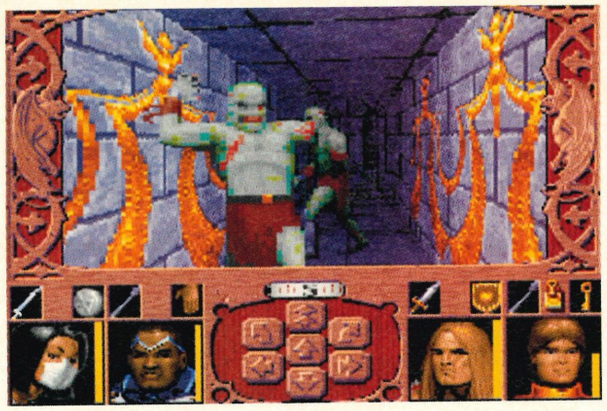
## ALTERNATIVELY



**Ultima Underworld II**
**Origin, £39.99**
**Rated 8, Issue 18**
The original Underworld introduced a new wave of atmospheric first-person 3D RPGs, with superb graphics and sound and a wide variety of monsters, objects, magic and missions. This sequel proved even better, with a much larger and more varied playing area and significant technical improvements. Both games in the series are more compact, interesting and exciting than Ravenloft.



**Shadowcaster**
**Origin, £44.99**
**Rated 7, Issue 27**
If you're looking for something a little lighter than Ravenloft, Shadowcaster is ideal. With only a tenuous role-playing element and the emphasis firmly on combat, this is a 3D game very much in the Wolfenstein mould. There are few puzzles and no character interaction, so it can get monotonous after a while, but it's a good introduction to RPGs without any of the hassle.



**Above: Zombies are the reanimated, rotting remains of dead humans. They can be dangerous, but this one seems 'armless (sorry).**

**Opposite page, left: Like zombies, skeletons are undead, but are usually quick and are nearly always armed. They can be very difficult to kill.**

**Opposite page, right: Doom guards are really no more than suits of armour which have been enchanted, serving as guards for powerful mages.**

with ease-of-use. Most information is only a couple of mouse-clicks away, and the designers have managed to cram four characters' inventories, their statistics and their magical abilities all on to one screen – no mean feat. The main drawback is in using certain objects, such as potions. To drink a potion, you need to place it in the character's 'action' hand on the inventory screen, return to the main game screen, then activate the hand containing the potion. It's slightly clumsy, and not very useful in the heat of battle.

### Automapping for the people

A much better feature is the automapper, which allows you to make your own notes and can be saved and printed. It is also very useful in helping you locate the masses of objects in the game. A stretch of land which appears to contain nothing of interest could be deceptive: consult the map and you may find several objects.

The mapper is typical of Ravenloft's attention to detail, and its variety. This is nowhere more evident than in the wide range of monsters ready to annihilate your party, and in the large number of weapons and spells available to defeat them. There are 33 different kinds of monster in all, from the simple wolf-like Worgs to creatures such as the Ghoul Lord. This super-ghoul feasts on living flesh, attacks with bites and scratches, causes paralysis and inflicts a horrific rotting disease. Not someone to be stuck in a lift with.

The weapons used to defeat these foes include traditional swords and daggers (with a few interesting variants), axes, maces, bows and arrows, slings and stones, and so on. As a group they are much less interesting than the spells, of which there are over 60 spread through six experience levels. All have their own, usually interesting, graphical effects and many of the higher class spells are extremely powerful. Naturally, only mages and priests can wield magic.

Ravenloft isn't all about monsters and combat however – there are many friendly and neutral non-player characters (NPCs) around, too. It's easy to engage NPCs in conversation: click on the character in the viewing window and you're usually presented with a choice of a couple of questions or responses. It isn't a particularly sophisticated system, but there are so many characters providing so much information that it doesn't need to be. Some NPCs will even join your initial band of two, if asked politely.

> "It's all pretty unoriginal but fun nonetheless, and there are one or two novel surprises in store."

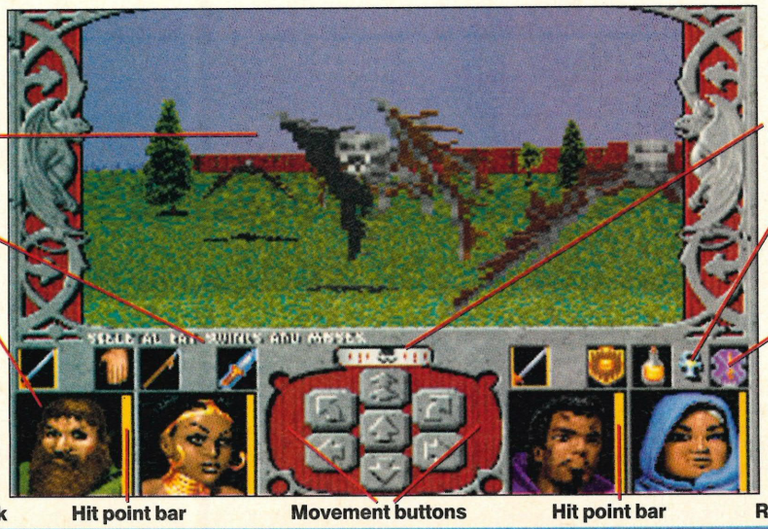
Apart from encounters with monsters and NPCs, Ravenloft is packed with traditional door-opening puzzles (press the switch/find the key to open the entrance), missions (retrieve an object to gain a favour) and problems (complete a puzzle to pass further into the game). As you would expect, these begin easily enough but develop into quite complex sequences the further you get. It's all pretty unoriginal but fun nonetheless, and there are one or two novel surprises in store.

All of these elements are reinforced by good quality graphics and sound. The musical accompaniment is among the best I've heard in an RPG – nothing spectacular, just a good, atmospheric background to the game. Ravenloft is a pretty good game. It's large, packed with detail, and will provide anyone interested in RPGs with a solid and interesting challenge.

The only major fault I found was a lack of originality. But if originality isn't a concern and you're looking for something which will give you hours of enjoyment, then Ravenloft will provide you with a completely professional, polished role-playing experience.

■ **Gordon Houghton**

## THE ADVENTURE SCREEN






**TECHSPEC**

**7**

**RATING**

Unoriginal, but jolly good fun anyway.

| | |
|---|---|
| **Publisher:** | SSI/US Gold |
| **Price:** | £45.99 disk/CD |
| **Contact:** | (021) 625 3388 |
| **Minimum PC:** | 486, MS-Dos 5.0 |
| **Minimum memory:** | 4Mb RAM, 21Mb Hard disk |
| **Minimum graphics:** | VGA |
| **Sound:** | Ad-Lib, Sound Blaster, Roland |

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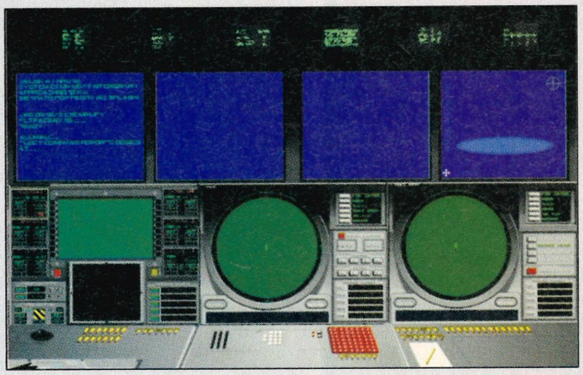
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# AEGIS: Guardian of the Fleet



Aegis is a modern naval simulation which puts you in command of a US Ticonderoga class cruiser, equipped with all the latest in shiney, new hi-tech gadgetry.

I gather that this is a real class of ship, this Ticonderoga, but some of the allegedly historical scenarios are weird to say the least – in the first game for example, you get the chance to sink some Argentines during the Falklands War. Correct me if I'm wrong, but when were the Americans ever involved in the Falklands conflict? They must watch different newsreels over there.

Despite this, Aegis is pretty good, featuring fine graphics (I like the little digitised clips of missile launches), atmospheric sound and a fair variety of gameplay. That said, it lacks the depth of a game like Great Naval Battles II (which is reviewed over on page 64).

Curiously, it plays much more like a submarine than a surface sim. This is because engagement ranges are so huge in modern warfare that you simply never have the opportunity to make visual contact. Instead you peer earnestly at your sonar and radar displays and launch long-range missiles at invisible targets. This is all good clean fun, but you don't get a real sense of being there.

**The Aegis style is a little on the abstract side.**



**· TECHSPEC ·**

| | |
|---|---|
| **Minimum PC:** | 486SX, 25 MHz |
| **Minimum memory:** | 4Mb, 20Mb hard disk space |
| **Minimum graphics:** | SVGA |
| **Sound:** | Sound Blaster and compatibles |
| **Publisher:** | Time Warner |
| **Price:** | £49.99 |
| **Contact:** | (0604) 790785 |

RATING 7

I found Aegis pleasantly diverting, but I have one major gripe: can somebody please tell me what is the justification of issuing a CD-ROM game which requires a massive 20MB of your hard disk space before it will run? If it turns out that this is what CD-ROM is all about, I for one am not going to want to know.

■ **Simon Shaw**

# SPACESHIP WARLOCK

This game was a big success when released on the Apple Macintosh, but then, when it comes to games, most Mac users don't have that great a choice of games to play on their machines, do they? Indeed, Spaceship Warlock scores highly in all the areas that the Mac itself excels: slick presentation, an easy interface, crisp graphics and it makes a nice noise ... it's in the gameplay that it lets itself down.

The plot is so formulaic that it could have been written by a committee. As a graphic adventure, it has some token alien-bashing (literally: you need thump the alien a number of times in the eye), it has token puzzles (there's a radiation leak on the space craft? Root around until you find some anti-radiation pills locked in a cupboard), it has a token maze (complete with a map so that you needn't actually get lost), and a token love interest (in the shape of the fair Stella). As a textbook lesson in 'elements of the computer adventure' you couldn't do better than Spaceship Warlock.

The premise is that in the future we'll all be living in space, and the human race will be under subjugation to a powerful alien Kroll race. You need to get out of dreary Stambul City – indeed, off the dreary planet Stambul and into space in order to defeat the Kroll and free mankind.

The manual is surprisingly coy about telling you the plot, but it doesn't really matter. Spaceship Warlock is entirely linear; there is only one correct action to perform at any one time to advance the story and everything needs to be done in the right order. In fact, there are very few red herrings at all. And just in case you do get stuck, there's a fairly comprehensive set of hints in the manual. Warlock was evidently designed as an adventure to be enjoyed all the way through and quite quickly, rather than as a stiff challenge.

The game is certainly highly polished in presentation and the slightly overwrought sound effects are effective (I spent an entire evening with the cod-operatic introductory song drumming incessantly through my brain, so it hasn't left me entirely cold). It may be all very awe-inspiring for the games greenhorns with an Apple Macintosh, but for PC sophisticates experienced in the ways of Sam and Max or the Tentacle talkie, or even 7th Guest, it will probably prove just a bit too narrow in scope.

■ **Christina Erskine**

**· TECHSPEC ·**

| | |
|---|---|
| **Minimum PC:** | 386, CD-ROM drive, mouse |
| **Minimum memory:** | 560K |
| **Minimum graphics:** | VGA |
| **Sound:** | Sound Blaster |
| **Publisher:** | Ubi Soft |
| **Price:** | £44.99 |
| **Contact:** | (081) 343 9055 |

RATING 5





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# Hell Cab




**There's more than the fare to pay when you take a ride with this cabbie.**



**Left: the devil's disciple, Cabbie Raul greets you.**

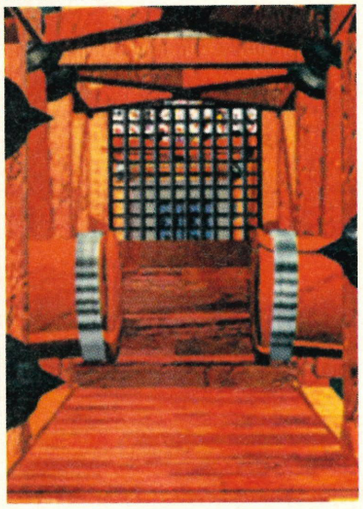


Pepe Moreno has carved out a high profile reputation for himself in comics, graphic novels, animation and theatre. His best known work was the computer-created graphics book Batman: Digital Justice.

Perhaps it is only inevitable then that he would become involved with computer games. The result is Hell Cab, a fantastic journey through time and history, where the price of failure is your soul roasting in damnation.



**Maiden in distress or a deadly trap?**



**"Pleased to meet you. Hope you know my name?" Have you any sympathy for the Devil?**

### Traditional trek

So are we in for anything new? Well, beneath the flash graphics, the stereo sound, all wrapped up in a £50 price ticket, Hell Cab is a point 'n' click adventure with a cursor icon which allows you to move about, look up and down, grab items and activate objects and characters. All very traditional.

As an adventure it is not particularly difficult. What does make game play a little wearying – well, very wearying, in fact – is the speed. The manual says pace may be slow if you run it with Windows' virtual memory on. Too true. At times I thought the machine had crashed it took so long to update the action. I could feel myself growing old.



### On the road to hell

The game opens with you being picked up at JFK airport by the devil's disciple, Raul. Interrupting your travel plans, Raul drives you to the Empire State Building in the heart of Manhattan. No matter how much money you have on you – you start the game with $400 – it's never enough to pay for the fare.

But Raul will let you off the hook if you sign a paper agreeing to take the ultimate sight-seeing tour, from present day New York to ancient Rome, through to the World War One trenches of Verdun and into the prehistoric nightmare of a Jurassic jungle. Central to the adventure is the Empire State Building, in the basement of which is the gateway to Hell.

When you sign the paper you must also fill in a questionnaire. The answers alter the level of your soul together with the amount of fare you owe Raul. Success is measured on the Soul-O-Meter. Lose a life – you get three – and you find yourself in the Empire State Building's lift, descending down to Hell's waiting room where the Devil verbally roasts you before sending you back into the game.

If you survive and complete the level you will find each time zone contains a 'doorway' back to the present and the Empire State Building where Raul is waiting to take to the next zone.

Hell Cab is an interesting gloss on a traditional adventure idea, graphically well-presented, but not all that challenging..

**■ Paul Boughton**



**• TECHSPEC •**

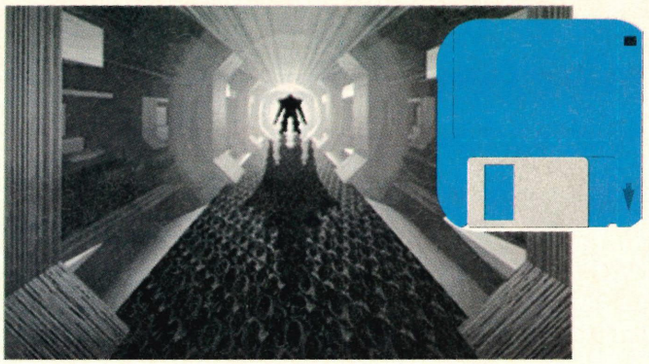
**6**

**RATING**

**Hellishly hard and deadly slow to boot.**

| | |
|---|---|
| **Publisher:** | Time-Warner Interactive |
| **Price:** | £49.99 |
| **Contact:** | (0604) 790764 |
| **Minimum PC:** | 386 CD-ROM, Windows 3.1 |
| **Minimum memory:** | 3Mb of RAM under Windows |
| **Minimum graphics:** | SVGA |
| **Sound:** | Windows-compatible sound card |

# Corridor 7





Corridor 7 smells of rampant bandwagoneering. Sure, Doom's very popular right now, and we're bound to be inundated with imitations. All of which makes it very difficult to review this sort of game objectively post-Doom — because there's no comparison. Still, that doesn't mean you can pump out any old 3D rubbish just because it happens to have a tweaked Wolfenstein game engine.

Corridor 7 is no more than Wolfenstein in space, but without the edge to the gameplay or the atmosphere.

What can I say? You run round an indescribably repetitive series of right angled rooms and corridors, picking up weapons and health bonuses and occasionally shooting some appalling animated sprites disguised as aliens, with an equally appallingly animated gun. Shoot enough aliens, find the odd secret room and activate the odd computer access code, then pop back into the lift and do the same again on the next floor down. Yawn.

There are four things in its favour. One: the sound is passable; two: the proximity mines are a nice touch; three: it's cheap and will run on pretty much any PC under the sun, and four: there's plenty of it (30 levels, in fact). Mind you, it's debatable whether even that's a good thing ...

All in all, by today's standards Corridor 7 is a visually despondent, badly animated, dull, low resolution mess well past its sell-by date even before it is released.

Playing it is a way of passing the time, I suppose. But then, so's picking your nose or counting imaginary haemorrhoids — both of which are marginally preferable.

Save your money, this is dire.

■ **John Bennett**

**The old, old story: passably good intro screens get you all excited, followed by a massive let-down when you finally get in to the game itself. Shame.**

**· TECHSPEC ·**

| | |
|---|---|
| **Minimum PC:** | 286 PC |
| **Minimum memory:** | 640K |
| **Minimum graphics:** | VGA |
| **Sound:** | Sound Blaster |
| **Publisher:** | Gametek |
| **Price:** | £19.99 |
| **Contact:** | (0753) 553445 |

RATING **2**

# Lands of Lore CD

**· TECHSPEC ·**

| | |
|---|---|
| **Minimum PC:** | 386MS-DOS 5.0 |
| **Minimum memory:** | 4Mb |
| **Minimum graphics:** | VGA/MCGA |
| **Sound:** | Sound Blaster, Ad Lib, Roland |
| **Publisher:** | Virgin |
| **Price:** | £49.99 |
| **Contact:** | (081) 960 2255 |

RATING **7**

Westwood Studio's Lands of Lore enjoyed some success when it was released on floppy disk last autumn. It's a good, solid role-playing game in the Eye of the Beholder mould — Westwood created Beholders I and II but parted company with SSI before the release of the disappointing third instalment. The original Lands was well presented, but relied on block-scrolling rather than the multi-directional Doom/Ultima Underworld variety. This remains true in the CD version. It does, in that respect, look slightly outdated, but the graphics are imaginative and colourful.

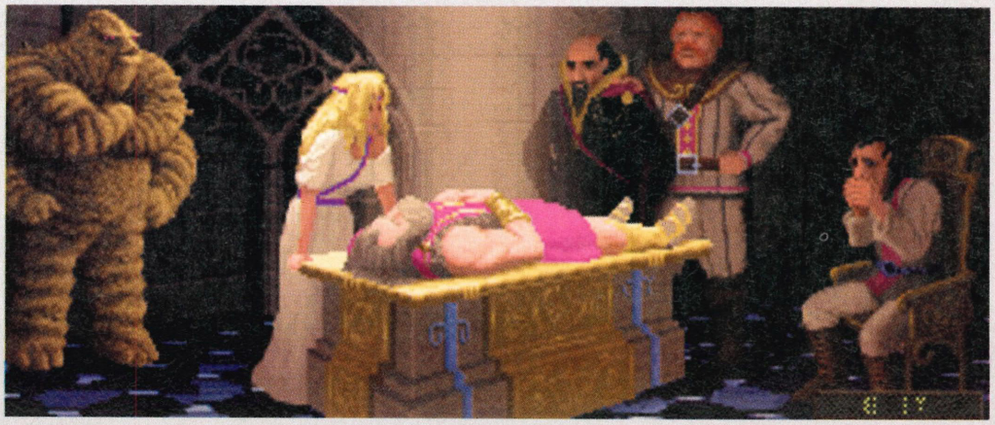
The main attraction of the CD version has to be the digitised speech. The voice of King Richard is provided by non other than Patrick Stewart, the British Shakespearean actor best known for his portrayal of Captain Jean-Luc Picard in Star Trek: The Next Generation. He does a good job, but unfortunately the character spends most of the game in a coma so you don't get to hear all that much of him.

The game has a fairly typical RPG plot: Scotia, an evil old hag wants to rule the world and you have to stop her. Well, it's slightly more complicated than that, but you get the general idea.

I am glad to see, though, that it doesn't take itself too seriously: Scotia is evil in a comic way, rather like those Disney cartoon villainesses, and there are a few jokes peppered throughout the dialogue. Lands of Lore isn't an outstanding product by any means: it wasn't at the forefront of gaming technology when it was first released last year, and it's been well and truly superseded now. However, I've seen more than a few games which have the technology but lack the gameplay, and I'll take gameplay over looks any day. Lands of Lore is big, solid and enjoyable, and so long as you don't expect too much in the way of originality, you'll have fun with it.




■ **Cal Jones**



# In Extremis

It's difficult to describe this game without comparing it to Doom. Both games are 3D, first-person perspective, smooth scrolling games and both involve shooting hordes of slobbering monsters with obscenely large high-tech weapons. There are two differences, however. Firstly, Doom is set in Hell whereas In Extremis takes place aboard an alien spaceship. Secondly, Doom is brilliant; In Extremis, er, isn't.

You play Commander Bob Jones, who stows away on an alien ship after his own patrol craft is destroyed. Unfortunately, he's about as welcome as a fare dodger on the London Underground, but rather than fine him £10 for not having the right ticket, the aliens have decided instead to relieve him of his life.

The idea, then, is to work your way through the levels, blowing away aliens as you go. Better weapons, energy packs and oxygen tanks are all up for grabs, but you need to find out and key in access codes to get into certain areas. That's it, in a nutshell.

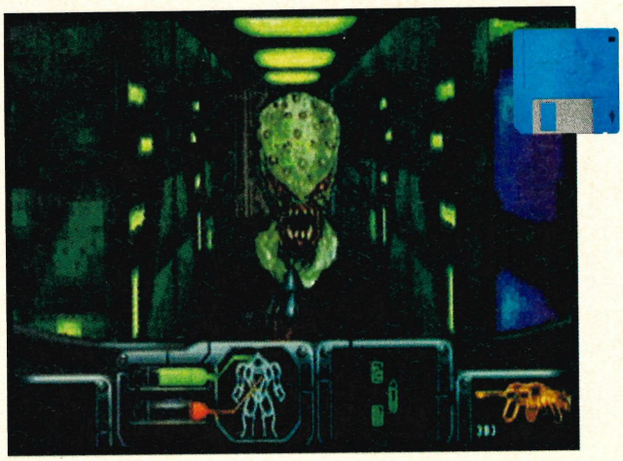
Unlike Doom, the background graphics are not especially varied, with no stairs, slopes, or lakes of toxic waste, and the assorted green aliens are frankly comical. The real let-down, though, is the speed. After whizzing around at a fair old rate in Doom, In Extremis seems slow. Given its scenario, In Extremis should have been tense and exciting, but the less than frantic action is unlikely to get your adrenalin pumping.

To add insult to injury, it took me an hour to install the game, which works out at a staggering ten minutes per disk.

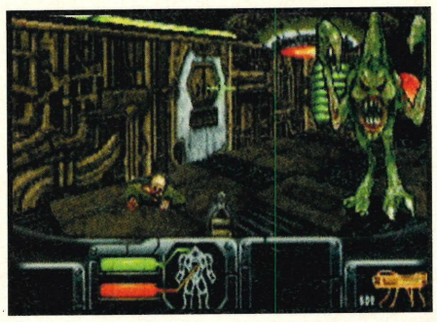
The disappointing thing about In Extremis is not that it fails to live up to Doom's high standards, but that it isn't even as much fun as Bethesda's Terminator Rampage or the much older Wolfenstein 3D.

Although it has its moments, the lack of pace and excitement in the game leaves it marooned in the average bracket, and why settle for average when you can have awesome?

■ **Cal Jones**



**That's the worse case of encephalitis I've ever seen.**



**Left: In space, no-one can hear you laugh.**

**· TECHSPEC ·**

| | |
|---|---|
| **Minimum PC:** | 386, MS-DOS 5.0 |
| **Minimum memory:** | 2Mb |
| **Minimum graphics:** | VGA |
| **Sound:** | Ad Lib, Sound Blaster |
| **Publisher:** | US Gold |
| **Price:** | £37.99 |
| **Contact:** | (021) 625 3366 |

RATING 5

# Red Hell




**This is you, the hero, Mark Constantine. Just as well they've managed to invent Grecian 2000 in the alternative future.**

**You're on the way to see the boss, who unfortunately happens to be a deranged evil madman. Can you thwart his foul designs and make the world safe?**

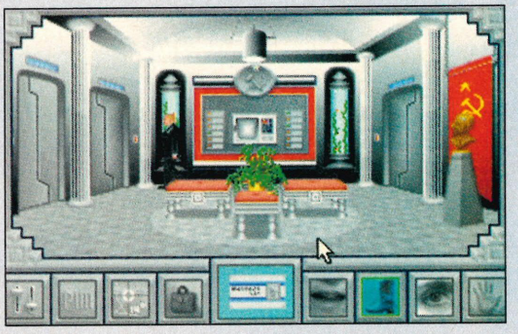
Red Hell is a graphic adventure set in an alternative future which takes as its premise that the Soviets won World War 2. Er... they did anyway, didn't they? Ah yes, but they didn't invent the atom bomb first. Had they done so they would undoubtedly have used it to conquer the good old US of A, thus depriving civilisation of Ronald McDonald and Mickey Mouse. Hence the title, Red Hell.

The year is 2020 and you play the role of Mark Constantine, seemingly a quisling official in the puppet Soviet government of North America. In fact, surprise, surprise, you are a fearless hero of the Resistance, dedicated to the overthrow of the Red Menace and the restoration of democracy and an ecologically balanced perfect world. The Commies, you see, aren't just red, they're also not-green, which in the politically correct world of the PC game must be almost as bad. They're also, apparently, not too bright, because after conquering America they forgot to take out the Japanese, with whom they're still fighting a war. Red men squabbling with yellow men over the fate of God-fearing America? You might not be surprised to learn that Red Hell was designed in Texas.

Bizarrely though, the original version of this game, released only in America, was rather different. Instead of Soviets it featured Nazis, and dealt with America under the swastika, not the hammer and sickle. But apparently Cyberdreams didn't want to upset the Germans, so the scenario was changed for the European version. Whoever was responsible for this idiotic decision should be sentenced to ten years hard labour in the Stalag or Gulag of his choice.

Red Hell looks and plays like an old-fashioned Sierra game. Nothing wrong with old Sierra games, but if you're going to copy a house style why not at least try and model the latest issue? The interface is poor, the puzzles arbitrary and illogical, and the plot hopelessly hackneyed: not only is there a maze, there's also an evil scientist with a time machine. Give us a break! Red Hell is aptly named. It features some Reds and it's pure hell to play. Enough said.

■ **Simon Shaw**

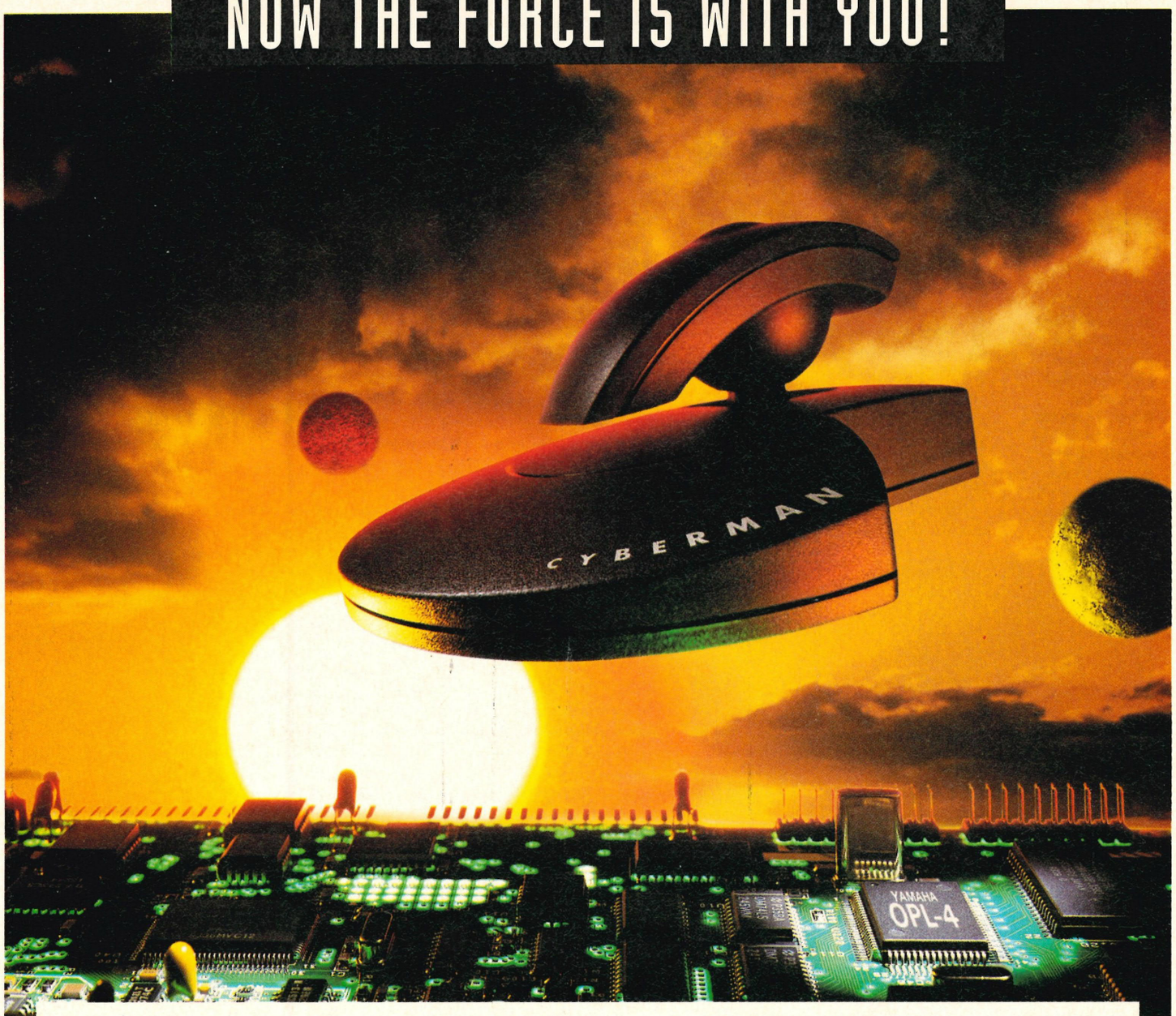


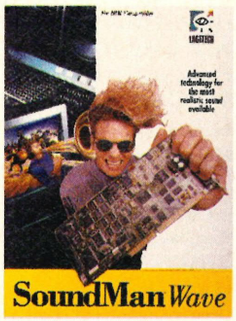
**· TECHSPEC ·**

| | |
|---|---|
| **Minimum PC:** | 386 (486 advisable) |
| **Minimum memory:** | 2Mb, 25Mb hard disk |
| **Minimum graphics:** | VGA |
| **Sound:** | Ad Lib, Sound Blaster, Pro Audio |
| **Publisher:** | Cyberdreams |
| **Price:** | £39.99 |
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RATING 3

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# Diggers

**Five races, seven different terrain types, over a dozen pieces of digging equipment, 33 levels and a variety of natural obstacles, all make mining a tough but interesting life.**

If you've ever played and enjoyed the ancient arcade game Dig Dug, the equally ancient home computer game Boulderdash or even the more recent Lemmings, you'll find a lot to enjoy in Diggers. The gameplay, a combination of arcade action and strategy, is a mite dull and difficult at first, but if it grabs you after an hour you'll stay hooked.

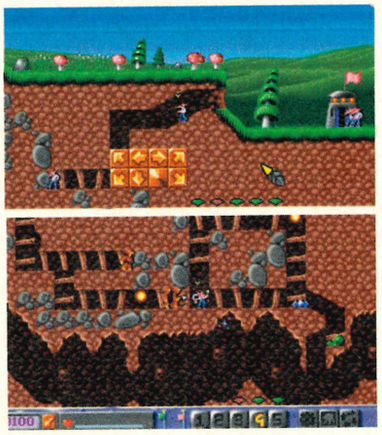
Diggers is basically a mining competition, in which you have to defeat your rivals in pursuit of a specific goal. When you commence you discover there are four mining races to choose from, and each has its own distinct abilities. Your job is to lead one of these teams (consisting of five men) on a quest to excavate the treasures of the planet Zarg, avoiding danger and the devious tactics of your computer-controlled opponents.



Zarg is divided into 33 huge zones, but you can only choose to mine two at the very beginning. Each zone features a variety of different terrains, including grassland, desert, jungle, ice, islands, mountains and rocky ground. Every terrain type has its own natural hazards, as well as over a dozen different kinds of flora and fauna.

The gameplay is icon-based and each member of your team is controlled independently. To complete a zone, you must either raise a predetermined amount of money (for example, by collecting any jewels you find and selling them at the bank), or eliminate your rivals. Cash can also be used to buy a wide range of mining aids, including teleports, maps, first aid kits and tunnelling machines. Completing a zone successfully allows you to move on to the next.

Once you get used to the various controls, slightly clumsy icon system and huge range of obstacles, the action in Diggers is addictive. The strategic elements of controlling five characters at once, coupled with the need to use equipment, collect treasure and deal with rival teams, make this a difficult game to master. However, once you're hooked, the potential for enjoyment is very great indeed.



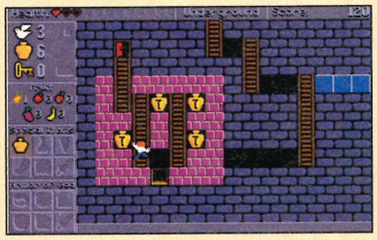
**■ Gordon Houghton**

**· TECHSPEC ·**

| | |
|---|---|
| **Minimum PC:** | 386SX, MS-DOS 5.0, Mouse |
| **Minimum memory:** | 1Mb |
| **Minimum graphics:** | VGA |
| **Sound:** | Sound Blaster, Gravis Ultrasound |
| **Publisher:** | Millennium |
| **Price:** | £34.99 |
| **Contact:** | (0223) 844894 |

RATING 7

# Spiritual Warfare



Sex, violence, bad language, pornography – the staple ingredients of films, television, videos and, it could be argued, everyday life? Well, perhaps. But in some quarters it is now feared the advances in technology will mean these insidious ingredients will feature more and more in computer entertainment. Indeed, we've all read about the trade in computer porn in the playground and wanton violence has certainly reached a new height in voyeuristic sadism in the brilliantly addictive and, perhaps, morally-indefensible Doom.

But does it really matter? Well, Alive Software certainly thinks it does. It is busily importing American 'Christian software' to try to redress the balance and "reinforce traditional family values."

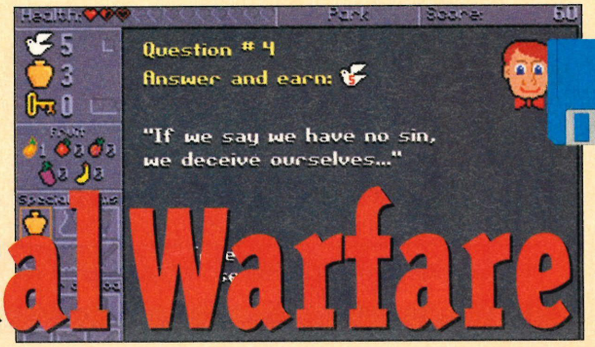
Which brings me to Spiritual Warfare – a scrolling graphics overhead view adventure – in which you must search for the "whole armour of God" which has been hidden throughout a city – such as the Belt of Truth, Shield of Faith Helmet of Salvation and so on. Along the way you convert unbelievers and root out evil.

You attack enemies with "fruits of the spirit." Once hit, they smile ecstatically, fall to their knees and add to points score. Essentially it's a tried, tested and tedious game formula which we've all seen before. Add to this the one unusual aspect – score-boosting multiple-choice Scripture questions. All accompanied by the hymn Friend in Jesus with Hallelujahs in the appropriate places.

Now, Spiritual Warfare is aimed at eight or nine-year-olds with a naive hope that it will appeal to teenagers. Promises of 'adrenalin pumping action' should provoke amusement among the Sonic generation. It has the feel of the old Mastertronic £1.99 Spectrum and Commodore games put out in the mid-eighties. PC games at this price should be better than this.

**Left: The Lord moves in mysterious ways. In search of enlightenment.**

**Below: Scripture questions. A smile rewards a correct answer, a downwards turn of the mouth greets a wrong answer, not fire and brimstone as might be expected.**




And that's the key problem. Is this a game with a message or a message with a game tagged on to lure in today's techno kids? Undeniably the latter. But if the software is lacking then the underlying message will fall on barren ground and will only be seen and heard by the already converted. And what's the good of that?

The devil may not have all the good tunes, but on these standards he appears to have all the good games. Spiritual Warfare would try the patience of a saint. Or Cliff Richard.

Save Our Souls from tedious, pious and over-priced software.

**■ Paul Boughton**

**· TECHSPEC ·**

| | |
|---|---|
| **Minimum PC:** | 286 |
| **Minimum memory:** | 640K RAM |
| **Minimum graphics:** | EGA/VGA |
| **Sound:** | Sound Blaster |
| **Publisher:** | Alive Software |
| **Price:** | £32.99 |
| **Contact:** | (0454) 415697 |

RATING 2




The disk version was released in 1992

# Darkseed

This is a real tension-killer. The music, too, quickly becomes repetitive and irritating. Somehow I never got fully involved in playing Darkseed. Once the splendour of the graphics palled, the actual gameplay couldn't quite hook me. Alone in the Dark is much more fun.

■ **Simon Shaw**

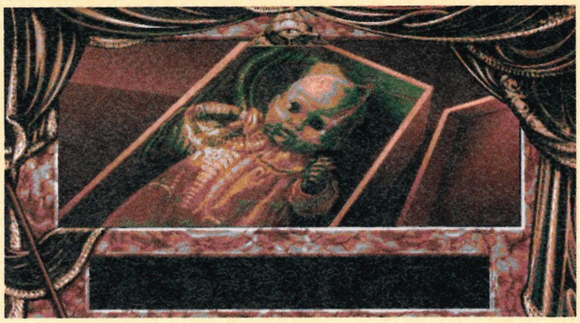
**This is the house that Mike bought. Bang next door to the cemetery, which is convenient at least – he's only three days to live.**

This grim and rather macabre game was inspired by the work of the Swiss artist HRGiger, the man famous for putting the alien into Alien. It features a character called Mike Dawson, who just happens to resemble the game designer of the same name, and offers a lesson in what can happen when you trust in dodgy estate agents.

Mike, you see, has just bought a weird Victorian house, the kind of place that makes Munster Mansion look like a semi in Catford. His first night's sleep is ruined by a dream in which an alien embryo bursts out of his brain, and pretty soon he discovers alarming evidence that nightmare is about to turn into reality. In a race against time he must unlock the secrets of the house and discover the ghastly truth of the alternative world that lurks behind the mirror in the living room.

Darkseed is unusual and visually impressive, though only in the elaborate and beautifully drawn backgrounds: the actual movement of the sprites is wooden and unconvincing. The floppy disk version aroused mixed feelings but its powerful, cinematic qualities ought to be enhanced on CD. Well, they are and they aren't. The atmosphere is certainly creepy, but the sound is much less impressive than the visuals, and the principal offender is Mike Dawson himself. Really it would have been much better to have employed an actor, because Mike's own voice has the colourless but oddly emphatic tone of a linguaphone presenter.



**TECHSPEC**

| | |
|---|---|
| **Minimum PC:** | 286 |
| **Minimum memory:** | 640K |
| **Minimum graphics:** | VGA |
| **Sound:** | Ad Lib, Sound Blaster |
| **Publisher:** | Cyberdreams |
| **Price:** | £44.99 |
| **Contact:** | (071) 328 3267 |

RATING 6

# Carriers at War II

Many moons ago, a relatively unheard of Aussie outfit called SSG snuck into the games scene and scored a couple of minor hits with Warlords and then Carriers at War. Recently it's been preparing to do it again, and the (somewhat uninspiringly titled) Carriers at War II is the fruit of its most recent hard efforts.

For newcomers to the original, CAW was a World War II naval strategy game based on the concept that a good artificial intelligence is more important than a pretty environment. It wasn't much to look at, but underneath you could get hours of gameplay out of the five missions, and then some if you added the Construction Set. For those of you who've played the original, you'll feel right at home with this.

