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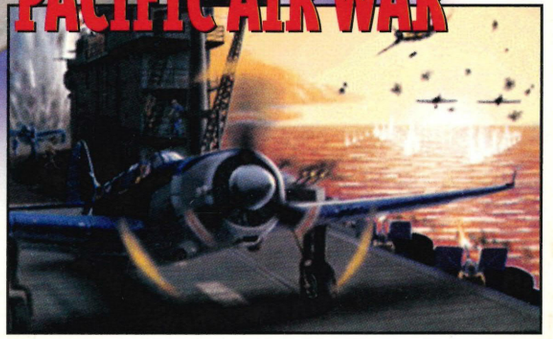
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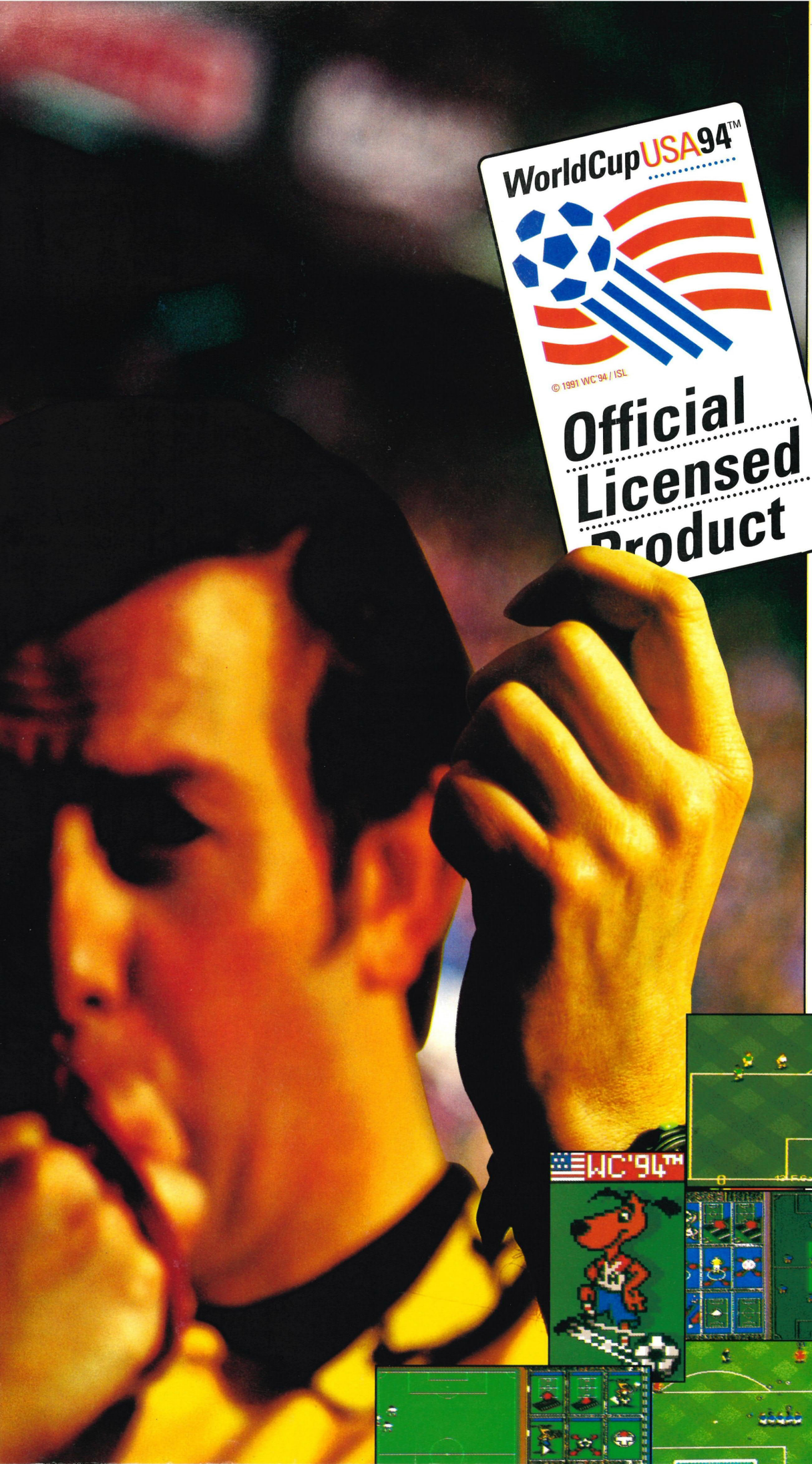
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PCREVIEW • Issue 33

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THE GOO

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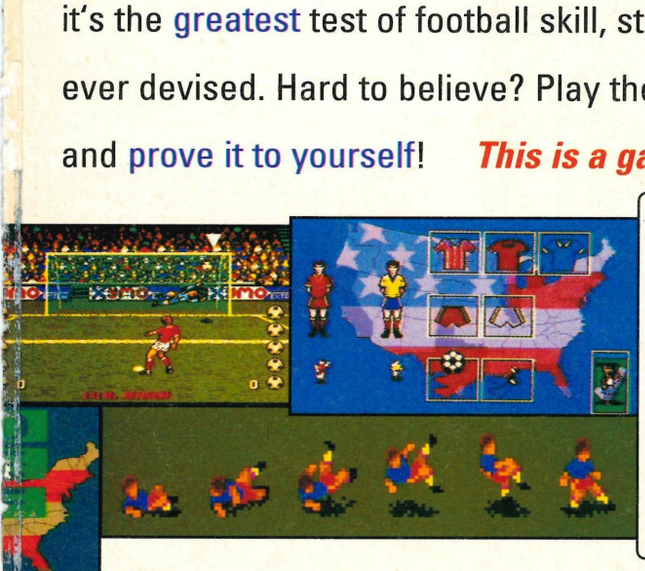
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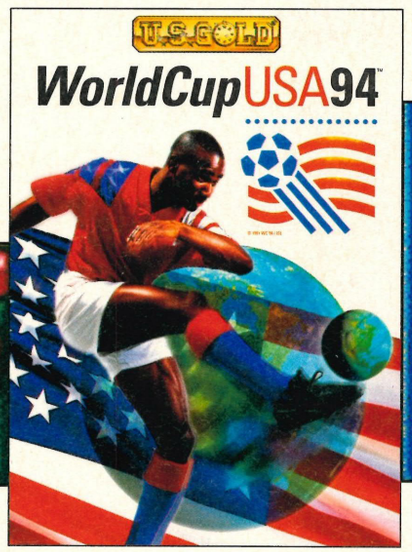


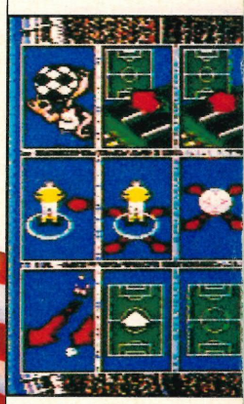
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WorldCupUSA94™

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NONE BUT

"A fighter pilot was alone. Some
he found his way back by guess
fuel and ditched. Imagine: a
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19

THE PACIFI

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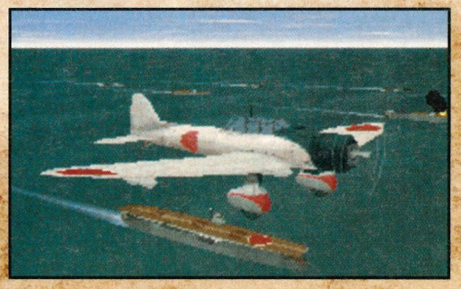
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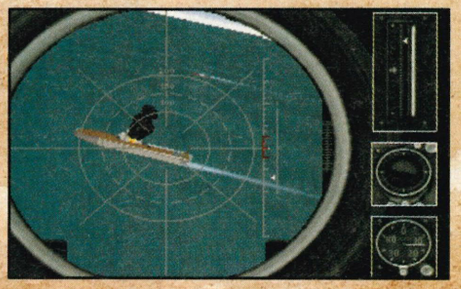
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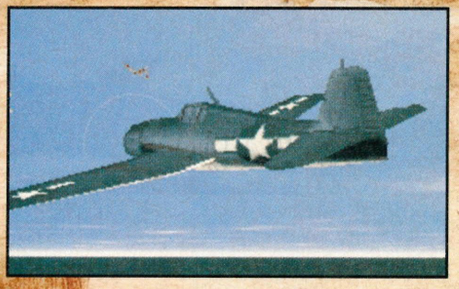
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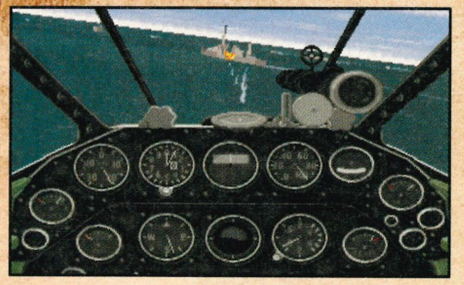
times 200 miles from his mother ship,
and good luck. Often, he ran out of
small speck in a vast ocean of
t flyer waiting for rescue."