CAW II hasn't changed a bit. Well, that's not quite fair. It has changed a tiny bit, just not a whole heap. The graphics aren't quite as garish, but the same pictures have been used. The interface is also pretty much the same, if a little refined, and the computer controlled commanders still seem to do the sensible thing remarkably often.

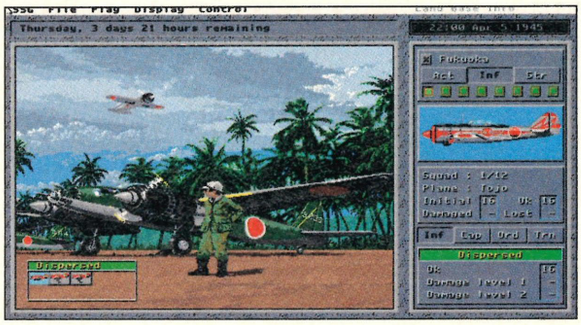
All of which makes me wonder. When Falcon 3.0 was updated and tweaked, Spectrum Holobyte released the new version free with the data disks. Isn't £45 a bit much for a bundle of new missions in essentially the same programming code? Furthermore, things have moved on considerably in the past 18 months, and the game should have had a damn good overhaul to keep in line with the new wave of products such as Great Naval Battles 2.

Don't get me wrong here. CAW II is a nice enough piece of kit for the strategists among you, no two ways about it. It's fun and that's the bottom line. However, if I had the first CAW then I'd be sorely put out by having to pay well over the odds for this very similar 'sequel.' If, on the other hand, you haven't played the original, the issue is rather more complex.

Not a whole lot, though. Carriers at War II hasn't the pace or visual splendour of Great Naval Battles 2, which I reckon will steal its thunder.

Still, if you're a hardened strategist then you shouldn't let yourself be put off: there are a lot of worse ways to spend your money. It's just that nowadays there are a lot of better ways too.

■ **Martin Klimes**




**That's me in the middle of the jungle, plotting the downfall of the British forces.**

**The main screen in all its hex glory. Even the clouds have hexagonal patterns.**

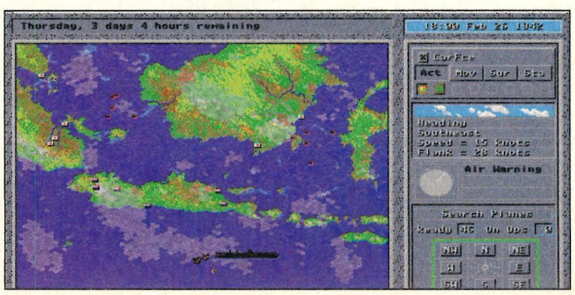


There are no plans for a CD-ROM version at present.

**TECHSPEC**

| | |
|---|---|
| **Minimum PC:** | 386 with mouse |
| **Minimum memory:** | 2Mb |
| **Minimum graphics:** | EGA/VGA |
| **Sound:** | Ad-Lib, Sound Blaster |
| **Publisher:** | Electronic Arts |
| **Price:** | £44.99 |
| **Contact:** | (0753) 549442 |

RATING 5






# Eye of the Storm

Eye of the Storm has been in the offing for about three years and has already made a well-received debut on the Amiga. However, a torrent of gushing praise for the Amiga version doesn't always guarantee a great PC game, and this is no exception.

The game puts you in the role of a militant conservationist in AD 2124. Intelligent life has been discovered in the Great Red Spot of Jupiter, the area has been declared a lawless frontier zone and mercenaries have been despatched to fight in death games. Your job is to protect and explore this new world in 64 specific missions. These range from the almost impossible to the simple and stupid, but you get a cash reward for successful completion.

On your travels you can also unravel the secrets of ancient artifacts and discover teleport gates, but your prime mission is to identify the local flora and fauna and to map all the static objects. All very eco-friendly ...

Bizarrely, everything you do is transmitted live to a huge TV audience. The more people who watch you the more money you receive in royalties – and with more money you can buy improved equipment and extra fuel, allowing you to see more exotic life forms.

Despite the imposition of a mission-based structure, Eye of the Storm's attempt to combine arcade action, strategy and exploration make it a bit of a dog's breakfast.

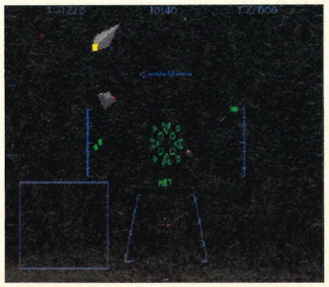
On the positive side, once you've got used to the controls and you know the basic aim there is nothing fatally wrong with EOS. The manual is creative and informative, the sound and 3D graphics are competent, the plot is well crafted and the playing area is pretty large (1,600 by 1,600 km).

"There is nothing fatally wrong with this ..."

The trouble is that all of the game's best features have been improved upon already (in David Braben's Frontier: Elite 2, for example), and there isn't enough left in Eye of the Storm either in terms of originality or excitement to make it a must-buy.

■ **Gordon Houghton**

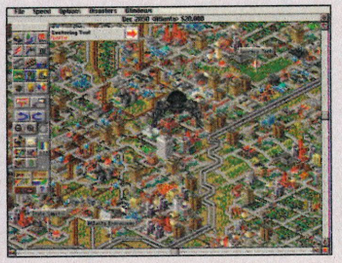
**Eye of the Storm features 64 missions in a playing area of 2.5 million square kilometres.**



**TECHSPEC**

| | |
|---|---|
| **Minimum PC:** | 286, MS-DOS 3.2 |
| **Minimum memory:** | 2Mb |
| **Minimum graphics:** | CGA, EGA, VGA, SVGA |
| **Sound:** | Ad-Lib, Sound Blaster, Roland |
| **Publisher:** | Rebellion Software |
| **Price:** | £34.99 |
| **Contact:** | (0865) 784555 |

RATING 5



**TECHSPEC**

| | |
|---|---|
| **Minimum PC:** | 386; requires SimCity 2000 |
| **Minimum memory:** | 4Mb |
| **Minimum graphics:** | SVGA, 512K video RAM |
| **Sound:** | Ad-Lib, Sound Blaster, Roland |
| **Publisher:** | Maxis |
| **Price:** | £19.99 |
| **Contact:** | (071) 490 2333 |

RATING 7

# SimCity 2000
## Great Disasters Scenarios Vol.1

This is not the add-on to buy if you're a coward and play SimCity 2000 with the disasters option switched off. But it is for you if you like wreaking havoc, but find the process of diligently building up the metropolis so that the havoc can be truly devastating dull in comparison.

In Great Disasters, you get 10 ready-built cities, all loosely based on real US communities, and each with its own disaster waiting to happen. These run the gamut of SimCity 2000's disaster options (bar the tornado and the air crash, and with the interesting addition of a previously unknown volcano that rears up in downtown Portland), and as with most of SimCity's disasters, you tend to end up with fire rampaging through the city.

This time, however, since the disaster strikes as soon as you load in the scenario, you don't have time to build up the fire department beforehand. As with the original SimCity 2000 scenarios, you have a task to perform – usually repairing the damage and building up the population to a certain figure within five years – in order to be allowed to continue as mayor of the city in question.

Some of the scenarios make reference to real events, such as the flooding of the Mississippi river at Davenport in Iowa, and the earthquake in San Francisco – these two, incidentally, are probably also the easiest to succeed at. Others are tongue-in-cheek fictitious calamities: nuclear meltdown in Manhattan, rioting lawyers in Washington, aliens over Atlanta, for example.

In practice, these cities are most fun after you've recovered from the disaster, and retained your mayoral status, since you can then build your own version of the city: raze Manhattan to the ground and start again from scratch, maybe.

By no stretch of the imagination is this an essential buy for SimCity 2000 owners, but there is definitely a sadistic pleasure to be gained from seeing, say, Malibu Beach go up in flames.

■ **Christina Erskine**



# Raptor





Buildings can get in the way of your shots, so blow them out of the way before dealing with the alien trash.

Long before I ever discovered role-playing games, I used to climb into my battered old Marina, drive down to Clacton and waste my change in the arcades. It wasn't the beat 'em ups which attracted me, nor the platform games, but the shoot 'em ups. I had a brief affair with Tempest, flirted with Gyrus, Slap Fight, Darwin 4078 and Tokyo and became thoroughly obsessed with a marvellous game called Star Force. Ever since then I've been waiting for a half-decent shoot 'em up to come out on PC. Believe me, I've been waiting a long time.

The Bitmap Brothers' Xenon II is really the only game which comes close, so I was looking forward to seeing how Apogee's Raptor fared. It's a traditional, vertically scrolling game with squadrons of "aliens" to kill, land targets, power-ups and the obligatory end of level guardian. It's visually pleasing, with smooth scrolling and well defined sprites, and the sound effects are satisfyingly beefy. It does, however, differ from the arcade games and Xenon II in several ways.

"The one thing I felt was missing was a score."

## Mission impossible

There are three different missions (or one if you get the shareware version – I reviewed the registered version), each comprising of three levels. You can tackle these in each of the four difficulty levels: training mode, rookie, veteran and elite. Instead of accumulating a score, you win money for every alien you kill, and this can be spent on upgrades for you ship. After each level, you return to base where you have the option to save your game, quit or visit Harrold's Death Emporium to stock up on weapons. You only have the one life – you can take quite a bit of damage but you'll die as soon as your shields are depleted, so you either have to reload your saved game or start again from scratch. It's a good idea, then, to spend most of your cash on armour for your ship. Because all the weapons in the world aren't going to make up for the fact that you've got a socking great hole in your fuselage.

## What's the score?

The one thing I felt was missing was a score. When I used to play the old arcade games, I kept on pumping in the change because I wanted to beat my high score. Raptor is a nice little game but you don't have anything concrete to aim for. The only thing which will keep you playing is the hope that you might get a little bit further with each attempt.

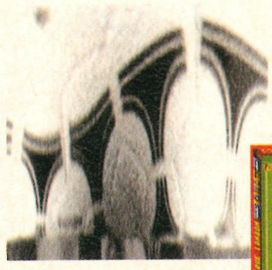
Aside from that, Raptor is a good addition to a much neglected genre. There aren't really enough levels to keep you entertained for long (Xenon II also suffers from this), but it's fairly enjoyable while it lasts.

■ **Cal Jones**

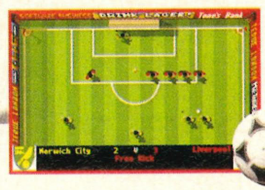
**· TECHSPEC ·**

| | |
|---|---|
| **Minimum PC:** | 386 MS-DOS 5.0 |
| **Minimum memory:** | 2Mb |
| **Minimum graphics:** | VGA |
| **Sound:** | Ad Lib, Sound Blaster |
| **Publisher:** | Bluebyte |
| **Price:** | £32.95 |
| **Contact:** | (0274) 622228 |

RATING 6

can

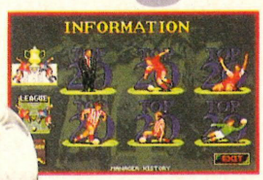


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*Deal with full post-match newspaper reports on your performance. Take tough decisions, deal with your chairman, sponsors and fans.*

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Distributed by: The Software Business

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# Great Naval Ba

The original GNB set a new benchmark for naval simulations. Could the sequel be about to blow it out of the water?



A turret's eye view of the enemy. You don't actually get to pull the trigger yourself, but at maximum magnification this is the best station from which to view your lethal handiwork.

Great Naval Battles Vol II simulates the Guadalcanal campaign, one of the two most decisive episodes in the Pacific War (the other being Midway). In addition to the type of heavyweight dreadnought contest which was the province of Volume I, the new game offers you the opportunity to indulge in massed carrier warfare and, by providing fixed island bases to attack and defend, adds in a completely new strategic dimension. The result is a massively detailed, yet relatively straightforward, simulation which is addictive and surprisingly exciting. It's also, without any doubt, one of the best war games ever to have appeared on the PC.

The original was good, but this sequel leaves it floundering in the shallows. The first improvement you'll notice is the superior quality of the new SVGA graphics. Cast your eye over the campaign map at minimum magnification and it looks very pretty, but zoom in on a single ship and the level of detail becomes quite staggering. Not only is the superstructure of each vessel crisply defined, but once the action gets under way you'll be able to pick out individual aircraft, near misses and torpedo tracks.



The CD version of GNB2 is pure shovelware. You have to install the game on to your hard disk and you'll require 14Mb of free disk space — exactly as for the floppy version.

As the CD version will then run slower, the point of it rather eludes me ...

Considering the general scale at which the game operates (the map covers hundreds of thousands of square miles) this is some achievement. It's like looking at models in a miniature bottle through the wrong end of a telescope.

The interface is greatly improved, too (though clicking on some of the buttons can be irritatingly fiddly) but what really puts GNB2 in the Premier League is the depth of gameplay. The full campaign scenario is pure heaven for strategy fans.

Before you let yourself loose on that, though, you'll need to train yourself up using the tutorial scenarios. The introductory Battleship v Battleship game will hold few surprises for GNB veterans, but as soon as you move on to the multi-ship engagements you begin to get an idea of the crucial differences between naval warfare in the Atlantic and the Pacific.

Japanese tactical doctrine put great emphasis on night attacks, and as the US player your aim must be to keep beyond the range of their lethal torpedoes and engage them with the heavier weight of your gun batteries. Needless to say, they're not going to stand off politely and oblige you. The recreation of the famous 'Tokyo Express' run (where the Japanese attempted to ferry in reinforcements by night) has an authentic historical feel to it.

## Move on up

However, it's when you move on to carrier operations that the game really hits its stride. The war was effectively decided by these massive floating airfields, but handling them requires skill. Awesome as is their firepower (in the form of dive-bombing and torpedo squadrons), it's fully matched by their vulnerability.

Keeping your destroyer supports in close formation will provide some blanket AA security, but the best means of defence is to attack: hit their aircraft carriers before they hit yours — even better, hit theirs before they even know yours are there!

You have a number of reconnaissance float planes at your disposal, but finding needles in haystacks is child's play compared to locating task forces on the loose in the world's largest ocean.

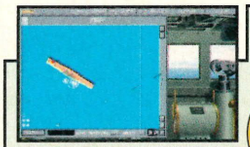
And don't make the mistake of sending all your aircraft out in one go. If you do, there's a good chance the enemy will turn up out of the blue and catch you refuelling on deck – and with a few thousand gallons of aviation fuel sloshing about inside your carriers, it could mean that you'll be coming home to a real fire.

Actually, it was precisely this nightmare scenario that happened to the Japanese at Midway.

The GNB concept is remarkable because of the multiple levels on which it operates. You can concentrate on controlling just one ship, flitting from station to station, supervising navigation, gun controls (much better in the new version) or damage repair.

You don't actually get to fire the big guns personally, which may be a disappointment to action fans, but it just isn't that sort of a game. I have to confess that when I first played the original I was a little disappointed by this, revelling as I do in the graphical delights of blowing things up in full SVGA colour, but after re-acquainting myself with the game world, I'm convinced of the wisdom of the original design. Engaging at the full range of a 16" gun it can literally take a minute or more for a shell to find its mark; indeed, it's physically possible to have up to three shells from the same barrel up in the air simultaneously.

Given the time lag it's just not an effective use of player resources to offer you the dubious pleasure of pulling the trigger yourself. If you want that sort of a game you'd be better off sticking to a flight or a tank simulation.

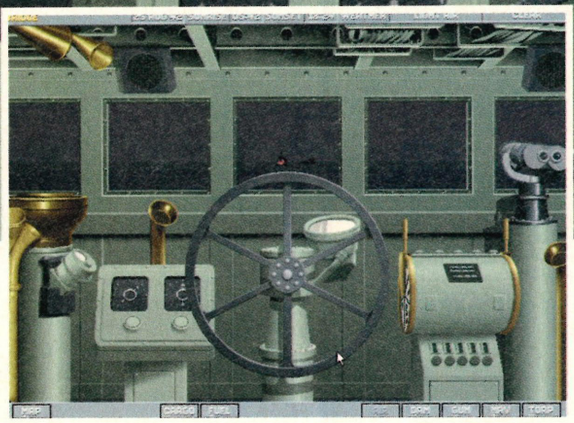


War gaming at its very best.

•TECHSPEC• 8 RATING

| | |
|---|---|
| **Publisher:** | SSI/US Gold |
| **Price:** | £39.99 |
| **Contact:** | (021) 625 3366 |
| **Minimum PC:** | 386 |
| **Minimum memory:** | 574K, plus 3MB extended |
| **Minimum graphics:** | SVGA |
| **Sound:** | Sound Blaster |

# Hles Volume II



**Ships are controlled from the bridge. Click on the right mouse button to bring up the menus and then switch around from station to station. To navigate ships individually you'll need to detach them from their task force first.**

## ALTERNATIVELY



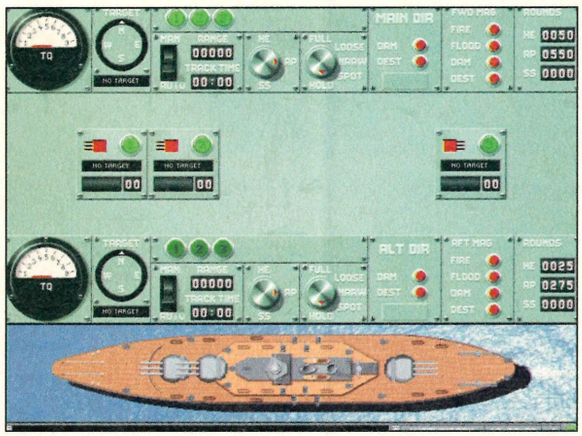
**Task Force 1942**
**MicroProse**
**Rated 7, Issue 16**

MPS's naval version of the Guadalcanal campaign came out at much the same time as the original GNB, and there wasn't a lot to choose between them. More of a tactical emphasis than GNB, but the AI is only adequate. MicroProse is now working on a sequel combined with a flight sim, which could be interesting.



**Carrier Command**
**SSG/Electronic Arts**
**Rated 7, Issue 13**

For serious war gamers only, SSG's veteran strategy slugfest (newly improved and updated) looks and plays more like a board game. While Carrier Command is infinitely better than SSI titles like Carrier Strike, it's got less appeal than GNB2. Recommended, though, if you're into the hard stuff.



**The gunnery control screens enable you to keep a close eye on your batteries. If you want you can direct fire on a particular target, or even split the fire of your guns using the secondary controller.**

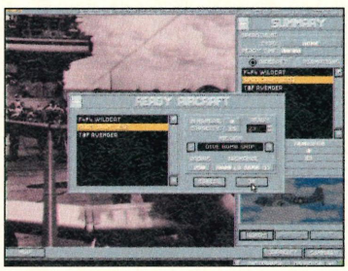
### Captain to bridge

Anyway, once you move on to the higher levels of fleet management you'll be hard pressed finding time to deal with individual ships, let alone all their various stations. The default mode leaves the computer as captain of each bridge, giving you time to concentrate on playing admiral and finding that Nelson touch. Ships are organised into task forces, the most potent of which are carrier groups, and each fleet is controlled from the bridge of its flagship. From here you navigate, set formations, and take strategic decisions. It's time-consuming enough controlling one task force, but the campaign game starts you off with six (as the US player – though you can play both sides) and there are strong reinforcements on the way. It's hard to keep track of everything that's going on, particularly when dealing with air operations.

The crucial point here is that your aircraft carriers have only a limited launch

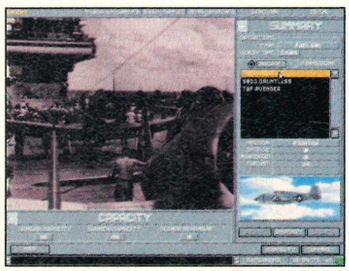
## PLANE-SPOTTING

**Your spotter planes have located a Japanese carrier group lurking over the horizon. It's a race against time to scramble your dive-bombers and put the enemy out of action before he finds you.**

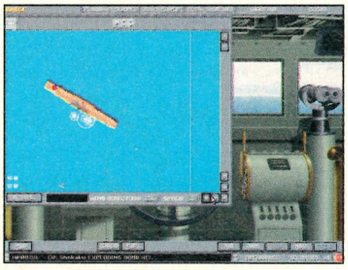


**From the bridge of the Enterprise (no, not *that* one, *this* one)call up the Air Ops menu and select your attack squadrons.**

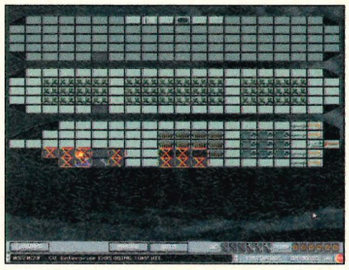
**Dauntless dive-bombers armed with anti-ship bombs should do the trick.**



**With our bombers launched it's time to arm and fuel some fighters and concentrate on defence. We can't afford to move out of range of our own attacking aircraft, and that means we're vulnerable to a counter-stroke.**



**Meanwhile, in a different part of the ocean ... our dive-bombers begin their attack run on the Japanese carrier. Let's hope enough of them can fight their way through the flak and the defending Zeros to put it out of action.**



**Help! We're sinking! The Japanese dive-bomber squadrons have found us too and delivered a deadly blow. It's all hands to the pump, but not even our superior damage control will be able to spare us now. Banzai!**

capacity and it's just not physically possible to use all your planes at once. You're further constrained by being able to set only one mission per type of plane, so if you've readied your dive-bombers with anti-ship projectiles you can't suddenly change your mind and send them off to attack an airfield. You'll need to stand down and re-arm them first, a process which takes half an hour of game time. While this is going on you won't be able to refuel any other aircraft, so you'd better plan ahead carefully. The logistical aspects take getting used to, but add greatly to the realism.




**Ships are controlled from the bridge. Click on the right mouse button to bring up the menus and then switch around from station to station. If you want to navigate ships individually you'll need to detach them from their task force first.**

## Real, real, real, real

This high level of realism is of course an SSI hallmark, but many of its war games in the past have, notoriously, sacrificed playability in a swamp of detail. Titles like Pacific War gave the impression of chucking in everything but the kitchen sink, and demanded immense stamina and commitment simply to get on terms with the interface and the unforgivingly dense manual.

The first Great Naval Battles marked a significant departure from the house style, but it wasn't a one-off — SSI's last traditional hex-based game, Clash of Steel, boasted vastly improved graphics and presentation, and I understand there's even more promising material from the company in the pipeline.

That said, GNB2, however mould-breaking, remains very much at heart a war game. New improved user-friendliness notwithstanding, this is not a product designed to attract casual passing trade; it's for serious strategy enthusiasts only. Although many of the scenarios are challenging, they're also quite limited, and it's only in campaign mode that the fine game engine really has a chance to get into top gear. But if you're going to play Guadalcanal through to the death, you're going to need a lot of spare playing hours and excellent powers of concentration.

You might also be in serious danger of contracting RSI in your mouse finger.

My only serious criticism concerns the controls. Because of the vastness of the map, there's a lot of zooming in and out, but while it's easy enough to centre in on friendly units (using the auto-centre option) trying to focus on anything else can be a complete pain. You can't scroll around the maps, rather you have to click on tiny arrow buttons, and this is slow even on a 486. On a 386 it could be a frustrating experience.

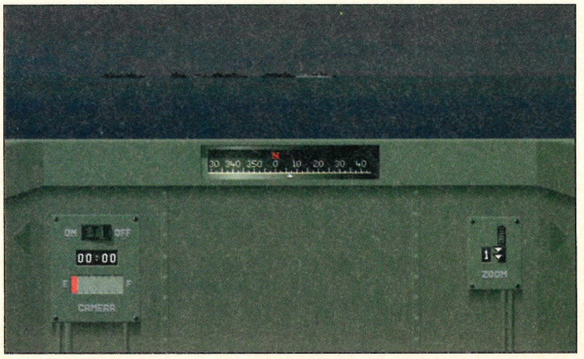
In every other respect, though, GNB2 is a superb simulation. There isn't a two-player option, but the AI seems good, and four levels of difficulty in a huge and complex game should ensure a decent challenge even to experienced players. The acid test for me, as a reviewer, is how long before I shelve a game after I've finished writing about it.

In the present case, I strongly suspect that Great Naval Battles 2 will retain pride of place on my hard disk for some considerable time to come.

■ **Simon Shaw**




**A convoy of transports making a supply run to Guadalcanal. Both sides need to ferry in reinforcements, and if you can get past the enemy's destroyer and cruiser screens you'll be able to wreak havoc.**




**Much of the action takes place at night. Because there are no aircraft about this is where your capital ships can come into their own. But beware — just because you can't see the enemy, it doesn't mean they can't see you!**

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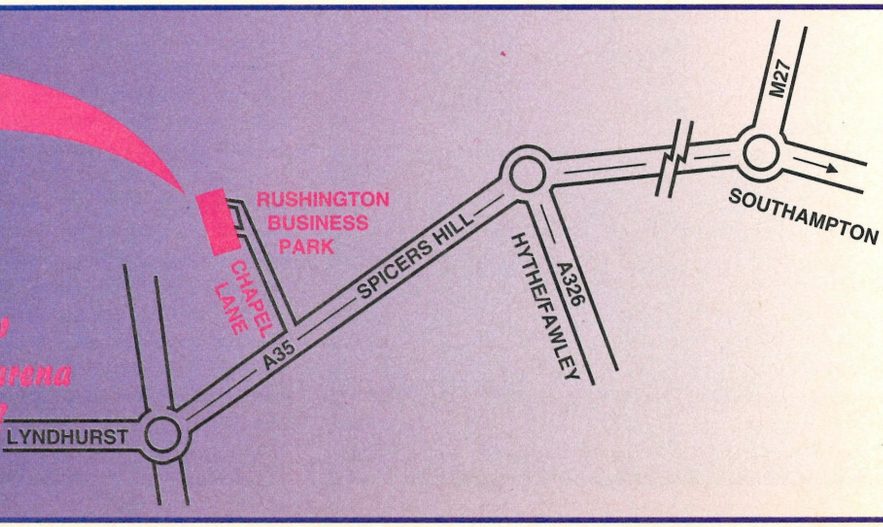
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# Battles of Time



Battles of Time is a compilation featuring four classic games, though some are definitely less classic than others. It's similar to UbiSoft's recent disk-only The Lords of Power (given a 5-star budget rating in Issue 27) and even features one of the same titles, Perfect General. Indeed the manual comes bearing the suspiciously familiar slogan The Lords of Power, which is a little sloppy to say the least.

The games, though, are fair enough, the best being Perfect General itself and Mega Lo Mania. Perfect General is a map-based war game, simple and fun to use, with an excellent two-player option. Mega Lo Mania is a hoary old isometric god sim, but it's worn surprisingly well and remains one of the better examples of its type. Highly recommended.

The other games are Battle Isle and First Samurai. Battle Isle hasn't lasted well, there are just too many sequels about: History Line used a similar engine and the recently released Battle Isle 2 has been justly heaped with praise. There would have been more mileage in releasing the intermediary Battle Isle 1.5 instead of the original.

First Samurai is a hack-and-slasher that doesn't really have anything in common with the other games. It's probably one of the better examples of a genre that's never sat comfortably with the PC, but it isn't going to set the world on fire. Although as a CD product it's pure shovelware, Battles of Time is still good value, even if The Lords of Power probably offers a slightly better selection.

■ **Simon Shaw**

**· TECHSPEC ·**

| | |
|---|---|
| **Minimum PC:** | 386, mouse |
| **Minimum memory:** | 640K |
| **Minimum graphics:** | VGA |
| **Sound:** | Ad-Lib, Sound Blaster |
| **Publisher:** | UBI Soft |
| **Price:** | £29.99 |
| **Contact:** | (081) 343 9055 |

RATING 7




**Although Perfect General looks no better than a souped-up board game, it's user-friendly and nicely presented and the two-player mode is great fun. All four games in this compilation are relatively straightforward and easy to get to grips with.**



# Quest & Fun

Quest & Fun is a cheap, compact and unusual compilation. It contains King's Quest V (a Sierra graphic adventure), Leisure Suit Larry V (another Sierra graphic adventure with the same interface as KQV) and Red Baron (a Dynamix flight simulator). All of these games have been around for three years, and all have stood the test of time.

On its first release, King's Quest V represented state of the art technology. It used up an amazing (for then) 9.5Mb of hard disk space, used 256-colour scans of air-brushed paintings and featured superb sound and music. The plot trailed Graham of Daventry through glimmering glade and lyrical dale on a quest to rescue his family from the evil wizard Mordack.

If you can put aside your cynicism, there is a good deal of simple exploration and entertainment here.

Leisure Suit Larry V is a graphic adventure that's as friendly for beginners as it is challenging for experienced players. This 'fifth' instalment in the series (actually it was the fourth, a joke too long-winded to explain here) continues the sexploits of the balding slime-ball with a taste for gigantic gold medallions and shiny, drip-dry lounge suits. This time he's looking for a woman sleazy enough to front America's sexiest TV show. The major conflict in tone between KQV and LSLV should mean that at least one of these adventures will please you.

Red Baron is an old but still very playable flight simulator. You need a magnifying glass to read the tiny text of Ubi Soft's manual, but after that it's action all the way.

Set in World War I, Red Baron doesn't attempt to achieve the speed or sophistication of modern aircraft simulators, but what it lacks in class it makes up for in raw energy. A wide range of menu and gameplay options make it still one of the most exciting, interesting and exhilarating flight games around.

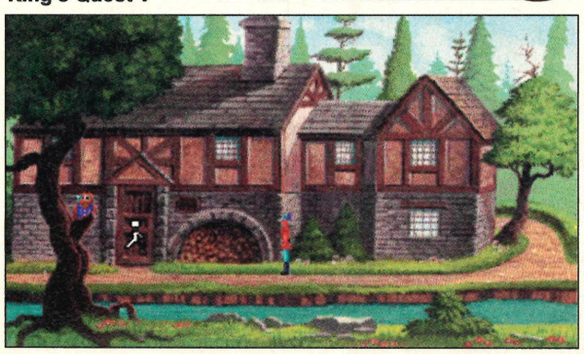
■ **Gordon Houghton**

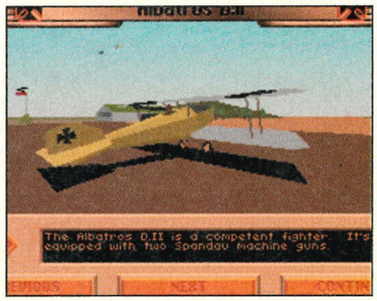
**· TECHSPEC ·**

| | |
|---|---|
| **Minimum PC:** | 386SX, MS-DOS 5.0, mouse |
| **Minimum memory:** | 1MB |
| **Minimum graphics:** | VGA |
| **Sound:** | Ad Lib, Sound Blaster, Roland MT-32 |
| **Publisher:** | UBI Soft |
| **Price:** | £29.99 |
| **Contact:** | (081) 343 9055 |

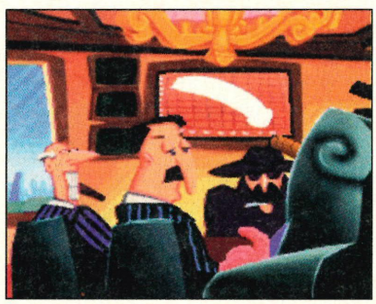
RATING 7

King's Quest V






Red Baron



Leisure Suit Larry V



Disk-based versions released a couple of years ago

# Summer Challenge and Winter Challenge

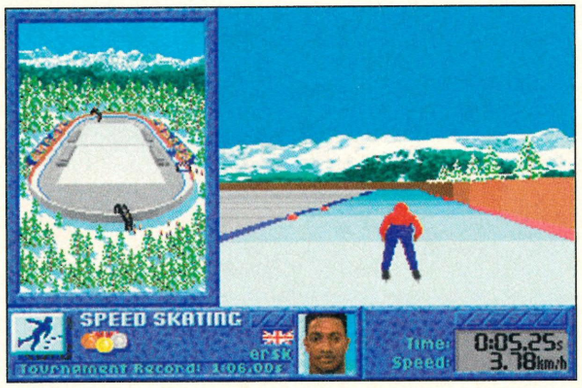
Between them Summer Challenge and Winter Challenge take up around 3Mb of disk space, so this 'compilation' hardly makes efficient use of the CD-ROM it comes on. You can either install the two games to your hard drive, or play directly from the CD, and there is not an iota of difference between the original disk version and the CD pack. Those who don't habitually read the manual will panic when confronted with a request to enter a copy protection code from a codewheel, since there is quite plainly no codewheel in the box, but it is mentioned in the small print: for the CD version the copy protection has been disabled, but the screens have been left in. Not a very promising start.

Neither Summer nor Winter Challenge are poor games, they're just a bit long in the tooth. Winter Challenge includes such standard sports as downhill skiing, the luge, ski-jumping, speed skating and the biathlon, the last of which is frankly a bore if you've already ploughed your way around the cross-country skiing course. Summer Challenge, however, is a sort of post-modern octathlon, with archery, an equestrian course, kayaking, 400m hurdles, pole vault, high jump, javelin and cycling. Here there is much more variation in the controls, although rather a lot of bashing away at the Enter key, or joystick fire button to make your character go faster which makes you fear for the longevity of either.

The graphics are clear and well-drawn, although all the competitors are rather ugly (they're also all men, which is a bit unimaginative). The music is pretty average, and the sound effects variable — since when have skis shussing against snow sounded like a creaking door? — but the games are still good fun, despite each being over two years old. As with so many sports games, they're far more fun played with two or more human contestants than just you against the computer.

■ **Christina Erskine**




**This is one of the events where you really just need to hit fire or Enter as often as possible.**

**Draw back your bow, line up the crosshairs which appear on the target and fire.**

**· TECHSPEC ·**

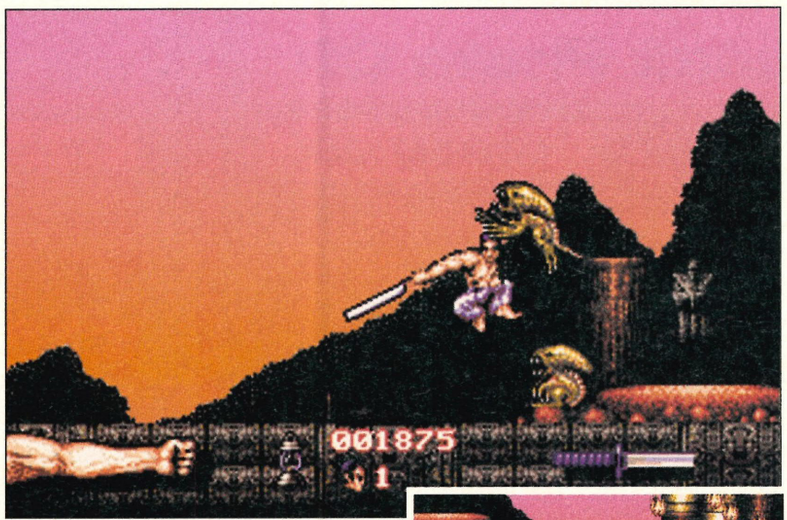
| | |
|---|---|
| **Minimum PC:** | 286, CD-ROM drive |
| **Minimum memory:** | 640K |
| **Minimum graphics:** | EGA |
| **Sound:** | Ad-Lib, Sound Blaster, Roland, Tandy |
| **Publisher:** | Accolade |
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RATING 6

GAMES

# Budget Games

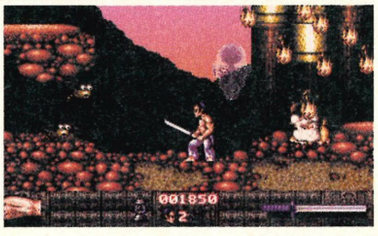
## Yours for under a tenner: this month's crop of re-releases.

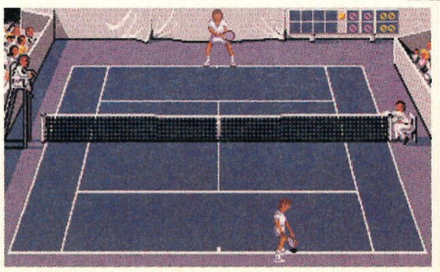



### FIRST SAMURAI
**UbiSoft**
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Up-market high-kicking, power-punch console-style game which made its debut on the PC nearly 18 months ago. Its roots lie in those far off 8-bit beat 'em up classics Way of the Exploding Fist and International Karate. First Samurai walks left to right attacking and being attacked by monsters, villains and a whole host of nasties, feeding on the energy of these destroyed enemies, and all the time picking up new weapons. Good – if very familiar – fun, no surprises, and disappointing sound. It originally sold for £30.99.

★★★

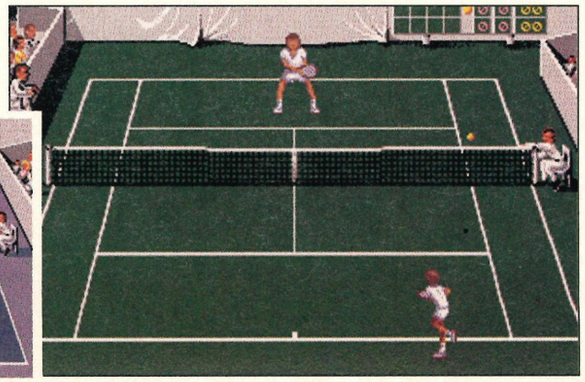


### JIMMY CONNOR'S GREAT COURTS 2
**UbiSoft**
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Just in time for some early Wimbledon practice comes this one to four player tennis simulation, allowing you to play friendly matches, tournaments on grass, clay or asphalt courts. There is even an option to practice your strokes against a ball machine. Nifty and smooth gameplay. This game was originally released in this country as Pro Tennis Tour 2 back in 1991 (reviewed issue 2, rated 8, original price £29.99). Just how Jimmy Connor has suddenly got involved is anybody's guess.

★★★



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*The 4Mb RAM version can print a full A4 page of graphics at 400 dpi and makes full use of the LP1200's 400 dpi printing capabilities, such as using Microsoft Windows fonts. Unique additional standard features include FLASH ROM 'future proof' technology and LAYOUT - a powerful document description language. The LP1200's unique internal FLASH ROM, which holds the printer controller firmware, can easily be updated as new developments in technology occur. This protects the investment you make in buying a Ricoh LP1200. Other manufacturers would require you to buy a new printer! Internal FLASH ROM and industry standard FLASH ROM PCMCIA cards can also be used to permanently store fonts, macros, graphics and extra emulations. Again, unlike the competition, the LP1200 includes LAYOUT, a powerful and intuitive document description language as standard. This offers unique opportunities to develop custom made printing systems. Forms and document templates can be designed complete with logos and stored electronically in the LP1200's FLASH ROM, alleviating the need for pre-printed forms!*

*The LP1200 comes with a 100 sheet A4 paper tray as standard. An optional universal feeder automatically feeds up to 150 sheets of paper (up to 169gsm), 15 envelopes, transparencies and labels.*

PC MAGAZINE UK EDITOR'S CHOICE OCTOBER '92

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| FEATURES | IBM 4029-020 | FUJITSU VM600 | CANON LBP-4 PLUS | STAR 8III | RICOH LP1200 |
|---|---|---|---|---|---|
| Average Street Price (excl. VAT) | £929 | £699 | £659 | £899 | £699 |
| 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 | 6ppm | 4ppm | 8ppm | 6ppm |
| Straight Paper Path | - | NO | (ONLY FACE UP) | 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 | 1Mb | 1Mb | 512K | 1Mb | 2Mb |
| Full A4/300 dpi graphics with standard RAM | - | - | - | - | YES |
| Warm Up Time | 33 secs | 25 secs | <60 secs | 60 secs | 45 secs |
| First Page of Text Output | | 15 secs | 31 secs | 18 secs | <15 secs |
| Document Description Language included | - | - | - | - | YES |
| Flash ROM | - | - | - | - | YES |
| Flash ROM Upgradeable Firmware | - | - | - | - | YES |
| PCMCIA Card Slot | - | - | - | - | YES |
| Scaleable Resident Fonts - in HP LJ III Emulation | 0 | 8 | 0 | 8 | 8 |
| Resident Bit-Mapped Fonts | 10 | 14 | 2 | 14 | 14 |
| AGFA Intellifont Scaleable Font Technology | - | YES | - | YES | YES |
| HP LaserJet III Emulation Included | - | YES | - | YES | YES |
| EPSON FX Emulation Included | - | YES | YES | YES | YES |
| IBM ProPrinter Emulation Included | - | YES | YES | YES | YES |
| Standard Tray Capacity | 200 | 150 | 70 | 200 | 100 |
| Protective cover on standard tray | YES | - | YES | YES | YES |
| Cost per copy** | 1.9p | 2.0p | 2.1p | 2.2p | 1.65p |
| Min-Max Paper Weight in gsm | 60-163 | 60-157 | 60-105 | 60-135 | 60-169 |
| Able to print on OHP Film | YES | YES | YES | YES | YES |
| Able to print on 169gsm card (Manual Feed) | - | - | - | - | YES |
| Standby - Noise Level | 38dB(A) | 35dB(A) | <43dB(A) | <43dB(A) | <38dB |
| Printing - Noise Level | 50dB(A) | 46dB(A) | <53dB(A) | <53dB(A) | <48dB |
| PC Independent PLAIN PAPER FAX OPTION | - | - | - | - | YES |

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| LAA 5312 | A4 Paper Tray (100 Sheets) | £35.00 |
| FAX 1200 | Ricoh Fax/Modem Software/Firmware | £120.00 |
| MOD 7199 | Pace Microlin FX Fax/Data Modem | £149.00 |
| LAA 5279 | Ricoh Flash ROM Card (0.5Mb) | £49.00 |
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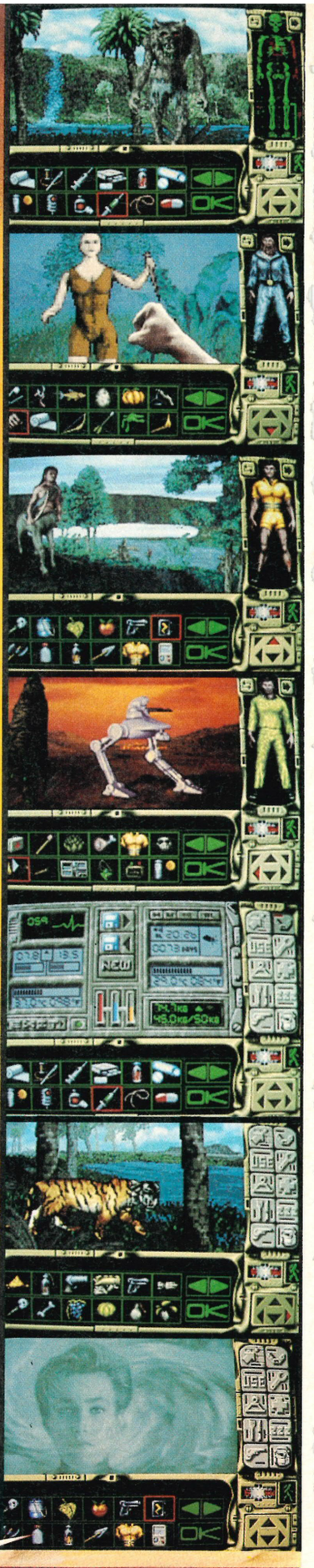
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COMPETITION

I know, I know, we're just too good to you. But we reckon PC Review readers deserve it, and Gremlin Graphics evidently thinks so too, because in a state of abundant generosity, it is donating a devilishly good Addup CD-ROM Sound Card Solution package to the winner of this competition. This comes complete with a double speed, Panasonic CR562 internal CD-ROM drive, a single and multi-session drive with Kodak Photo CD compatibility, Microsoft CD-ROM extension software drivers, plus audio interface cables for Sound Blaster/Sound Galaxy and Gravis UltraSound. (Despite the name of the pack, it doesn't include the sound card itself).

Not only will our winner get that bag of goodies, but also a copy of Gremlin's latest game, Litil Divil, on CD-ROM. This lighthearted maze and puzzle game features Mutt, the 'litil divil' in question on his quest for the Mystic Pizza of Plenty. You take the part of Mutt, exploring over 50 rooms, looking for lost artefacts and the lost souls of divils who came to grief on previous pizza missions. In our review in Issue 29, Gordon Houghton said, "Excellent, silly sound effects combine with superb graphics to create a very enjoyable experience. It's even funny when you die."

There are five more copies of Litil Divil on either disk or CD-ROM to give away as second prizes, and then if you miss out on the big prizes you may still be in with a chance of winning one of the ten T-shirts we'll be giving away to runners-up.

### How to enter

Now, how do you go about getting your hands on this fiendishly good set of prizes? Simple. Just answer the single question given below and enter it on the coupon provided. Add your name and address to the coupon and then send it (or a photocopy if you don't want to spoil your copy of PC Review) to

Divil's Delight
PC Review
Priory Court
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London EC1R 3AU

Make sure it reaches us by June 15, 1994. This is the closing date and any entries that we receive after that will not go into the prize draw.

### The burning question

Which is the odd one out in the following list and why?

- Brownie
- Buggane
- Hobgoblin
- Leprechaun
- Pan
- Puck
- Rusalka

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***PC Review Issue 32***

GREMLIN

### RULES

- **Employees of EMAP Images, Philips, Gremlin Graphics, and their families and associates are not eligible to enter this competition. No multiple entries, please.**
- **No entries received after the closing date will be accepted.**
- **The editor's decision is incontestably final.**






**Left: If you stick your rucksack in one corner of the screen and leave it open, then you can get to your stuff, like healing potions, much quicker in an emergency.**

**Above: Talk to anyone and everyone you meet in Ultima VIII, even if they've just performed a sacrifice in your presence.**

# Ultima VIII: Pagan

Pagan is a harsh world, full of exploding chests and fierce monsters. For those who could do with a helping hand, Martin Klimes, who practically lives in his armoured pants and red cloak these days, has come up with this beginners' guide.

Ultima 8 is BIG. Not as sprawling as previous Lord British incarnations perhaps, but still fairly massive in anybody's books. The size, together with a totally revamped look, means that Ultima fans and newcomers alike are in for a treat. A few pointers, though, may get you started on the right foot.

First things first. The basic rules of role-playing still apply to Pagan, no matter how much it resembles an arcade adventure. So, take everything of use that you can carry, explore everywhere, and of course, be careful!

In Ultima 8, though, even these simple concepts need a bit of qualifying.

For starters, you must decide what is, (and what isn't) useful. Carrying around debris and plates just fills up your rucksack and doesn't help a whole lot. There are many items that you don't need. They're merely props to the story, although be sure to move things around everywhere you go. You never know when the key you want will be hidden under the most valueless piece of crockery. Weight is a bugbear that will haunt you constantly, especially when you start wearing heavy-duty armour.

**The basic rules of role-playing still apply to Pagan: take everything of use that you can carry; explore everywhere; and, of course, be careful.**

Secondly, explore everywhere, but be aware that there is an actual plot for Pagan, and as you go you'll get involved eventually. Once you start on the planned route, it's tough to detour and revisit other places, so make the most of a little time at the beginning to have a scout around.

Once you're stocked up on goodies and know what's where, you can carry on. There's no rush.

## Tread gently...

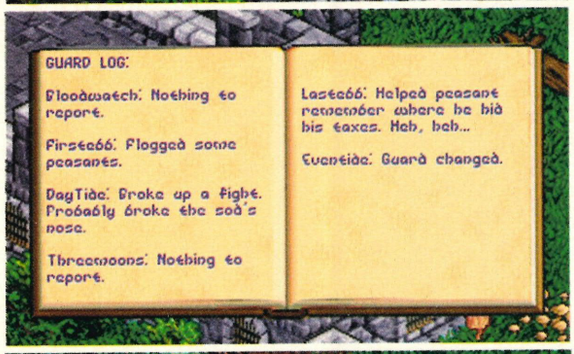
But be careful. Tenebrae is full of traps and situations that could kill you in the blink of an eye, and doubtlessly will as you experiment. Remember, therefore, to save a game when you get that 'I bet you I die here' kind of feeling. It's a slow process, but less frustrating than going back to the start.

That said, the city of Tenebrae is nothing in comparison to some of the surrounding areas. My firm advice is not to be tempted to leave the city too early. Mellow out for a while and check out the town. It's a pretty big place full of interest in itself, and there are two things you can and should do while you're there. Firstly, check out how the movement, fighting and character interaction works. Run, jump, and kill peas-



**Left: Getting the hang of combat doesn't mean taking on the city trolls at the first opportunity. Not even with an axe or sword in your possession. So I suggest staying in the observers gallery when you get to the arena.**






ants (on second thoughts, stick to zombies, Beren the Sorcerer tends to do nasty things to murderers), but whatever you do, get used to the controls before you head out into the wilds. Try setting up the screen with your rucksack open but tucked away in one corner, and the health bars in another. I've found this gives me quick access to the Death Disks I carry when I need them and I always know how close to dying I am, without cluttering the view.

The other thing you'll want to do wherever you go, but especially in the city when you first arrive, is to chat with absolutely everyone. Get out there, be gregarious, and talk up a storm. It's amazing what you can find out. And if people aren't being very helpful, then read everything you come across. Some books, like the best-selling 'What The Fish Tell Me' are full of total cods-wallop (if you'll pardon the pun), but many more contain useful hints and pointers for further adventure. Also, by getting to know the people, you are setting up the plot for later, when you actually decide to start your quest.

**Run, jump and kill peasants (on second thoughts, stick to zombies, Beren the Sorcerer tends to do nasty things to murderers.)**

Whilst you're meeting the people, you might want to build up your equipment a bit too. Money's quite a nice thing if you should want to buy something, but then again, I seemed to do just fine stealing everything I came across. Being a burglar may not be morally the soundest move, but it sure gets you the goods. Pinch everything you can carry by going to visit folks at home or work and waiting for them to leave the room for a moment. That's how I nicked the weeping widow's entire gem collection. When she came back, she even bought them all back off me without recognising a single stone! Excellent!

## Carry on camping

Because of weight restrictions, there's value in having a camp or two around the city, preferably in out of the way places that you can still get to easily, like the edge of the castle moat. Since you'll find that weight is soon a problem, dump everything you can here. It's not far from all the city exits, and once you start teleporting it's handily close to the castle teleporter. For the same reason, a camp in Mythran's house is a good move, once you get there.

One useful little item you might come across is the keyring, and if you do then grab it immediately. By attaching all the keys you find to it, you not only clean up your rucksack a bit (tidiness is an important virtue for all adventurers), but also the keys then all weigh only one unit, no matter how many you add. Also, when you use it, one attempt on a lock tries all your keys, saving heaps of annoying mouse-clicking. A bargain piece of equipment in anyone's books.

## Go west

So, you've rifled the entire city's valuables and stocked up on armour and weapons. You've talked to all and sundry and know what's where and why. You're ready to head out of town then. West of the city's a good first bet. Have a wander, walk around the caves by the waterfall (running past the skeleton if he kills you repeatedly – I still find that the coward's approach is the best by far!), and say hello to Kilandra, the lady who penned the masterpiece mentioned above.

Mind you, whilst west of the city is all well and good, if you want to get into things for real then go north. Moving through the catacombs to the Plateau will not only open up a whole new area, but give a pretty fair glimpse of the catacomb wandering to come. Perhaps most importantly, though, after exploring the Plateau and maybe getting the Hammer of Strength from the second set of catacombs on the Plateau (mind the invisible guy!), you'll want to go into Mythran's house and introduce yourself. Time for the story to begin for real.

This is where your involvement with Pagan magic starts and, with a bit of help from Mythran along the way, you move along the road to deification. It will be a long and hard trek, but if you sorted yourself out right at the start then there's no reason you shouldn't hit Ultima 9 as a winner on Pagan.





# Ultima VIII: Pagan

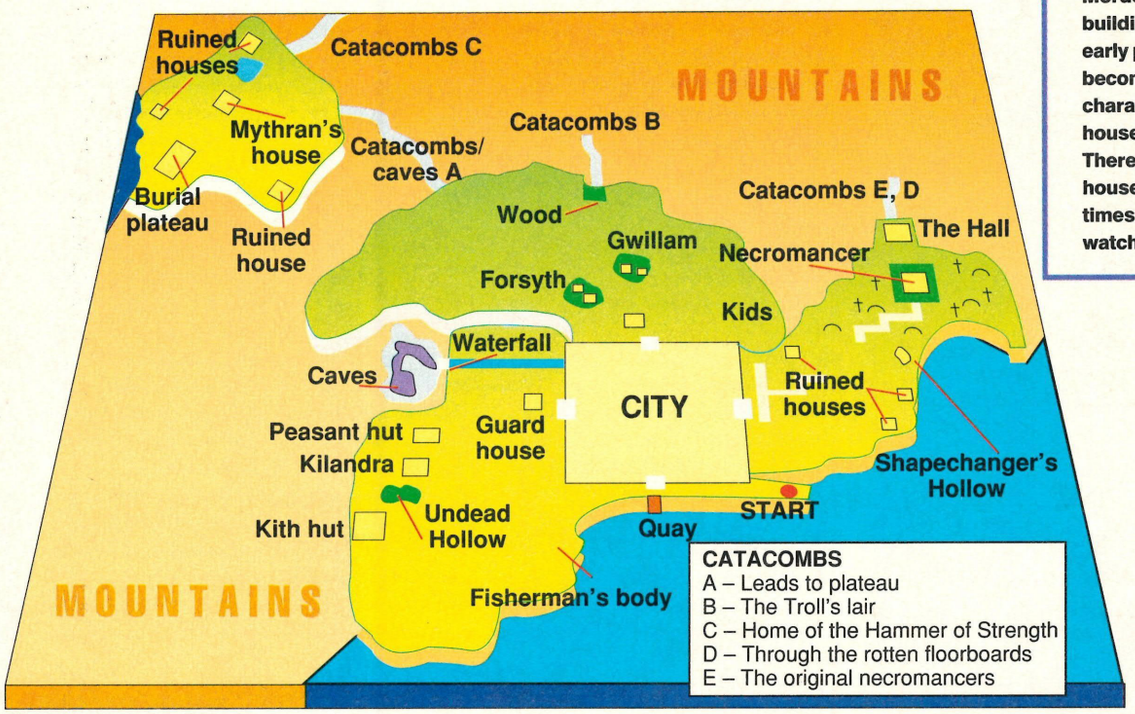
**Tenebrae, the largest city in Pagan, is a hostile place where turning the wrong corner can result in sudden death. Fortunately, we've provided a couple of maps to help you stay on the right track. The rest is up to you ...**

## PAGAN

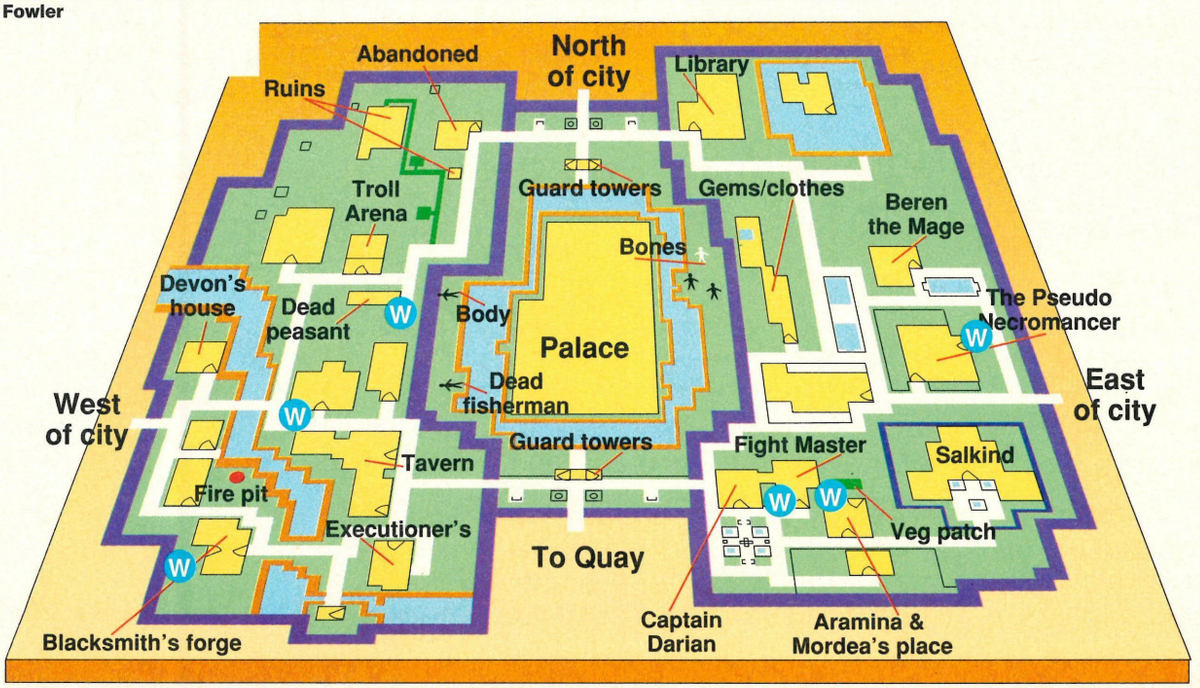
**You start the game just outside the walls of Tenebrae, and although the immediate area isn't very large, it's certainly dangerous.**

**The top map shows Tenebrae and the surrounding area, with the cemetery to the east, the plateau to the north-west and the ocean to the south. Watch out for wild kith because these hostile creatures are almost impossible to kill.**

**The lower map represents the city itself, which is dominated by Mordea's palace. Many of the buildings are locked during the early part of the game, but will become open later, and some characters may be found in their houses only at specific times. There are clocks in many of the houses, and you can check the times by looking in the guards' watch books in the palace.**

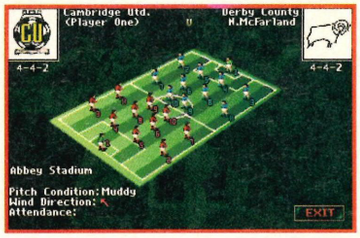



Illustrations by Geoff Fowler



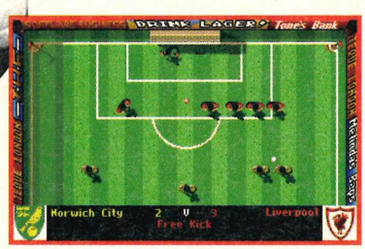
# can you manage it?

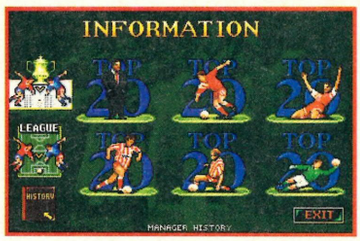





actual VGA screens




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football - THE MANAGER

# Gabriel Knight



Cal Jones guides you through the mysteries of Voodoo in the second and final part of our complete Gabriel Knight solution.

**Day 4**

Read the paper and observe the man at the window. Ask Grace to research the veve pattern. Then go to Napoleon House to collect the bracelet from Sam. Go to Jackson Square and you'll notice Crash. You can't talk to him yet, so find the fortune teller and talk to her instead. Then go to Jackson Square Overlook and watch Crash through the binoculars – you'll see him give something to the drummer. Enter the cathedral and find Crash in the pew. To make him talk, show him the bracelet. First ask him about the drummer, and then question him on other topics. Ask him about the Voodoo Hounfour last. After he dies, look at the body and open the shirt. Copy the tattoo using the sketch-book.

**Day 5**

Read the paper, get the veve research and Wolfgang Ritter's journal from Grace and talk to Hartridge when he phones. Read the newspaper clipping Grace has given you, and ask her to research Rada drums. Then read the journal and Wolfgang's letter. Visit Grandma and ask her about Wolfgang. Then go to the university where you'll find that Hartridge has been murdered. Take the notes from the desk and leave.

Go to the Voodoo Museum. Switch on the fan to escape from the snake. Return home, where Grace will spot a scale on Gabriel's face. She'll put it into the ashtray, so magnify the ashtray and then use the tweezers on it to retrieve the scale. Use the magnifying glass on the new scale, and then on the scale you found by the lake to compare them. Now go to the police station and talk to Mosely. Tell him about the murders and ask him about case status. When he tells you that the case has been closed, ask him to re-open it. Give him the newspaper clipping, snake scales, Hartridge's notes and the veve diagram. He'll agree to help you solve the case. This brings you to the end of day five.

**Take a walk round town, visit a fortune teller, find a dead body and have a snake painted onto your chest. Just some of the things that await you in Gabriel Knight!**

**Day 6**

You've got a nasty surprise waiting for you this morning in the form of a dead chicken on your rug. When the commotion has died down, read the paper and get the Rada drum book from Grace. Pick up the envelope which lands on your doormat, open it and read the letter inside. It also contains the key to Mosely's office. Give the sketch of Crash's tattoo to Grace and tell her you want to wear it to a party. When she asks if Malia's going, say yes and tell her you understand her jealousy. She'll then paint the snake on to your chest.

Next, go to Jackson square and use the Rada book on the drummer to translate the drum messages. Go to the south west of the park and talk to the beignet vendor. Convince him to go back to Royal and Conti, where the police station is located.

Go to the police station and the beignet vendor will appear. When all the cops are out of the room, use the key to open Mosely's door. Open the bottom of the desk drawer and take the tracking device. Leave.

Go to the Voodoo Museum and hide one of the tracking bugs in the Sekey Madoule (ritual coffin). Then go to the ceremony. Look at the Laveau tomb and notice the new message. Copy it down in the sketch book. Use the new sketch on the old, trans-





lated sketch to find out the meaning. Use the brick to write your own message on the wall. Copy down the first message, but substitute Sekey Madoule for Fwet Kash.

Go to the swamp and use the tracking device on yourself to activate it. Follow the blips until you arrive at the ritual, but don't enter the clearing until you've put on the mask. You need to answer two simple questions before you'll be admitted. A non-interactive sequence will take you to the end of the day.

### Day 7

Call Wolfgang Ritter and interrogate him, then read the paper and leave the shop. Go straight to the cemetery. Enter the Gedde tomb which is now open, and use the torch. Find the plaque with the veve on it and open the drawer. You'll find someone you know inside, before falling unconscious. When you wake up, look in the same drawer and take the wallet. Open it to get the credit card, then leave the tomb by pressing the button on the right. Go back to the shop and phone the travel agency, which you'll find on the directory page. Ask about a trip to Germany and use the credit card to pay. When you arrive at Schloss Ritter, talk to Gerde and find out all she knows. Take the knife from the hall wall and look around the castle rooms. Ask Gerde about the panels in the chapel and the poem on the portal door in the bedroom, then take the salt from next to her.

Return to the bedroom and take the chamber pot, scissors and scroll. Look at the scroll. Open the window and use the snow to wash with. Use the scissors on yourself to cut your hair and go to the chapel. Put the chamber pot on the alter and use the salt on it. Use the knife on yourself, and then use the alter to kneel. Use the scroll on yourself. Finally go to bed and dream.

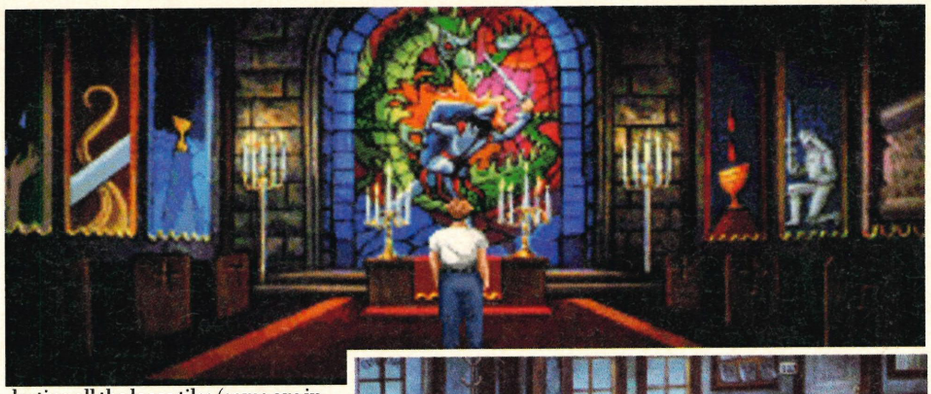
### Day 8

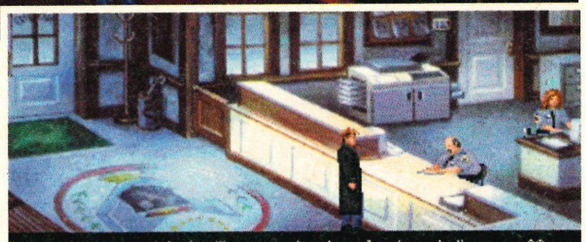
When you wake up, take the key from the end of the bed and use it on the locked door. Enter the library. Look at each shelf, then pick up the book from the occult section. Do the same with the geography section, sociology section, history section, religious section and archaeology section in that order. Give the last book you find to Gerde and use the credit card to get yourself a flight to Africa.

### Day 9

Enter the snake mound. The snake mound has twelve interconnected rooms, arranged like a clock face. Walk round, collecting all the loose tiles (some are in place, some on the floor) and pick up the rod. Two tiles are stuck in place. Look at them and count the snakes on them. Place the tiles in the correct slots, starting with the room by the entrance which is in the six o'clock position. Once they are all in place, go to the room in the three o'clock position, save your game and use the rod on the tile there. The mummies will start to reanimate as soon as you do this, so quickly head for the door at the top of the screen – if you're quick enough, you'll be OK. Do the same in the next room, but in the third room along you'll have to lure the mummy right and then try to get around it. This is far from easy. The room by the exit is filled with mummies, so quickly use the vines to swing past them. In the next room, Wolfgang will come to the rescue, so go straight through the secret door and use the rod on the small hole. You should both make it into the inner circle. Go to the table and look at both the top and the base. Take the iron bars (you'll need them both) and use them on the table. Once in position, try to operate them. Wolfgang will ask you to go to the other side of the room and cut out the mummy's heart. Use the knife on the mummy. Another non-interactive sequence takes you on to the final day.

**In the third room you'll have to lure the mummy out and then try to get around it. This is far from easy and took me many attempts to get through without dying.**





The desk sergeant looks like a poster boy for heart disease--30 extra pounds between his armpits and his belt, and a complexion the consistency of gray oatmeal.

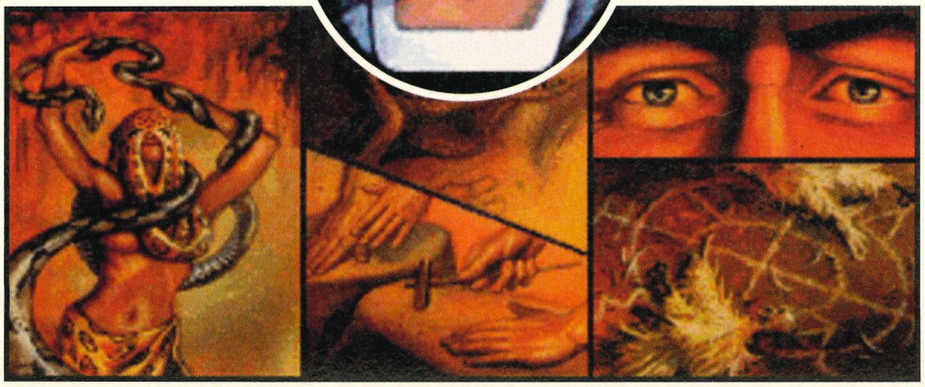


St. Louis Cathedral has a beautiful chapel, warm with tones of gold and cream, and rich with delicate frescos and meticulously-carved wood.

### Day 10

When you get back to New Orleans, head straight back to the bookshop. Grace has gone missing. Read the paper and the note you find by the till. When Mosely appears, interrogate him. After this, go to the cathedral. Enter the right hand confessional and use the rod on the knot hole to activate the secret lift. Place the rod and the remaining tracer bug under the seat, then leave the lift and open the door opposite. All the doors in the hounfour are opened by operating the adjacent keypad. Like the snake mound, the hounfour is shaped like a clock-face with doors at every hour. The lift is at six o'clock. Start by going anti-clockwise and look in all the rooms you can open. The second office (four o'clock) contains a second drum code book. Take this. Go into Malia's room (three o'clock) and observe, then sneak a quick peek at Dr John in the next room round. Don't try to take anything from this room yet, because if you stay too long in here, he'll kill you. Enter the room at seven o'clock and take two robes and the two masks. Then go into the centre of hounfour and use the drums. Use the first book and select 'summon' before clicking on the 'next book' option and then selecting 'brother eagle.' This will call Dr John to the centre for a short time. Exit the centre via the top right hand corridor. Back in the outer ring, move one screen clockwise (exit at the top of the screen) and enter Dr John's room. Grab the keycard from the opposite wall and exit as quickly as you can – hanging around will prove fatal. Use the keycard to open the room at one o'clock, and grab three bundles of money. Next, use the card to open the room at eleven o'clock. Look around. Finally, use the card to open the door at eight o'clock and find Grace inside. After Mosely enters, use the talisman to wake Grace, then give the boar costume to Mosely and use the Wolf costume on yourself. You can now take part in the ceremony. As soon as you are able, use the talisman on Tetelo to stop her killing Grace. Then use it on Grace and Mosely to throw it to them. They can now escape. When Tetelo grabs you, pick up the idol. Finally, try to pick up Malia when the crack opens in the floor. This will lead you to the end sequence.





# The Hand of Fate: Legend of Kyrandia 2

Last month, Cedric Holden pointed you in the direction of Volcania. Now he's about to save you from a fate worse than death.





### In volcania

Collect two rocks from the beach, stand in the large air vent and descend to the lava cavern. Collect a rock. Go west and get an empty flask and another rock. Go east and east again, pick up the stick and some fuzz from the tree, then cross the bridge and pick up a rock and the lead heart (turn it to gold).

Throw the stick to the dinosaur until the air vent erupts, stand in the vent and get two pebbles. Then make the teddy bear potion using the fuzz, pebbles and gold heart. Stand on the rock above the tyrannosaurus and jump on to its back. You'll end up with a red cloth.

Go west to the door, wait until the triceratops is facing it and use the red cloth. The door leads to the anchor chamber. Pick up the spellbook page and a small anchor.

To escape, seal the non-active air vent with a rock. Wander west and seal three more vents, then go back to the door location, stand on the board in the lava pit and get blown to the forest.

### The enchanted forest

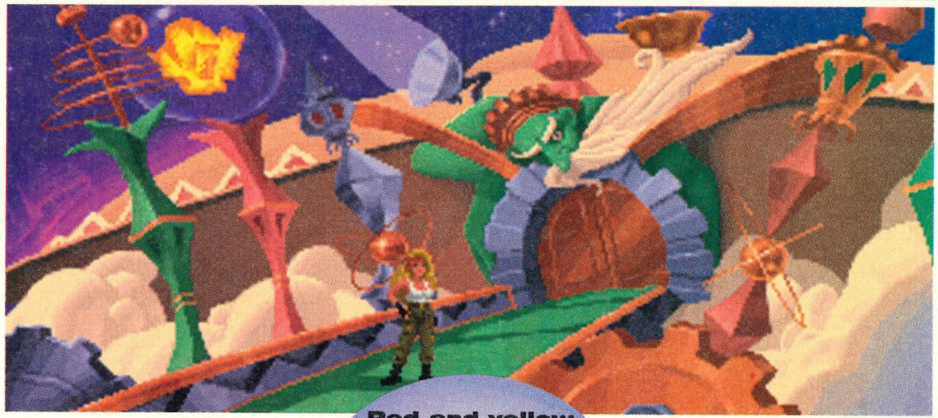
At the forest get a flask from the hole and a pine cone. Go east to the bridge and pick up a snowball, some twigs and some charcoal (use the twigs and rolling stone on the flint rock). Return to the bridge and make a snowman potion using the snowball, moss and charcoal. Use it on the guard. Take the walnut, go east to the meadow and use the alchemist magnet on the statue. A box appears. Get a drum and a jack from the box and an acorn from the tree to the left of the statue. At the forest, use the drum on the trees and move east to the ski-lift. Speak to the squirrel and give him the pinecone, acorn and walnut. Use the rolling stone on the wheel and get into the carriage. This takes you to the lodge.

**Talking to the animals is par for the course in Hand of Fate II. Speaking to the squirrels, giving them pine cones and walnuts is also quite usual!**

Outside the lodge get a snowball, a broom and a feather duster. Inside, pick up a flask, cannonball and some musk (from the left hand trophy).





Exit and turn the cannonball into gold, give it to the man and take the lolly from the child. Make the abominable snowman potion with the snowball, feather duster, musk and lolly. Use it and enter the lodge. Watch an auto scene which ends at the yeti pad.

In the pad, pick up the candy, perfume, flask and feathers. Leave by going north to the ice cavern, pick up two icicles and use one to climb the cliff.

After being taken back inside by the yeti, leave again and watch the hunters approach. Now make the abominable potion again using the icicle, perfume, feathers and candy. Use it on the hunters. Break off two more icicles and use one to climb the cliff. East leads to the small cabin.

### The rainbow machine

Inside the cabin is the rainbow machine. Use the three levers to find the rainbow stone, examine it (use on self) and note the colours and order; R O Y G B I V.

Make up the coloured potions in order, as below, and as each potion is made, collect it in a flask and fill the empty jars on the tree, in order, left to right.

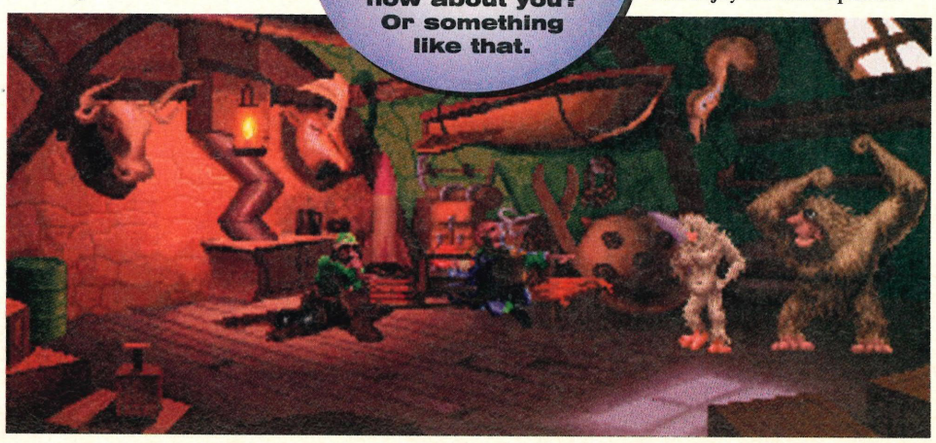
Go outside, get an icicle and use it to climb to the roof. An auto sequence leads to the wheelhouse. Enter by using the alchemist magnet on the lamp facing left.

| | |
|---|---|
| **RED:** | **hot air, feathers, red leather** |
| **ORANGE:** | **mustard, ground wheat, lettuce, cheese** |
| **YELLOW:** | **snow, musk, feathers, lolly** |
| **GREEN:** | **gnarly bark, sulphur rock, onion, tears, stool, hot water** |
| **BLUE:** | **fuzz, golden heart (lead/ alchemist magnet), pebbles** |
| **INDIGO:** | **purple gem stone, blueberry** |
| **VIOLET:** | **lucky horseshoe, footprint, sweet and sour, tears** |

Once inside, climb the stairs and turn right. Think of the holes as russian dolls: each cone-shaped hole contains a series of increasingly smaller circles. Open the left hole by moving all the circular pieces from the right hole to the left hole and take the stick. Move all the pieces to the middle hole to get the cog wheel.

Exit and go past the top of the stairs and to the left. Put the wheel on the empty spindle and use the stick to lever it into place. When the Hand appears, avoid its attack by clicking on the machine. Before the hand attacks a second time, click on the right hand piece of stick on the floor. Finally, click on the hand itself. Now sit back and enjoy the end sequence.

**Red and yellow and pink and green, orange and purple and blue, I can sing a rainbow, sing a rainbow, er, how about you? Or something like that.**



# QED TIPS

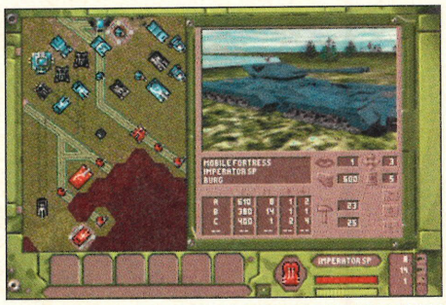


## Battle Isle 2

STAR TIP

Oxfordshire resident Jon Hughes has kindly sent in the level codes for Bluebyte's Battle Isle 2:

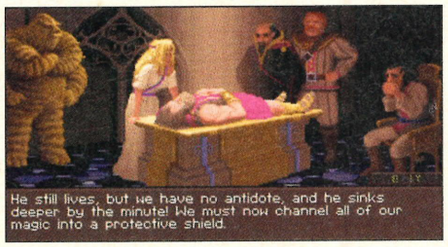
| | | |
|---|---|---|
| 1. AMPORGE | 2. JORGWAI | 3. GEGIDOS |
| 4. WABODAE | 5. BUFASWE | 6. GEHAUWA |
| 7. OLARIBU | 8. FITORGE | 9. DAFATWA |
| 10. WABIKDO | 11. GEEUSAT | 12. KAIMAWA |
| 13. SIETIBU | 14. GEDEROM | 15. ULUARGE |
| 16. ABUNDWA | 17. LANADGE | 18. WAFEFAL |
| 19. BUSALUG | 20. GEKEFZU | |



## Lands of Lore

DANGER

Philip Howe of Hertfordshire has been hacking away at Lands of Lore to give his characters extra experience. Use a file editor such as PC Tools, XTree or Norton and find the file "save000.dat". Locate line 0000B0 and change it by typing 30 75 30 75 30 75 and so on until you reach the end of the line. Save the file, then load the game, using this save. When you throw something you will become a 10th level rogue, when you cast a spell you'll become a 10th level mage and when you hit an enemy you'll become a 10th level fighter.




## Ancients 1: Deathwatch

Philip also has a cheat for Ancients 1: Deathwatch, which featured on the November 1993 cover disk. In the Ancients directory you'll find a save game containing a party of cheat characters. To use the party, type:

**COPY SAV.DTA SAVEGAME.DTA.**

## SimCity 2000

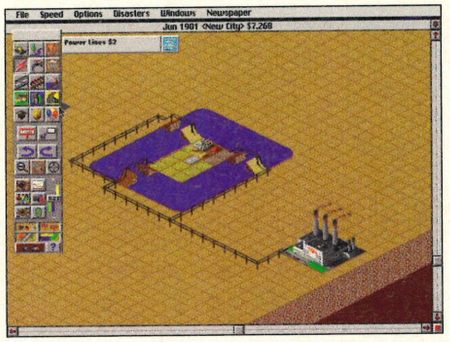
DANGER

Kaj Kold Hansen of Norway has discovered how to get 2,000,000,000 credits – all the money you'll ever need to build your dream metropolis. First start a new game and save it immediately.

You need a file editor such as PC Tools, XTree or Norton to edit your save game file.

Go to line 0000020 and change the eight number from the left from 00 to 77.

You should then find that you have vast sums of cash at your disposal. Spend it wisely.




## Jurassic Park

Matthew Guinan of sunny Margate has been slogging his way through Ocean's Jurassic Park and has kindly provided this list of level codes:

| | | |
|---|---|---|
| 1. B12A556B | 2. 3B5FB56B | 3. 0377D56B |
| 4. 607AF56B | 5. EB8FD56B | 6. 8B8FF56B |
| 7. AB90156B | 8. 4B90356B | |




## Eye of Horus

Stuart Bateman from Warley in the West Midlands has a tip for Eye of Horus. After the instruction "Press Fire to Start" appears, type SPAM for invincibility. You also don't need to find the coloured keys to operate the elevators.