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IC AIR WAR











BOMB ATTACKS AND TERRIFYING TORPEDO RUNS

PC REVIEW

Issue 33

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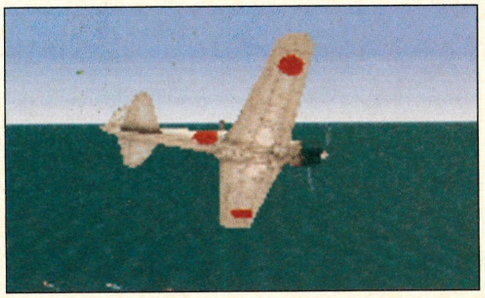
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Cover CD-ROM
– the adventurer's CD

This month's quite superb CD-ROM contains the very best in current CD adventures to give you an adventuring experience second to none. We have fully playable extracts from the CD versions of both Lands of Lore and Hand of Fate, and demos from Cyan's beautiful Myst, from Companions of Xanth. There are also previews in the shape of Virgin Interactive's Creature Shock, and Eden. And more besides — read on for the full low-down.

Lands of Lore

Westwood/Virgin Interactive

This CD demo is a mini-quest from the brand new and enhanced version of the popular role-playing adventure. Most notable among the enhancements is the use of Shakespearian actor — and Jean-Luc from Star Trek on TV — Patrick Stewart for the voice of the central character King Richard. The speech makes a big difference to the atmosphere of the game and really draws you into the story.

How to start

The program will create a LOL_demo directory on your hard drive to store saved games and save positions. Otherwise this demo runs directly from the CD-ROM installation menu. If you have already installed the hard drive directory, you can return to Lands of Lore by logging on to LOL-CD directory on the cover CD and typing

LANDS

to start the game, or you can go through the cover CD menu.

How to quit

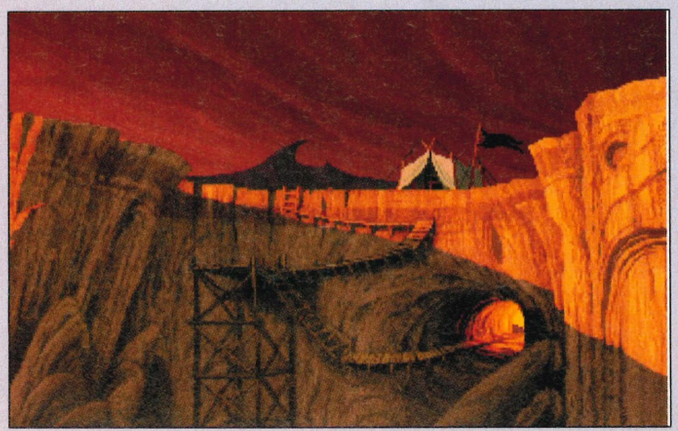
Select the disk icon at the bottom left of the screen and choose quit from the resulting menu.

Hardware required

386-based PC with 4Mb RAM and CD-ROM (single or double speed), plus mouse.

How to play

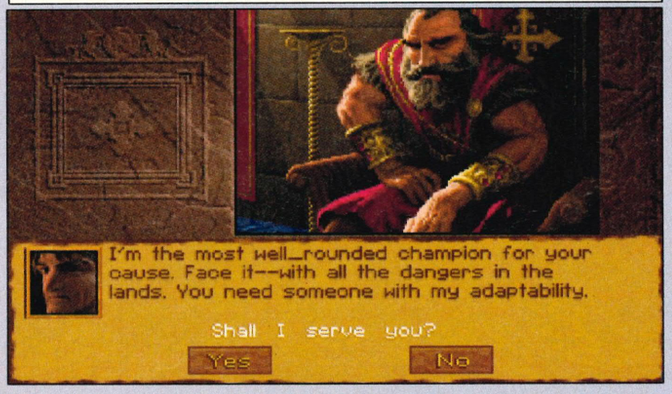
The playing area is shown in the on-screen window. To move around, use the directional cluster to the left. To pick up an object, move the mouse pointer —the moving block marked with a cross — over the desired object and left-click on it. The item should now appear in your inventory bar which is at the bottom right. You will need to find a lantern if you want to be able to see in the dark. In this demo, you play a single character out of the four 'champions' available in the full game. The demo will test your exploration and combat skills, so be prepared! It also includes the cinematic introductory sequence.



Guide to using your FREE CD-ROM

How to load your PC Review CD-ROM

1. Put the CD-ROM into your CD-ROM drive.
2. Wait for the Busy light to go out.
3. Log on to your CD-ROM drive (probably drive D:) by typing D: at the C:> prompt.
4. When the D:> prompt appears, type
   PCRCD [Enter]
5. You should now see the installation menu screen.
6. Use the cursor keys to select the CD-ROM games option.
7. Again, using the cursor keys, select the games you wish to play from the menu.
8. Some programs on the CD-ROM will require a small set of installation files to be installed to your hard disk. Others will run from the CD. You will be prompted on-screen when a program is about to install to drive C:, and you should be told how much space these files will take up.



Problems with your cover CD? See page 10 for helpline details

Hand of Fate

Westwood/Virgin Interactive

Westwood's two Kyrandia adventures have been universally described as 'pretty', but this belies the fact that there are some tough puzzles contained within them. In the second of the series, Hand of Fate, you play Zanthia, a young woman on a quest with only her wits and a seemingly endless wardrobe of clothes to help her. We suggest you watch the introduction included with this playable extract, which introduces the story and explains the background to the game proper. If you know the intro, you can bypass it by hitting Esc.

This demo is an extract — a mini-quest, if you like — taken from the new CD version of Hand of Fate, so you will get all the speech rather than reams and reams of on-screen text — a welcome enhancement.

How to start

The program needs to install some files to your hard drive, for which you need 3.5Mb of space free. When you play, the program will need to access both the hard disk and cover CD.

After installation, log on to the drive and directory where the start-up files have been stored (the default is c:\westwood\hof_demo) and type

HOFCD [Enter]



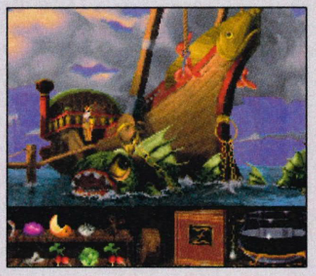


How to quit

Click on the Options button at the bottom left of the screen and choose 'quit the game' from the resulting menu. From this menu you can also change some of the configurations.

How to play

Movement couldn't be easier in Hand of Fate. Just click the mouse button where you want Zanthia to go and she'll walk there. Click right on the edge of the screen and she'll walk off into the next scene. You'll see the pointer change into a "no go" sign if you try to move Zanthia somewhere she cannot go.