He has also compiled a list of level codes for Spherical:

| | | |
|---|---|---|
| 1. RADAGAST | 2. YARMAK | 3. ORCSLAYER |
| 4. SKYFIRE | 5. MIRGAL | 6. GHANIMA |
| 7. GLIEF | 8. MOURNBLADE | |
| 9. JADAWIN | 10. GUMBA | 11. CHACMAL |

## Flashback

If you want a nifty cheat for that old favourite Flashback look no further than this little gem which comes courtesy of Philip J Walker.

Philip says , if you want to walk through walls in Flashback, all you have to do is get right next to the wall you want to walk through and then turn away from it. Next, start running away from the wall and as soon as you start to move, take your hand off Shift and turn back into the wall. You will now be able to walk through the wall.

This cheat will allow you to walk through any wall if you have enough room to perform it.

**Please STOP sending us requests for QED Guides, since we are no longer able to provide this service. We will try and answer all your queries in Help Wanted. Thank you.**

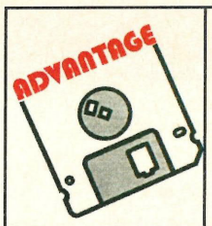
## PUBLISHER'S HELPLINES

**Hopelessly stuck in a game? Many software publishers run games helplines to help out hapless souls with hints and tips.**

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|---|---|
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| **DOMARK** | |
| Helpline number: | (081 ) 780 2224 |
| **ELECTRONICS ARTS** | |
| Helpline number: | (0753) 546465 |
| **GAMETEK** | |
| Helpline number: | (0753) 553445 |
| **GREMLIN GRAPHICS** | |
| Helpline number: | (0742) 753423 |
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| Helpline number: | (0891) 244444 |
| **INTERPLAY** | |
| Helpline number: | (0865) 390029 |
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| Helpline number: | (0454) 329510 |
| **MINDSCAPE** | |
| Helpline number: | (0444) 246333 |
| **OCEAN** | |
| Helpline number: | (061) 839 0999 |
| **RENEGADE** | |
| Helpline number: | (071) 481 9214 |
| **SIERRA** | |
| Helpline number: | |
| (Games after 1993): | (0336) 417410 |
| (Games before 1993): | (0734) 304004 |
| **US GOLD** | |
| Helpline number: | (021) 326 6418 |
| **VIRGIN GAMES** | |
| Helpline number: | (081) 964 8242 |

**With automated numbers (0839) get the permission of whoever pays the phone bill first. Calls cost 36p per minute cheap rate, 48p per minute at all other times.**






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## HELP WANTED

I am playing Serpent Isle and am not sure how to carry out Gustacio's experiments in Moonshade. *Simon Blackwell, Surrey*

*Answer:* Take Gustacio's globe to the tower to the north of Moonshade. Don't confuse it with the observation platform which is nearer to the city walls. Go upstairs and place the globe on the plinth, then pull the levers. Return to him and report the results, then visit Fedabiblio and use his crystal ball to find out what has happened to Edrin.

I have seen a Serpent Isle solution but it doesn't seem to be right. It says that in Moonshade, Rololuncia kidnaps Iolo. This hasn't happened. What am I doing wrong? *Sam Doesborgh, The Netherlands*

*Answer:* Nothing. Rotoluncia will kidnap one of your friends, but not necessarily Iolo (in my case, it was Shamino who was taken). To get to this stage, talk to Bucia about Pothos' resemblance to Erstam, then speak to Pothos about reagents and blood moss. Go and gather the moss from the swamp and take it to him. The kidnapping will then occur.

I am playing Ultima VII and I can't find Hook in Buccaneer's Den or on the Isle of the Avatar. *Sam Doesborgh, the Netherlands*

*Answer:* In Buccaneer's Den you'll find Hook's home, where he keeps the Black Gate key. This will get you into the dungeon on Avatar Isle. Look for the secret passage behind a wall curtain in the top left of the room. When you finally reach the Black Gate, you'll find Hook along with Abraham, Elizabeth and Forskis.

Recently I bought Indiana Jones and the Fate of Atlantis and although it is absolutely brilliant I have come to a grinding halt. I am playing the wits path. The problem lies in Crete. I have opened the secret entrance with the moon and sun stone and have just acquired the world stone from Sternhart. I don't know what to do next. I can't open either of the gates in the caves either. Please can you help me? *Mustafa Khanbhai, London*

I am playing Wizardry 7 and am two levels below Munkharama where there are four gates. All have water behind them, but despite having numerous keys, I can't get through any of them. How do I get through to the Holy City to get the Orb?
Also, I can't find the entrance to the secret passage in New City to find the map left by Barlone. *Malcolm Reader, Kent*

I am hopelessly stuck in Space Quest 5. I can't get the co-ordinates to get off the spaceship. Please could someone tell me where to find them? *Ian Govan, Scotland*

I am having trouble with some riddles in the Unshrine in the game Legend. Can anyone help? *James Haywood, London*

Simon the Sorcerer is driving me round the bend. I'm in the goblin village and want to know how to turn the druid into a frog. Also, is there any way of opening the forge door? *"Desperately Seeking Simon"*

Answer: Place the bucket with the hole in the bottom over the druid's head, then use the brand on it. The druid will think he's looking at a full moon and will then turn into a frog. And no, you can't open the forge door.

Please could you answer the following questions about Alone in the Dark?
1. How do I get past the worm creature in the tunnel by the cellar?
2. How do I defeat the pirate?
3. What am I meant to do in the library?
4. What do I do with the heavy statue and the carpet? *Mark Walker, Surrey*

*Answer:* 1. You don't. There is another way underground.
2. Use the sabre or the sword to defeat the pirate. This is tricky, so save your game first. Don't worry if the sabre breaks – you can still kill him with the hilt. Just make sure you pick up the blade afterwards as you need this later.
3. There's a secret passage in the library. Check the shelves to find a mechanism. You'll find a fake book in the room at the end of the gallery, so use this with the mechanism to open the door. Go inside and take the talisman and the knives. Use one of the knives to kill the monster in the library.
4. Throw the statue at the suit of armour to make it drop the sword. Place the rug over the portrait of the axe thrower in the gallery, then fire an arrow at the picture of the Indian at the far end.

We have been playing Sam and Max since Christmas and are very stuck. We can't find Frog Rock and we are unable to get at the loose end of the Ball of Twine. Also, what do you do at the World of Fish? *Julian, Stephen and Robert Barlow, Wakefield*

I am stuck on part one of Monkey Island 2. Please could you tell me how to get Largo Lagrande's spit off the wall of the bar so that I can make a voodoo doll of him? *Edward Zuccollo, New Zealand*

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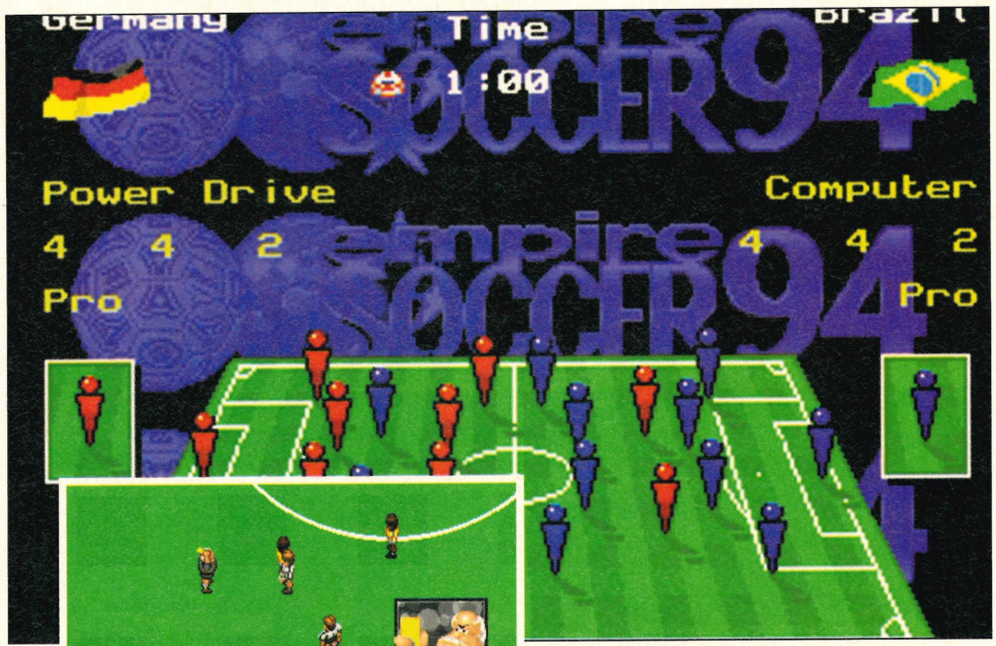
# Empire Soccer vs FIFA Soccer

In less than one month's time the world's best football teams will gather in the good old US of A, all hoping to hack, dribble and dive their way to World Cup glory. Of course, this has not gone unnoticed by the software industry and despite the fact that England, Scotland, Wales and Northern Ireland all failed to qualify, there are more football games on the way than you can shake a 70,000 seater stadium at.

First up is Empire Soccer '94, a lighthearted, arcade football game based around the World Cup. Using a traditional overhead viewpoint, the game presents you with an impressive set of options which enable you to play in the World Cup tournament, a single exhibition match or practice in training. There are 32 national teams to choose from and, like most modern football games, you can tweak your team formation and change individual skill ratings. There are also the usual extra time option, penalty shootouts, bookings, a statistical analysis of your performance (goals scored, fouls, corners won, etc) at half and full time, simple, cartoon style graphics, over 400 frames of animation, and a number of 'sillier' touches including elaborate player animations and little cartoons of furious managers and depressed players.

However, probably the most eagerly awaited football game (apart from Sensible Software's forthcoming World of Sensible Soccer) must be the PC version of the Sega Megadrive hit, FIFA International Soccer, from Electronic Arts.

Usually there's not really anything new you can say about football games. But as you can see from the screenshot, right, FIFA International Soccer's biggest selling point is the way it looks. Played using an isometric style top-down perspective, FIFA Soccer is an arcade game that gives the player a huge view of the pitch. With over 2,000 frames of animation, the superbly drawn players move realistically, performing all manner of 'real' actions including bicycle kicks, sliding tackles, diving headers and nifty little back-heels.






FIFA International Soccer captures the football atmosphere better than any game I've seen. The game is so detailed that if you make a particularly harsh tackle on a player, he will writhe about on the floor in agony while you are booked by the ref.

As for the game mechanics, FIFA allows you to choose any of 48 national teams, of which many have their own unique playing styles and abilities. Selecting attack and defence strategies, players can customise their own team, producing the best side possible for friendlies, tournaments or full league games.

But what FIFA is best at is providing frantic, attractive football action and I feel that any other football game (including the 'official' World Cup game from US Gold) is going to find it hard to beat. I may be a Sensible Soccer fan at heart but my tip for football glory this year has to be FIFA International Soccer.

**■ Dean Evans**

**Top and middle: Empire Soccer '94 takes a fun look at football. Above: FIFA International Soccer brings a fresh new look to PC footy games.**

**FAXBOX**

**EMPIRE SOCCER '94**

| | |
|---|---|
| **Developer:** | Empire |
| **Publisher:** | Empire |
| **Release date:** | June |
| **Genre:** | Football game |
| **Minimum PC:** | £TBA |

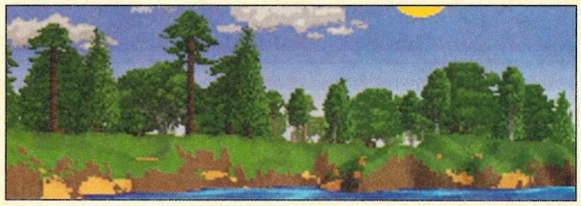
**FAXBOX**

**FIFA INTERNATIONAL SOCCER**

| | |
|---|---|
| **Developer:** | EA Sports |
| **Publisher:** | Electronic Arts |
| **Release date:** | June |
| **Genre:** | Football game |
| **Minimum PC:** | £TBA |

# Lords of Midnight: The Citadel





The long-standing rumble that there are no original ideas for games these days gains credence when you look at the current fashion for giving golden oldies a makeover for the 90s. The old Gargoyle Games adventure, Tir Na Nog is currently in development, as is a brand new version of Activision's Pitfall, but in Lords of Midnight: The Citadel, one of the all-time greats is back.

The Citadel is a new chapter in Mike Singleton's classic saga, which veterans of 8-bit days will remember was originally made up of two games: Lords of Midnight and Doomdark's Revenge (the planned third game, Eye of the Moon, never appeared). Taking place many years after Doomdark, The Citadel opens with an aged Luxor held hostage by Boroth the Wolfheart, and Prince Morkin setting out on a covert rescue mission.

As the player, you control six characters from four parties: Prince Morkin and the Lord of Dreams, starting on the river Imilvir, north of Glimormir; Rorthron the Wise, who is approaching Rilleon west of the Long Mountains; Corleth and the young Lord Blood, in the Citadel of Maranor, and finally, Luxor himself, imprisoned somewhere in Maranor. As you play, you will recruit more characters to your parties. The ultimate aim is to eliminate Boroth Wolfheart while keeping alive at least one member of the House of Moon: Luxor, Prince Morkin, Corleth or Anderlane of the Arakai (first, you must recruit Anderlane to the cause).

The gameplay is designed to be flexible. You can control just one character throughout, in which case the other players on your side will make their own independent decisions and you can still keep track of them. You can also switch roles from time to time, or control all six major characters, in which case they won't make their own decisions and all moves are synchronised at the day's end.

### The tourist route

The Citadel is designed to be more complex than the original Lords and with an intuitive, mouse-driven interface, but the first thing to grab your attention will probably be the graphics. Those who know Mike Singleton's Midwinter games will recognise the technique used, but they have come on some way since then, and the Blood March is undeniably scenic — a tourist's delight. The passing of time is also shown on-screen, with sunrises, sunsets and nightfall, and even the passing of the seasons — these again are linked to the computer's real-time clock, so if you start playing in June, when the game due to be released you'll enter the Blood March in mid-summer. Try altering the date on your PC, then using this month's cover disk and you'll see for yourself.

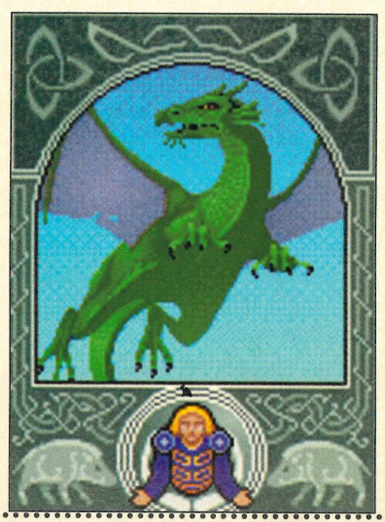
The Citadel contains many more polished extras than the 1984 original. It has a bestiary, detailing the creatures you will find in the game world; it has a diary showing the days and months of the Blood March year; it has a full graphic map of the lands; and it has a pictorial list of the cast of characters to help you keep track of who's who. Again, our cover disk has a sample of these.

The Citadel will undoubtedly appeal most to those who have fond memories of Lords of Midnight from their Spectrum-playing youth, but Mike Singleton has put a great deal of effort into creating a full stand-alone game which should be appreciated by those who are relatively new to computer games as well.

■ **Christina Erskine**

**FAXBOX**

| LORDS OF MIDNIGHT: THE CITADEL | |
|---|---|
| **Developer:** | Malestrom |
| **Publisher:** | Domark |
| **Release date:** | early June |
| **Genre:** | Strategy |
| **Minimum PC:** | £34.99 |



## KEEPING TIME

**Time plays an important part in The Citadel, with the program linked to your PC's internal clock. In a 'time-locked' game, game-time days are synchronised with real-time days. If you stop playing and come back to The Citadel, say, three days later, you will find that three days have also passed in the game and your characters will have spent three game-days making their own decisions, travelling, and so forth.**

**In a 'time-linked' game, a playing session is limited to one day of game-time. If you leave the game for more than day without playing, you will come back to it in the next game-day, making it a less severe option than the time-locked variant.**

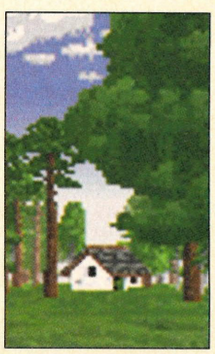
### And the story so far ...

**Luxor has been captured because rumours had reached the Land of Midnight that the magical jewel the Eye of the Moon had been found in Coromand, a land far to the south. Since the Eye gives dread power to those who know how to use it, its discovery puts the safety of Midnight in danger, so Luxor, despite his great age, sets off to retrieve it, accompanied by his grandson Corleth, Lord Blood and his eldest son and a small band of warriors of the Free.**

**The party has been captured by Boroth and his cohorts, and many killed, including Lord Blood (the elder — the Lord Blood you control is his son). Apart from Luxor, the survivors were sold in the slave market. But Luxor, thanks to his status, is being kept alive, and Prince Morkin has a hefty ransom to pay. Boroth has warned the prince that any attempt to wage war to reclaim Luxor will result in his death.**

**This is a land populated by all manner of wildlife. The passing of the seasons is also shown on-screen: the picture, below right, was taken in high summer.**





# DOOM2: Hell on Earth

**A wish list for the second coming ...**

It's hardly surprising that Id Software's Doom won Overall Game of the Year at last month's ECTS games industry awards. True, there were some rather forced grins from commercial games publishers as they had to concede that, yes, the most innovative and – arguably – technically advanced game of the past twelve months came from a small(ish) shareware background.

So having played Doom to death, when do we get to see a follow-up? Well, it's too early for any preview material or pictures as yet — these will have to wait for a forthcoming issue. But according to Jay Wilbur, Id's business manager, it's not going to be too long. Doom 2: Hell on Earth is due out of the gates of Id's Texan ranch in August.

And there won't be a shareware version. Jay Wilbur is keen to point out that Doom 2 will be a full commercial product, to be released on both floppy disk and CD-ROM (though which format first is still to be finalised), and published by GT Software in the US, and under licence in Europe.

Improving Doom is going to take some doing, though. But here's what your hardworking and perfectly normal games reviewers would like to see in Doom 2, the sequel:



### Dean Evans

First and foremost, Dean thinks Doom 2 needs vehicles. Vehicles you can shoot at, vehicles you can drive, and vehicles you can shoot other vehicles in. Oh, yes, and vehicles you can run people over with, with that particularly nice squelchy sound peculiar to exploding corpses in Doom. M1 Tank Platoon with chainsaws, perhaps?

Dean also suggests 'wingmen' would be handy (what do you expect from a flight-sim addict, after all?). An extra platoon to dispatch ahead of you — or to cover your rear — using the automap to control them (*à la* Space Hulk).

Dean also feels that you should be able to collect your opponent's weapons in a network or serial-link game — after you've stopped and said hello. And before shooting him.

Civilians, he adds as an afterthought. Lots of innocent civilians to get caught in the crossfire — accidently, of course.

### Cal Jones

Cal doesn't want much out of life — or Doom 2. No, all she wants is a vast array of more people to kill, 'more' in the sense of greater variety, and more also in the sense that she would also like more than four players in a network game. After all, the more people she can ambush with her trusty chainsaw, the better.

Other than that, Cal would like to be able to set traps such as mines and trip wires for demons and other players to walk into. She also wants to get her grubby hands on a motion tracking scanner (what is this, Aliens?) which she thinks should be hidden in the same way as big weapons, supercharges and so on.

Cal is definitely in the 'look up and down' camp, where you can control vertical as well as horizontal panning, but she'd also like to be able to scale walls and jump.

Like Dean, she wants to be able to pick up enemy weapons in the Deathmatch game.

### Paul Boughton

Paul wants to be able to jump and climb, as well as to look up and down properly. Plus, he's a big fan of the idea of traps, both laid by the player and hidden in the game itself.

Paul's final comment had something to do with decapitation. One thing led to another, and lo and behold it was agreed — at least by Paul, Dean and myself — that you should be able to wound the opposition. The general idea being that you'd have a demon hopping after you shouting, "Come back, it's only a flesh wound".

### John Bennett

A padded cell, beer on tap and Doom 2 — I'm all for it. It'll never happen, but I've one particular wish: famous faces on monsters. Ah, the chance to take a chainsaw to John Major ...

Actually, I hope Id doesn't go and change the control system so you can control looking and shooting up and down, to be honest — I think that would just over-complicate the game, rather than improve it.

On the other hand, I'm all for hidden traps — of the Prince of Persia 2, scything blades, trapdoors and falling lumps of masonry variety to add some extra suspense. Put one foot wrong in the dark, and catch a spear in the head. The only thing with this is that you'd have to be able to duck and jump to avoid traps — which may make the control system too complicated again.

### Christina Erskine

Christina has never really got her head round Doom — on the somewhat spurious grounds that "someone's got to stop playing that damn game and produce the magazine".

As far as Doom 2 goes, Christina wants to see a self-destruct button, and the ability to put preservation orders on buildings in SimCity 2000, which is completely beside the point.

## WHERE WOULD WE BE WITHOUT WEAPONS?

**For some completely inexplicable reason, the first thing that sprang into everyone's minds was the weaponry. Within seconds we had a wish list of hardware that would send your average terrorist organisation home with a migraine.**

**These included very big guns, land mines (with or without timers), hand grenades, fragmentation grenades, even bigger guns, piano wire, flame throwers, machetes, throwing axes and cross-bows. Flame throwers were the most popular choice — with various references made to Syndicate and the sadly omitted 'frying dogs and babies' scenario.**

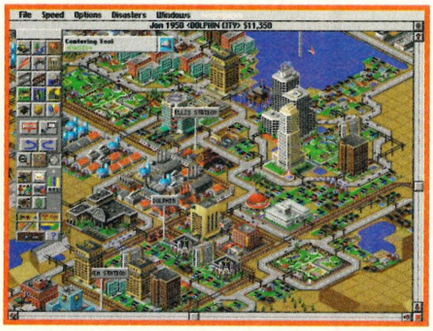


# Sim Analysis

**Entries are flooding in to our Sim City 2000 competition. Cal Jones gives five more victims the psycho treatment.**

How much can tell about someone from the cities they build in Sim City 2000? Back in our April issue we asked you to send in the best cities you could create in 50 years, and the best and worst entries would be singled out for analysis. Here are five of the most interesting cities we've seen this month.

### SUBJECT ONE:
### Angus Morrison of Dundee, Scotland



Dolphin City isn't outstandingly big, but what it lacks in quantity it makes up for with quality. Angus has made sure that his citizens can get about easily — he has provided highways, buses, trains, and airport and an underground system. Either Angus is a go-ahead kind of chap or else he worries a lot about being late for work.

In addition, Dolphin City has a several parks, a museum, two marinas and two zoos. Angus obviously enjoys his leisure time and hates getting bored. Although Angus has been playing with the disasters off, he hasn't taken out any bonds and has $11,350 left over — quite a feat. He must be very organised!

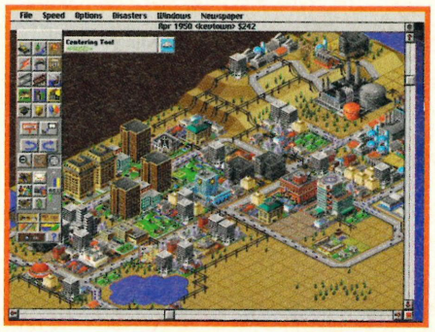
### SUBJECT TWO:
### Ian Cowie of Unst, Shetland



Ianville is this month's biggest city (population 37,000) and has many large buildings including theatres, historic offices, a college, numerous condos and a sea port. Is Ian trying to make up for living in such a remote area? Unfortunately, Ian's airport was destroyed because he sportingly played with disasters on — he obviously enjoys a challenge and doesn't mind taking a few risks.

Ian's transport system is interesting: roads are straight but there are many dead ends. This tells me that Ian often tries to plan things, but they don't always turn out the way he envisaged. Note also that he's built his house next to the railway — bit of a trainspotter, perhaps? Ianville is an impressive city on the surface, but is let down by the fact that Ian has taken out a ridiculous amount in bonds to build his metropolis. Very underhand.

### SUBJECT THREE:
### Kevin Adams of Chelmsford, Essex



Kevtown is the smallest entry so far (I don't like to think how this reflects on Kevin) with a population of 4,180. Not only is it small, but it also lacks facilities: the park and library are the only notable additions. Since Kevtown covers so little of the map, land values are high. However, unemployment is astronomical. Is Kevin lazy, perhaps, or is he simply bad at managing his resources? Still, to his credit, Kevin hasn't taken out any bonds and he's been playing with the disasters on, so he is at least honest. Good luck to you, Kevin, you may well be on for that mystery booby prize.

### SUBJECT FOUR:
### James Thompson of Grantham, Lincolnshire



Bumpusville is a small but well structured town which consists mainly of low-rise buildings — but that's hardly surprising because James is only eight years old and thus a bit low-rise himself.

The power stations are hidden well away from the houses, so James must be environmentally aware. He also seems to have a thing about water pumps, but I won't comment on that.

Bumpusville (James must be a Sam and Max fan), doesn't have all that many amenities — just a small airport, a college and the usual schools, police stations, fire stations and hospitals. Having said that, the standard of education in Bumpusville is high, so James obviously cares about his schooling.

### SUBJECT FIVE:
### Frank Borreson of Moss, Norway



We've had several entries from overseas, but the best has to be Norge (patriotic, aren't we, Frank?), a large and attractive city with plenty of amenities. Norge has a number of impressive buildings, including condos, office blocks, malls and car parks.

Strangely (well, it seems strange to me, anyway), Frank has dedicated the largest, shiniest office tower to PC Review — he obviously isn't familiar with the EMAP shack! I get the feeling that Frank often tries to get what he wants through flattery. It doesn't always work, mind you.

Even more oddly, Frank has placed a sign saying "Water" in the middle of the sea. I guess he's a bit of a joker, or at least he likes to think so.

Norge has no major defects: unemployement is low, the people are well-educated and healthy and crime and pollution are average. However, Frank has taken out $30K in bonds and even then he doesn't have much money left in the bank. He should be very wary of getting into debt. Still, this isn't a bad effort.

**For details of how to enter the Sim Analysis competition, see over the page.**

COMPETITION

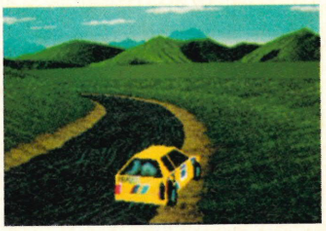
# Coming Soon

**There's no shortage of PC games in development at the moment. Role-playing epics, adventures, arcade games, you'll find them all in PC Review's gigantic summer preview.**





Core Design is releasing Heimdall 2, the follow up to the Norse arcade adventure Heimdall. The gaming world will be smaller than in the original but there will be more puzzles and improved combat.



Elite's conversion of the furious arcade driving game Powerslide is due out on PC late this autumn, complete with various courses and spectacular skids. Fasten your seat belts and get ready to burn rubber ...



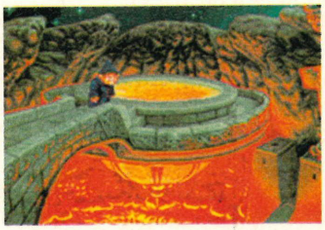
After the success of Frontier: Elite II, Gametek is releasing another space combat simulation, entited Star Crusader, in the X-Wing mould. It's due for release towards the end of the year.



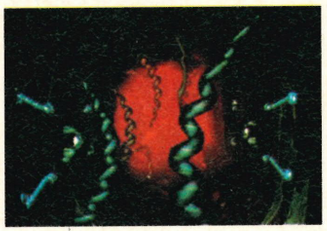
Origin's System Shock is a first person perspective science fiction action-adventure from the same team which brought you Ultima Underworld, Looking Glass Technologies. To be released in June.



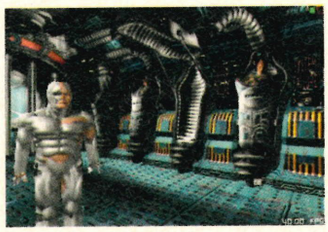
Software Business's Club Call: The Manager is a football management game in the Premier Manager style. You'll have control over tactics, team selection, ground improvements and the transfer market.



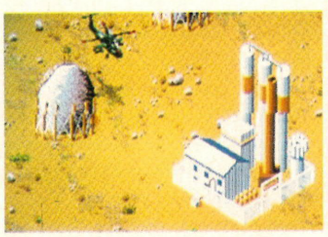
Adventuresoft's sequel to its comic adventure, Simon the Sorcerer, is due out this autumn. In Simon 2, you'll meet many of the same characters (the Swampling, for example, is now running a hamburger bar).



Set in 2094, Hell is a cyberpunk-meets-the-Devil thriller inwhich you play a fugitive wanted for ill-defined sins against the state. Available from Gametek, Hell is due for release later this year.



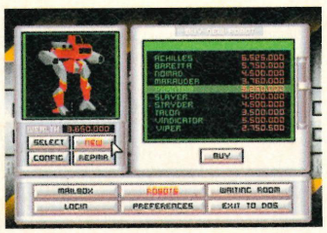
Bioforge is the first in a planned series of interactive movies from Origin. This sci-fi mystery combines Hollywood filming techniques with computer generated graphics, and is due out in July.



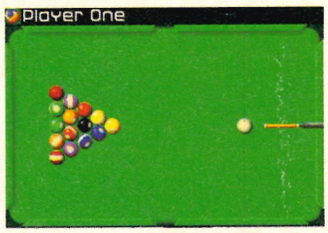
Gremlin's Desert Strike was a huge hit on the Megadrive, and now the arcade-style helicopter game has landed on the PC. It's a shoot 'em up with a strong tactical element and is out this summer.



Quarantine is a first person combat driving game in which you must escape from a violent city, with both action and adventure-style elements. Available from Gametek in October on floppy and CD-ROM.



Sierra's Battledrome is a Virtual Reality arena in which huge armoured robots battle it out for supremacy. You can take oneither computer or human controlled opposition, and it's modem compatible.

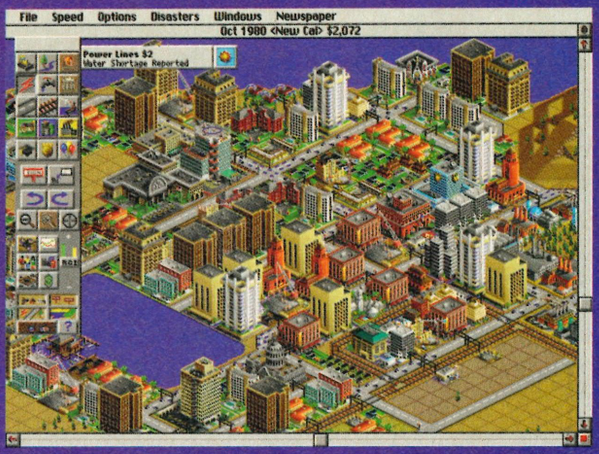



Rack 'em up with Arcade Pool, Team 17's budget simulation. As well as playing the established rules of Pool, it also features many variants of the traditional game including the pub favourite, Killer.

# PC CHARTS

## Disk-based games

1 SimCity 2000 *Maxis*
2 UFO *MicroProse*
3 Flight Simulator 5 *Microsoft*
4 Beneath a Steel Sky *Virgin Interactive*
5 F14 Fleet Defender *MicroProse*
6 Elder Scrolls: Arena *Bethesda/US Gold*
7 Pagan: Ultima 8 *Origin Systems*
8 X-Wing *LucasArts/US Gold*
9 TFX *Ocean*
10 Frontier: Elite 2 *Gametek*




## CD-ROM based games

1 7th Guest/Dune *Virgin Interactive*
2 Battle Isle 2 *BlueByte*
3 Ravenloft *SSI/US Gold*
4 Gabriel Knight *Sierra*
5 Rebel Assault *LucasArts/US Gold*




Charts compiled by Virgin Retail



**Overdrive is a mid-priced arcade style racing game from Team 17 with over 20 different racing tracks, up to six cars on-screen at once, and a head-to-head option for two players. Due to be released at the end of May at £29.99.**



**Late night TV show hostess Vera Cyntex invites you on to her show to compete for the title of Mr/Ms Flesh 2000. Is this a challenge you can possibly turn down? Daze is launching this raunchy adult game later this year.**



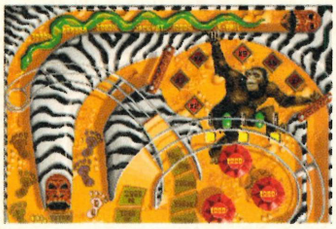
**The Chaos Engine is the thinking man's shoot 'em up: a game of tactics and action. This Bitmap Brothers title has a strong 'steampunk' scenario and is scheduled for release this month.**



**In the sleepy town of Harvest lurks an unknown horror ... Harvester is a stunning-looking adult adventure from American-based company, Merit. Merit is hoping to open an office in the UK very soon.**



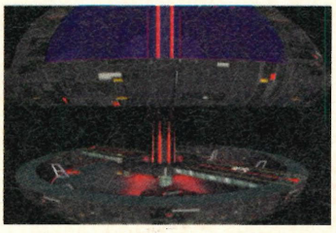

**Superhero League of Hoboken is a zany sci-fi adventure from Steve Meretzky, and features characters such as Dr Entropy, Steroid Man and Captain Excitement. Available from Accolade in June.**



**21st Century Entertainment is releasing an add-on disk for the successful Pinball Dreams. It features four new tables: Neptune, Stall Turn, Safari (pictured) and Revenge of the Robot Warriors.**



**Maxis, famed for its Sim games, has branched out with a CD adventure, Wrath of the Gods. Set in Ancient Greece, it features full speech and video footage, as well as plenty of exploration and puzzle-solving.**



**From Coktel Vision comes Veltion, a smooth-looking Inca-style action-adventure set in space. It will come on CD-ROM only with a choice of VGA or SVGA graphics, and is scheduled to reach the shops in October.**

# PC REVIEW Recommended

We don't give PC Review Recommended awards to many games, but you can be assured that those that do get this accolade will be, in our opinion, outstanding in all areas. A PC Review Recommended award is a guarantee of excellence.

### The Recommended scheme

Not only do you have the advantage of knowing that Recommended games are currently the best in their class, but we give you the chance to win a copy of each PC Review Recommended title. We have five copies of each newly Recommended game to give away to the winners of this competition.

### How to enter

If you'd like the chance to win a copy of Myst, this month's only new Recommended game, simply answer the question printed on the entry coupon, and send your entry on a postcard, or the back of an envelope, to PC Review Recommended, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.

The closing date is June 10, 1994, and any entries received after that won't be eligible for the prize draw. The winners will be the first five correct entries drawn at random after the closing date. All normal competition rules apply — particularly the one about not sending in multiple entries. One form per person, please!

## PC REVIEW RECOMMENDS

**THE BEST OF THE LAST THREE MONTHS**

**Gabriel Knight: Sins of the Fathers**
**Sierra, £39.99 disk, £44.99 CD-ROM**

A ghost story centred around voodoo cults, and set in New Orleans. Not for the faint-hearted, Gabriel Knight is an adult game dealing with adult themes, which manages to pull off that most difficult trick in computer games: creating strong believable characters. On CD-ROM, the roles are spoken by professional actors such as Mark Hamill and Tim Curry, which adds enormously to the atmosphere.

**SimCity 2000**
**Maxis, £39.99**

A sequel to a classic game which turned out to be everything it promised to be: a sophisticated, detailed and beautifully illustrated game in which you must build your own city from scratch, from raw terrain to a thriving metropolis. You'll also run the risk of seeing your carefully nurtured community razed by fire, flood and earthquake (or a visit from an alien fiend). The first add-on disk, with disaster scenarios from real cities is also now available.

**Doom**
**Id/Transend, £34.75**

The £34.75 price tag is for the full version; a fiver buys you the first world as shareware. Anyone who says the PC "can't do" arcade games needs to look at Doom and then eat their words. It's mayhem and carnage at a frantic pace, although having played the shareware version on PC Review's cover disk, you'll know all about that.

### Win Myst on CD-ROM — recommended this month

WIN



Answer the question below and send this form (or a photocopy if you don't want to spoil your magazine) to PC Review Recommended, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU, to reach us by June 10, 1994, and your entry will be placed in the prize draw.

Q: Which American development team wrote Myst?

A: .....

Name.....

Address.....

.....

.....

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

## THE PC REVIEW PLAYLIST

**We've ranted about a fair number of games this month, and raved about a very select few. But what are the titles currently taking pride of place on our hard drives, and keeping us at work late into the evenings?**

**Christina Erskine**



Plenty of opportunities for a SimCity fix this month, with the arrival of the Disasters scenario disk. Christina has also found time to brush up on her Links skills, trying out the Castle Pines course for size.

**John Bennett**



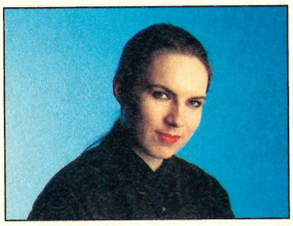
John was initially suspicious of Electronic Arts' FIFA Soccer when the work in progress disk arrived (no guns, no chainsaw, you understand). But it seems to have won him round. "This is *good*," he proclaimed.

**Dean Evans**



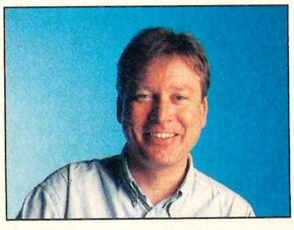
Dean is also tipping FIFA Soccer to topple Sensi from its dubious accolade of "best PC football game from a not very inspiring bunch". He's also been 'testing' MicroProse's Pacific Air War.

**Cal Jones**



Cal may have spent more time than strictly necessary slicing John into pieces with her Doom chainsaw, but she had no hesitation in proclaiming the non-violent Myst a cast-iron PC Review recommended game.

**Paul Boughton**



Paul has been pleasantly surprised by Reunion. Initially sceptical because it's an Elite wannabe with a 20 minute intro ("unnecessarily long and rather dull"), he was wooed by its scope and value for money.

# REVIEWED THIS ISSUE

## ON DISK

| | |
|---|---|
| **Battles of Time** *UBI Soft* | 7 |
| **Castle Pines** *Access/US Gold* | 7 |
| **Diggers** *Millennium* | 7 |
| **Quest for Fun** *UBI Soft* | 7 |
| **Ravenloft** *SSI/US Gold* | 7 |
| **Reunion** *Grandslam* | 7 |
| **SimCity 2000 Great Disasters** *Maxis* | 7 |
| **Genesia** *Mindscape* | 6 |
| **Raptor** *Apogee/Transend* | 6 |
| **Eye of the Storm** *Rebellion* | 5 |
| **In Extremis** *US Gold* | 5 |
| **Breakline** *Mindscape* | 4 |
| **Red Hell** *Cyberdreams* | 3 |
| **Spiritual Warfare** *Alive Software* | 2 |
| **Corridor 7** *Gametek* | 2 |

## ON CD-ROM

| | |
|---|---|
| **Myst** *Electronic Arts* | 9 |
| **Great Naval Battles II** *SSI/US Gold* | 8 |
| **Aegis** *TimeWarner* | 7 |
| **Lands of Lore** *Virgin* | 7 |
| **Dark Seed** *Cyberdreams* | 6 |
| **Hell Cab** *TimeWarner* | 6 |
| **Summer Challenge/Winter Challenge** *Accolade* | 6 |
| **Spaceship Warlock** *UBI Soft* | 5 |
| **Carriers at War** *Electronic Arts* | 5 |

# SIM ANALYSIS COMPETITION

If you'd like to submit your SimCity 2000 created metropolis to the Sim Analysis competition, and the rigours of Cal Jones' character assassination (see page 97), all you need a copy of the game and a spare floppy disk.

You have 50 years, starting from 1900, to create your city. You may edit the terrain before you start, you may take out bonds to ease the financial pressure and you can play with the disasters off if you are feeling cowardly. You can also use tricks such as the Maxis Money-maker, as detailed in Issue 30, but please, no code-hacking, or blatant cheating.

When you reach January 1950, save the game, and send us the saved game on floppy disk. Label the disk clearly with your name and address and the name of your city.

### Prizes

All the cities we publish and analyse will win a prize. The best cities will win a copy of SimCity 2000 Great Disasters scenario disk (reviewed this issue on page 54), middling cities will get a SimCity souvenir, and the worst city of all will get a mystery booby prize!

Send your entries on disk to Sim Analysis, PC Review, 30-32 Farringdon Lane, London EC1R 3AU.

### Rules

- Entries should arrive on disk, and saved games should be dated no later than January 1950.
- Please enclose an SAE if you absolutely must have your disk returned.
- You must be prepared to have your city analysed by 'Dr' Cal Jones.

# CIARÁN'S RANT

Whatever you want from screen-based gaming, you can get it from your PC — you know that, I know that, and soon, if current trends continue, just about everyone will have cottoned on to the fact that the PC is the only currently available games machine which offers any protection against the future. One thing that's not so generally recognised about the PC, though, is that it's been such a leader in the field of games development over the last half decade or so.

Animated adventures? You saw them here first. Flight simulations? Ditto. 256-colour games? Where else? Hard disk-only games? Natch. CD-ROM games? Not only were we the first, we're still the greatest.

So why is it that game publishers constantly drop us at the first sign of a flashy newcomer?

I suppose if PCs had feelings, they'd be feeling a bit like Brian McClair does as he spends week after week on the Manchester United bench. But hey! Enough of this whinging. I'm here to talk about something a little different this month. Let's get back to innovation for a moment.

### New games on the block

If we take it for granted that future generations of the PC standard (and every new games kid on the block) will have more life-like graphics, better and better sound capabilities and ever-increasing memory (both storage and RAM), then where is the next step forward going to come from?

For what it's worth, my guess is that the next generation of games machines will all be built with one major factor in mind — connectivity.

It sounds pretty obvious when you put it into simple terms, but human beings (even computer users) are basically social animals which like to do things together. The very nature of the current personal computer or games machine, however, means that it can't help but lock the user into a solitary world — but with the help of some chips in a box, a length of cable, and some software, all that should change very soon.

Contemporary games gurus like to talk of future worlds where we all meet in Cyberspace (yeuccch! what an horrible word — go wash your typewriter out with soap, William Gibson) to share knowledge, compete with one another or simply chew the fat.

In fact, it's already happening. The Internet network is already full to bursting with avid computer owners delving into each others' personal text and graphics files, and surely it's only a short step from this to real 'interaction' across the digital airwaves.

I must confess that up until now I've done my best to avoid coming into contact with any of this malarkey. The very thought of modems, baud rates and protocols has been enough to send me scurrying straight back to my solitary unconnected existence, but lately I've been warming to the subject.



### Ease of use

It could be because of the increasing ease of use which is being built into comms, it could be because of the amount of press which the subject of networking is receiving these days, but most of all it's because connectivity is the future — and I want to be right there when it all happens.

So there you have it... you know what I'm going to be doing until we meet again in these pages next month. And it won't just be me either — some of the biggest companies in communications (including BT and cable specialist Viacom) are also beginning to take an interest in where we all meet on the digital superhighway (or 'infobahn' as we jargonmeisters are calling it) and you can be sure that they wouldn't be bothered unless they thought that a lot of us were going to be there too.

■ **Ciarán Brennan**

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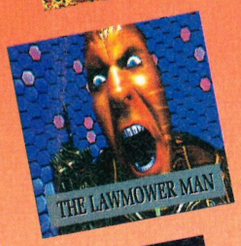
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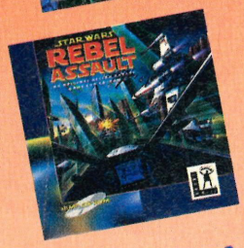
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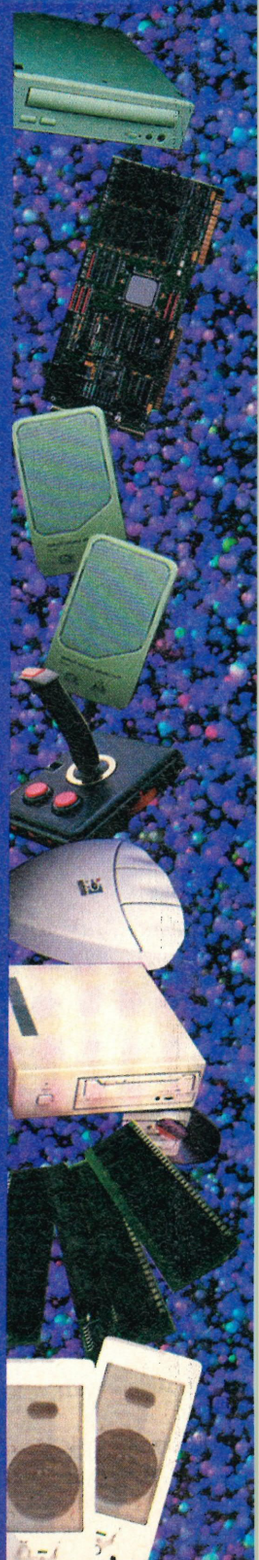
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# the PRODUCT directory



# Reviewed this month PRODUCTS

It may not be on the scale of a house or a new car, but the home PC makes a sizeable dent in any wallet. However, the sheer enjoyment and convenience of the PC is enough to justify the initial outlay, and the extra hardware and software you suddenly find you just have to have.

That's fine. Nobody minds spending money on something worthwhile. On the other hand, if you make the wrong decision you could end up throwing good money away on something you don't want, don't need and certainly won't like. With the sheer number of PC products arriving daily, usually to a fanfare of technical gibberish, it's all too easy to make a mistake.

That's how this section is going to help you — summarising the effectiveness of new PC products in a direct and straightforward way, free of jargon. This will point you in the direction of that essential gadget, and warn you off the badly made, the unsuitable and the ill-conceived.

Many PC products are just not designed for you and me to use, they're still aimed at companies and offices. In a company, you don't chose what sits on your desk, you don't have to pay for it, or fix it when it goes wrong. A specialist does it all for you.

That doesn't happen at home. So, until there's a wholesale change in the type of equipment we're sold, you need to be able to distinguish what is important about PC hardware and software, and what is just marketing guff. When you buy a car you don't need to know how a 16-valve engine works right down to the last rivet. You need to know how quick it is, how well it performs and whether it's likely to fall apart on you. The same is true with the PC, and that is what we aim to provide in these pages.

## HARDWARE


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## The rating system explained

The products in the following section are marked out of five:
★ Dreadful. Don't touch with a barge pole.
★★ Usefulness is probably limited, but could be suitable for specific need.
★★★ Generally good; some limitations
★★★★ Good. Should go on anyone's shortlist to buy
★★★★★ Superb, either outperforming or offering features that other products can't do.
Ease of use, ease of installation, value for money and sheer performance are the most important factors we take into consideration.

# Product directory

PRODUCTS

**Surely we need an expensive new sound card like a hole in the head ... but then, the Sound FX Classic 3000 does boast some very classy features.**

We start off this month's Product Directory with a new, all-singing, all-dancing sound card that deserves a very close look for the effect it's going to have in a market where we are already spoilt for choice.

### Sound FX Classic 3000

*16-bit wavetable sound card*

Welcome to the sound card that has everything. Well, almost. The SFX Classic 3000 has wavetable and FM synthesis on the board in hardware, over 300 sampled sounds, General MIDI and Roland GS support, and on and on.

OK, I know we're aiming to avoid the mass of jargon that usually accompanies computer product reviews, and that last bit sounded suspiciously like it.

The problem is that there are already several similarly priced top quality cards from a variety of manufacturers, each boasting of superior sound quality backed up by a barrage of facts and figures for those of us who can't tell the difference by ear alone. With such a subjective matter as sound quality, it's impossible to make an accuracte assessment without taking a very close look at the technology involved

### It's got a widget

The SFXC3000 is a 16-bit wavetable card — like the Advanced Gravis UltraSound and the Orchid SoundWave and GameWave.

The advantage of the SFXC3000 over its wavetable rivals is that it uses Pulse Coded Modulation (PCM) wavetable hardware to create sound rather than the software-driven wavetable Digital Signal Processor (DSP) approach of the Gravis and the Orchid cards. The boxout on the opposite page explains a little more about PCM hardware — but the long and the short of it is that it produces marginally better sound quality than DSP systems.

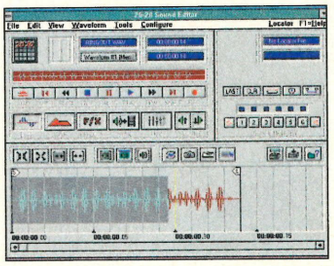
A large step down the quality ladder, and the alternative to a wavetable card, is an FM card like the Sound Blaster.

And, quite simply, there is no comparison in sound quality terms between wavetable cards and the older FM synthesis cards. Wavetable produces a better noise all round, and you also pay quite a bit more for it than FM.

But you usually take a bit of a gamble with wavetable cards, because not all games support them directly as yet.

Not so with the SFXC3000, which is what makes it such an interesting newcomer.

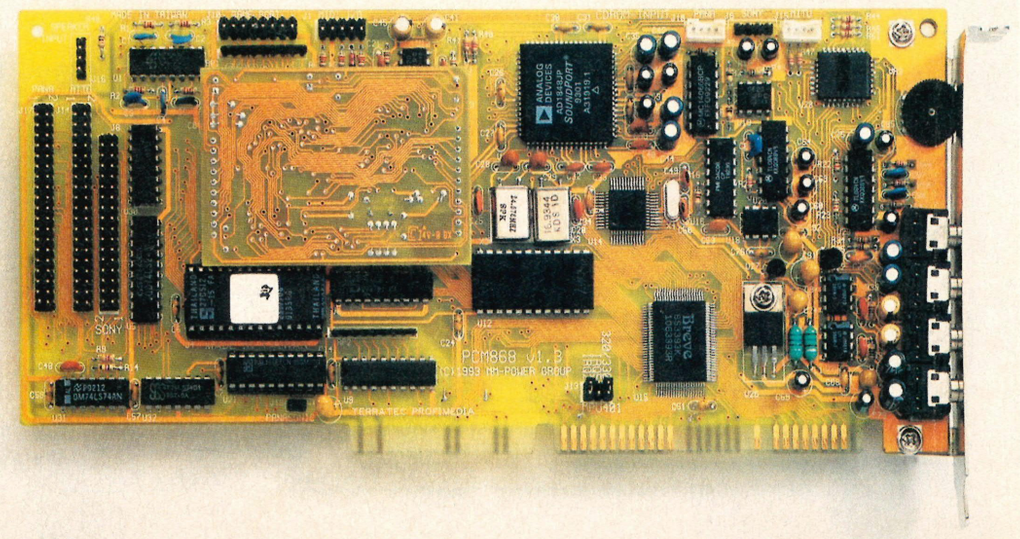
How? Well, not only does it have the high-quality wavetable capabilities, but it also has an FM chip onboard to fall back on. This Yamaha chip is the same one used in the vast majority of FM cards, so the



SFXC3000 can offer genuine Sound Blaster and Ad Lib emulations.

And, as far as I can tell, the emulation is rock solid. I've loaded up something in the region of 30 of the most troublesome games I could lay my hands on, and not one of them has caused me any problems. There may be a game out there that can trip it up, but I certainly haven't come across it yet.

To me this has always been the fundamental criterion for choosing a sound card. If it doesn't work with the game you want to play, it's not worth having, no matter how good the sound quality is supposed to be. At work, I tend to fall back on a



trusty old Sound Blaster Pro — simply because I have to load up a lot of games all the time and I know it'll work every time. The SFXC3000 has been a real eye-opener on this score.

In terms of basic games sound standards, the only thing that is missing is a Sound Blaster Pro emulation. But the SFXC3000 sidesteps this rather neatly by enabling you to use the two wavetable emulations — General MIDI or Roland — for music, and the Sound Blaster emulation for effects. Either GM or Roland music sounds a hell of a lot better than a Sound Blaster Pro emulation for music.

There are two other features of the SFXC3000 that round it off as a truly impressive games card. One is apparently rather minor, but does in fact make life a lot easier: the SFXC3000's software driver takes up a mere 3K. Given that the equivalent on the majority of cards is around 30K this is quite an advantage when it comes to squeezing and teasing enough base memory out of your PC for some of the more memory hungry games.

The other feature is CD-ROM support. The SFXC3000 comes with three CD-ROM interfaces, for Sony, Mitsumi and Panasonic drives.

### Music for the masses

The SFXC3000 is also a very attractive card for anyone interested in producing music on the PC. Like the Orchid card, it stores the 128 General MIDI sounds in ROM, along with another 200 sounds, which is always going to have the edge on keeping them on your hard disk.

Add the top notch MIDI sound quality, Roland SCC1 and MPU-401 compatibility, and DAT-quality sampling rates and you have a general purpose card that can take on the specialist — and considerably more expensive — music cards at their own game.

### What's missing

As I hope you've already guessed, we're very impressed with the SFXC3000. But there has to be something missing, doesn't there? Well, if I had to pick holes in the card it would only be for minor misdemeanors, none of which would put me off buying the card.

Maybe 3D sound like the Gravis UltraSound would have been a nice addition. But then 3D sound is hardly a major player in many games as yet.

Speakers are conspicuous by their absence, but personally I think this makes perfect sense. The sort of speakers a manufacturer can afford to put with a sound card and still keep the overall price competitive are, to be blunt about it, useless, nine times out of ten. If you're paying good money for sound quality, why throw it all away using junk speakers? So no great loss.

You do need to bear in mind that the game and MIDI ports come on a separate plate for the back of your PC, so you have to have two slots free for the card and the ports — an untidy way of doing things but really only a minor inconvenience.

And lastly, well, I'm not overly struck by the bundled software. You don't get a great deal to start with — OK-ish sound recording, editing and playback software, and a mixer panel, but at least Cubase Lite is thrown in to keep the musos happy. Or you get twenty quid off if you give it a miss.

Even then, it's not exactly a cheap option. Prices on cards have come down considerably in the last twelve months. You can pick up an 'el cheapo' clone for as little as fifty quid that should work on most things. And, the first 16-bit cards under £100 arrived in the last couple of months from MediaVision.

The SFXC3000 is a top of the range card, and you're paying for the combination of extra features. For musicians, it provides an excellent alternative to the sort of specialist music cards you would normally be looking at, while doubling up as a good all-round card at the same time. The SFXC3000 packs enough features alongside top-quality sound reproduction to qualify automatically for anybody's shortlist.

For gamesplayers, it's a little less clear cut. I guess it rather depends on how much you're prepared to pay for out-and-out sound quality. But at least you know that the SFXC3000 won't let you down when on the basics, and really shines when given the chance to perform to the limits of its capabilites.

I can't think of another sound card that offers as complete a package.

*John Bennett*

★★★★

- **Supplier:** BluePoint
- **Contact** (0908) 277007
- **Price** £199.99

**16-bit WaveTable sound card with FM synthesis, Mitsumi, Panasonic and Sony CD-ROM interfaces. Sampling to DAT quality.**

## SOUND CARDS?

**Why do we have to buy sound cards anyway? I don't mean the high-end stuff : if you want to pay a premium for top-quality sound that's a matter of personal choice just like the amount you spend on your hi-fi. But, since the PC is now playing a general purpose role in life — rather than ambling along like the office donkey it started out as — sound is now as much a fundamental feature as the display or the mouse on a PC.**

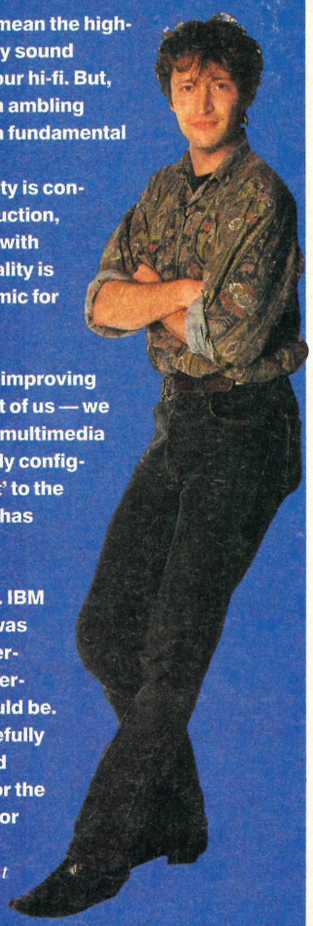
**If you're anything like me, there's a cut off point as far as sound quality is concerned. Up to a level we can distinguish between better sound reproduction, and would obviously prefer something that sounded fuller, richer and with less hiss and crackle. But things do reach a point where the sound quality is so good that differences between sound cards become largely academic for most PC users. It's only the hi-fi/gadget freak or those people actually working with PC music who go looking for that extra edge.**

**So for that level of user, there's always going to be a market for ever-improving sound card technology, a reason to shell out another £200. For the rest of us — we just want the sound to be there when we buy a PC. And I don't mean a 'multimedia PC' with a card stuck in a slot. I mean built on to the motherboard, ready configured so that you never have to deal with it and completely 'transparent' to the end-user. Something we can take for granted. After all, the Apple Mac has been doing just that for years with simple 8-bit sound, and now 16-bit.**

**Hopefully, that's on the way. MediaVision signed a recent deal with Gateway 2000, to put the Jazz chipset in future Gateway 2000 486 PCs. IBM has signed similar deals. Perhaps the most significant deal of the lot was the one signed by Advanced Gravis with chip manufacturer and motherboard designer AMD. This puts 16-bit UltraSound technology on motherboards designed by AMD in PCs sold into the home. That's how it should be.**

**But when we have a passable sound standard built into the PC , hopefully reserving a consistent set of interrupts, DMAs and what-have-you, and without having to pay a premium for it — that"ll be the end of the line for the multitude of cheap Sound Blaster clones, and leave smaller pickings for the big names in the sound business. It'll make life a lot simpler.**

*John Bennett*



## PCM

### Pulse coded modulation

**As I said in the review, the SFXC3000 has got a widget, in this case Pulse Coded Modulation, or PCM for short.**

**What on earth is PCM, you may well ask? Most sound cards use what's called a Digital Signal Processor (DSP) to produce the analogue sound. Unfortunately the rate at which each sound is needed means that a DSP and software combination cannot cope with putting the whole signal through (not without a DSP costing the earth) so it passes on what it can — but with a loss in quality in the process.**

**So, enter the widget — in this case the use of built-in PCM hardware. PCM does not have the same trouble getting , for example, the pitch or tone information through quickly enough, so it doesn't have to drop any information along the way and doesn't lose sound quality in the process.**

# MITSUMI

## FX001D Double Speed CD-ROM drive




**Credit where credit's due, Mitsumi's cheapo single speed CD-ROM drive did a great deal to further the CD cause, simply by bringing prices right down to truly affordable levels.**

**Since single speed drives are now — certainly in gaming terms — pushing up the daisies, Mitsumi has had to come up with an equivalent double speed job. And, funnily enough, the FX001D is another cheap and cheerful affair.**

**Stick your nose into the drive and the first thing you'll see are a mixed bag of horrible plastic cogs which look like they're on compassionate leave from a Christmas cracker. The CD interface card, the documentation, setup routine and the packaging all have the same primitive feel even though the old, naff-in-the-extreme Mitsumi dustbin lid disc loader has been replaced by a slick tray-loader.**

**But so what? When it comes down to it, the FX001D outperforms the majority of its more expensive rivals by a very good margin. Consistently, too. I wouldn't, for example, swap this drive for the Panasonic double speed drives common in many expensive multimedia bundles. I wouldn't swap it for one of the cheaper Sony drives, either. In fact, now I come to think of it — and having used it for a good while — I really don't want to swap it for another drive at all. Sure, it's no heavyweight when you compare it with, say, the consistent high performance and build quality of a say a Toshiba, Pioneer or top-end NEC drive — but then these will set you back three or four times the street price of the FX001D even on a good day.**

**And true, with all the hoo-ha over triple and quad speed drives, it's not going to have an enormously long effective life span. But it handles what are considered to be today's heavyweight CD games with ease, street prices are already kicking around the £149 mark, and it has widespread support among sound cards. All of which makes the FX001D *the budget CD-ROM drive to buy* if you have to buy now and money's tight.**

*John Bennett*

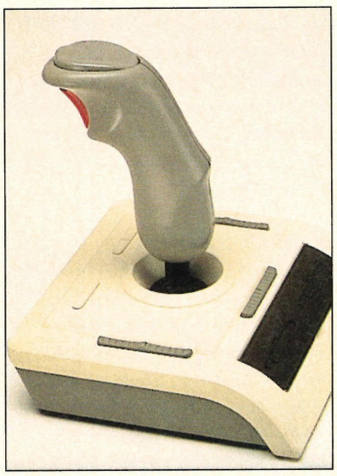
★★★★

**Supplier:** Mitsumi
**Contact** (0276) 29029
**Price** £199.00

Double speed, tray loader CD-ROM drive. MPC2 compliant, with 16-bit card interface.

## FlightMAX

*Analogue joystick*



Somebody, somewhere deep within Suncom Technologies' think tank, has clearly put a lot of brain hours into the FlightMAX. As flight system joysticks go, it offers a well planned approach to design, and many of the features you want to see.

This includes the basics, like a sturdy construction, decent length cable, and a wide base for one hand operation.

You get two control buttons whose functions you can swap to get the best feel on any particular game, and throttle controls that can be worked equally easily by left or right handed people.

These and the rudder may not work on all games because they simply simulate a second joystick, and not all games work on that system, but you can always spend close on £200 on a Thrustmaster and WCS II for the ultimate in adaptability. The FlightMAX does a laudable job for £40.

The 'Saturn-Ring' technology within gives a good fluid feel without being sticky in any way, and seemed pretty robust and precise even on arcade games.

My one gripe with the FlightMax was the centring trimmer, which is intended to make life easier where the calibration in the game isn't the best. Unfortunately, the sliders are way too loose and tended to move of their own accord every now and again, leaving me suddenly banking to the left despite leaning the stick to the right, and wondering what was going on. This is no small matter, either, and compromised my trust in the joystick controls somewhat.

A reasonably priced, good performer, the FlightMAX falls slightly here, but only slightly. Otherwise it's perfectly competent and definitely rates a look if you're a sims kind of person.

*Martin Klimes*

★★★

**Supplier:** Suncom
**Contact** (0285) 642211
**Price** £39.99

Any PC with a joystick port. Suncom would like to think that you'll use their Gameport 200, but any port will do, really.



## Western Systems 486/25

*Multimedia PC*

Here's a multimedia PC that absolutely typifies the entry level ingredients for today's standards. What you have to bear in mind is that 25Mhz machines are already beginning to struggle with the latest multimedia products and 4Mb is no more than the bare minimum for heavy duty games.

So, what you're looking at is a good starter PC, that will need to be upgraded in the near future. Which makes it all the more surprising that it isn't that easily upgradable — certainly not in the RAM department where you'd practically need to dismantle the entire cradle assembly just to get a peek at the SIMMs.

Still, if you can live with that, the Western Systems 486/25 offers a good range of features for first time multimedia PC. For example, after booting the machine you get an immediate prompt and option to back-up (a useful and constant reminder for something that often gets put off or forgotten) and simple access to either DOS 6.2 or Windows 3.1 from a basic front-end.

To go with the passable double speed CD-ROM drive and 16-bit Sound Blaster clone, you get an excellent bundle of CD-ROM software. Among the titles are Chessmaster 3000, King's Quest IV, Dune, The Software Toolworks' Multimedia Encyclopedia, MS-Works and Mavis Beacon Teaches Typing. Then add Macromedia's Action and Authorware Star! plus Jurassic Park on floppy disk. In all, 19 titles.

All in all, a good entry-level multimedia package which has performed reasonably consistently but without breaking any speed records, and slightly hampered by the odd awkward design feature.

*Paul Boughton*

★★★

**Supplier:** Western Systems
**Contact** (081) 845 8383
**Price** £1,468

25MHz 486SX, 4Mb RAM with 210Mb hard drive, 128K cache, 14" SVGA monitor , speakers, Panasonic 563B CD-ROM, sound card, mouse.

## Gameport 2000

*Twin joystick card*

Check it out. Two joystick ports attached to a small but functional circuit board, and a couple of extra dangly bits. That's right, not only can you hook up two sticks to the same computer for your head to head play but now you can also line your internal speaker sound through proper speakers.

I tried it out, and it's pretty bizarre stuff. Not the joystick part. That's fine, and works on just about any PC you could want to put it in. No, it's the sound that stumped me. There's something not quite right about the obnoxious Windows pings and event effects blasting through my amp and speakers at a deafening volume.

I could use it as a burglar deterrent. Take that really unpleasant screechy noise (any one, they're all unpleasant screechy noises on the internal speaker) and play it at volume ten every hour or so when I'm out.

Interesting gimmick, guys, but let's be honest. That's all it is. The Gameport 2000 will sell more because it's well built and does the basics rather than the off-beat 'unique feature'.

*Martin Klimes*

★★★

**Supplier:** Suncom
**Contact** (0285) 64221
**Price** £24.99

Plug and play into any PC. All you need is a free slot in your machine, and you're set.

## NEC Win Printer

**How does NEC get away with its claims to have the "fastest printer in the world" — featured in our stunning competition on pages 30-31— without being rapped by the advertising standards people?**

**Well, the reason is that the claims are true — to an extent. The NEC WinPrinter is the first of a new breed of 'dumb' laser printers which rely on the processing power of the PC for speed, rather than their own engine. The result is a printer which goes as quickly as the PC it's hooked up to (and provided you're printing from Windows). Hook it up to a Pentium PC and it'll run like Ben Johnson on benzedrine. On a slow PC, it's not going to shift the pages along so quickly. Upgrade your PC, and the printer goes faster as well. It could spell the end of the traditional approach to printers.**

# NEWSWEEK INTERACTIVE

## Behind the Screens

*Multimedia edition of Newsweek*

**Supplier:** Software Toolworks
**Contact** (0444) 246333
**Price** £39.99

33MHz 386, 4Mb RAM, VESA-compatible SVGA card, CD-ROM drive, Sound Blaster or Pro Audio Spectrum.

**This is the second edition of Newsweek's quarterly multimedia issues, which take stories from the original magazine and revise them with speech, photos and video clips on CD-ROM. The results are impressive. Both issues actually make use of the multimedia elements to add an extra dimension to the stories and help your understanding of the subject.**

**Behind the Screens leads with a story about the development of computerised special effects in the movies — a clever choice since CD-ROM owners are likely to have some interest in the subject matter. The whole 'article' is narrated, and illustrated with plenty of colour stills (from Death Becomes Her, In the Line of Fire, Jurassic Park, and also early effects from King Kong, The Vanishing Lady and The Great Train Robbery) to demonstrate the point being made.**

**The 'second lead' concerns the debate in the US about changes to health care provisions and how to balance 'health care for all' versus increased costs, again liberally illustrated with photos from inside hospitals, from abortion protest marches, from pharmaceutical companies ... anything that helps to tell the story.**

**Each piece is accompanied by a 'face to face' interview section where you can choose questions from a list to pose to six talking heads (animated video again) on-screen. If you've read the LucasArts profile on page 42, you may be interested to know that Dennis Muren of Industrial Light and Magic is included in this section for the special effects story. There are also short 'photo essays' on each topic — a short commentary on ILM, for instance, taken from the main 'article'.**

**Finally, you can read articles taken from Newsweek back issues, or clippings from the Washington Post and view the videos and photos separately.**

**The whole thing is extremely well-presented: the interface is intuitive, pictures are of good quality, sound and speech are clear. One can't help feeling that some day, all magazines will be like this.**

*Christina Erskine*

★★★★

## AKIO Entertainer Plus

*Multimedia/games PC*

If you fancy a brand spanking new PC, and want multimedia capabilities pre-installed, then slap a bag of 1,500 pound coins down on the table and Akio will put a 486/33 together for you. So will any number of other people, of course, and that's the crunch.

Akio would like to point out that their PCs are particularly well put together, user friendly, and that they pride themselves on the quality of customer service. They aren't the type of people to leave you in the lurch after they've got your cash, God forbid.

As a small, dedicated outfit they indeed have that personal touch to after-sales service that's nice to see, and due to them getting the men at Granada to service on site they don't lose the resources of bigger places. The documentation that comes with the Akio PC is good, too.

It's the actual machines I'm not 100% certain about. They perform well enough, and all, but there were moments I raised an eyebrow at some of the things I found.

Forget the insides for a moment. They aren't the neatest, but I've seen worse. No, it was things like the front panel that brought tears to my eyes. Installing a floppy drive vertically I can accept. Putting the eject button next to the power switch I can't. How many times did I power off in error when I wanted to get my disk back? Too many, I can tell you.

And sticky-out reset switches are just dying to be knocked by accident. All in all, I saw far too many boot screens when I wasn't planning to.

Akio is on the right lines with the Entertainer Plus: it performs well for the price and the specification. But, it needs to sort out some of the finer point to beat the substantial competition to the customers.

*Martin Klimes*

★★★

**Supplier:** Akio
**Contact** (0472) 351200
**Price** £1,500

486/33 PC with 4MB RAM, a 170MB hard disk and SVGA graphics card/monitor. Double speed CD-ROM drive and 16 bit sound card.

# CD-ROM SOFTWARE

## The Rock 'n' Roll Years: the 50s

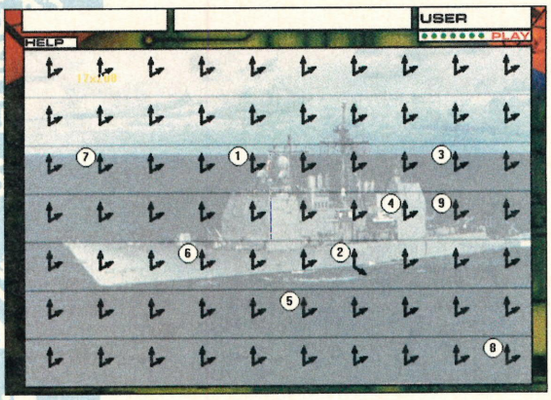
*Trivia/reference guide*

The publishers won't thank me for saying this, but The Rock 'n' Roll Years is broadly a CD-ROM equivalent to those Guinness Books of Hit Singles. You get a textual commentary on each year in the decade, taken month by month and accompanied by both the UK and US charts for each month. There is also a trivia quiz of 700 questions (not enough, really, to sustain the interest for any length of time) and 13 audio/video clips, which are also used for 'multimedia' questions in the quiz.

The quiz is mildly entertaining and well presented with plenty of different animations to indicate whether you got answer right or wrong, but there are too many questions asking "What was the year that such-and-such peaked in the US charts?", which 40-odd years later, can only be guessed at unless you have studied the chart section of the disk. There

# SOFT KILL

**Computer Movie CD**




**Oh dear. I've always thought that many of the 'interactive movies' around are pretty poor, but now I've found something worse. An interactive movie that doesn't even try to add any game. Step forward Soft Kill and take your rightful place on the podium, because you are this month's grand winner in the hotly contested category of 'Multimedia Turkey'.**

**Conceptually it seems such a good idea. The reasoning goes something like this: today's movies are good, but you still sit there and just watch it unfold the way the director wants. What if you could take elements and mix them along sub-plot or character lines to come up with a finished product that's far more what the individual audience wants?**

**Enter the Matrix Interface. You travel around a grid, with each square representing a different scene. As you go from left (the start) to right (the end) you can introduce different themes at each stage. Fine, as long as the quality of the techno-thriller story and characterisation are as good as a movie, and the scenes are of movie standard; ie full screen full motion video of better than SVGA resolution in Dolby Surround-sound. They aren't, which isn't altogether surprising considering the standard of today's PC technology and the tiny fact that $50 million wasn't spent producing Soft Kill, unlike its film rivals.**

**For the time being, my advice remains the same — steer well clear of anything with 'movie' in the title. Chances are, like this particular pile of garbage, that somebody saw a CD- ROM drive and thought that he could do far more than was realistically possible.**

**Soft Kill, it's no Die Hard.**

*Martin Klimes*

★

**Supplier:** Compton's New Media
**Contact** (081) 838 1280
**Price** £31.71t

**20 MHz 386 PC, 2Mb RAM, SVGA , a Sound Blaster, or Media Vision compatible sound card, a CD-ROM drive, and Windows 3.1 are a must.**

also are a morbidly large number of questions about the Buddy Holly/Ritchie Valens plane crash, including "How much did Holly pay for his ticket?", which strikes me as bordering on the tasteless.

The video shorts are probably the most interesting aspect of the program, and include Eddie Cochran singing Summertime Blues, which had us all stomping round the office asking why they didn't write them like that any more.

But while Bill Haley and the Comets singing Rock Around the Clock, and Jackie Wilson and Reet Petite are in, there's no Elvis, no Buddy Holly, and the omission of Jerry Lee Lewis on video is little short of criminal.

Good for pub quiz compilers, but despite the wealth of information, The Rock and Roll Years: the 50s feels like a slim volume. Companion CDs on the 60s, 70s and 80s are due out later this year.

*Christina Erskine*

★★

**Supplier:** Supervision
**Contact** (071) 702 9391
**Price** £24.99

**386DX PC minimum, with 4Mb of RAM, SVGA, CD-ROM, sound card and Windows 3.1. 486SX PC or faster recommended.**

## Digital Love

*CD relaxation program*

Next time you feel the tension mounting after your third "Not enough memory" error message in an hour, consider chilling out with Digital Love. Dim the lights, loosen tight clothing (it says here in the manual) and run this collection of software modules — from music videos and kaleidoscopic on-screen patterns, to colour therapy, chanting and yoga. If it sounds terribly new age-y, well ... it is.

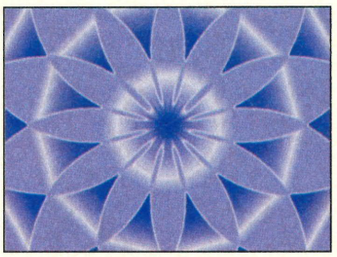
Colour therapy is not greatly enhanced by the computer, since it seems to involve staring at a single block of colour, again with musical accompaniment. If you want to try chanting, the chant to follow is delivered through the speakers and the manual provides a phonetic transcription to make sure you get it right. The yoga section shows a set of simple exercises — nothing too gymnastic or advanced — to follow to loosen muscles. The manual, incidentally, contains plenty of warnings about the advisability of consulting a doctor before you try anything too strenuous.

The one that worked best for me was the first module, not that you need to approach them in any particular order, the music videos.

You look at a screen full of gently cycling patterns while synthesised chords play through the speakers or

**Supplier:** Software Toollworks
**Contact** (0444) 246333
**Price** £39.99

**Requires a 86SX PC minimum, 2Mb RAM, Windows with multimedia extensions, CD-ROM drive .**



preferably headphones. The effect is certainly mesmeric and the patterns would make a great screen saver. This section also has the merit of being the only one which you couldn't do perfectly well on your own without the computer provided you knew the right chant or had a yoga book.

If you're sympathetic towards these 'therapies' you may still find Digital Love a bit superficial — it doesn't go all that far into the theories and techniques of positive relaxation. And sceptics will need more than this to become converts.

*Christina Erskine*

★★

## Dr Schueler's Home Medical Advisor

*Alternative medical reference CD*

A few years ago I seem to remember a rash of medical handbooks brought out either as huge encyclopedic tomes or serialised in newsagents for home use in their ever so reasonably priced binders. Then they seemed to disappear for a while. And now they're back, on CD-ROM — a new lease of life for all those consultants who couldn't make it on Harley Street.

Dr Schueler's, like Home Remedies reviewed last issue, is a well-intentioned attempt to put an elementary reference at our fingertips, possibly to give us something to look at instead of constantly bothering our hard worked GPs.

Schueler's also suffers from the basic Home Remedies problem of not all doctors being accomplished computer programmers and vice versa. With Home Remedies you got a fairly sound computer package full to bursting of dross information on largely cosmetic subjects. In Schueler's you suffer it the other way around, with plenty of useful and informative detail discussed by symptom, diagnosis, toxin, or whatever, but all couched in a fairly atrocious interface.

As interesting as the diagnoses are, and as much of a boon they are for hypochondriacs everywhere, the product is visually garish, and lacks a cross reference that would tie in all the various parts.

In fact, the most complete area of the entire package is the absurdly lengthy disclaimer that you get not only on paper with the instructions but also in full when you load it up. Just for good measure they repeat it as you exit to DOS or Windows. The fact that Dr Schueler, he of the department of emergency medicine in Melbourne, Florida, feels he needs such extensive cover from prosecution does give you pause for thought. But then, I suppose Americans are notoriously litigiously minded.

It's hardly the most polished piece of software, but at least it goes into some detail on real medical needs and attempts to tell you what's wrong with you in layman's terms, and it deserves some credit for that.

*Martin Klimes*

★★★

**Supplier:** Different Angle
**Contact** (081) 450 0654
**Price** £29.99

**EGA or VGA graphics, DOS or Windows, Keyboard or Mouse, the choice is yours. Dr Schueler isn't fussy.**

# Computermate

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# BUTTERFLIES OF THE WORLD

**Educational/reference CD**

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|---|---|
| Supplier: | Media Design Interactive |
| Contact | (0252) 737630 |
| Price | £29.99 |

Minimum 386 PC — 486 recommended — Windows 3.1, CD-Rom drive and soundcard.

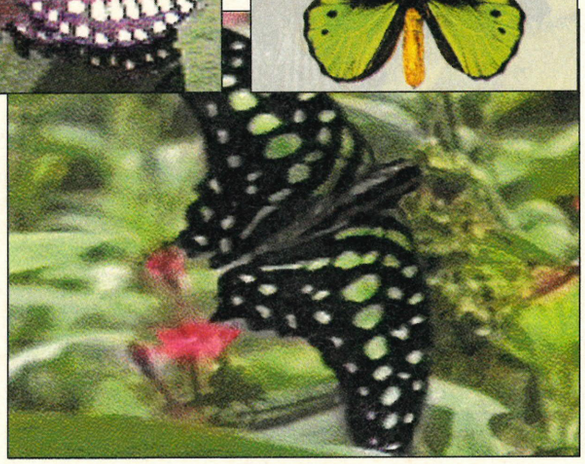
**If you were suddenly overwhelmed by a desire to know all about butterflies, what would you do? Would you buy a book or would you buy MDI's multimedia reference work Butterflies of the World?**

**For me it would still be a book. And that's because the promised potential of the multimedia experience is very rarely realised.**

**This product perfectly illustrates this. The colour photographs and illustrations about the thousands and thousands of these insects, the wealth information on their life cycle, mating habits etc are all very nice, informative and entertaining but nothing that couldn't be found in a book. What a book can't offer is the video clips. But here Butterflies of the World fails.**







**For example, the clip of Hebomoia leucippe, or Orange Tip, is awful. The fuzzy video insert shows the insect sitting on what looks like the a fence, wings folded. The wings start to open and then ... it flies off in a flash, giving almost no chance to see anything. The clip last maybe 10 seconds. What is the point? And many of the video clips are similarly irrelevant.**

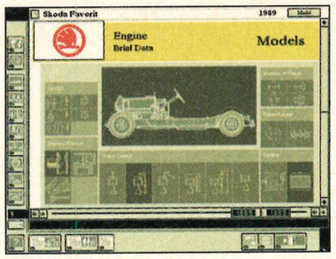
**Another gripe is that the butterflies are only indexed under their Latin names. It would have been useful to have an index of common names as well. This makes it almost impossible to track down information on, say, the Large White (Latin name Pieris brassicae).**

**That said, Butterflies of the World was thoroughly interesting to browse through. For instance, did you know butterflies do not have veins or arteries. Their insides are "bathed in blood which fills the whole of the body cavity." Fascinating, if slightly disturbing.**

*Paul Boughton*

★★

## SOFTWARE




### The Classic Car Guide

*A car buff's reference program*

You like cars, eh? Do you like fast cars? Luxury cars? Classic cars, perhaps? You might just be wanting to take a peek at the Classic Car Guide, then.

What CCG is trying to do is offer you a mixture of encyclopedia and photo album of the most influential motor vehicles of all time. You get to plough through design features such as chassis and engine, and vehicle categories from country to manufacturer to model, and generally flip around the well cross-referenced database, getting the vital statistics and blueprints for over 300 cars .