In this 'mini-quest' there are objects to be found, picked up and used with other objects, which should give you a good idea of the style and level of difficulty of puzzles in the game proper. If you get really stuck, you can check out our solution to Hand of Fate in Issue 31 to help you get through the demo.

Otherwise, sit back and enjoy all the CD enhancements, especially the speech!

PCGAMES



If you play games on your PC, you've got to read **PC Games!**

Out June 29th

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Companions of Xanth



Legend/Accolade
Inspired by the books of Piers Anthony, realised with a good old dose of Legend humour and its well-known semi-textual interface, Xanth is a game within a game: you play Dug, a bored — and recently dumped — young man who plays a computer game, Companions of Xanth, for a bet. This game *is* the game, if you see what I mean.

Xanth is clever and funny and fairly tricky. This extract is based on the new CD version, which includes speech throughout, which helps to bring the game to life on your screen. The demo takes you through the first section from the game, and includes all the speech (of course) and the atmospheric introduction.

How to start
You have a choice of optimum installation to your hard disk, which will take up 7Mb, but still take speech from the CD, or minimum installation which only takes up 200K on your hard disk — and is basically just a loading file, Xanth then playing mostly from the CD-ROM itself.

Whichever you choose, after installation, log on to the drive and directory where you installed the start-up files (the default is c:\xanth) and type XANTH [Enter]

How to quit
Select the disk icon to the lower left of the screen and choose quit from the menu.

Hardware required
386-based PC, with CD-ROM drive (single or double speed).

How to play
The playing screen is the large on-screen window, which should show a computer on a table at the beginning of the game. The boxes at the bottom will show the items you pick up pictorially. The cluster to the left of this inventory governs your directional movement and game options. The list to the top shows the available actions. To perform an action, eg, to open the envelope on the desk, you can either click on the envelope, then click on the option 'open' which will appear on the list, or vice versa: select 'open' then click on the envelope. This procedure holds good throughout the game.



Note that whenever an on-screen message is accompanied by a points score in brackets, it means you have progressed in the game.

ROLLING PREVIEWS

We don't normally include non-interactive demos on our cover CDs or disks, but with two hot scoops in the form of Creature Shock and Eden, we thought you'd appreciate a first look. Commissioned from Argonaut and Cryo respectively, both these games are due for release by Virgin Interactive Entertainment in November this year.



Creature Shock
This is a brief taste of the wonderful graphics and silky smooth animation you can expect from Argonaut's tale of intergalactic combat boasting fully rendered graphics throughout. It runs directly from the CD, so simply choose this option from the cover CD installation menu. Please note: if you have 4Mb RAM, try to have as much free as possible; it can be fussy on the memory front.

Eden
Cryo is developing this beautifully realised adventure based on dinosaurs and the dawn of creation, and has drafted in fantasy author Steve Jackson for work on the storyline. Eden runs directly from the CD, so simply choose this option from the cover CD installation menu.

● *If you would like more information on any of the Virgin titles on this cover CD (that's general information, rather than technical support), contact Probe Media on (071) 243 2464.*

Problems?

If all else fails ...
If you've tried everything, and you just can't get the wretched CD 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 CD-ROMs are rigorously checked at each stage of production for all known viruses and duplicated under strict quality control.

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● We also make every effort to ensure that the contents of each CD-ROM are exactly as advertised. If 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 CD-ROMs.

FAULTY COVER CD?

PC Review's CD-ROMs are checked and validated, but if you have reason to believe that yours is faulty, pop the CD 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 your CD-ROM back to PC Review — we don't hold stocks of spares.

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

The CD-ROM 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 CD.

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Cover disks

We've crammed some real goodies on to the disk this month: a brilliant Asteroids-style shoot 'em up, an easy to use Doom editor; the handy Drag and View Gold, and our Reviews Index.

ASTRO FIRE

3.5" and 5.25" disks

AstroFire is an arcade game inspired by the classic Asteroids. It features stunning 256-colour ray-traced graphics and is the work of British programmer Owen Thomas.

This complete shareware game includes 75 adrenalin-pumping levels, 18 different types of enemy spacecraft and power-up which boost firepower and defences. Try it out and we guarantee you'll be hooked!

How to start

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

ASTRO [Enter]

How to quit

Hit Esc to exit the game, then choose the Quit option on the menu to return to DOS.

Hardware required

286 PC (386 or better recommended), colour VGA graphics. AstroFire supports Sound Blaster and compatibles, but not Ad Lib. A compressed hard drive is not recommended, and running the game under Windows is not advisable.

If AstroFire runs slowly on your PC, you can speed things up by turning off the sound and using the keyboard instead of a joystick.

Controls

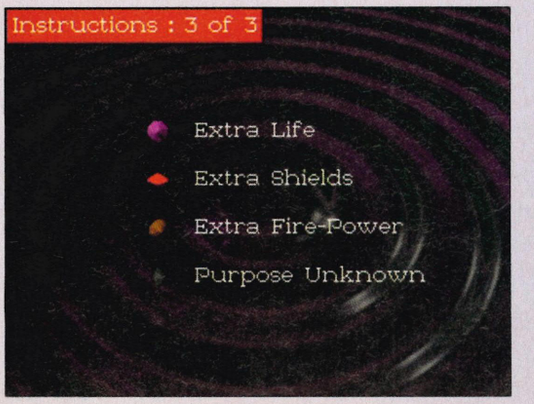
Left Arrow	**Rotate ship left**
Right Arrow	**Rotate ship right**
Up Arrow	**Thrust ship forwards**
Alt	**Fire**
P	**Pause game**
S	**Toggle sound on/off**
Esc	**Quit game**

How to play

The aim is to destroy absolutely everything which floats across the screen. There are two bars at the top left of the screen. The first, marked 'S', represents your shields. Each time your ship is hit, either by an asteroid or by fire from enemy ships, your shields are depleted. When they reach zero you die. You can boost your shields by collecting red gems.

The second bar, marked 'W', represents the strength of your weaponry. You can boost your firepower for a short period by collecting gold gems. If your weapon reaches full power it will release a devastating ring of laser bolts — very useful when you're in a tight corner!

You start the game with three lives and you can gain more by collecting purple gems. The number immediately to the right of the bars tells you how many lives you have left. The number at the top-right of the screen is your score.





PC REVIEW INDEX

3.5" and 5.25" disks

Every six months we publish an updated index of all the reviews ever printed in PC Review, together with the ratings awarded and the issue in which the review appeared. However, the number of reviews is now well over 500, so to save precious space in the magazine, we've put it on the cover disk.

How to start

The PC review index isn't on the cover disk installation menu. It's simply a plain text (ASCII) file which can be imported into any word processor or text editor, or into MS-DOS's own text editor. Either open it directly from the cover disk into your word processor, or, at the C:> prompt, type
EDIT A:\INDEX.ASC [Enter]
This will load it into the MS-DOS text editor.

How to use

Well, once you've got it up on-screen, you can browse through it, or print it out, or anything you like, really. If you are using a word processor, you can tidy it up a bit. We have used semi-colons to separate the name of the game, the publisher, the rating and the issue number, but we haven't used semi-colons anywhere else in the file, so you can do a global find and replace to find each semi-colon and replace it with a tab or a set of spaces in order to make it neater. After that, peruse it at your leisure!

Hardware required

Any PC with a word processor or text editor will do.

Problems with your cover disk? See page 14 for full instructions and helpline details

DOOMED

3.5" and 5.25" disks

With our exclusive Doom Editor you can create entire new levels for the registered version of Doom — changing everything you want, adding new sounds and new enemies for straightforward Doom-ing or even multi-player games. More importantly, it's *easy* to do, because it runs under Windows and includes all sorts of automated features to take the strain out of creating complicated objects like doors and stairs.

How to start

When you've installed the program to your hard disk, and added the icon to the Windows Program Manager (by going to File, New, and Browsing for the file Doomed.exe), you start the program simply by clicking on the newly-created Windows icon for it.