All well and good, so far. However, where CCG seems to fall over its own feet is the scale of the task it has taken on. By definition a classic car enthusiast knows the basic of the subject matter already, and wants detail. Lots of it. Not mere acceleration and top speeds, but gearing ratios too. If the word torque doesn't come up somewhere then eyebrows will be raised. The quality of information in CCG is in depth indeed, but patchy and selective depending on the whim of the compiler.

Worse, the choice of which cars to include is just as selective, and not particularly wide, either.

Sure, they cover a Porsche 911, but what about the development of the 911 over the years, and all the other classic 911s? The Skoda Favorit gets a mention, but the selection of ground-breaking Volks-Wagens is very slender. CCG ends up being a fair product if you happen to agree with the programmers over which vehicles are classics. For the rest of us it is a rather half-hearted package all round.

*Martin Klimes*

★★

| | |
|---|---|
| Supplier: | Software Partners |
| Contact | (0480) 493614 |
| Price | £49.99 |

Just about any processor with VGA graphics, 7MB of hard disk space and a mouse will do.

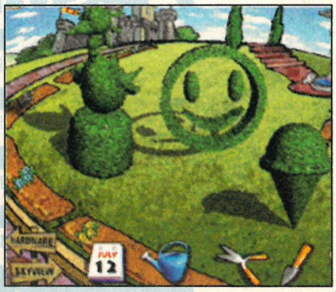
### Forever Growing Garden

*Horticultural/education CD*

There are times when I marvel at the things we can now teach our children on a PC. Not only can they learn about art without ever taking a crayon to your best table cloth, but it also appears that they can do a fair imitation of Percy Thrower without ever leaving the confines of the Windows desktop. Remarkable, but is this really the end of muddy footprints all over the house?

Perhaps not. Which isn't to say that Forever Growing Garden isn't a nice little CD. It is, and offers plenty of interesting moments for the budding gardeners of the family. Aimed at four to 10 year olds, FGG offers a garden, allotment or castle grounds to plant and water all sorts of beautifully depicted cartoon versions of your favourite flora, including snap dragons that actually snap and Tomatoes with real toes. You can then watch them grow and nurture them on screen, or slow down time so that one real day is one virtual garden day, leave the computer, and come back a couple of weeks later for an update.

What it does it does well, but somehow the chance of it getting across the exhilaration of being outside with the flowers was always pretty slim. Play through a couple of gardens and the question, "Can we go out now, and try this?" is bound to come up, at which point you put on your old jacket and head for the garden, allotment or local park. FGG is likely to sit on a back shelf gathering weeds from that moment.



I grew up in the country, and so it is much to the embarrassment of my parents that I'm about as green-fingered as a can of defoliant. With access to Forever Growing Garden I might have shown an interest in things botanical a little earlier, but there's not an awful lot being actually taught here. At the price it's an expensive prod in the horticultural direction where a bit of enthusiasm from the parents would likely as not intrigue most kids just as much.

*Martin Klimes*

★★★

| | |
|---|---|
| Supplier: | Media Vision/GEM |
| Contact | (0279) 412441 |
| Price | £49.99 |

You won't get far without a 33MHz 386 PC with 4MB RAM, SVGA Graphics, a CD-ROM drive, sound card, and Windows 3.1.

# STC

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# BEETHOVEN'S 5TH

## Multimedia Symphony

**Beethoven's 5th. It may be the ditty that launched a thousand TV commercials, but there's nothing like those opening bars to get the blood racing.**

**It was with some trepidation then that I hit the install option to see what sort of outrage had been perpetrated upon it in the name of multimedia.**

**What a surprise then to find that the CD reference disc of the symphony is everything you could possibly want, never setting one orchestral foot wrong on the whole disc.**

**We aren't actually told which orchestra performs the version on the CD, but that's about the only omission from the entire product. The whole piece is taken apart bar by bar, instrument by instrument, with full details of Beethoven's life and the psychology behind the work. You can get any information you want, and use it as either a reference with full score or as a learning tool about Beethoven, the 5th, or classical music in general.**

**The interface is stunning to look at and thoroughly well laid out. The cross referencing and layering of information screens works flawlessly throughout. The quality of information is so in depth and broad because only one classic work is studied and dissected instead of attempting the impossible all-encompassing 'classical music' CD.**

**And most importantly, you can quite happily put all the encyclopedic business to one side and get on with listening to the entire piece. Rest assured, the sound is of the highest standard all the way through.**

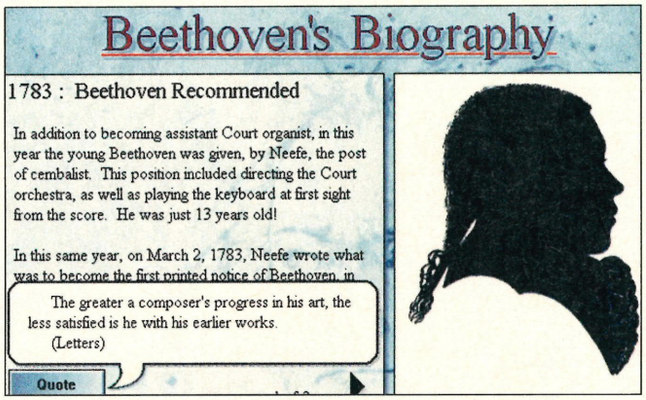
**Bravo, Mindscape. bravo.**

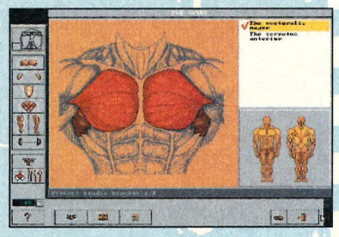
*Martin Klimes*

★★★★★

- **Supplier:** Mindscape
- **Contact** (0444) 246333
- **Price** £39.99

**Windows 3.1 on a 386SX or better, and 2MB RAM minimum. Beethoven's 5th CD runs in VGA, and you'll need a sound card and CD-ROM drive.**



### Fitness Studio

*Personal fitness guide*

Back in my dim and distant past I became a qualified fitness instructor, and so I was interested in seeing what this package had to offer. Fitness Studio is a comprehensive guide to weight training and nutrition, and includes sections on exercise, diet and anatomy. You can design your own training routine or simply find out as much as you can on the subject.

Exercises are demonstrated via video footage of a muscular man pumping iron in his underpants. I imagine the reason for this was to show how his muscles moved during each exercise, but wouldn't it be more appropriate to show him wearing sensible training gear? Dropping a dumbell on your bare foot isn't something I'd recommend.

Ultimately, Fitness Studio is useful as a reference tool (the anatomy and injury sections are interesting and detailed) but can't replace the personal touch of a qualified instructor. You can copy the exercises shown, but you really need someone to observe your technique and tell you where you're going wrong. More importantly, an instructor would have a better idea of what diet and exercise plans suit you best.

Unfortunately, the interface is less than intuitive — you really have to read the manual before you can start designing a fitness routine for yourself — so why not buy a good book on the subject instead? At least you can read it in bed, or more importantly, take it to the gym with you.

*Cal Jones*

★★

- **Supplier:** Software Partners
- **Contact** (0480) 497622
- **Price** £29.99

**Minimum requirements for Fitness Studio are a 286PC , VGA, MS-DOS 3.3, mouse and 10MB hard disk space.**

### Fine Artist

*Educational drawing/painting package*

Young children like to draw. It's simple. Using computers isn't, so getting young children to draw on computers was never going to be an easy task. Enter Microsoft and Fine Artist, the other half of a pair of products with Creative Writer.

The idea is to teach kids a few basics of drawing and painting in such a fun and natural way that they don't realise they're learning.

In the end it's bound to be a bit of learning on creativity and a bit of learning about computers, but Microsoft does manage to put together an almost imperceptible interface. How? By introducing McZee, the cartoon tour-guide through Imaginopolis.

Okay, so it'spretty American, but it certainly works. McZee, and his cartoon assistant Maggie, help when wanted, offer advice without a single patronising moment, and sit in the background when not wanted or needed.

It's a tribute to the whole concept that Microsoft Fine Artist is amazing fun for adults too, making the time you spend with your children at the PC not drag in the slightest.

The colours are bright, the icon and cursors are full of bounce and fun, and there's a genuine personality to the overall finish. That is the most major achievement needed in this sort of software, and Microsoft have pretty well hit the nail on the head.

From the packaging and manuals, through installation and into the programme itself, McZee's there with a smile and a few words to smooth over even the dullest setup moments.

If you want to introduce your children to a few basic art skills in a hugely fun manner, and perhaps give them a little computer literacy to boot, then Microsoft's Fine Artist is spot on.

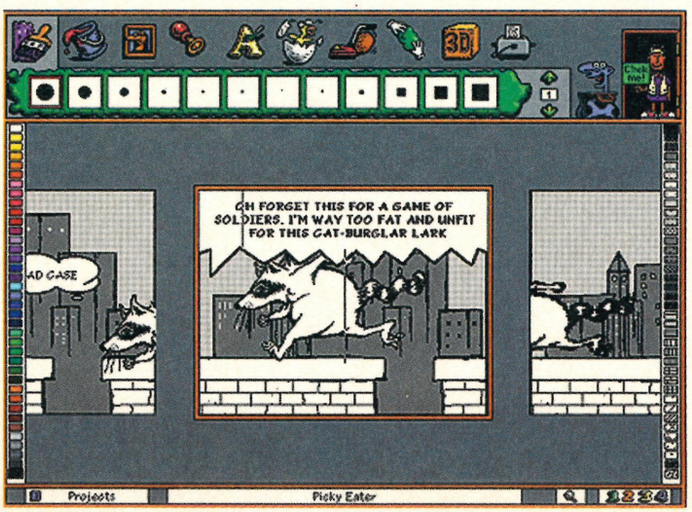
Take a trip to Imaginopolis today.

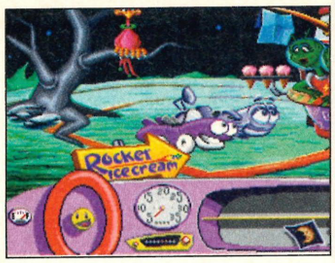
*Martin Klimes*

★★★★★

- **Supplier:** Microsoft
- **Contact** (0734) 271000
- **Price** £29.99

**386 PC, 4Mb RAM, 11MB of hard disk, VGA, mouse and Win 3.1 are a must. A sound card and printer add substantially to the whole thing.**






### Putt-Putt Goes to the Moon

*Educational game*

The Putt-Putt series of games is aimed at young children, specifically at non-readers, which puts the age limit at 7 or 8 at most. Putt-Putt is a car — a very amiable one who talks and is talked to and it is this that means written instructions are just not necessary.

The storyline is simple enough — Putt-Putt and his dog Pep visit the Fireworks Factory where they are being shown around. There's a lever clearly marked "Caution — Do not touch" but, as you might expect given this amount of warning, it gets pressed and launches a rocket to the moon. Having landed on the moon Putt-Putt is helped out by Rover, a helpful lunar terrain vehicle. Together they set out to buy a rocket from a two-headed alien and then collect the parts needed to rebuild it.

To complete the quest Putt-Putt and Rover have to find and obtain various items by solving problems and talking to other characters in the game how have clues and tips for them. Apart from the main action there is a great deal of extra goodies in every screen. Clicking with the mouse on objects reveals amusing animations. There is also a game with a game — an arcade game in which you control Fatty Bear — another Humongous character — as he flies his plane with the object of scoring points. This game has up to 50 levels and so is rather more than a filler. There are some non-computer fillers in the package — a colouring book, stickers and a novelty pen.

The characters in the game will certainly appeal to young players. Our testers found the game very playable and at the same time it had enough educational content in terms of problem solving for it to be welcomed by their parents.

*Sue James*

★★★

- **Supplier:** Humongous Entertainment
- **Contact** (0753) 549442
- **Price** £34.99

Needs a 12MHz 286, 640k and VGA. A 386 PC would be a better recommended minimum. Ad Lib/Sound Blaster sound support.

# PC REVIEW

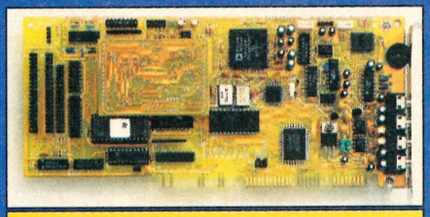
## TRIED & TESTED

**Some software gets deleted from the hard disk the minute a review is written — some hardware we wish we'd never seen. But there are products we see every month that we wish we could keep.**

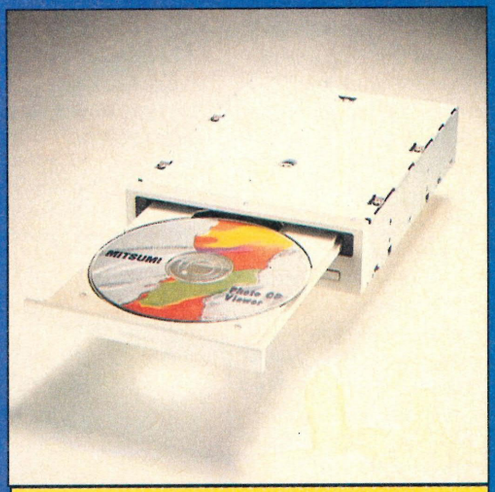
**It is these products — those that we've worked with and found enjoyable, reliable and above all genuinely useful above and beyond the call of duty, that rate an appearance on this page. Any of the product which feature here we recommend as worthy of inclusion in any shortlist of PC products.**



**Personal Computer**
**Dan for Windows/33 486**
**Dan Technology, £1,570**
**Well behaved, impeccably finished — a thoroughbred.**



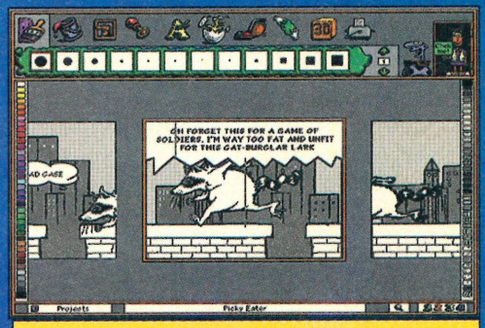
**Sound card**
**Sound FX Classic 3000**
**Bluepoint, £199**
**Stunning combination of sound quality, features and compatibility.**




**CD-ROM drive**
**Mitsumi FX001D**
**Mitsumi, £169**
**Competitive performer with a ridiculously low street price.**



**Hardware**
**Micrograph Tabby**
**Micrograph, £53**
**Never thought we'd see a good graphics tablet this cheap.**




**Software**
**Fine Artist**
**Microsoft, £29.99**
**Entertaining, informative and superbly presented.**

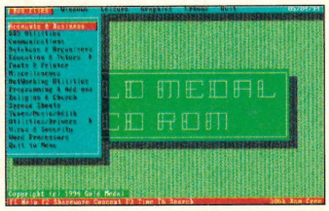
**Featured last month: Gateway 2000 486/33SX, Fauve Matisse, Microsoft Art Gallery, Media Vision Double Fusion LX, Orchid GameWave.**

# Shareware reviews

**This month, Alan Clark tries out a few edutainment titles, vainly attempts to organise his affairs with a handy utility for Windows and checks out a new monthly update of shareware on CD-ROM.**

PRODUCTS

## Gold Medal 1 CD-ROM



Exclusively distributed by PD Selections, this CD is probably one of the most up-to-date shareware compilations available. Updated every month, Gold Medal contains the very latest in DOS and Windows shareware: everything from accounts and business software to religious programs, programming utilities and True Type fonts.

A simple, easy-to-use menu system allows you to browse through the various file listings and then install whichever software you fancy.

This first issue also contains some of the latest shareware games including the smash hit gore-slug-fest Doom, and the follow-up to the excellent Jill of the Jungle, Xargon 1:Beyond Reality.

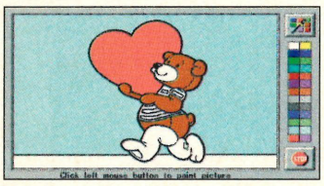
So if you want to keep up with the latest in the world of CD shareware, not only read this article each month, but subscribe to this CD.

***Available from PD Selections***
***(0474) 325802***

**Price £19.95 for one, or £15.95 a month for each CD**

PC REVIEW RATING 8

## Crayon Box



Not only is this jolly good fun for children (actually, I thoroughly enjoyed it myself), it's also a God-send for parents; yes, the children can paint pretty pictures, and there's no mess to clear up afterwards. No dirty clothes, hands and faces, no washing down the paint work...

Anyway, Crayon Box is split into different sections and includes simple mathematics and counting as well as easy-to-use drawing and painting sections. There's also an American geography quiz too, for some reason.

On the whole, the package is good fun to play with. For the maths and counting sections, different skill levels are available (for when your child starts memorising the answers) and everything is just so simple to use; basic mouse operation and entering numbers from the keyboard. On screen instructions are big and bold, easily readable by young children.

***Available from After Hours BBS***
***(0785) 228214***

**Price £12 and includes 10 more drawings to colour**

PC REVIEW RATING 7

## Europe



Europe is actually the first in an 'Around the World' series of geographical quizzes covering such topics as countries, capital cities, mountains and rivers and even industries. All you have to do is click on the right country within the time limit; simple. At the end the computer displays the right answers and presents you with a score. From here you can re-do the particular quiz or move on to another.

Ideal for geography students as a learning aid, or just for showing off your knowledge of European countries.

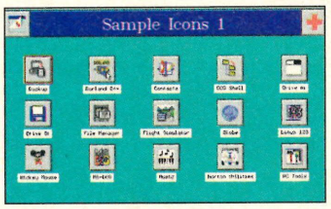
***Available from Advantage PD***
***(0242) 224340***

**Price $12**

PC REVIEW RATING 6

## Magic Desk

Magic Desk is a graphical front-end for all you DOS users that allows you to run applications by simply selecting the relevant icons.




Setting up the program is simple, even if you don't know anything about DOS itself. Pages make up the various menus and on to these pages are placed the various applications, represented as icons. If you can't remember the exact location and file name of your program, you can browse through a file listing until you find it, and all the info you need is then entered into Magic Desk.

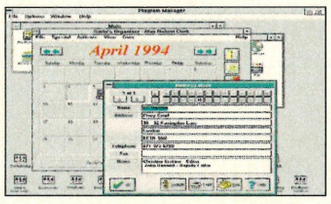
The icons for the programs are either added from a list of samples, or you can create your own with a built-in icon editor; by following simple instructions you can even use standard Windows icons. Pictures can be added as backgrounds to your menus to liven them up too.

***Available from PD Selections***
***(0474) 325802***

**Price $35 (includes $6 shipping)**

PC REVIEW RATING 7

## Gorin's Organiser for Windows




For all of you wishing to organise yourselves, Gorin's Organiser is just the thing. It contains a daily appointment calender, yearly planner, note and address books; everything you need to become, well, organised really.

Displaying a month at a time you can easily keep up with appointments or keep track of those all important business clients.

***Available from Advantage PD***
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**Price $42.50 (includes $17.50 shipping)**

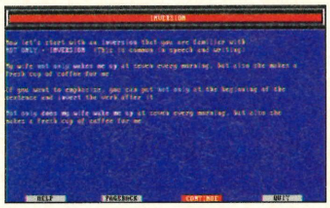
PC REVIEW RATING 7

## Advanced English Computer Tutorial

Ideal for students in their last few years at school or college, or for people wishing to brush up on their English skills, the AECT is a good learning aid.

Split into four categories, the tutorial consists of a variety of explanations and examples, with each category containing a range of questions to answer.

The AECT is really rather interesting to work, with the registered version covering even more topics.



***Available from PD Selections***
***(0474) 325802***

**Price £34.95**

PC REVIEW RATING 6

## Phantom

Not as graphically inspiring as After Dark or Opus & Bill, nevertheless Phantom is a well presented and varied DOS screen-saver.

As with the two Windows savers mentioned, Phantom has a list of different modules available for saving your screen. Some of the more interesting ones include a 'Toxic' variation of the After Dark aquarium with barrels of nuclear waste sitting on the sea bed and a variety of mutant fish.

But my favourite has to be Windshield; you can probably imagine the sort of thing if you've ever been driving along and all of a sudden a kamikaze wasp (or something) has spread itself over the windscreen and you've had to drive for miles with your wipers going to clean the mess off!

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PC REVIEW RATING 6



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# WIN! The best and biggest noise to hit the PC in years!

First prize: the Sound FX Classic 3000
Second prize: the Sound FX 16
Third prize: the Sound FX 8

It may be a market where PC owners are already spoilt for choice, but Bluepoint's new Sound FX Classic is the most impressive high-end sound card we've seen in a long, long time. It's got top quality wavetable sound, excellent FM games compatibility, good software, plus all the features any musician could ever need on a sound card *and* three CD-ROM interfaces to boot.

You can find out all the gory details in the review on pages 108 and 109, but take it from us — the SFXC3000 is a stunning addition to any PC. And here's your chance to win one of your very own in this exclusive PC Review competition.

If you don't win the major prize, second and third prize winners won't walk away disappointed either with Bluepoint 16-bit and 8-bit FM cards respectively, both cards that will immediately bring a musical lift to your PC.

All of the cards require a free 16-bit slot inside your PC, plus speakers. Call Blue-Point on (0908) 277007 for further information about the Sound FX range

### How to enter

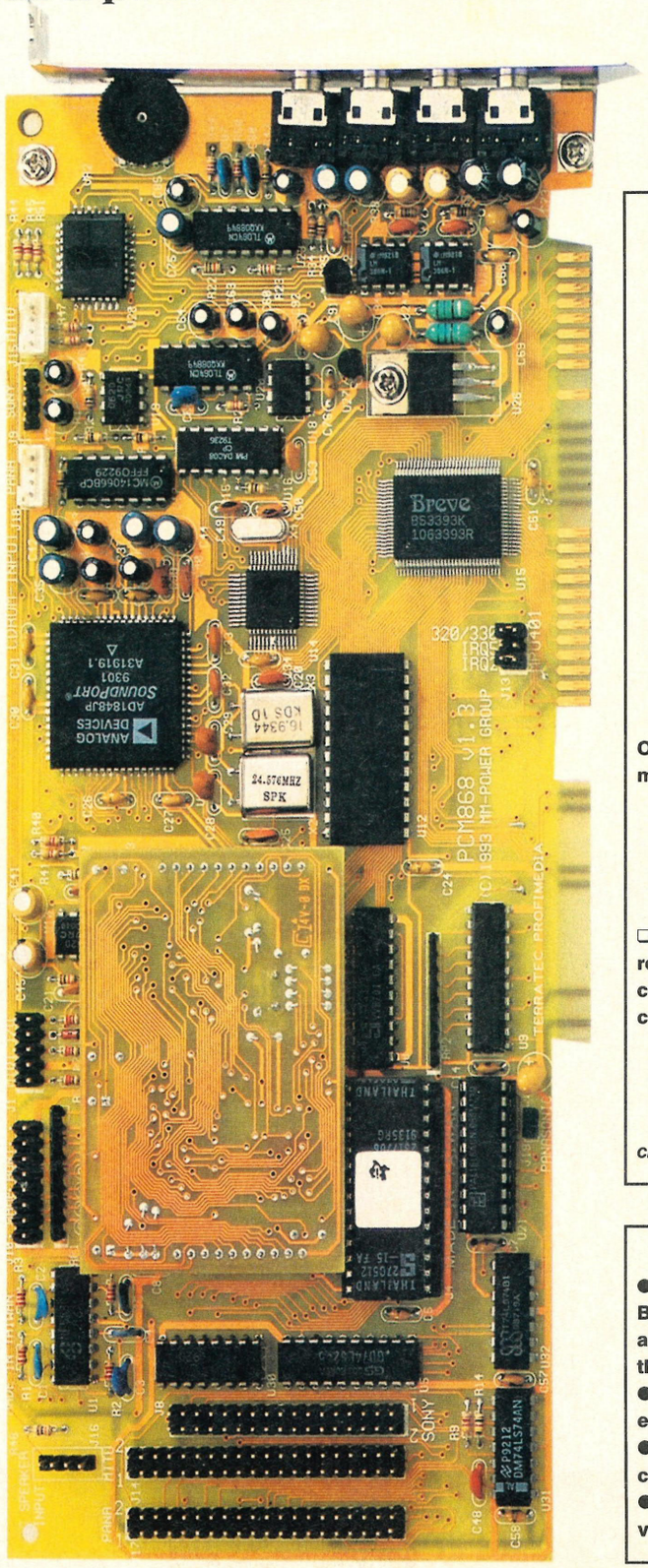
All you have to do to be in with a chance of winning is to answer the following three simple questions correctly.

**1: The SFX Classic 3000 uses**
**a) Wavetable**
**b) FM synthesis**
**c) both**

**2: GM stands for**
**a) General MIDI**
**b) General Motors**
**c) Grand Marnier**

**3: "Gloria Estefan used to sing with the Miami ... Machine?"**
**Fill in the missing word.**

Send your answers on the coupon opposite, or a postcard or photocopy to:
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Priory Court
30-32 Farringdon Lane
London EC1R 3AU




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❑ **Tick this box if you don't want to receive further information from companies associated with this competition.**

*Closing date June 15, 1994 PC Review Issue 32*

## RULES

- **Employees of Emap Images, Bluepoint and their families and associates are not eligible to enter this competition.**
- **No multiple entries: only one entry per person, please.**
- **No entries received after the closing date will be accepted.**
- **The editors decision is incontrovertibly final. As always.**

COMPETITION

# Graphics workshop



**Alan Clark introduces a new series on using painting and drawing packages on your PC. Over the next few months, you'll find out which are the best art programs to use for different purposes, how to create different effects with your software and how to get the most out of the best — and affordable — packages around. This month, we take a look at some basic graphics techniques, how they work and some of the packages which use them.**

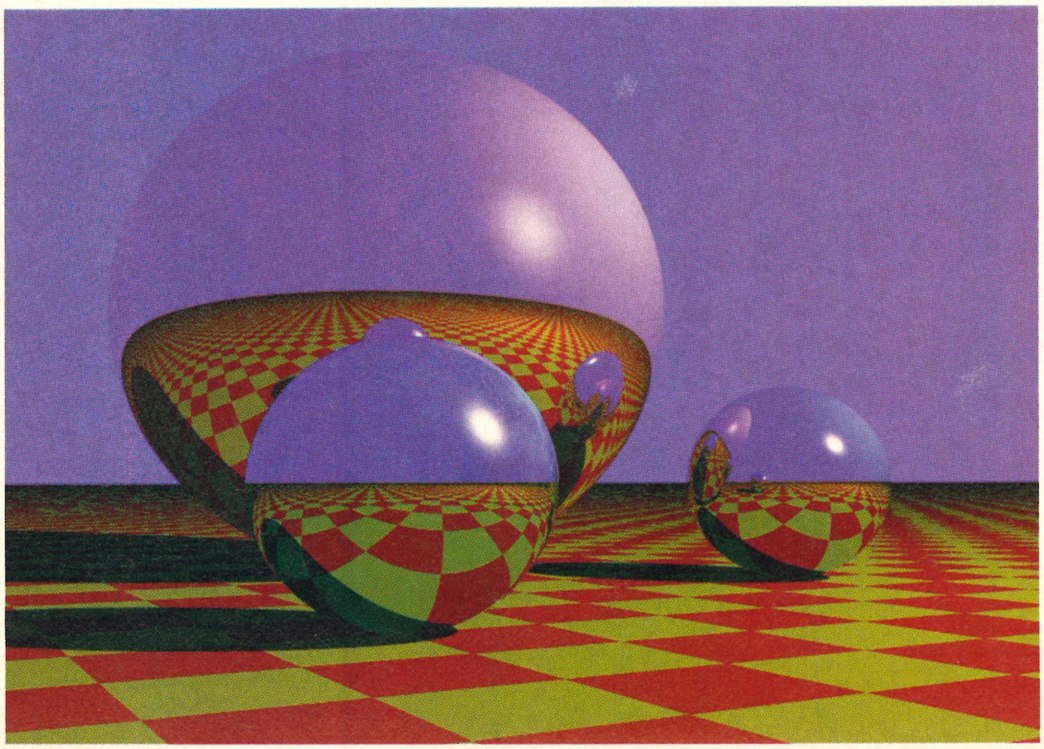



**Blimey, those ducks are moving rather fast, thanks to modern software.**

Most people have come across a graphics package in some form or another, even if it's just a quick scrawl out of curiosity with PaintBrush that comes with Windows.

But within the area of computer graphics there's more to it than just picking up the mouse, drawing a collection of lines and coloured shapes and calling it art. Using the right tool for the right job is very important. While it may be very easy to use, Deluxe Paint II isn't the most appropriate program if you're an architect, but on the other hand, there's no point spending £3,500 on software if you're just going to doodle for pleasure all day.

**Reflection and shadows – the essence of ray tracing.**



## Painting vs drawing packages

The difference between a painting program and a drawing program seems obvious from the names alone, but on the computer they tend to use different techniques to create artwork.

Drawing packages, such as Corel Draw or Designer, are vector-based packages. That is, by using specific tools from within the software, each object you draw – a circle, rectangle, square or whatever – is stored as a series of points which define the shape and angles of the object. These objects can then be picked up and moved around the drawing, enlarged, rotated, scaled and in many other ways manipulated. Your drawing, or design, is then made up of a variety of these individual objects.

This sort of package is ideal for creating such things as logos, technical illustrations, signs and other similar designs, but they can also be quite complicated, overwhelming, and even quite expensive too.

With paint packages such as Paintbrush, or Deluxe Paint II Enhanced, everything is drawn pixel

by pixel and normally freehand. To make things easier and more user friendly, however, tools are usually available for drawing a variety of shapes, but once drawn these are then treated as any other pixels. Unlike a Drawing package where everything is treated as individual objects, within a Paint package all the squares and circles and lines are treated as one.

To sum it up then, a Paint package is pretty much the same sort of thing as taking some pots of paint, a brush and some paper – without having to clean the brush afterwards.

Paint packages are ideal if you want to create a backdrop for Windows or simply for creating computer art. Generally, Paint packages aren't as complicated as Drawing packages and are normally considerably cheaper.

The standard of drawing or painting you create is very much determined by how good your artistic talents are and how comfortable you are with a mouse: while offering a range of tools to help you in your work, graphics packages can't actually do the drawing for you. However, if you do find drawing with a mouse on a vertical screen unnatural, you can invest in a graphic tablet, a flat horizontal 'screen' on which you draw with a 'stylus.'

### Computer aided design

CAD is an acronym for Computer Aided Design, and is a tool for technical drawing on the computer, for objects which need millimetre-precise scaling with complex components – anything from buildings to car engine parts.

While you create your drawings in flat 2D in CAD packages, the more advanced software allows you to transform these designs into 3D or shaded models of the final structure.

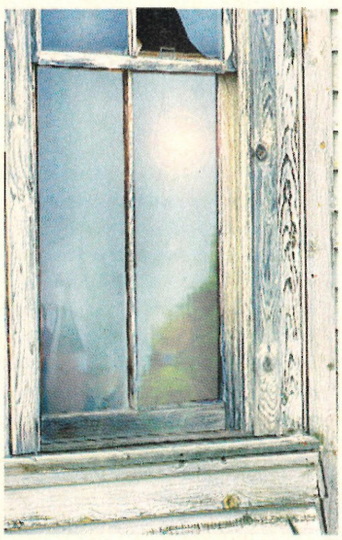


**Image editing software is used to add subtle effects to scanned images.**

### 3D modelling

This sort of software is used for creating the graphics in the majority of 3D games, flight simulators, for example. An even better example has to be 7th Guest with all its beautifully rendered rooms and objects.

Modelling software enables you to create 3D objects and view them from any angle. These objects are made up of faces, normally triangles (think o f the polygons in Alone in the Dark for example), and each face can be manipulated to create weird and wonderful models. To add more realism to your objects, you can add textures and light sources.

Within 3D modelling there are basically two different types; surface and solid modelling: hollow versus filled, solid objects. The surface modelling technique generally creates more realistic models when working with glass or other transparent materials.

As far as available software is concerned there isn't really a great deal. But what there is, is normally quite expensive. The most widely known package is Autodesk's 3D Studio. This is a very powerful surface modelling and animation package. As well as creating the graphics for a lot of top-notch games, 3D Studio is also used for creating 3D effects for TV adverts, music videos, logos and a whole host of other things.

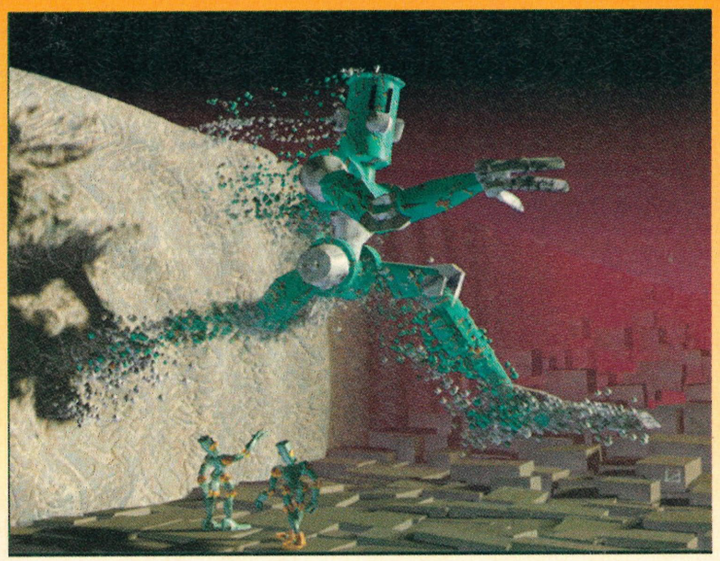
### Ray tracing

Ray tracing could be considered as the next step on from 3D modelling. It's a way of calculating individual light rays within a 3D scene; the most common example has to be the shiny ball on a checkerboard landscape, lit by a single light source. Because of the glossy properties of the ball, the checkerboard is reflected within the ball's surface, and the light shining on to the ball creates a shadow on the ground.

Now all this can be created from within 3D modelling software, but the ray tracing technique is a lot more realistic. Unfortunately it also involves a lot more number crunching and calculation, and so takes longer to produce.

Sadly, actual ray tracing software is pretty hard to come by and there really aren't many commercial titles around. I've said that 3D Studio is a 3D modelling package, but it also has the ability to perform ray tracing. Another package that will ray trace 3D objects is 3D Design Plus v2, but there are also relatively inexpensive shareware titles which will do the job just fine.

Persistence Of Vision and Vivid are the two most well known of these packages, and with a little practice the things you can produce with these inexpensive titles is amazing.



**As this sample proves, you can create some stunning images with Autodesk's 3D Studio.**

### Photo editing

This software is used for editing photographs; changing the colour balance, touching up blemishes on faces, merging two photos to create a montage or changing the colour of the sky to create a surreal effect.

Within these packages you'll find a range of tools for altering photographs and also a collection of drawing tools for adding further shapes. A facility for adding text is also often available.

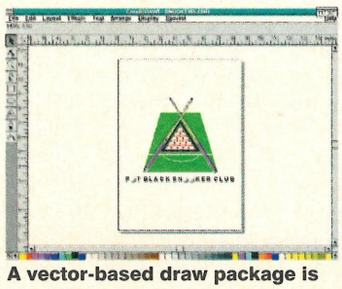
This sort of software is normally used within the publishing industry for touching up photographs before going to press, but they're also great fun to play with at home. And with the addition of Photo CDs you don't have to worry about scanning the pictures in anymore.

### Morphing

You've all seen morphing in the film Terminator 2. Every time the T1000 changed into another shape, or melted into a pool of silver, that was an example of morphing.

The idea is actually quite simple: here's one image, here's another, and by using complicated algorithms and other maths functions, the software will generate a user-definable series of frames and gradually transform one image onto another.

There's quite a range of titles available from expensive professional packages to affordable packages for home users too, such as Win Images, Morph and the shareware programs R-Morph and D-Morph.



**A vector-based draw package is ideal for creating company logos.**

## SUPPLIERS

**Corel Draw 4**
**Price: £395**
**Contact: Frontline Distribution (0256) 463344**

**Persistence of Vision**
**Price: Shareware**
**Contact: After Hours (0785) 228214**

**Vivid**
**Price: Shareware**
**Contact: After Hours (0785) 228214**

**Deluxe Paint 2 Enhanced**
**Price: £116.33**
**Contact: Electronic Arts (0753) 549442**

**3D Studio**
**Price: £2,643**
**Contact: Autodesk, (0483) 303322**

**Designer 4**
**Price: £495**
**Contact: MicroGrafx (0483) 747526**

**R-Morph**
**Price: Shareware**
**Contact: PCIUG (0732) 771512**

**Morph**
**Price: £139.83**
**Contact: Softline (081) 642 2255**

**PhotoMorph**
**Price: £116.33**
**Contact: LTS (0836) 792617**

# Help!

## Don't Panic – check the PC Review technical reference guide (then panic)

**Nobody ever said PCs were easy to use. If you're going to load software on to the machine, then sooner or later, you're going to have to get to grips with the DOS prompt and some simple file commands. The trouble really begins when something goes wrong and your programs won't load, or the PC doesn't behave in the way it should. However, the days of worrying about the state of your hard disk, or wading through the DOS manual could be over. PC Review's technical help pages are designed to pinpoint the most common problems encountered with your PC. Read on.**

If you are new to PCs, or just plain bewildered by talk of boot disks, device drivers and upper memory blocks, then these pages have been designed with you in mind.

In this month's Technical Help section, we cover editing Config.sys and Autoexec.bat files, basic disk and memory problems, common error messages, and making a boot disk.

There's also a glossary of PC jargon, which should help to explain terms not only in these pages, but those which you may come across in hardware and program manuals.

### FORMATTING YOUR DISKS

Blank disks that you buy from the shops will almost always be unformatted: that is, they are truly blank. In order to use them on a PC, you will need to format them. Formatting imposes a structure on the disk, marking the disk magnetically into areas called tracks and sectors, which makes it easier for the operating system to keep track of files when you store them on the disk. If you format your blank 3.5" disk in an Apple Macintosh, it will be formatted for use only in an Apple Mac; if you format it in a PC, the tracks and sectors will be marked specifically for use in a PC.

Where formatting gets a bit scary is that, a) you can reformat disks with data already on them, and the process of formatting also erases any information already on the disk, and, b) you can format hard disks as well as floppy disks.

We defy anyone who has used a PC for any length of time to claim that they have never formatted the wrong disk by accident. However, while it can be agonisingly easy to reformat the wrong floppy disk, current versions of DOS will warn you in capital letters if you try to format the hard disk by mistake.

If you do accidentally wipe out the wrong data with the Format command, and you have version 5 or 6 of DOS, try running the Unformat program immediately (type Unformat at the C:\DOS prompt). Failing that, you need a program such as Norton or PC Tools to try to recover your data.

How to format a high density (1.44Mb) floppy disk in a high density drive A:

1) Put the disk you want to format into your floppy disk drive A:.
2) At the C:\ prompt, type FORMAT A: /F1.44 (don't hit Enter just yet)
3) Check that it really does say A: in the line you've typed.
4) Press Enter.
5) You will be prompted to insert the correct disk into drive A:. This you have already done, but you do have a chance to double-check that it's the right one now.
6) Press Enter to confirm the format.

The formatting process should now start. Note that if the disk is write-protected, you will get a message saying "Write-protect error" (write-protected disks cannot be (re)formatted). You can simply take the disk out, move the write-protect notch down, re-insert it and start again. First, however, you should try to remember why you write-protected it in the first place.

The PC should make a regular ticking noise as it marks the tracks and sectors. However, if this gives way to a distinct grinding sound, then the format program has found some bad sectors – areas on the disk that are damaged. Don't worry. The format program will mark these sectors as 'bad' and henceforth, your programs will not attempt to write data to these areas, although you will lose the space that the bad sectors take up. Your 1.44Mb disk will only hold 1.43Mb of data if there is around 10K in bad sectors.

Once complete, you will be prompted to enter a 'label', or name for the disk, and whether or not you wish to format another disk of the same type. Hit Y for yes and have the second disk handy, or N for no, and exit the format program.