Hardware requirements:

The Doom editor needs a minimum of a 386PC, 2Mb of RAM, VGA, a mouse and Windows 3.1

How to play

The best thing to do first of all is read the tutorial. Honest. It's worth it. Even creating empty 3D rooms for Doom requires some understanding of the way the game is put together. The tutorials (which you get at from the Help menu option) provide an excellent starter guide on how to start building levels. Read them, then check out this walkthrough tutorial we've thoughtfully thrown in for free ... !

The ABCs of creating levels for Doom

Doom is made up of five main things:

A) Wad files:

These are the level data files for the game. When you create a new level, you create a temporary Wad file. To load this Wad file (to play your new level), you start Doom with the following command:

Doom -file [your-file].wad [Enter]

B) Sectors

Areas in Doom are called sectors. All levels are made up of linked sectors. The Doom Editor works with sectors.

C) Lines

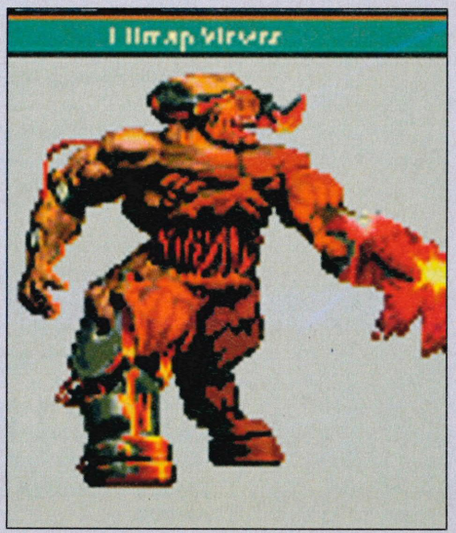
Sectors are made up of lines with properties set as 'linedefs' and 'sidedefs'. These represent the walls/sides of rooms and objects.

D) Vertices

These are the points at the start and finish of each line.

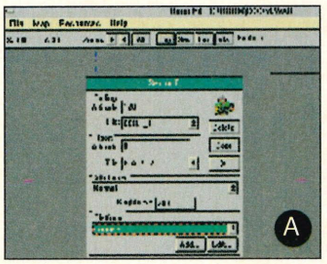
E) Things

Not surprisingly, things are the objects and enemies that populate a level.



STEP BY STEP DOOM EDITING

1) Go to the File menu and select NEW MAP. You will be prompted to give your new map a name when you save it. You must decide which level of Doom this map is going to replace: ie E1M1, E2M2, E2M5 ... etc. Here we have a simple sector, with a start point for player one. On the menu bar you will see buttons for Things, Sectors, Vertexes and Lines.

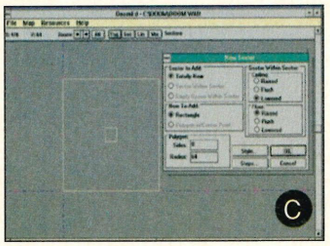


Click on these to select 'Sectors'.

To edit the sector (ceiling height, floor textures, lighting effects etc) right mouse click on the sector (see fig A).

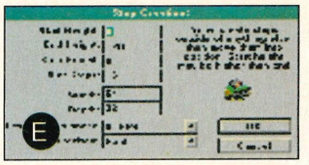
To change the shape of a sector, select Vertexes and move the corner points around (see fig B). To add extra corner points, select Lines and then right mouse click on the line you want to split.

2) Adding another sector is as easy as clicking with the left mouse button (make sure you've selected 'Sectors' on the menu bar) where you want to put it (see fig C).Join sectors by moving vertexes.

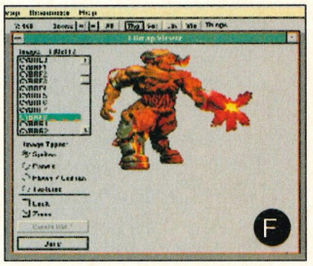


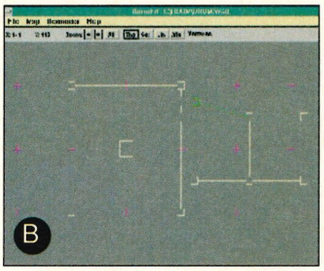
If you add a sector within another sector, remember that the outside walls of the smaller sector need to have linedefs and sidedefs as well, so select the lines, and rightc lick on them to add new textures and definitions {see fig D).

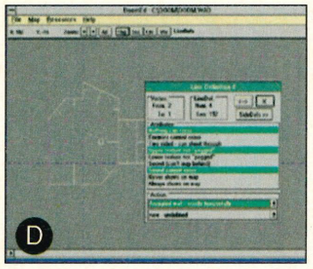
3) Now the tricky bit adding a door. Well, actually, it's not so tricky. You select a sector that is joined to two other sectors, and chose the 'Door' option in the palette. Likewise, lifts, steps and secret passages are all simply menu options (see fig E). When you want to check out what they look like, take a peek using the 3D viewer and rotate the image.



4) The image viewer (fig F)
This is where you get to see the various textures and sprites used in the game. It is accessed from the Resources menu option.







And that's about the size of it. True, it takes a bit of practice but this Windows Doom Editor is the slickest, most powerful and friendliest Doom construction program you'll find.

It is, of course, shareware. To register the software for upgrades and further info contact the author at the address shown in the Help menu.

DRAG AND VIEW GOLD

3.5" disks only

Drag and View Gold is an incredibly useful Windows add-in which you can use as a stand-alone applet and/or have as a menu option in File Manager. Its basic function is as a file viewer: it will take just about any file at all and display the contents on-screen, either in ASCII format, Hex format, or in the case of, say, text or graphic files, the file itself as you would see it on-screen. It's especially useful if you want to check the contents of a file without having to go to all the palaver of loading up the associated application and opening it from there.

In fact, Drag and View Gold comprises three elements: the viewer, Fileman Launcher, which you can use to load — or launch — programs, and Drag and Zip, with which you can compress and decompress files using Pkzip but you do need to have Pkzip and Pkunzip already installed on your hard disk drive.

How to start

Drag and View Gold only runs with Windows. After copying the files from the cover disk to your hard disk, you need to install them in Windows by double clicking on the Install.exe file in File Manager, or by typing

c:\draggold\install.exe

in the Run line in File Manager, Run ... This will create a Drag and View icon and program group in Windows. Follow the installation prompts carefully and choose whether you want Fileman Launcher and Drag and Zip as well.

Hardware required

386-based PC, Windows 3.1 and a mouse.

COVER DISKS

How to use the cover disks

PC Review's cover disks and CD-ROMs are tested at each stage of production, and rigorously checked for all known viruses. However, if you are new to the magazine, new to PCs, or simply having difficulties using the disks, read on for full instructions.

Step by step guide

Astro Fire

1. Put the PC Review cover disk 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 Astro Fire from the on-screen menu. Check the disk and PC requirements listed at the foot of the screen; you will get an error message, for example, if there is not enough space on your hard disk to install the program. Press Enter to confirm your selection.

4. The programs on the cover disk are compressed, so that we can fit more information on a floppy 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 Astro Fire 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 Astro.
If you do want to change this default, just backspace over the installer's suggestion and type in your own preferred destination, eg, D:\FIRE, instead of C:\ASTRO.

5. The Astro Fire 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 Astro Fire on pages 12-13 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 another program.

DoomEd

1. Put the PC Review cover disk 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 DoomEd from the on-screen menu. Check the disk and PC requirements listed at the foot of the screen; you will get an error message, for example, if there is not enough space on your hard disk to install the program. Press Enter to confirm the selection.

4. The programs on the cover disk are compressed, so that we can fit more information on a floppy 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 DoomEd files to.

5. The DoomEd files will now be decompressed and copied to your hard disk. Press Enter to return to the installer menu.

6. Press Esc to quit the installer.

7. Load Windows, and run Doomed.exe in the directory to which you have just transferred DoomEd, either by choosing Run from the File menu in Program Manager, or by double-clicking on the Doomed.exe file in File Manager. If you would like to create a program icon for it go into the File menu in Program Manager and choose New, then Browse and search for Doomed.exe. Click on this file and a program icon will be created for you. Now the program can be started simply by double-clicking on the icon.

Drag and View Gold

1. Put the PC Review cover disk 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 Drag and View Gold from the on-screen menu. Press Enter to confirm.

4. You will be prompted with the name of the drive and directory that the installer intends to decompress the Drag and View Gold files to.

5. The Drag and View Gold files will now be and copied to your hard disk.

6. Press Esc to quit the installer.

7. Load Windows. In Program Manager, select Run and type

C:\DRAGGOLD\INSTALL.EXE

at the prompt, or double-click on Install.exe in the Draggold directory in File Manager. This will finish decompressing the files and will create a Drag and View Gold icon and program group icon.

8. Check the readme file for any extra instructions.

PC Review Index

1. This is not on the installation menu. Simply load up your word processor, or use the MS-DOS text editor, by typing EDIT [Enter] at the C:> prompt. Either way, you can now load the index file, which is a plain text (ASCII) file, directly from the PC Review cover disk. It can be edited or formatted as you wish.

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 and cover CD-ROMs are rigorously checked at each stage of production for all known viruses and duplicated under strict quality control.**

- **However, cover disks and CD-ROMs 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 or CDs.**

- **We also make every effort to ensure that the contents of each disk and CD-ROM are exactly as advertised. If 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 or CDs.**

Faulty disk or CD-ROM?

PC Review's cover disks and CD-ROMs are checked and validated, but if you have reason to believe that yours is faulty, pop the disk(s)/CD 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

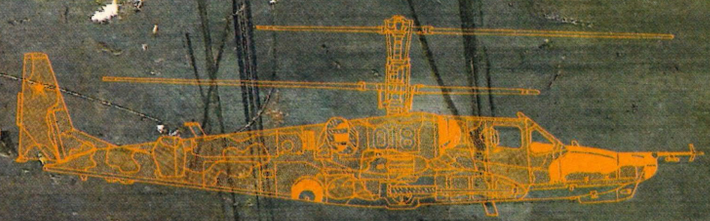
Please DO NOT send the disks or CDs back to PC Review — we don't hold stocks of spares.

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

The disk/CD 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/CD.

KA-50 HOKUM

A HELICOPTER FLIGHT SIMULATION OVER THE SOUTH CHINA SEAS

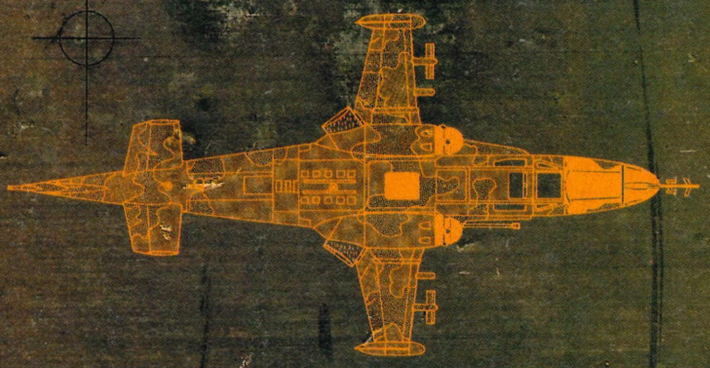












SCALE 1:72 | FORMATS: IBM PC AND COMPATIBLES | FIRST CLASS PILOT WANTED-APPLY WITHIN | VIE-94

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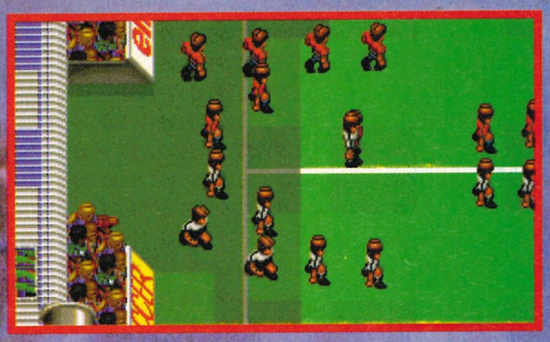
* THE KAMOV WEREWOLF KA-50 HOKUM * THE KAMOV HIP HI-8 * THE BELL SUPER COBRA AH-1W * THE WESTLAND ARMY LYNX

... EACH ONE SIMULATED TO AN UNPRECEDENTED DEGREE OF REALISM WITH SOLID TEXTURE-MAPPED DETAIL AND AUTHENTIC FLIGHT MODELS TESTED AND APPROVED BY EXPERIENCED PILOTS. TAKE ADVANTAGE OF THE UNIQUE TWO-PLAYER CO-PILOT FEATURE, AND THE MOST ADVANCED STRATEGIC BATTLE-PLANNING SYSTEM EVER IMPLEMENTED IN A COMBAT SIMULATION. SPECTACULAR CAMERA VIEWS BRING TO LIFE THE FULL EXPLOSIVE IMPACT OF COMBAT IN THE AIR AND OVER GOURAUD-SHADED TERRAIN. BUT DO YOU HAVE THE NERVE AND ABILITY TO COMMAND A FOUR-STRONG FLEET AND WAGE WAR AGAINST THE PIRATE ARMIES ?

KA-50

Virgin

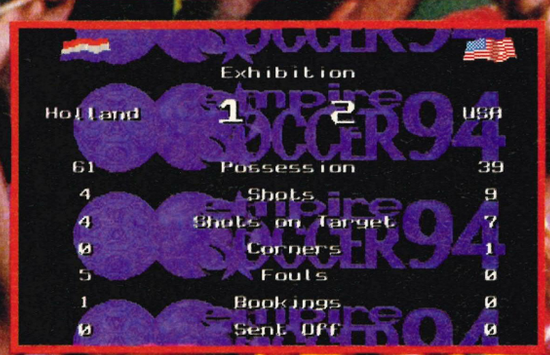
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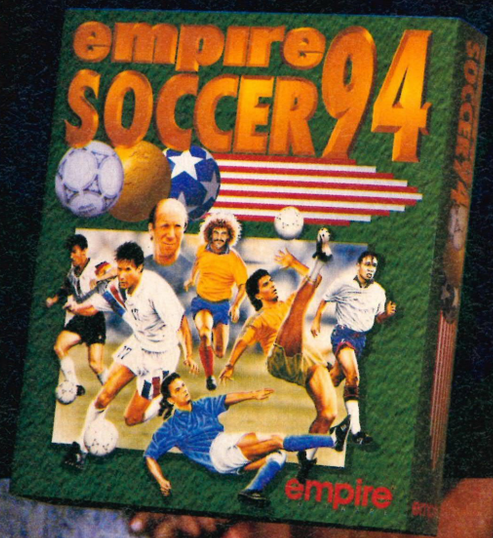
Speed burst
Power Drive - Snap shot
Banana shot
Super dribble - Super barge

Overhead kicks
Sliding tackles
Back heels
Headers - Diving headers
Passing
One/two passing
Keeper drop kicks
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Results + full game statistics

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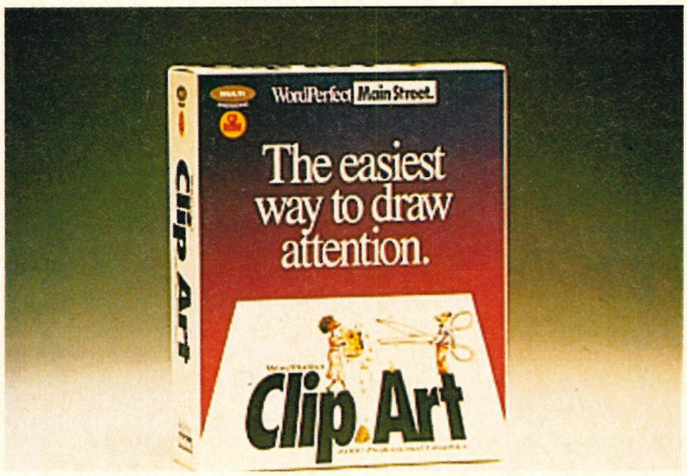


GRAFTGOLD

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News





WordPerfect targets the home

WordPerfect — best known for its business and office software — is moving into the entertainment and education market with the launch of 18 products, ranging from small business and schools products to interactive titles for children.