If you want to format a low density (720K, or 'double density') in a high density drive, you should specify it at the C:\ prompt:

**FORMAT A: F:/720**

Don't try to format disks at the wrong density. As for formatting hard disks, DON'T, unless you aboslutely have to.

### HAVE I CAUGHT SOMETHING NASTY?

Without wishing to sound blasé on the subject, viruses are not nearly as common as people think they are. With reasonable care, you should go through life without ever acquiring a computer virus, although a lot of machine errors do superficially look like viruses to the uninitiated.

A virus is simply a program which will copy itself from one disk to another (from a floppy to your hard disk, for example) without your consent. Most commonly, it has been designed to alter the contents of other files, with mischievous or even malicious intent.



There are two main types of virus: firstly, there are those which copy themselves to your PC's bootstrap loader, a small program in the space on your hard disk called the boot sector. The bootstrap is the program which calls up your operating system when you switch the PC on. Floppy disks also have a boot sector. Secondly, file viruses attach themselves to 'executable' files on the PC, ie, files with names ending in .EXE, or .COM. These viruses are activated when you run the infected program (not simply by copying the infected file over, so

it's possible that a file virus could lie dormant in your hard disk for some time before you get around to running the file containing it).

So, your machine cannot suddenly develop a virus all on its own. You need to have actually copied the file which contains the virus to the machine at some stage, albeit unwittingly. The obvious external sources for a virus to be transmitted to your hard disk are from an infected floppy disk, from an infected file on a bulletin board (rare these days, since any half-decent bulletin board will run its own virus checks), or over a network.

What viruses actually do varies. Early viruses were often more mischievous than malevolent: a message might appear on-screen ("Your PC is now stoned" was the on-screen notification for the very old Stoned virus), or the display would go wonky. Unfortunately, the majority will try to damage the system in some way, deleting files, or reformatting part of the hard disk, or overwriting sectors with garbage.

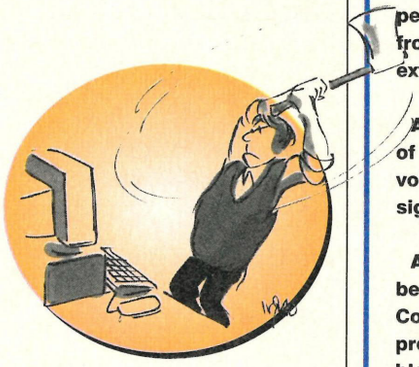
**Prevention is better than cure: how to protect yourself**

- Write-protect all program disks so that no files can be copied on to them. On a 3.5" floppy, you write-protect the disk by moving the notch at the top left hand corner on the back of the disk upwards. You should now see a square hole where the notch was previously.
- Keep all important data backed up, so that in the event of an attack, you do not lose everything beyond retrieval.
- Make a system disk (see elsewhere on these pages), ideally immediately after installing the operating system on a new PC. Write-protect and label it, so that in the event of an attack, you have a way to 'clean-boot' your PC.
- Exercise reasonable caution over the floppy disks you use in the PC. There's no evidence that games software is more likely to be infected than business applications, but every reason to suspect that pirated software is more likely to carry viruses than bona fide commercial disks ('real' disk duplication companies have their own virus checkers, and pirated software is more likely to have travelled about from machine to machine).
- Buy a virus protection program — see the Useful Products panel for details of some of the packages available. There are programs w hich will just scan for viruses without being able to repair them, but you are better off with a more expensive package which will also repair and which is updated regularly to take account of new viruses, particularly so-called stealth viruses which are designed to evade detection. Note also that DOS 6 includes a virus scanner and repair package. checker. Use it!

There is probably also a variant of Murphy's Law in operation which states that if you spend a lot of money in an anti- virus program, it will never detect a virus, but if you decide not to buy one, then sooner or later you'll use an infected disk.

If you think you've picked up a virus, or your scanner has announced a virus alert, here's what to do:

- Stop whatever you're doing.
- Switch off the PC.
- Put in a write-protected boot disk – one that you know is clean, see above – in your floppy disk drive.
- Switch the PC back on.
- Run your anti-virus program to repair the damage.
- Now take all your floppy disk drives and run each one through the virus checker.



**NB When you clean up after a virus attack, take care to scan *all* your floppy disks. Any disks that you have used while the virus has been dormant in the machine may still have an infected file on them — and may not be the original source of the virus. After cleaning up the hard disk, you will only re-introduce the virus if you then use an infected floppy disk.**

- Don't worry unduly. Viruses are not lurking around every corner. Strange, inexplicable things happening on your PC are far more likely to be the result of hardware or software faults, poor configuration, or loose connections. Viruses *are* rare.

For example, all PC Review's machines are equipped with memory-resident virus checkers which are upgraded monthly. We use disks from all sorts of places in the course of each day, and in two and a half years, we've only had one virus scare.

- Finally, magazine cover disks are generally safe to use. Any magazine worth its salt checks, rechecks and then checks again for viruses on the cover disk at each stage of production — PC Review certainly does.

## GLOSSARY

**8-bit:** a bus (see below) or processor which can transfer and process data eight bits at a time. See bits, below.

**16-bit:** a bus (see below) or processor which can transfer data 16 bits at a time. A 16/32-bit processor, such as the 386SX takes data in and spurts it out 16 bits at a time, but internally processes it 32 bits at a time.

**32-bit:** a bus (see below) or processor which can transfer and process data 32 bits at a time.

**3DO:** a digital CD-based console system developed by The 3DO Company, intended to set a standard for interactive entertainment on CD (as per CD-i). The name is derived from a rather excruciating extension of audio, video.

**Analogue:** a device capable of representation by electrical voltages rather than electrical signals.

**Ansi.sys:** this DOS file can be loaded as a device in Config.sys and then used to present very basic coloured block displays on-screen.

**ASCII:** (*pron Ass-key*) stands for American Standard Code for Information Interchange. An ASCII file is a plain text file which contains no codes specific to the software the file was created with.

**Autoexec.bat:** a file you create on your PC which is acted upon every time you switch on the machine and which tailors the PC's configuration.

**BASIC:** stands for Beginners' All-purpose Symbolic Instruction Code. A programming language.

**Batch file:** a file with the extension .BAT consists of a series of other DOS commands, so that you can implement a series of commands in one go. A very simple batch file might consist of the following:

```
CD\
MOUSE\MOUSE
CD THARG
THARG
```

which would move you into the root directory, load up the mouse driver, move to the Tharg directory and start up the program Tharg. If you named this file GO.BAT, you would only need type GO to load up Tharg.

**Baud rate:** speed of transfer by a modem as measured in bits per second. See modem.

**BBS:** stands for Bulletin Board System. A database of programs, demos, and mail-box areas which you can phone using a modem. Facilities vary, but normally include access to the programs, the option to upload your own data and to 'chat' on-line to other users.

**Bit:** the smallest unit of computer data, equal to either of the digits 0 or 1 (bit actually stands for 'binary digit').

**Bitmap:** a way of defining a graphics image so that one bit equals one pixel.

**Booting:** booting up the PC is the same as switching it on and loading up the start-up programs.

**Buffer:** an area of memory used for temporary storage. The buffers command in the Config.sys files specifies how much RAM MS-DOS reserves for storing bits of data that can be called upon more quickly than accessing the hard disk. Printers normally contain a memory buffer into which the file to be printed is transferred, leaving the PC free for work on other applications.

**Bus:** the software, hardware and wiring that enables the different parts of your PC to communicate with each other. The expansion bus connects the PC to external devices.

**Byte:** a unit of data equal to eight bits; more understandably, one character in ASCII (plain text) takes up one byte of space.

**Cache:** a form of buffer memory, a disk cache or cache memory is an area where data is stored and can be transferred rapidly rather than being called up from the hard disk, floppy, or CD-ROM.



## USEFUL PRODUCTS

**Dr Solomon's Anti-Virus Toolkit**
from £99 (price varies according to number of updates required)
S&S International
(0442) 877877

**Norton Anti-Virus**
£149
Symantec
(0628) 592222
Price includes a year's subscription and updates.

**McAfee Virus Scan and Clean**
£2.50
Shareware version
Popular shareware checker and repair program.

**Datasave**
£128
International Data Security
(071) 631 0548
As well as virus protection, includes other security programs such as access control and back-up.

**Norton Utilities**
£139
Symantec
(0628) 592222
Disk housekeeping utilities, file and disk repair

**PC Tools v8**
£139
Central Point Software
(081) 848 1414
Disk housekeeping utilities, file and disk repair

**QEMM 386**
£80
Quarterdeck
(0245) 496699
Memory manager for increasing conventional memory

## CONFIG.SYS AND AUTOEXEC.BAT

Config.sys and Autoexec.bat are two files which are processed every time you switch your PC on. Autoexec.bat contains commands which precisely configure your PC. Config.sys contains commands which — mainly — set up your device drivers.

**What are device drivers?**
Anything that has been added to the basic PC box — like a sound card, a mouse, extra memory chips, or a CD-ROM drive — counts as a device for the purposes of the Config.sys file. Each device needs a driver, ie, a software file needs to be run which loads up the device so that your PC will recognise it.

A line in your Config.sys file which reads something like

**Device=c:\dos\himem.sys**

loads up the device driver for extended memory. Look out for the words Device= and then the location of the file.

**What is an upper memory block?**
If you have extra memory (more than 640K RAM) fitted in the PC, you can load some of your device drivers into the upper memory area, which is between 640K and 1Mb. For example,

**Dos=high,umb**

tells DOS to reserve you some upper memory blocks for device drivers.

**What is a country code?**
A line stating which 'country code' you want to use helps to configure the way the machine displays the time and date — so that the day appears before the month, for example. This line will look something like this:

**Country=044,,c:\dos\country.sys**

044 is the country code for the UK.

**What about files and buffers?**
You may have the following two lines in Config.sys:

**Files=20**
**Buffers=20**

The numbers may be different: files=30, maybe, or buffers=15. Files=x determines the number of files MS-DOS allows to be open at any one time; Buffers=x determines the amount of RAM that MS-DOS reserves to hold information being transferred to and from disk. Don't worry too much about these, their workings will be invisible to you unless a program asks to change the settings in your Config.sys file when it's being installed.

**How do I edit my Config.sys file?**
Load it into a word processor, or type

**Edit Config.sys**

at the C:\ prompt. It's only lines of text, so you can change the words or delete or add lines, then save it (Alt-F, S, if you used EDIT to load it up). Then reboot your machine and the changes will take effect.

**REMEMBER: BEFORE YOU MAKE ANY CHANGES TO YOUR CONFIG.SYS FILE, YOU SHOULD ALWAYS BACK IT UP.**

Either copy it to a floppy disk:

**Copy c:\config.sys a:**

or copy it under another name:

**Copy config.sys config.bak**

Now make the changes to the original Config.sys and if it doesn't work, you can always replace the new one with one you copied earlier.

**So what is an Autoexec.bat file?**
The Autoexec.bat contains a variety of DOS commands which are automatically executed when you switch the PC on.

DOS will look for the presence of an Autoexec.bat file and then carry out the instructions in it. It consists of lines which will tweak things such as the way your C:\ prompt is displayed, the exact layout of your keyboard – so that you get a pound sign when you press Shift-3, for example – and it will define the precise settings for the device drivers loaded in Config.sys.

For example, try this: at the C:\ prompt, type the following, exactly as it appears below:

**Prompt $t$d$_$p$g**

What you should have now is, instead of boring old C:\, is the time, the date, then, on a new line, the current drive and directory as your prompt.

**$t displays the time;**
**$d displays the date;**
**$_ moves the next text down one line;**
**$p displays the current drive and directory;**
**$g displays a > sign to separate your prompt from your commands.**

If you put that line in your Autoexec.bat file, in the same way that you alter Config.sys as explained above, then you will always see that information as part of your C:\ prompt.

**If I've already loaded the device drivers, why do I need precise settings for the devices?**
The device driver simply tells DOS the device is there. Without Device=x, your x won't be recognised at all. The Autoexec.bat settings tell DOS more about how to use the devices, and can be tweaked, if you're feeling confident, to suit your exact configuration.

When you fit something like a sound card or CD-ROM, and run the install software that comes with it, nine times out of ten, the install program will automatically add these lines to Config.sys and Autoexec.bat with the correct numbers. It will probably ask you some questions about your PC set-up, and if you don't know or don't have the manual handy, there should be a default mode you can choose for convenience. If you have bought a machine with devices already fitted, the correct settings should be included already in the Autoexec.bat file.

**I've heard that I can choose which Config.sys settings to use at each start-up. How do I do this?**
If you have DOS 6 or later, you can choose which Config commands to activate. When you switch your PC on, the machine goes through its self-tests and after a few seconds, the words, "Starting MS-DOS ..." will appear on-screen. When that message is displayed, press the F8 key. Now you see the message MS-DOS will prompt you to confirm each Config.sys command

You will be given a choice of pressing Y to carry out each command, or N to bypass it – useful if you want to disable temporarily the CD-ROM drive to free up more memory for a disk-based program, for example.

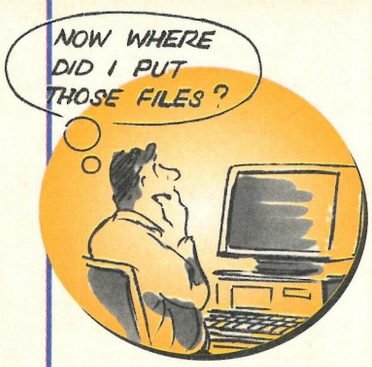
# GLOSSARY

**CAD:** stands for Computer-Aided Design. Technical drawing on the computer.

**CD-i:** stands for Compact Disc Interactive. A digital CD-based machine developed and sold by Philips with limited compatibility with other CD-ROM formats.

**CD-ROM:** stands for Compact Disc Read Only Memory. Physically the same as the compact discs you play music on, CD-ROMs hold up to 600Mb of computer data, stored digitally.

**Centronics:** the standard interface for computer printers, named after the manufacturer.




**Chkdsk:** Useful, but not foolproof, DOS command which when used regularly, will check your hard disk for file errors.

**CIX:** stands for Compulink Information eXchange, a bulletin board and e-mail service.

**CLI:** stands for Command Line Interface. A system, such as DOS, in which you must type in the correct commands to get the computer to perform.

**Clip art:** usually found in art packages or desktop publishing programs, these are files of images saved in the program's preferred format.

**Co-processor:** an additional processor used for auxiliary functions, especially mathematical operations.

**Command.com:** This is MS-DOS's command interpreter, a file which contains the bulk of the commands for MS-DOS, and without which your PC will not function.

**Config.sys:** a file which you create on your PC to load up device drivers for items such as a sound card, CD-ROM drive, etc, every time your machine is switched on.

**Conventional memory:** The first 640K of RAM, into which MS-DOS is loaded, and where all your programs must run from.

**Cpi:** stands for characters per inch. Used to describe the width of character output by a printer.

**Cps:** stands for characters per second. Used to describe the speed of printer output.

**CPU:** stands for central processing unit. Generally means the processor inside your PC, but it's often used loosely to refer to that and the motherboard as well.

**Digital:** making use of binary digits, eg, a device, such as a computer in which data is stored as binary numbers, as opposed to analogue devices (see above).

**Digitisation:** the act of turning non-digital data into a form understood by computers (ie, in binary digit form). Most often used at present to describe graphics (taken from film, paper, slides, etc) or sound (taken from tape) which is scanned (see below) into a computer-compatible form.

**Directory:** Your PC files can be grouped together in directories on a hard or floppy disk to make easier to sort them or find them. A common analogy is to compare the files with documents, stored in folders (directories) in a filing cabinet (the hard disk).

**DOS:** stands for Disk Operating System. A generic term which can refer either to MS-DOS or DR-DOS (see below).

**DOS shell:** a pseudo-graphical user interface (see below) included with MS-DOS v4 and later. This presents your filing system in tree-structure form and can make it easier to find, sort, copy and move files than typing commands at the C:\ prompt.

**Dot matrix printer:** printer which produces output by firing pins through an inked ribbon.

**Download:** to transfer data from a bulletin board system or central database on to your own computer.

**Dpi:** stands for dots per inch. A way of describing the density of output from the computer.

**DR-DOS:** stands for Digital Research Disk Operating System. An alternative and rival to MS-DOS, with some different functions, but compatible with it.

**DTP:** stands for desktop publishing. Software which enables the user to mix text, and graphics in a document to produce newsletters, newspapers and magazines.

**DX:** The DX sub-set of processors are the full-blown versions in their grade. A 386DX is a 32-bit processor as opposed to the 16/32-bit 386SX. A 486DX is a fully enabled version of the Intel 486 family.

**DX2:** A version of the 486 processor which does its internal calculations at twice the speed of the equivalent 486DX.

**Edutainment:** a term for educational games, which mix traditional gaming elements with educational content.

**EGA:** Enhanced Graphics Adapter. PC graphics mode which succeeded CGA. Now, like CGA, virtually obsolete.

**EISA:** stands for Electronics Industry Standards Association. This is an interface for use in 386 and 486 PCs which remains compatible with the older AT bus.

**Electronic mail, e-mail:** files sent from one computer user to another, often via a bulletin board, or over a network.

**EMS:** stands for Expanded Memory System. This was the first standard enabling MS-DOS to use system memory above 640K in the PC.

**Emulator:** a piece of hardware or software, which enables one computer to behave like another.

**Expanded memory:** a form of adding system memory above 640K to the PC so that it can be used by MS-DOS, and also programs written to support it.

**Expansion ports, expansion slots:** the connectors in the PC into which are inserted add-ons such as sound cards, joystick cards, internal modems, etc.

**Extended memory:** a form of system memory above 1Mb which can be used by programs written to support it.

**Format:** to prepare a disk, either a floppy disk or the hard drive, so that it will accept the relevant data (ie, format a disk on the PC and it will accept PC data, format it on an Amiga and will take Amiga files etc).

**Game card:** or joystick card. A board which fits into an expansion slot (see above), which a joystick can be plugged into.

**Gigabyte:** 1,024 megabytes.

**Gouraud shading:** a graphic technique in which colours are blended at the edges and rounded at the corners to give the impression of smoothness and speed when animated.

**Graphical user interface:** a system, such as Windows, in which you move an on-screen cursor and 'click' (usually with a mouse) on pictorial representations (icons) in order to make the PC perform commands.

**Graphics card:** the circuitry which drives the type of graphics and resolution (density) at which they appear on-screen.

**GUI:** stands for graphical user interface. See above.

**Hidden file:** a DOS file which has been marked as 'hidden' will not be displayed on the directory listing, and cannot normally be opened, read or deleted.

**HMA, high memory area:** a 64K block of memory above 640K which MS-DOS can load into with the command Dos= high after the Device= Himem.sys line in Config.sys.

**Icon:** a pictorial representation of a file or command on screen.

**Inkjet printer:** printer which works by ejecting tiny droplets of ink on the paper.

**Io.sys:** one of MS-DOS's two hidden system files. Needs to be present at start-up.

**Joystick card:** see game card.

**Kermit:** an old, not very advanced, protocol (method) for transferring files by modem.

**What are multiple configurations?**
Again, if you have any version of DOS 6, you can create a Config.sys file with separate configuration blocks. At start-up you can choose which block of commands to process. So you might have a configuration block which loads the sound card and CD-ROM drive, and another which doesn't include these and leaves you with much more free RAM for those really memory-hungry games.

In very, very simple form, a Config.sys set up for multiple configurations looks something like this:



```
[menu]
menuitem=CD-ROM games
menuitem=Disk games

[CD-ROM games]
device=c:\cdrom\cdriver.sys
device=c:\sndcard\sound.sys
device=c:\mouse\mouse.sys

[Disk games]
device=c:\sndcard\sound.sys
device=c:\mouse\mouse.sys
```

Now when you switch on your PC, you will see the message

```
MS-DOS 6 Startup Menu
1. CD-ROM games
2. Disk games
Enter a choice:
```

Take it from there!

## MEMORY PROBLEMS

One of the first stumbling blocks that many new users come across is how memory works on the PC, partly because the word 'memory' is used to mean both permanent file storage space and the memory chips, called RAM, installed inside the machine. Thus ...

**When I try to run Tharg Commander, it says I have insufficient memory. But there's 120Mb on my hard disk – what's going on?**
Your hard disk and floppy disks are the permanent storage places for your programs and data. Your system memory, in the form of memory chips on the main circuit board of your PC, temporarily holds programs, or parts of programs, when you use them.

A word processor program, for example, is stored on your hard disk, but when you type the command to load it, or click on its icon in Windows, however much of the word processor is needed for the program to display on-screen and function is loaded into system memory.

Documents that you write with the word processor are held in system memory until you actually save them to disk. System memory is dynamic, ie, when you switch the PC off, the system memory switches off too, and contents are lost, which is why you lose any work not saved if your machine crashes. Files saved to hard or floppy disk remain stored until you physically delete them.

So, each program will require a different amount of system memory to be free. When you switch on the PC, MS-DOS will load into your system memory, as will any software used to run devices such as mice or sound cards. If Tharg Commander wants 610K free to run the program and you only have 570K left after DOS and devices have loaded, you will get a message saying you have insufficient memory.

**That's all right. My PC's got 4Mb of RAM, so I must have at least 600K left.**
What the program is talking about is the first 640K of your system memory. This 640K is called base or conventional memory, and this is where programs will load the pertinent parts in order to run.

The rest of your 4Mb can be configured as expanded or extended memory and your programs will make use of this as well, but they still need a good chunk of that first 640K.

**How do I know how much conventional memory I have left?**
At the C:\ prompt, type MEM, and you will see a table of conventional memory used, expanded/extended memory used, and then a line reading:

**Largest executable program size**

followed by a number in kilobytes, and then in bytes in brackets, which indicates the amount of free conventional memory.

On average, you could expect to find a figure between 535K and

## GLOSSARY

**Key disk:** some programs require you to insert a master disk in your floppy disk drive while using the program on hard disk as a form of copy protection. This master disk is referred to as the key disk.

**Kilobyte:** 1,024 bytes.

**Laser printer:** printer which outputs in not too dissimilar fashion to a photocopier.

**Low level format:** Formatting a hard disk is a two-stage process: the initial low-level format prepares the disk for a high level format, after which data can be recorded. Occasionally, a low level format may be the only way to repair a damaged hard disk, although you will lose all existing data in the process.

**Main board:** general term for the motherboard of the PC.

**Maths co-processor:** a second processor in the machine, which is used to carry out mathematical functions by programs which support them.

**MCA:** stands for Micro Channel Architecture. An expansion bus developed by IBM, originally designed to bring the bus in line with faster 386 processors.

**MCGA:** stands for Multi-Colour Graphics Array, a graphics mode on some IBM PS/2 machines.

**Megabyte:** 1,024 kilobytes.

**Memory-resident:** a program which remains in memory even while other programs are running. Programs such as desktop organisers are often designed to be memory resident so that the user can switch to them at a single keypress; virus scanners usually remain in memory so that they can scan any floppy disks as they are inserted in the drive.

**MHz, megahertz:** the unit of frequency at which electric current cycles through the processor. Used to describe the speed of the processor.

**MIDI:** stands for Musical Instrument Digital Interface. A system by which electronic musical instruments can be connected to each other and to a computer, which then controls all of them.

**Mini-Tower:** a squat – roughly half-height – version of the Tower, where the PC itself is housed in upright casing. See Tower, below.

**Modem:** stands for *Mod*ulator/*Dem*odulator. A device which enables you to connect your PC to the telephone line and send and receive data through it.

**Motherboard:** the main board for a computer circuit.

**MPC:** stands for Multimedia PC. A standard minimum specification for developing and running CD-ROM software.

**MPEG:** stands for Motions Pictures Experts Group, a compression standard for video images.

**MS-DOS:** stands for MicroSoft Disk Operating System. The standard operating system for the PC. The operating system is the base program which enables you to run applications on the PC, use disks and add-on devices and organise your files.

**Msdos.sys:** one of MS-DOS's two hidden system files. Needs to be present on start-up.

**Multimedia:** the use of data from different media in the same program, eg, mixing video, computer graphics, sampled speech, music, text, etc. Often sloppily used to refer to any CD-ROM program.

**Multisync:** a type of monitor which can switch between high resolution graphics modes without the need for extra software.

**OCR:** stands for optical character recognition. Software which 'reads' text scanned into the computer with a scan-

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600K. If you have less than 500K free out of your base 640K, then you may well have a TSR (terminate and stay resident) program running.

If you want a more detailed breakdown of exactly which programs are using up memory, type MEM /C for a full list.

**What do the terms 'expanded' and 'extended' memory mean?**

When a program calls for expanded or extended memory, the actual memory chips it requires are precisely the same; it's the way in which the memory is managed that differs.

Expanded memory is the older way. It works, roughly speaking, by moving 16K blocks of data in and out of the high memory area (the area between 640K and 1Mb) as needed by the program, which must be written specifically to take advantage of it.

Memory above 640K is extended memory by default on PCs with at least a 286 processor. While DOS itself doesn't use extended memory, many programs do.

With a 386 or later processor, an expanded memory manager will convert your extended memory to expanded. With a 286 or older, you need to add expanded memory on a separate board. Current versions of DOS come with both an expanded memory manager (Emm386.exe) and an extended memory manager (Himem.sys). The following line in your Config.sys file

```
Device=C:\[path]\Emm386.exe
```

makes your PC ready to run programs needing expanded memory. The word [path] just means the name of the directory where the file is kept — probably the DOS directory. If you add a number such as 1024, or 2048, at the end of this line, then that is the amount, in kilobytes, that DOS will allocate to expanded memory.

Any that is left over is configured as extended memory, providing you also have a line reading

```
Device=c:\[path]\Himem.sys
```

at the top of the Config.sys file. This line needs to come before the Emm386 line.

**How do I free up more conventional memory then?**

There are two things you can do with Config.sys and Autoexec.bat to free up more base memory. Either remove some commands so that non-essential device drivers and configurations aren't loaded, or load them into the high memory area, or upper memory blocks (386/486 PCs only).

To take this latter method first: if the first two lines in your Config.sys are:

```
Device=Himem.sys
Dos=High
```

then, after rebooting, DOS will load into the high memory area, a 64K block above 640K. This works with a 286, 386 or 486 and DOS 5 or later.

If you put the following two lines are in your Config.sys, immediately after the Device=Himem.sys line:

```
Device=c:\[path]\Emm386.exe
                        noems
Dos=High,umb
```

then the next time you reboot your PC, some spare upper memory blocks will be created. These blocks can then be used to load device drivers into, such as

```
Devicehigh=c:\cd\cdriver.sys
```

in place of Device= in the Config.sys. This line will load this mythical CD-ROM driver into an upper memory block.

The first method is simply to dis-



able anything in the Config.sys and Autoexec.bat that looks superfluous, and to save memory that way. However, we wouldn't advise deleting the line altogether: you might discover it was useful for something after all!

Instead, you can simply alter the lines in the Config.sys or Autoexec.bat file (see the section on editing these files, above, for exactly how to do this), so that instead of reading, say

```
Path=c:\dos;c:\mouse
```

the line reads

```
Rem path=c:\dos;c:\mouse
```

Rem stands for Remark, and tells DOS that this line is only a comment, not a command. Now, if you ever want the line back, all you have to do is to delete the word Rem.

If you have DOS 6, you can choose which Config.sys lines to use at startup, by pressing F8 when you see the line Starting MS-DOS ... appear on-screen after you switch on. Now MS-DOS will go through the Config.sys file line by line, asking if you want to load it or not. Again, this is explained in more detail in the section, above, on Config.sys and Autoexec.bat.

## MAKING A BOOT DISK

**If you're having difficulties freeing up enough memory to run a program and you're fed up to the back teeth with editing Config.sys and Autoexec.bat to no avail, an easy way out is to make a boot disk.**

**This is a floppy disk with just enough files on it to load MS-DOS, but not so many that it eats into your conventional memory.**

**There are two ways to create a boot disk, one for formatted floppy disks, and one for unformatted. All you need is the floppy disk, a sticky label and a pen.**

**If your floppy disk is already formatted, make sure it's blank, put it in your disk drive and then, at the C:\ prompt, type**

```
SYS A:
```

**This will transfer three files (four in DOS 6) from the hard drive to the floppy drive. The two system files, which are probably called Io.sys and Msdos.sys, are 'hidden' and not normally visible to a directory listing (so just take our word for it that they're copied across). The third is the all-important Command.com. The fourth, exclusive to DOS 6, is Dblspace.bin, which is also a hidden file. Once the files have copied over, your floppy disk is now a boot disk. It contains the bare minimum to run MS-DOS, while leaving plenty of memory free for running hefty games.**

**If your floppy disk is unformatted, you can format it and make it a system disk in one fell swoop. Put the disk in your floppy disk drive and type:**

```
FORMAT A:/S
```

**The format command will format the disk. The /s is called a switch, and tells DOS to transfer the three main system files to the floppy disk, making it a boot disk.**

**Now take the sticky label and pen and label the floppy as a boot disk.**

**Because the Sys and Format/s only transfer the fewest files necessary to boot the system, your mouse will not be loaded, nor will a sound card or CD-ROM drive be loaded with a device driver.**

**You can load these separately from the C:> prompt, after using the boot disk to start up, but it's probably easier to make Autoexec.bat and Config.sys files on the boot disk itself. And the easiest way to do this is to copy over your standard Config.sys and Autoexec.bat files from your hard disk and then remove all the lines except the ones you need for the program to run, such as the mouse driver, sound card settings, or expanded memory manager lines. This at least guards against typing errors when you try to create the new Autoexec.bat and Config.sys on the floppy disk.**

**Note: several program manuals explain how to make a boot disk and suggest specific commands to go into the Config and Autoexec files on the boot disk — usually with regard to extended and/or expanded memory requirements specific to the program in question. Let the program manuals recommendations override your existing configuration if you want the program to work properly.**

## NEXT MONTH

**In our next issue we'll also include advice on using compressed drives, using DOS wildcards, and some tips for making the most of Windows.**

ner (see below) and converts it into the original characters (when scanned, the document will be saved as a graphics file rather than a text file).

**Parallel port, interface:** interface for parallel signals usually used to connect printers.

**Partition:** division of a hard disk drive into more than one 'logical' drive, ie, although physically the same hard disk, different areas are assigned their own drive letter. Originally, users were forced to partition larger drives, because early versions of MS-DOS could only address up to 32Mb on one disk.

**Patch:** an add-on disk to a program which can be bought by existing users and which usually fixes a bug, or provides an update to the program.

**Path, pathname:** the 'tree' of directories and sub-directories that defines the location of a file or group of files. For example, c:\wordpro\john\sample.let is the path for the file Sample.let in the sub-directory John, in the directory Wordpro, which is in the root directory.

**Pentium:** The name for what is logically the 80586 processor. Intel, the manufacturer, gave the chip a name rather than a number to make life more difficult for rival manufacturers. Numbers — such as 586 — cannot be trademarked in the US but, of course, names can be. Thus, while other companies can develop what is, in effect, also a 586 chip, they cannot call it a Pentium and reap the reflected rewards from Intel's high brand name visibility.

**Pixel:** stands for Picture Element. The smallest size of on-screen dot that can be directly controlled by the computer.

**Port:** a chip which controls the connection of external devices to the computer. Often used loosely to mean the socket, the interface, the back of the PC, etc.

**Processor:** the chip that drives your PC, and deals with mathematical and logical operations.

**Program Manager:** the main screen, or 'front end' to Windows, from where all Windows operations can be accessed.

**Public domain:** software designed to be distributed free of charge, with no copyright attached.

**RAM:** stands for Random Access Memory. This is the dynamic system memory which holds programs and data while they are being worked on.

**Read-only:** a file or disk whose contents can be read or copied, but cannot be changed.

**Resolution:** the density of dots on-screen, or in printed hard copy (or in graphic files) which determines how detailed the picture (or print) looks to the eye. Standard VGA screens display at 640x480 pixels, SVGA at up to 1024x768. Resolution of print is measured in dots per inch — a standard laser printer prints at 300dpi.

**ROM:** stands for Read Only Memory. This is permanent memory, and in PCs is generally used for start-up operations — routines stored in Rom carry out the self-tests and activate DOS when you switch the machine on.

**Root directory:** the directory immediately under C:. See path.

**Scanner:** a device which 'reads' printed matter and converts it into digital information which can be stored as a computer file.

**Screen saver:** Spurious, but mildly diverting software which puts pictures and animations on your screen if you don't press a key for a certain length of time.

**SCSI:** (*pron Scuzzy*) stands for Small Computer Systems Interface. A multi-purpose interface between the computer and peripherals, mainly disk drives and CD-ROM drives. Provides very fast data transfer.

**Serial port, interface:** an interface which uses serial connections. Mainly used for modems, networks, and some mice. Standard serial interfaces on PCs come in two versions: 9-pin and 24-pin and adapters are readily available.

**Shareware:** Software designed to be used and distributed freely on a trial basis, but for which users are expected to register and pay if they wish to use it regularly. Shareware is subject to copyright.

**SIMM:** stands for Single Inline Memory Module. Board with a set of memory chips for comparatively easy RAM upgrades.

**Sound card, soundboard:** board which plugs into a spare expansion slot and enables programs to play music and sound effects through it, coupled with a set of speakers.

**SVGA:** stands for Super VGA (Video Graphics Array, see below). A general standard describing graphics modes of 800x600 and up to 1024x768 with at least 256 colours.

**SX:** the 'cut-down' versions of processors. The 386SX processor is a cut-down version of the 386DX, because although it processes data internally 32 bits at a time, it only accepts and transfers data 16 bits at a time. The 386DX is a true 32 bit processor. The 486SX, however, is a 486DX without a built-in maths co-processor.

System disk: a floppy disk with DOS system files on it which will boot up the machine.

**System files:** the files which make up the operating system of the computer.

**TLA:** stands for Three Letter Acronym, much beloved of computer programmers, journalists and data processing managers.

**Tower, mini-Tower:** an upright casing for the PC, designed to save desk space, since it will stand on the floor.

**TSR:** stands for Terminate and Stay Resident, a memory resident program which you can exit from but call up typically with a single keypress since it is still stored in system memory. See Memory Resident, above.

**UMB, upper memory block:** smallish areas of unused memory between the first 640K and 1Mb. You can put drivers in here by using the command DEVICEHIGH instead of DEVICE in the Config.sys file. Upper memory blocks are explained in more detail elsewhere on these pages.

**Upload:** to transfer files from your computer to another, typically to a bulletin board or central database.

**Vector graphics:** a graphics technique characterised by the drawing of geometric lines for precise scaling and movement.

**VESA:** stands for Video Electronics Standards Association. A group of graphics card manufacturers who have determined standards for high resolution monitors and graphics adapters.

**VGA:** stands for Video Graphics Array. An IBM graphics mode which has become the base standard for PC colour displays.

**Virus:** a program which has been specifically designed to alter the contents of other programs, with differing effects but usually rendering the programs unusable.

**Virus checker, virus scanner:** a program that will check files for the presence of a virus, usually by looking for unexpected patterns in the file contents.

Virus killer: a program which will remove the virus elements from an infected file and — optimally — repair the file.

**Wallpaper:** the background to — usually — a graphical user interface screen, such as the screen background in Windows.

**Windows:** a graphical user interface developed by Microsoft for use with DOS on the PC.

**Write-protect:** to render a disk read-only, so that its contents cannot be altered, usually by moving a notch at the top of the disk's casing.

**XA, CD-ROM XA:** stands for eXtended Architecture. CD-ROM with additional video capabilities.

**XGA:** eXtended Graphics Array. IBM graphics mode.

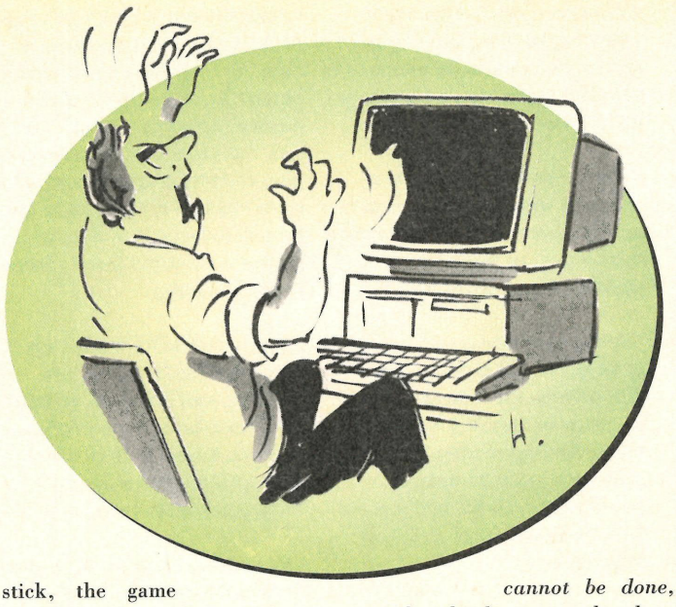
**XModem, YModem, ZModem:** three different protocols — sets of rules — for transferring data via modem. ZModem has become the preferred standard.

**XMS:** stands for eXtended Memory System. See Extended memory, above.

# Q+A

**Is your hardware making your head ache? Is DOS driving you dotty? If you've problems with your PC, share them with Mike James and he'll try to help.**





## Tseng drivers and CD Cables

**Q** I am the proud owner of a 386 40 MHz PC running Windows 3.1. I have recently purchased a Tseng ET4000 Graphics card (like the one shown in your magazine.) I unwrapped it carefully and installed it without trouble. All was working fine, until I tried to install a 1048 x 768, 256 colour (or higher if possible) graphics driver. To my surprise there wasn't one anywhere to be found. The disk that came with the card was 5.25 format. Great, I thought, I'll just have to ask my mate to copy it for me. He did so and to my surprise nothing could be found on the disk. This really upset me, for whilst I was able to run games like Links 386 Pro using SVGA, I was unable to run a simple program like the Origin FX screensaver for Windows as it ran in 256 colour. Do you know where I might find a copy of the drivers?

Also, I have seen the new Mitsumi CD-ROM drive for sale in the computer ads. It says it is fast, but is it faster than the Panasonic CR562b? And does the advert that said "CD to SoundBlaster cable" mean I can connect my SoundBlaster v2.0 up to a CD-ROM, or is it a misprint?

**David Bird**
**Bristol**

**A** *The key question here is – drivers for what? I agree that the drivers disk shouldn't have been blank, but if the drivers you are missing were on it, you would now be asking me which drivers to use. A video driver has to be matched to the software and the hardware, and the problem is usually finding a driver for a particular application even when you do have a disk full of ET-4000 drivers. Typically drivers are supplied for GEM, Windows, Wordstar, Lotus 1-2-3, AutoCAD and a few other standard applications.*

*Now for the good news : you can get ET-3000 and ET-4000 Windows drivers on a shareware disk. Try disk 2863 from PDSL. The second piece of good news is that the ET-4000 video card is so standard that most software will support it directly or via a driver that is supplied with the software. Even the very latest version, such as 3.11 of Windows doesn't need special drivers to work with it. In short, I don't think you would have found much of use on the diskette even if it hadn't been blank! Also given that it was a 5.25 inch diskette, any drivers on it would have been a bit ancient. By the way don't try for video modes above 1024x768 in 256 colours – it is unlikely that the card has enough memory installed to support them and if it did your SVGA monitor probably doesn't work that high.*

*Finally, the CD-ROM to Sound Blaster cable. This is just a small audio cable that connects the audio output of the CD-ROM drive to the audio input of the Sound Blaster card. By making this connection any output from the CD-ROM can be heard over the SoundBlaster's speakers. Without it you need two sets of speakers or should be prepared to swap one set over.*

## Joysticks and more CD-ROM problems

**Q** I own a 486DX, CD-ROM, SoundBlaster Pro and SVGA and have two problems which I hope you can help solve.

I have the game Tornado on CD: the only problem I have with it is that when I try to recalibrate the joystick, the game places the centre of the joystick at the top left of my own joystick, making my plane go down every time I try to pull up. Could there be something wrong with my joystick? It is a Quickshot Warrior 5 and is plugged onto the game port that came with the computer and not on the SB-Pro, I have checked to see if the SB-Pro one is turned off, and it is.