Marketed under the title Main Street, the business packages include word processing, information management, writing and reference tools, integrated packages — with spreadsheets, databases and word processors — fax and data add-ons, all costing up to £79.

There are also home office packages, including Clip Art Premium Collection on CD-ROM (Windows), priced at £59. This includes more than 4,800 clip art images, which users can edit to their own specifications. The clip art is also compatible with WPG, PICT and CGM formats.

More home office packages include Clip Art for the Office and Clip Art for the Home (Windows), both for around £29.

The Office package's 400 plus images include business person silhouettes, office scenes and supplies and pennants. The Home package — also with more than 400 images — includes animals, calendars and sports images.

On the 'edutainment' side of things, WordPerfect is introducing Wallobee Jack and the Bingi Burra Stone and Wallobee Jack and the Thai Sun Adventure, both of which work with Windows. These £29 CD products are also interactive cartoons featuring a kangaroo named Wallobee Jack. The first adventure sees him and side-kick Francesca Felini in search of a legendary stone. Children are encouraged to help Wallobee by hindering Dagon, a slimy reptile bent on stopping the heroes. The program features more than 10,000 digital animation frames. The second adventure sees the pair on the trail of a golden elephant.

Kap'n Karaoke, Windows, is a £29 disk-based program with 20 songs, ranging from Twinkle, Twinkle, Little Star to New York, New York. Children can modify the pitch, volume, tempo, alter instruments and sing with the lyrics as they are highlighted on screen.

Virgin's Indy re-release

IndyCar Racing is being re-released by Virgin at the beginning of July, price £29.99, followed by a £ 14.99 add-on pack featuring seven extra tracks. In September there will be a paint kit add-on released also which will allow to customise your car.

Final whistle

The Championship End of Season Data disk, which allows you to update Domark's Championship Manager '93 game will be available in late June, price £15.99.

The disk includes the latest transfer and management changes, promotions and relegations.

You will need the original Championship Manager '93 or Championship Manager '93 for Windows to use the data disk.

VCI tackles PC games

A new range of mid-price PC software is being launched by VCI, a company previously known for selling videos and music CDs. The initial range of 15 titles to be produced by the company will include action games, learning packages, home office utilities and hobby programs. All will sell for £9.99 each.

VCI sees the PC market as a logical extension to its video and music activities and has plans to branch out into other PC related areas later this year and also to market CD-ROM product before the end of the 1994.

The company already has some sample titles out on floppy disk now — these include Arcade Action (a compilation package comprising four games including Jet Pack, Shooting Gallery, Corncob and Sandstorm); Solitaire Selection (Klondike, Poker, Pyramid, Fascination, Incredible); Word Games for Windows (Crosswords, Hangman, Word Hunt and Crack the Code); Windows French and Spanish; and finally Astronomy.

Alert over pirate and porn CDs

Illegal CDs containing pirated games, business software or pornographic material could "flood" the UK market, the European Leisure Software Publishers Association has warned.

The alert follows seven police raids in early May after an investigation by ELSPA's crime unit into alleged criminal conspiracies to produce and supply illegal CDs.

Six arrests have been made so far. Three police forces are currently carrying out further investigations.

The raids uncovered CDs which allegedly contained pirated commercial software valued at up to £20,000 — and other files which have been referred to police anti-pornography squads.

Titles found on the CDs were as diverse as Lemmings and the professional design software program AutoCad. They were sold mainly through newspaper and magazine advertisements.

The trade of illegally copying hundreds of games and business applications to CDs has been dubbed 'shovelware' — due to the huge amount of information which can be put on CDs. The problem first came to notice about a year ago.

Chief investigator of ELSPA's newly-formed crime unit, John Loader, said: "Not long ago software publishers saw the use of CDs as a way to combat piracy due to the prohibitive cost of the copying equipment to 'cut' CDs. Commercial equipment used to press CDs costs upwards of £4 million but ROM writing equipment used to chemically 'write' on special gold-coloured CDs, called CD-Rs, costs as little as £2,500."

He also warned that commercially pressed silver CDs may also contain pirate software.

The crime unit has uncovered individuals posing as legitimate software publishers hiring commercial pressing plants to make large quantities of high quality copies.

"It is important that commercial copiers and games companies hiring out their own facilities check and double check the credentials of their customers before allowing them to duplicate discs using their facilities," said Mr Loader.

He appealed for anybody with information about illegal CDs to contact ELSPA on (0386) 833810.

"The huge capacity of CDs combined with low copying costs now poses a real threat to the entire commercial and leisure software industry," he said finally.

Commodore future in doubt

The future of Commodore, one of the most famous names in home computers, hangs in the balance as recent massive losses threaten to sink the beleagured company.

The Bahamas-registered Commodore International Limited, parent company of the UK operation, has sought the protection of the island's courts — a sort of voluntary liquidation — to gain a breathing space while appointed trustees investigate its financial future.

This could mean a buy-out or merger with another organisation capable of injecting desperately needed in capital into the ailing company. In the meantime Commodore will still continue trading.

At one stage it looked as though Amstrad was interested in bidding for Commodore, but now it seems its main hope for a buyer will be from companies in the Far East.

The company has been haemorrhaging to death for some time. Last summer in fact Commodore announced a quarterly loss of $177.6 million.

Since then, Commodore has been busily restructuring its worldwide business in order to cut costs. Already Commodore France has been closed and the support system transferred to Germany.

There can be few home computer enthusiasts who have not used a Commodore computer at some time in their computing career — from Commodore Pet, Vic-20, Commodore 16, Commodore 64 Commodore Plus 4 and, of course, the hugely successful Amiga.

The company has often tried to move into the PC market over the years but never quite made the breakthrough — except in Germany where it became the second largest supplier of PCs.

In this country its latest effort on the PC front — the Powerline — ended in September last year when the company's financial problems started to become apparent. According to some industry sources the Powerline was potentially the machine with which Commodore could make its name in the PC marketplace.



EDITOR'S COMMENT

Fitting a CD-ROM isn't a difficult task — a bit fiddly at worst — but it seems to be made unnecessarily cumbersome by a lack of thought on the part of manufacturers and anyone responsible for documentation. In the course of the last month, we've been whipping CD-ROMs in and out of the PCs in the office on a regular basis, with few technical problems, but an almighty amount of hassle along the way. I'm not going to name this particular drive whose flaws are detailed below, since it was by no means a worst case, but ...

1 Even though our Dan PCs aren't slimline, it's pretty crowded inside the casing, and yes, the ribbon cable for connecting the CD-ROM to the full-length sound card isn't long enough. It would be long enough if I could move the sound card to a nearer expansion slot, but none of them are free. My only alternative in the end,was to discover that the cable would just fit if I pulled the sound card towards it. So I now have the first curved soundboard in history and a ribbon cable stretched taut as piano wire.

2 I really hate having internal CD-ROM drives sitting loose in the casing, so I screwed it in on the one free side — the power pack is set right up against the other side so I can't get at it from that end. The CD-ROM drive is now held in place firmly on one side, but there's no way I can screw it in so that front lines up with the rest of the front casing — it's indented about half an inch. Even if I could pull it out to line it up, I'd snap that ribbon cable.

3 The installation options on the provided disk are ambiguous and the company has supplied an addendum to the instructions to explain this.

4 The power supply cable supplied with the speakers won't reach: one speaker would have to be placed three inches behind the PC for it to stretch. Sod that — I nicked Cal's (longer) cable and hoped she wouldn't notice.

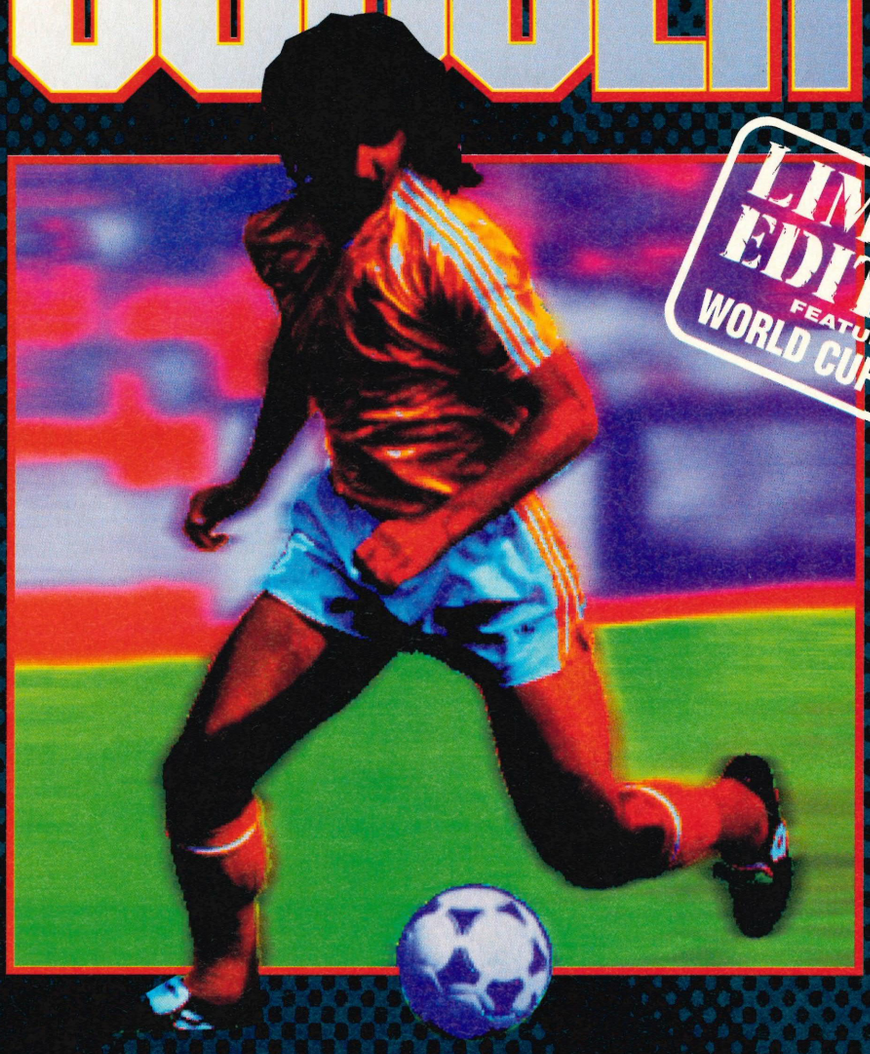
There then followed a lot of configuration fudging , a lot of which is my fault because I'm running two versions of Windows and more than one Config.sys permutations.

The result, after two hours or so however, was a perfectly working CD-ROM, sound card and speakers. But what a load of baloney you have to go through to get a working system. Not that any of the problems were technical: if I'd started getting conflicts here, there and everywhere, it could have taken days. But some of these 'ergonomic' problems are just so unnecessary. Why not make the ribbon cable long enough to reach from a CD-ROM drive at one end of a standard-sized case to the other side? Why not provide a 5.25" cradle with the drive instead of a couple of tiny screws? Why, oh why, are power cables always so short (and monitor cables as well, while we're on the subject)?

And let's face it, none of these things would cost a lot of money, just a bit of thought.

■ Christina Erskine

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Any upgrade queries please call 0480 496446

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In Brief



● SpectraVideo's QJ ProPad is now available for PC gamers, price £14.99, Features include independent autofire, two-speed selector for autofire and eight-direction thumb control. It is compatible with all PCs.

● A new range of energy saving monitors has been launched by Philips which use what the company calls "Power Down Technology". This operates automatic stand-by and power off facilities, with a maximum power of 15watts. The monitors — the Philips 21B and 20T cost £2,549 and £2,449.

● Devon-based Atlantic Coast — previously known as Shareware Plc — has bought US company Brown Bag Software, gaining the rights to products such as PC Outline, the word processor program Mindreader and Powermenu. Atlantic existing products include the data compression program PKZIP and Page Financial Controller.

● D-Day and the Battle of Midway are two new Second World War flight sim campaigns now out from Domark on the same disk, price £14.99. The campaigns can be played as stand-alone games or used as a data disk for Flight Sim Toolkit.

● More than 30 PC CD-ROM video titles are being lined up for release by Gametek during the rest of the year. They include Night of the Living Dead and the classic Metropolis, Charlie Chaplin films and films for children. The US is company is setting up a new division — Gametek Cinema — to handle the releases. Each title will have an interactive element.

● An international edition of Sensible World of Soccer — featuring the teams and fixtures of the World in Cup in America — will be released this summer, price £19.99. Owners of the original game can up grade for just £8.

● The storage capacity of a CD can be increased by a factor of 10, according to a claim by scientists at IBM. It can store one million pages of text, 12 hours of music or several movies — with a retrieval time of 10 seconds. And, of course, this new disc cannot be used on existing players because it does not conform to the currently accepted industry standard.

● Criterion Software, the developers of the graphics interface Renderware, has joined forces with ATI Technologies to develop and expand the graphics capabilities of low cost Windows-based PCs. Renderware is currently used by more than 30 developers.

● All-Pro Video, an American Football coaching simulation game, is being lined up for an Autumn release by Accolade. Players are selected from the real-life American leagues and more than 600 football plays were filmed in order to create unlimited game scenarios. UK release date and price has yet to be set.

● Galaxy Publications, publishers of the girlie mag Fiesta, is launching Fiesta CD-ROM, featuring 2,300 pictures, price £49.95. It is the first over-the-counter CD porn title to be released in this country. It will carry an 18 or over warning.

THE COOKE REPORT

Never in the field of human endeavour, was so much spoken about so little by so many twerps. I refer, of course, to the multimedia circus and its various hangers-on. Just in case you haven't met any of the more colourful characters in this field, I thought I'd introduce them to you over the next few months. Have a sick-bag ready ...

No1: the Interactive Multimedia Musician

Interactive music, just in case you hadn't heard, is all the rage right now. The reasons are pretty obvious. Imagine that you do not play games, but that you have just bought a spanking new, all-singing, all-dancing interactive-CD widget called C3PO or something. You have never played an interactive thingummyjig in your life, but your kid brother keeps going on about games and stuff. So here you are, in the shop, looking at the shelf packed full of software and trying to decide which disc to buy.

To simplify matters, let's say that there are two discs. There's one called Lemmings IV: The Mega-C3PO Remix, and another called simply The Beatles Interactive CD-Disco. Which one will you buy?

Right now, the smart money in the CDi, 3DO, and Sony camp is that you'll plump for John, George, Paul and Ringo. And it's not just console companies that are singing this tune either; many publishers for PC CD-ROM also believe that the power of big band branding is going to sell loads of interactive silver plastic platters. Unfortunately, no-one has the faintest idea what constitutes an interactive musical experience . No-one, that is, except the Interactive Multimedia Musician. Let me introduce you to three of them.

1. The Scoot Dosh School of Interactive Whizzery.

Scoot is a lively, colourful spokesman for interactive music product. His company Moggawogga is busy working on a very high-profile title for Philips, though there are still a few contractual problems to sort out. Scoot realises that the biggest problem with CD is the suits — the people who are holding up the marriage between music, colour, sound and total interaction, man. Scoot's product offers the user incredible options, like being able to switch camera angles during the video; being able to change the colour palette; and ... er ... well, anything else we can do in MacroMind Director . Scoot is actually a lot cleverer than you might think: when he tells you that he has turned down a recent offer of employment as an A&R man from Warners, don't believe him. He'd take it.