My CD-ROM is made by Mitsumi (I think) model CRMC. When I try to install the driver MTMCDE system onto my computer it crashes. When I list the directory of the CD-ROM it works fine with the driver MTMCDS system, I have checked if there are any DMA and IRQ channels free, and there are, and the software has been set up properly.

**P Jutla**
**High Wycombe**
**Bucks**

**A** *Well, you seem to be doing all the right things – but sometimes it still doesn't work. The Quickshot joystick is perfectly standard and works well in general. As long as the SB-Pro port is turned off there should be no problem in using it. The only other suggestion I can make is to try adjusting the X,Y trimmers to centre the joystick's screen position manually. If this cannot be done, then the chances are that there is something wrong with the joystick. It is also possible that there is some sort of problem in the game's calibration routines. If the joystick works fine with other software then this is the most likely explanation.*

*The CD-ROM is indeed a Mitsumi drive. The difference between the two drivers is that the E driver makes use of a DMA channel to transfer data and the S driver doesn't. The S driver is likely to be as fast at transferring data as the E driver, but it ties up the processor during the transfer. This usually makes little difference unless you are using a particularly advanced application that knows how to make everything go faster by using the processor while data is being transferred – most don't!*

*In other words, you don't have to worry too much about not being able to make the E driver work. However if you do want to have another go then you have to make sure of two things: first that the interface card's jumpers are set to a free IRQ and DMA channel number; and second, that you configure the driver to use the same two numbers.*

*In fact there is a halfway method of trying to get the card working. If you tell the driver not to use a DMA channel at all then you can see if the*

*IRQ number you have selected works. To do this tell the driver installation software that you want to use DMA (DRQ) channel S. This will disable the DMA and only use the interrupt that you have selected. If the driver still crashes try another IRQ number. Once you get this working then try the DMA channel.*

### Tentacle trouble ...

**Q** I don't know whether anybody else has had problems running Day Of The Tentacle, but I have had this problem for a couple of months (running it from CD-ROM) and I just can't find a solution for it. My problem is that the game keeps locking up in the introduction. If I skip the introduction, I can play for a couple of minutes, but then it locks up again. The game locks up in different places, but mainly when the three are just about to travel in time. The game works on my friend's computer but not on mine. Why not? The machine is 486DX-33 with a SCSI hard disk and it boots up via the SCSI controller.

I have gone to various computer shops but without success. They all say that it has something to do with a DMA conflict with my SoundBlaster Pro but I've tried changing the DMA channel and even removing the card – and it still doesn't run.

The only good that has come out of this is that I know more about the PC, but still not enough to get it working. If you do help me then I will buy your magazine forever and ever, honest.

**Mark Bell**
**Maidstone**
**Kent**

**A** *OK, a lifetime subscription seems worth an answer. Yes you're not the only one with Day of the T troubles, but at the moment none of the problems fit into any coherent pattern. Take your particular problem, for example – it is reasonable to suppose that it is explained by a DMA conflict as most lock-ups are due to either a DMA or an IRQ conflict. But given that you have taken out the only odd piece of hardware that might be causing the problem and it still happens, it must be something else.*

*My best guess is that it is down to your SCSI drive and the SCSI controller in particular. SCSI controllers do have a habit of causing weird problems due to their use of RAM for additional buffering. What happens is that some memory management software doesn't notice that the buffers are being used by hardware and move them around just like they would any other block of memory. Unfortunately in this case the result is a system crash. From the Config.sys file that you sent me I can see that you have the line*

```
DEVICE=C:\DOS\SmartDrv.exe
/double_buffer
```

*which tries to protect the buffering area used by the SCSI controller. The only thing I can add is that this line should come before the line that loads EMM386.EXE. If this doesn't work then it is always possible that Tentacle. does its own memory management and so still makes a mess of the disk controllers buffers.*

*I asked US Gold for my own copy of Tentacle. so that I could try it out on a system using the same SCSI controller as yours, but it said it didn't have many review copies and had used up its allocation... I leave you to make up your mind what to think about this – but US Gold did say that I could pass the question on to its help line...*

### Where is EMM386?

**Q** I have a 386 with a 40Mb hard disk (stacked), 2Mb RAM, DOS 5. Recently, I bought Frontier Elite 2. I tried to install it but I got this message :

**"594k approx. needed to install, remove unnecessary drivers."**

Having made changes to my Config.sys and Autoexec.bat I rebooted my system which gave me 634k, enough to meet the requirement.

Again I tried, but the message was: "EMS Driver required."

Having checked my DOS directory, I found EMM386.EXE, included it in my Config.sys, yet still I got another message:

**"bad command or filename EMM386.EXE not found."**

I got in touch with Gametek. They said that my EMM386 was bad and that I should get a copy of another EMM386 from another PC, it must work after that.

Low and behold, I got three copies, and yes you guessed it. Tto this day it still doesn't work.

I believe software companies that sell games to us members of the public should include not only the hardware requirements, but the Config.sys and Autoexec.bat files best used for their software.

If you can advise me as to where I am going wrong, I would be very grateful.

**G Payne**
**Middlesex**

**A** *That's a nice thought – the one about software companies specifying the Config.sys and Autoexec.bat needed to make their games work. Given the way that machines vary, I'm not sure it's possible to do, but then again it might be! In this case I don't think that specifying a typical Config.sys file would have helped. You are absolutely right about including the command*

```
DEVICE=C:\DOS\EMM386.EXE
```

*line in your config.sys file. This should create a default 256K of expanded memory. The error message that is produced is very puzzling and suggests that DOS cannot find EMM386.EXE or when it does it has problems loading it. As long as EMM386.EXE is stored in the DOS directory then there should be no problem finding it. As an alternative, try copying EMM386.EXE to the root directory ie,*

```
COPY C:\DOS\EMM386.EXE C:\
```

*and then change the DEVICE to read*

```
DEVICE=EMM386.EXE
```

*If this doesn't work then there must be some problem with the file itself – as the helpline suggested. The trouble is you cannot just copy any old EMM386 to your machine because it has changed with each version of MS-DOS and Windows. You need to make sure that you get hold of a copy from the same version of MS-DOS. Better still use the version which is included with Windows:*

```
DEVICE=C:\WINDOWS\EMM3
86.EXE
```

### X-Wing problems

**Q** I recently purchased a copy of US Gold's X-Wing, but am having problems trying to get it to run properly. My system set-up is as follows: 486DX, 8 Mb of RAM, clock speed 25MHz or 10MHz, DOS 5 Sound Blaster Pro installed, Gravis joystick with control card.

But when I run X-Wing after installation, although I get the full playing capacity, I don't get any sound. I followed US Gold's instructions to make a boot disk, which has only Command.Com on it and I now run from this. But whilst I get sound, I do not get digitised speech and can only play the first few missions of the X-Wing craft – if I try mission five the system tells me, "Error not enough memory." This is because I have no expanded/extended memory available using the boot disk. I have tried putting onto the boot disk a basic Config.sys and Autoexec.bat, but doing this simply brings no sound at all. I have also tried to change the setting of my sound card IRQ from 7 to 5, but the problem still occurs the same way.

After contacting US Gold and the X-Wing technical support line, which both now seem to be permanently engaged, I am asking you or any of your readers for some rather urgent help before I resort to writing to all PC magazines telling them of the enormous amount of help one gets from a company after spending nearly £50 on their product.

**Zolly Littlechild**
**Hertfordshire**

**A** *I agree that the current situation with support for games is a problem. The trouble is that the PC is a bit of an awkward case when it comes to optimisation. This situation should get easier as the games writers get the hang of what constitutes a typical PC. The trouble is that they either write programs that need large amounts of conventional memory or they write programs that need to take over the whole machine. Neither approach is a necessary consequence of the technology and really it just indicates how ignorant they are of the way that the PC is built.*

*In short – it is perfectly possible to write a game that doesn't need*



*excessive amounts of conventional memory and which can live with a machine almost no matter how it is configured.*

*Now back to your specific problem The trouble is that X-Wing needs a lot of conventional memory and it uses expanded memory. If you start it off from a clean boot disk – one that only has Command.com on it – then there is enough conventional memory, but because an expanded memory driver isn't being loaded there is no expanded memory at all. If you try to put this to rights by loading an expanded memory driver, such as EMM386.EXE, then the amount of conventional memory that is available goes down because the driver needs some memory to load – a really good catch 22.*

*The solution is to use a configuration that optimises memory in a slightly more sophisticated way. You need to use high and upper memory to shift drivers and other stuff out of the way. If you had MS-DOS 6 then I would suggest using MemMaker – as this automatically optimises memory use. As you are using MS-DOS 5 then you will have to do it manually. The best way is to proceed step by step. Try the following Config.sys:*

```
DEVICE=C:\DOS\HIMEM.SYS
DEVICE=C:\DOS\
EMM386.EXE 1024
DOS=HIGH
```

*This should provide your machine with 1Mb of expanded RAM and clear 64K of conventional memory by moving MS-DOS into the high memory area. As this is more conventional memory and more expanded memory than a clean boot disk provides, everything should now be OK. It is possible to clear more conventional memory by moving drivers into upper memory, but this is where things become difficult and time consuming – take a look at the MS-DOS 5 manual pages 313 to 332.*

### VESA bus – is better?

**Q** Since the purchase of my first system in 1991 (an XT that I thought was state of the art) I have – finances and wife permitting – upgraded my present system which consists of a VESA Local Bus 33DX 486, the motherboard of which has a 256K cache. This is the bit that I find confusing. I would say in my own humble opinion that I have a fair idea about memory and prior to DOS 6 was quite happy to tinker with the Autoexec.bat and Config.sys files to try and get that extra couple of kilobytes of memory freed up for both games and other applications. MemMaker in DOS 6 seems to do a good job of this but neither the manual or any other books I have found really explain what the cache on the motherboard actually does. Can you explain? Do I still need to have the DOS 6 software cache (SmartDrv) loaded?

Also in my recent upgrades I have acquired a Cirrus Logic Vesa local bus graphics card, which appears to really enhance the graphics, especially in Windows. The card has 1Mb of RAM fitted, could I increase this to 2MByte and if so would it make much difference? If yes where would I obtain the extra 1Mb and how much would I expect to pay for it? Whilst on the subject of local bus –what difference would changing the I/O card have at present for one that uses the local bus slot?

**Paul F Boyle**
**London**

**A** *Yes, you do need the cache on the motherboard and yes you do still need SmartDrv as they do slightly different things. A cache is essentially a buffer between a slow memory system and a fast memory system. SmartDrv is a disk cache – that is it buffers the slow disk memory and the fast main memory. The cache RAM on the motherboard however is a main memory cache and it acts as a buffer between the relatively slow main RAM and the very fast, ie, 33MHz processor. The processor reads and writes to the cache and the cache deals with the main RAM at its slower pace. In other words, the 256K of cache on the motherboard helps the processor to go faster and the main memory that you allow SmartDrv to use makes the disk appear to go faster.*

*As to the Cirrus logic VL bus graphics card memory upgrade – the answer is that it depends on the exact make of the card. Adding extra memory will allow the card to work at even higher colour resolution at the highest spatial resolutions of 1024x768 and 1024x1024. With only 1Mb fitted these high resolutions are restricted, if that's the right word, to 256 and 16 colours respectively. With 2Mb of memory this goes up to 65536 and 256 colours. Is this worth it? Personally I don't think so as 256 colours at 1024x768 is good enough for most applications and working with more colours will slow things down by about a factor of two.*

*If you do decide to go ahead then you need to get hold of the correct memory chips and I can't tell you what these are because it depends on the exact make of video board – have a look in the manual or on the board itself.*

*Finally, should you change the I/O card for a VESA bus version? The answer is only if you are using an IDE drive and the IDE controller is part of the I/O card. Parallel, serial and games ports are so slow that there is no point in offering them the higher speed of a VESA bus – they simply couldn't use it. However an IDE drive almost certainly can and so a combined IDE/parallel/serial/games VESA bus card is a good investment.*

## Q&A UPDATE

**One of the most difficult questions I am often asked is "Should I buy a PC now or wait?" It is a difficult question, because the answer is always that you will get a better deal if you wait. In practice though, what you have to do is get the best deal at the time you want the PC. Then, even if things do suddenly change, you at least have the knowledge that you did the best you could. Even so, there is always the nagging doubt in the back of the mind that the change might be so huge that the new machine will be obsolete in a few weeks.**

**Indeed, there is a shift in the market that is about to happen very soon. Intel, the main manufacturer of the 486 processors used in the PC, is seriously worried about a new range of competitors. At one level other companies are starting to produce viable alternatives to Intel-made 486s and at another the Pentium, Intel's top of the range, is being challenged by the Power PC. The Power PC is based on a completely different processor and it isn't, despite its name, an IBM PC clone. What makes this unlikely family of machines a threat is that by some software magic it can run MS-DOS and Windows programs at about the same speed as a fast 486.**

**How can this be a challenge to the Pentium? The simple answer is that programs written to operate on the Power PC in 'native' mode go a lot faster than old PC applications. That is, it has the potential to be better while still allowing you to run your old software.**

**At the moment the Power PC isn't a real threat to the dominance of the Intel-based PC but in a year or so the situation may be very different. What is important now is that Intel is changing its pricing and production to meet the threat before it arrives, and this means a shake up. For example, the 486DX2-66 processor price has just been cut from $463 to $360 and it is very likely to fall further. This means processing power is about to become cheaper.**

**Put simply, what is almost certain to happen as a result is that the range of models on offer are about to take a jump in power for a given price. At the moment the 'entry level', lowest cost, machine is based on a 486SX-25. This is likely to change in the very near future to a 486SX2-50 or a 486DX-33. It is only recently that the 486DX-33 was considered top of the range and at the moment it is one step up from 'entry level.' This slot will soon be occupied by the 486DX2-66 which is currently top of the 486 family. Its current position will be filled by the new DX-4 (which is a clock tripled not quadrupled processor!). Finally the 'around £1500' slot will be filled by Pentium based machines – which will lose their 'good but pricey' image.**

**In a few months I would expect to see the standard range of machines on offer to be – 486DX2-66 as entry level, DX-4 as something a bit better and a Pentium system as the machine you would really like. This means that the 486SX-25 is about to fall off the end and become extinct, and the 486DX-33 will do the same soon after.**

**You can now buy a reasonable 486SX-25 motherboard for £99 or less – the price that a 386SX motherboard used to be! So if you are in the market for an upgrade, now is the time to buy. After all there is still at least a couple of years usability in a 486SX-25.**

**■ Mike James**

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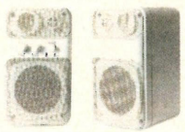
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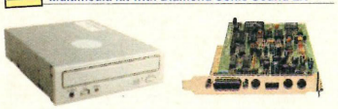


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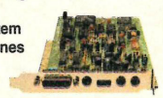
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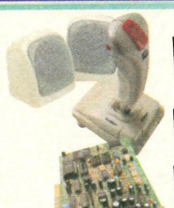
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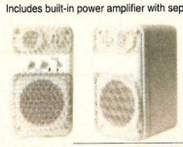
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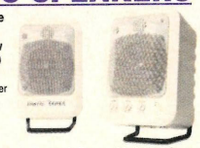
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# Letters

**PC Review welcomes your opinions on just about any PC-related subject. We reserve the right to edit your letters, and we'll also assume correspondence is for publication unless you state otherwise.**



### Putting the record straight

I am sure that I will not be alone in pointing this out, but you do Print Shop Deluxe an injustice when you declare, on page 41 of the April issue, that "there aren't any facilities for importing graphics ..."

In the PSDL that I have there definitely are. All you have to do is select Add New Elements, followed by Imported Graphics, and you are given the opportunity to support EPS, PCX or TIFF files from whichever drive or directory takes your fancy.

These can be moved, scaled, stretched, etc, as you like. Perhaps a correction may be in order?

**Mr S J Lee**
**Huntingdon**

*Consider us corrected, Mr Lee.*

### Infection fears

I read in a newspaper that viruses can't copy themselves on to write-protected disks.

But if viruses are contained on write-protected disks, can copy-protected disks copy the viruses on to the hard disk?

I recently purchased Sam and Max for my son and a few days later my computer was overrun by the Tequila virus. I got an expert to get rid of the virus, but as I didn't make back-up copies of the game, I fear the original copy is infected. I'd like to know if I switch the little black tab, will the disk be protected from copying the virus back on to the hard disk?

**Dr John Kelly**
**Donnybrook, Dublin**

*No. Write-protecting a disk only protects it from having its contents altered. You can read data from a write-protected disk and you can copy files from a write-protected disk to another disk, but you can't put a new file on to the disk, rename the files, or delete them, because that would alter the contents of the disk.*

*How did you find out that you had the virus in the first place? If you have access to a virus checker, you can run the virus checker and ask it to check the a: drive rather than the hard disk, and run the suspect floppies through that. See this month's Technical Help pages for a bit more on viruses and virus prevention.*

Software prize WINNER

### CD-ROM con?

What happened to bigger, better and more playable games on CD-ROM?

Impressed as I am by the advances in technology which bring us film scenes in the middle of games, it seems that the lastability of games has gone out of the window as a consequence.

Just before Christmas I bought a new £400 CD-ROM drive, thinking that the games I bought would be far better than their disk counterparts. OK, Rebel Assault was awe-inspiring, but my interest lasted about a month – not long at all. The same happened with Dracula Unleashed – I was fed up with it in about two weeks! It was pretty, but lacked serious gameplay.

Yet the opposite happened with Doom. It came on four floppy disks. I installed it about three weeks ago and am now hooked. Even without full motion video and non-stop speech, it has more playability than its 300Mb CD-ROM competitors.

And can you imagine Frontier: Elite II on CD-ROM, texture mapped, Gouraud shaded? It would be the ultimate in graphics and playability.

It seems to me Rebel Assault is just an excuse for LucasArts to sell us a movie we have all seen a hundred times before and call it interactive. If any games developers are reading this – please, no more 'interactive movies'. We want gameplay.

**John Warburton**
**Bristol, Avon**

### SimCity sadness

Your recent SimCity demo is not, to my mind, a very good example of marketing. What I mean is Maxis does not seem to have assigned to the demo a reasonable period in which to acquaint yourself with the game.

The 20 minutes given seems an arbitrary figure. I get the impression from the magazine that you were playing the real thing to check the playability of the demo. Please correct me if I am wrong. *(You're wrong. Ed.)*

I think the demo idea is great, having purchased Doom and Alone in the Dark 2 as a result of the demo given by you. However, I am sorry to say the SimCity demo did nothing for me. The time was too short and many of the facilities removed.

I ended up very frustrated, chucked out the game just as something may have been developing, and realised I may have attained more satisfaction building a sandcastle.

As a result SimCity is going to the bottom of my playlist, as I was infuriated by the demo. I am sure it's a great game having read your reviews. Am I being over-critical?

**Chong Looi**
**Market Harborough**

"What happened to bigger and more playable games on CD-ROM?"

### Learning difficulties

I really want to know why it is that some games companies don't learn from their mistakes and make use of their existing good ideas as well as other people's opinions?

Take MicroPrôse, for example. Now MicroProse produced Master of Orion, which was a challenging strategy game, but lacked something in the graphics and excitement department. Many people said so. Then MicroProse gave us Starlord, which when I heard about it, made me assume that MicroProse would have listened to what had been said about Orion and obviously solved the problems of the first adventure. Well, the major problem with Starlord was that most of the things that had been good about Master of Orion seemed to have been thrown out, leaving behind quite a good combat simulator, but hardly anything else.

But then take another games company, Infogrames. Infogrames must have taken notice of reviews of Alone in the Dark and ironed out the prob-

lems in the sequel. Alone in the Dark 2, because it made the follow-up 50 times more difficult than the original.

If only companies would listen to what people thought of their games and would try to address problems, rather than going off on a new track after every new game. Games might then start to get 10s and you'll have to recalibrate your marking system.

**John Burgato**
**Bristol, Avon**

### Was I cheated?

I am one of many readers who own a 286. Currently all your cover disks do not run on 286s. This is beginning to annoy me. The reviews are also neglecting us – there are plenty of new 286 games on the market.

I can understand in Issue 30 why you need a 386 to run SimCity. But why a 386 to run the cheats program? For the past six months I have laboured over Monkey Island 1 and the first chance I get to complete it I can't because of the program. The idea of the cheats only being able to run on a 386 is madness.

**David Ashford**
**Onchan, Isle of Man**

*You don't need a 386 to run the game solutions. Sorry for the confusion. Just take your cover disk, put it in your disk drive, log on to it, and type PCRTIPS to view the solution files.*

### Simply the best?

We have American football, ice hockey, golf, motor racing on the PC. But where is soccer? Apparently, Sensible Soccer has pleased the majority looking for a decent football game on the PC. But is this game the best we deserve?

Compare the graphics of Sensible Soccer to Unnecessary Roughness or NHL Hockey. Both of these require scrolling in the same way a football game would but the the graphics are years apart in quality.

Why has it become the norm to view soccer games from overhead? The only way you would see a real game from this angle would be from an airship. This makes the game totally unrealistic, predictable to play and, therefore, quickly boring.

I would like to take you back a few years to the days of the 48K ZX Spectrum and remind you of Match Day and Emlyn Hughes' International Football. These were games of very poor graphics compared with Sensible Soccer but in terms of playability and general fun they were outstanding in their day.

I fail to see why it is so difficult to produce graphics as good as NHL Hockey with a side on view and make a perfectly good football game.

Far be it for me to tell the marketing guys of software companies how to sell games, but I think soccer is just a bit more popular in this country than American football.

I hope the forthcoming football games for the World Cup will shut me up but if they are of the Sensible Soccer and Kick Off mode, I beg someone to start writing a football game for the European Championships in1996. After all it does not have to be anything staggering to beat Sensible Soccer.

I hope the person who reviewed Sensible Soccer for PC Review has played it a bit more and realised it is garbage.

**Nick Clemons**
**Coventry**

"SimCity is going to the bottom of my playlist"

### Eye test

I got your latest issue through the post the other day and I was reading it in bed last night. About this new look: I'm pleased that you have managed to fit more into the magazine but it's obvious that you did it by reducing the size of your font.

For the first time I can remember I actually had trouble reading a magazine – especially those white on purple boxes. It's not all your fault because I did have a long day staring at the screen and I should go to the optician really, so it's just a comment rather than a complaint.

Anyway, it's still a great magazine with best reviews around.

**Mark Dobie**
**Via CIX**

*You weren't the only one to make this point, Mark, so I hope this month's larger type is easier on your eyes.*

### Stylish

Love the new look PC Review, very stylish.

**Terry Lee**
**Via CIX**

### Thanks for the CD ...

The content of the CD-ROM is excellent. Even the demo programs are different! The Gravis UltraSound update files were absolutely wonderful. As the article said, these file are available only to the fortunate few who have modems. Prior to your free CD-ROM, I was going to do without, or have to spend hundreds of pounds to gain access to these files.

## COMPETITION WINNERS

**Doom competition (Issue 28)**
**Answers: a) ID Software wrote Doom; b) Transend Services distributes Doom in the UK. Winners: first prize of Doom, Blake Stone 3D and Duke Nukem 2 to Darren Steddy, of Caterham, Surrey; second prizes of Doom to Jon North, of Colchester, Essex, John Ford, of Gloucester, A Birch, of Basildon, Essex; third prizes of Blake Stone 3D to Vicky Scopes, of Sevenoaks, Kent, M J Larsen, of Whitley Bay, Tyne and Wear, Jim Grimwood, of Hatfield, Herts; fourth prizes of Duke Nukem 2 to Chris Lane, of Orpington, Kent, Mr R E Green, of Blyth, Northumberland, and Silas Jewitt, of Totterdown, Bristol.**

**Amstrad 9486 competition (Issue 29)**
**Answers: 1) Amstrad's chairman Alan Sugar is also chairman of Tottenham Hotspur; 2) Rebel Assault is bundled with the new Amstrad 9486 Multimedia PC; 3) Will Wright is the brains behind the original SimCity. Winners: first prize of an Amstrad 9486 Multimedia PC to Mr J D Sawyer; second prizes of SimCity 2000 plus a Lego kit to Andrew Bridge, of Victoria Park, Manchester; David Campbell, of Cowbridge, South Glamorgan; Mr J Hurst, of Humberston, Grimsby; Peter Tobins, of Hendon, London NW4, and G Milne, of Aberdeen.**

**Premier Manager (Issue 29)**
**Answers: 1) You start Premier Manager in the Vauxhall Conference; 2) The 1994 World Cup is being held in the USA; 3) There are 22 teams in the Premier League. Winners: first prize of a Matsui VX2700 video recorder plus a video of Blackburn Rovers' season's highlights to Sebastian Orain, of Blackpool, Lancs; runners-up prizes of Premier Manager 2 to John Sullivan, of Poole, Dorset, and Teresa Staniewicz of Coventry; runners-up prizes of T-shirts to A Porretta, of Southampton; James A F Hislop, of Glen Esk, Angus; Mr S P Scarborough, of Wisbech, Cambs; Greg Aldridge, of Peterborough, and Gary McDougall, of Glasgow**

**US Gold ski jacket (Issue 29)**
**Answer: Heli-skiing is not an Olympic sport. Winners: three ski jackets to Kevin Moseley, Pinner, Charles Kirk, Clifton, and Sophie Roberts, Banbury, Oxfordshire.**

**CyberRace competition (Issue 29)**
**Answers: 1) Dark Seed was Cyberdreams' previous game; 2) Harrison Ford starred in Blade Runner; 3) CyberRace uses Voxel Spacing. Winners: first prize of the Syd Mead video collection plus CyberRace to Andrew Jakins, of Grimsby, S Humberside; second prize of Blade Runner on VHS video and CyberRace on PC to A McCartney, of Blackpool; third prize of CyberRace to Alex Moore; runners-up prizes of T-shirts to Laurie White, of Kingham, Oxon; Stephen Higgins, of Sale, Cheshire, and Mr T P Gamble, of Basingstoke, Hants.**

**PC Review Recommended (Issue 29)**
**Doom: Mel Gibson used a chainsaw in Mad Max: Beyond Thunderdome. Winners are M Reed, of Kenley, Surrey; Davinder Sohi, of Gravesend, Kent; Ian Dykes, of High Wycombe, Bucks; Brian Reed, of Swindon; and Greg Aldridge, of Peterborough. SimCity 2000: Two other Sim games? Take your pick from SimEarth, SimLife, SimFarm, etc. Winners are Mr B Webb, of Sywell, Northampton; Mr Andy Edge, of Dagenham, Essex; Mr K N Murche, of Shepperton, Middlesex; P Page, of Yate, Bristol; and Andrew Gardner, of Launceston. Gabriel Knight: Mosley is the detective who is also Gabriel's best friend. Winners are Andrew Allen, of Coatbridge, Lanarkshire; N Eaton, of Coventry; Andrew Munday, of High Wycombe; Roger Boulton, of The Wirral; and John Edwards, Basingstoke.**

Oh yes, and the rest of the magazine is excellent, too. Just enough news, reviews and technical info/help. Any criticisms? Yes, you don't have a letter of the month, or any prizes or incentives.

**Garry Butterworth**
**Blackpool**

*We do have a letter of the month. Ironically, last month, it went to someone who criticised us because he thought we were beastly about the Gravis UltraSound.*

### ... and no thanks

I have purchased PC Review (good mag) with CD-ROM (dreadful). Demos should run straight from CD-ROM and not require loading on to a hard disk and 'unzipping'. I had to make a special boot disk, presumably because of the excess memory requirements. The software was sub-standard – except for Neopaint – although I concede that this is the main point of the exercise, ie, to determine what is the software that appeals.

The biggest grumble is ease of use. It should just load and go.

**John Ellis**
**Exel Computer Systems**

*Quite simply, many – if not most – commercial CD-ROM games require a number of files to be installed to the hard disk.*

*This is true of the full versions of Battle Isle 2 CD, Star Trek CD and the Knowledge Adventure range. The programmers make the games this way and I can't see how you can expect the demos to be different.*

*We also wanted to make a clear distinction between true CD demos and floppy disk based demos and programs – the zipping-up method is familiar to our readers, so why start confusing the issue now?*

*As regards memory requirements, the demos are again the same as the commercial releases.*

*If it were possible for us somehow to tailor the memory requirements of the many demos we run, so that they were identical and ran on every PC without any modification, we'd be able to sell the idea to Microsoft and co and retire on the proceeds.*

**Write to Letters, PC Review, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU, or contact us by e-mail: pcreview@CIX.compulink.co.uk**

## STAR TREK CORNER

**Some of you may suspect that in running a quiz in the Star Trek competition we were involved in a cynical ploy to fill the letters pages with arcane and little-known gems of information about Spock's antecedents. Yes, a veritably bulging postbag was generated by the Star Trek questions, though plenty of you still managed to enter the competition. Frankly, we should have known that even mentioning T'Pau, except as an extremely dodgy mid-80s pop group, was a BIG mistake.**

### Pedantic corner

Hi and welcome to Pedantic Corner!

You have probably had hundreds of letters like this, but just in case, I have a few observations to make about your Star Trek compo in the April issue.

Question 2: None of the quoted answers (with, I suppose, the possible exception of Mrs Spock) are correct. I would guess you were expecting T'Pau to be the answer. In fact T'Pau was the Vulcan ruler seen in the episode Amok Time (played by Celia Lovsky), and Spock's mum's name was Amanda (Grayson). We meet her in the episode Journey to Babel, played by Jane Wyatt.

Question 3: Small point. DeForest Kelley rather than DeForest Kelly. (Yes. That's a *very* small point. Ed.)

Question 5: The Captain's Log is kept in the ship's computer and is accessible (by the Captain) from all over the ship, including the chair on the bridge.

Question 7: Hmmm ... Klingons also have battle cruisers.

Question 8: The Enterprise uses a matter/anti-matter reaction as a power source. Dilithium crystals simply help control that reaction. Huh ... simple GCSE physics. I mean, honestly ...

Question 10: Spock is science officer *and* first officer.

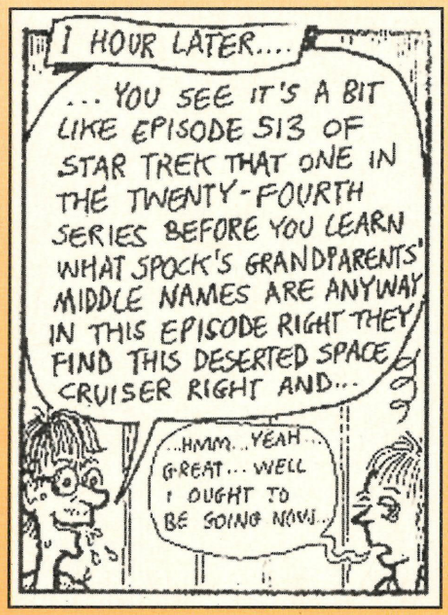
Sorry if this sounds a bit nit-picking, but there were some pretty big nits to pick! If you would like a more accurate Trek quiz compiling, please let me know. Live long and prosper.

**Neil Harris**
**Canton, Cardiff**

### Trek on

Being a Star Trek fan I was delighted to see an opportunity to win the complete original series on video. However, there are two questions that puzzle me.

Firstly, in question 2, "What is the name of Spock's mum?", three possible answers are given as usual. Unfortunately none of the answers are correct.




Answer A is Cher. This is obviously a joke answer as seen in most questions. Answer B is T'Pau. She is a Vulcan and esteemed political figure and the only person to refuse a seat on the Federation Council, She was to conduct Spock's wedding to T'Ping that never happened. Since she is a Vulcan this automatically rules her out because Spock's mother is human.

Answer C is Mrs Spock. There never has been a Mrs Spock on Star Trek. If you are referring to T'Ping, Spock's betrothed, then she was never called this because he never married her

Spock's mother has only been called by name in one episode entitled Journey to Babel, written by the distinguished writer D C Fontana. In this episode she is referred to as Amanda by her husband and Spock's father Ambassador Sarek. She is also referred to as Mrs Sarek by both Captain Kirk and Dr McCoy. Therefore none of your suggested answers apply.

Secondly, Question 5, "Where do you find the Captain's log?" is again one where no right answer is given. This time answer C is the one that could not possibly apply.

The point here is that Kirk can make a log from anywhere as long as it is recorded. Indeed Kirk has recorded logs while in his chair and, in some episodes, also in the sickbay (The Corbomite Maneuver, Turnabout Intruder), and sometimes even on a planet (The City on the Edge of Forever, The Gamesters of Triskelion and others).

In Star Trek V: The Final Frontier he uses a specialised log recorder. As to where it is kept, this is never established during the series because there is never an episode in which they access a previous log.

The most likely place for it to be stored is Spock's library computer which gives access to just about everything. Starfleet Command will also have copies of logs as they are continually despatched to Starfleet.

As I have already mentioned, I am an avid Star Trek fan and feel compelled to write and point out these discrepancies, but I would also like to take this opportunity to thank you for including such a great competition in your magazine. It has been good fun completing it.

**Fraser Dawson**
**Hynland, Glasgow**

PS 'Maneuver' is the American spelling, which I assume is correct in the context of the TV programme. I have changed "making logs" to "record logs" to make it less open to scatological interpretation.

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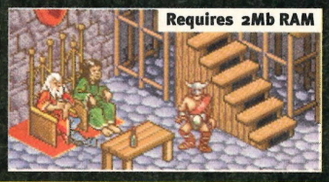
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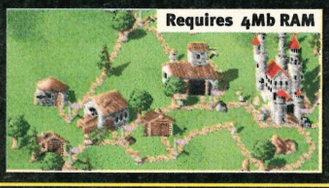
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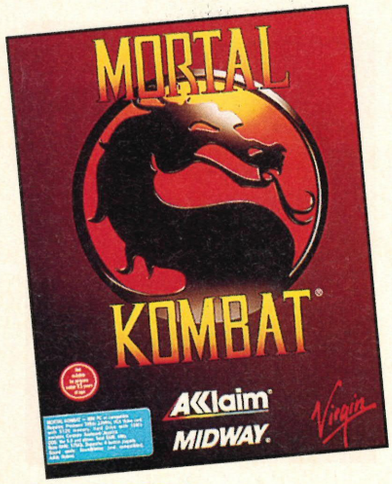
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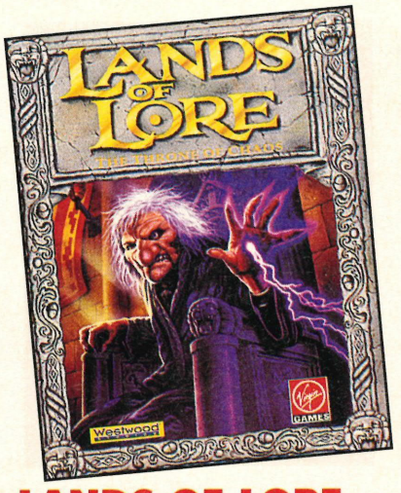
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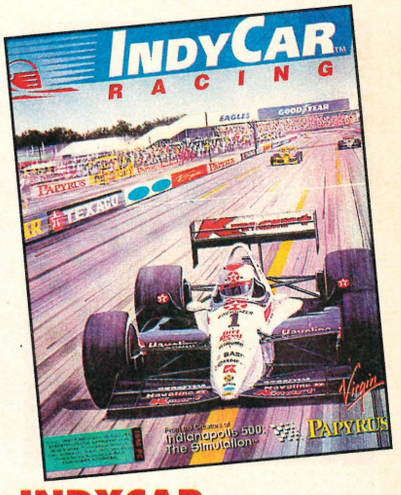
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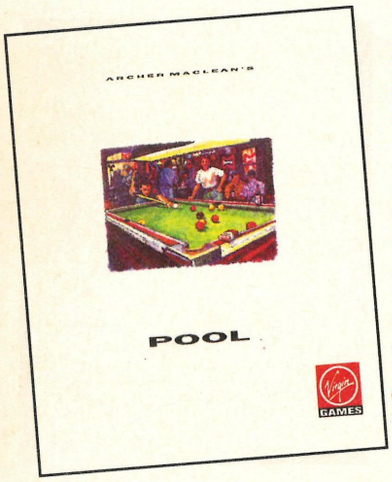
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# Next Month

# HELP



If you're thinking of buying a new PC, DON'T ... until you've read our article. We'll be looking at an oft-neglected area of PC buying — the after-sales service. Which companies offer the most comprehensive service? Which software companies have the best technical support lines? Which games publishers have the most hints and tips? And how can you safeguard your purchase so that you can buy without worry? All will be revealed next month.

### The great multimedia scandal

Taking a database, slapping it on a CD and adding a few pretty pictures is hardly a stunning use of 'multimedia'. Chucking a few digitised cut-scenes into a game barely qualifies it to be described as a 'multimedia experience'. So why do publishers insist on cutting corners and misusing the available technology? John Bennett reports.

### The PC Review profile

Cryo is one of the hottest names in PC development at the moment. With KGB, Dune and now Megarace under its belt, the team is currently working on leading edge games for Mindscape. Cal Jones visits Cryo's offices in Paris to get the story so far.

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### Games

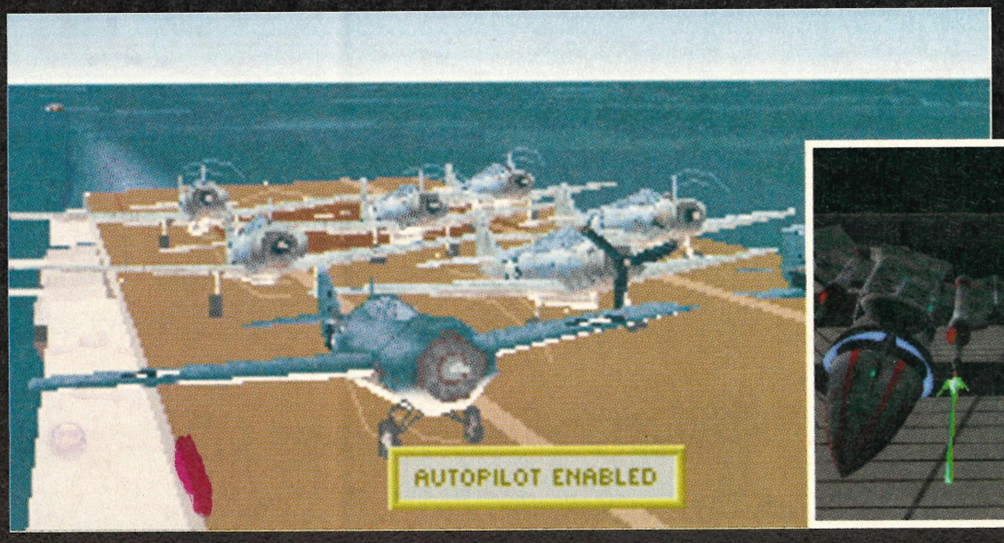
Delta V, Pacific Strike, and Pacific Air War, are all lined up at the starting blocks, plus Robinson's Requiem, a game of survival against the odds.

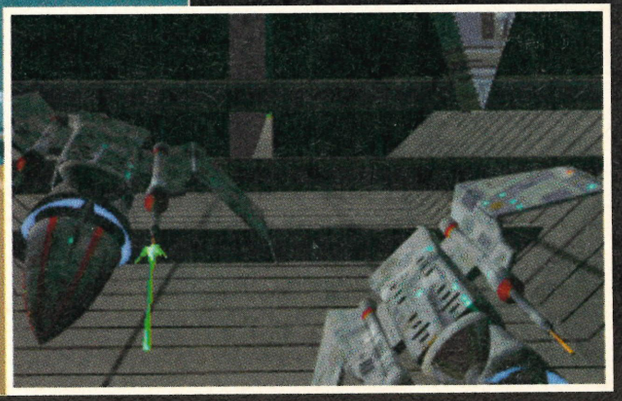
* Tips for BloodNet and Myst
* More of your SimCity towns

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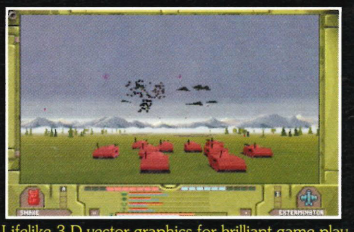
**PC Review: 8**
**PC Gamer: 93 %**
**PC Zone: 91 %**
**PC Format: 86 %**



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Animated ray traced Units in astonishing detail.

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