2. The Jervis McWeevil School of Fascinating Facts

Jervis has a large, airy office in Central London. It's actually sub-let from the company downstairs, EddiPub — a highly profitable but little-known publisher of school text books. Jervis used to work for EddiPub until they all realised the incredible potential of CD-RAM (*sic*). So Jervis was dispatched upstairs with a Mac, a music CD player, a set of EddiPub music textbooks, and the telephone number of someone who was looking to invest in new media . The results have been astonishing. Jervis has come up with a disk of Beethoven's Pastoral symphony which can also display the score, the lyrics and a complete biography of the composer. EddiPub's directors have ordered larger Volvos all round. The accountant has resigned.



3.The Quentin Cat School of Musical Armageddon

Quentin did the sound-track for Mutant Goats on the Spectrum back in 1983, dropped out of the business in 1984, joined a band, made a meagre living on the side as a composer of ad jingles, then bought a PC for music composing in 1989. Quentin is currently writing a Virtual Symphony for CD-ROM. He believes that the future of interactive music is entirely dependent on defining the transcendent interrupt-driven syntax of the semi-quaver, but is having difficulty getting an interview with an old friend of his from the Spectrum days, now a development director at a major publisher. Despite all appearances, when they finally get together, both will probably make a lot of money.

Next month: the Interactive Multimedia Movie Director.

■ **Steve Cooke**

PC CHARTS



Disk Based Games

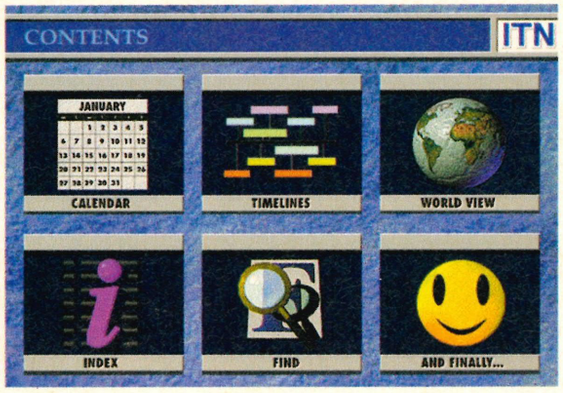
1 SimCity 2000 *Maxis*
2 Cannon Fodder *Virgin*
3 Battle Isle 2 *BlueByte*
4 UFO *MicroProse*
5 Beneath A Steel Sky *Virgin*
6 Detroit *Impressions*
7 Pacific Strike *Origin Systems*
8 Elder Scrolls *Bethesda/US Gold*
9 Ultima 8 *Origin Systems*
10 F14 Fleet Defender *MicroProse*

CD-Rom Based Games

1 7th Guest/Dune *Virgin*
2 Sam & Max *LucasArts/US Gold*
3 MegaRace *Mindscape*
4 Rebel Assault *LucasArts/US Gold*
5 Lost Treasures of Infocom *Activision*



Charts compiled by Virgin Retail



And finally...

ITN World News '93, a CD-ROM containing more than one gigabyte of "definitive" international news footage, is out now from Media Design Interactive. It comes with a free copy of ITN World News '92, and is priced at £59.99.

Also new from MDI are Behind the Scenes: The Zoo, the first in a series of interactive CD-ROM documentaries, which looks at the workings of a modern zoo (in this case Marwell Zoo), taking in work with endangered species, the life of a keepers, veterinary, management and administration staff. It comes on two CDs for £39.99.

A new version of the New Dictionary of the Living World (£49.99) will also be available in July. It has been rewritten and expanded with hundreds of new entries and photographs.

And then there is a 3D haunted castle adventure to discover the Ghosts of England. There are video interviews with experts, sceptics and believers. It will sell for £39.99.



Let's celebrate: Steve Wright and PC Review's editor Christina Erskine congratulate Virgin's Sean Brennan and Sensible Software's Jon Hare as Cannon Fodder wins best original computer game. Sensible Software also picked up the award for best computer programmer.

It's Doom's Day!

Doom continues to scoop up the top computer games accolades. This time it was computer game of the year in this year's Golden Joysticks awards, the gongs which PC Review readers helped to vote for (Issue 31). The game's creator's ID Software were also nominated in the Programmer of the Year category.

Top industry figures gathered at London's Le Meridien Hotel in Piccadilly for the award ceremony hosted by Radio One FM DJ Steve Wright.

The Joysticks, now in their twelfth year, are organised by EMAP Images, publisher of PC Review and other best-selling computer entertainment magazines. Who gets the awards is decided by the votes from the readers of these magazines, and as you can see from the list below, PC games put up a pretty good showing.

The full results of the 1994 winners were:

Best Computer Simulation:
Winner: TFX (Ocean).
Runners-up: Gunship 2000 (Microprose), IndyCar Racing (Virgin).

Best Licensed Computer Game:
Winner: Rebel Assault (LucasArts/US Gold).
Runners-up: X-Wing (LucasArts/US Gold/), Mortal Kombat (Virgin/Acclaim).

Best Original Computer Game:
Winner: Cannon Fodder (Virgin).
Runners-up: Syndicate (Electronic Arts), Settlers (Bluebyte).

Computer Game:
Winner: Doom (ID Software).
Runners-up: Cannon Fodder (Virgin), Frontier- Elite 2 (GameTek).

Software House:
Winner: Virgin.
Runners-up: LucasArts, ELectronic Arts.

Best Computer Programmers:
Winner: Sensible Software.
Runners-up: Bullfrog, Id Software.

EMAP Services to the Industry:
Winner: Acclaim.
Runners-up: Virgin, LucasArts/US Gold

Earlier this year Doom was awarded the title of overall game of the year and computer game of the year at the European Computer Trade Show 1994 Awards. The game's programmers Id Software also went on to win the ECTS game innovation award.

Sign of the Times

One year ago ...
Hardware manufacturers were endorsing Pentium-based systems with predicted prices ranging from £2,500 to £5,895, with the machines aimed squarely at corporate purchasers. If you coughed up nearly six grand, I wonder how you feel one year on with Pentium prices hovering around £2,000. On the games front Syndicate stood head and shoulders over the other games reviewed this month.

Two years ago ...
The macabre art of Swiss artists H R Giger — who worked on the sci-fi creepy Alien — raised expectations for the graphic adventure Darkseed but the intention did not become reality, with PC Review scoring it a disappointing 4. The CD-ROM version of the game, reviewed in June (rated 6), likewise failed to thrill. The only other memorable offering from a fairly unmemorable July 1992 were Indiana Jones and the Fate of Atlantis.

HITCH A RIDE WITH SAM & MAX™... THEY DON'T BRAKE FOR ANYTHING!!!

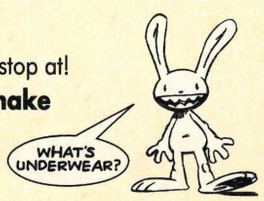


Holy squimoley! Freelance Police Sam & Max are on the trail of Bruno and Bigfoot and his fiancee the giraffe-neck lady. Nothing unusual there. But when Sam is a contemplative canine and Max a trouble-seeking hyperkinetic rabbit, you know you're talking animal crazy.

Bounding across America the furry flatfoots will take you on an irreverent road trip adventure that will put hair on your back. Collide with tacky tourist traps and intimidate their bizarre denizens.

- Edgy animation!
- Twisted humour!
- Gratuitous antisocial behaviour!
- Mini-games to play when you're at work!
- Roadside attractions your parents refused to stop at!
- Full-screen graphics!
- Easy, pop-up verb and dialogue icons!

So tune up the car, water the cat and make a half-crazed beeline to your nearest retailer for *Sam & Max Hit the Road.*™ Don't forget to bring clean underwear!



AVAILABLE FOR THE IBM PC. COMING SOON FOR THE IBM CD ROM.

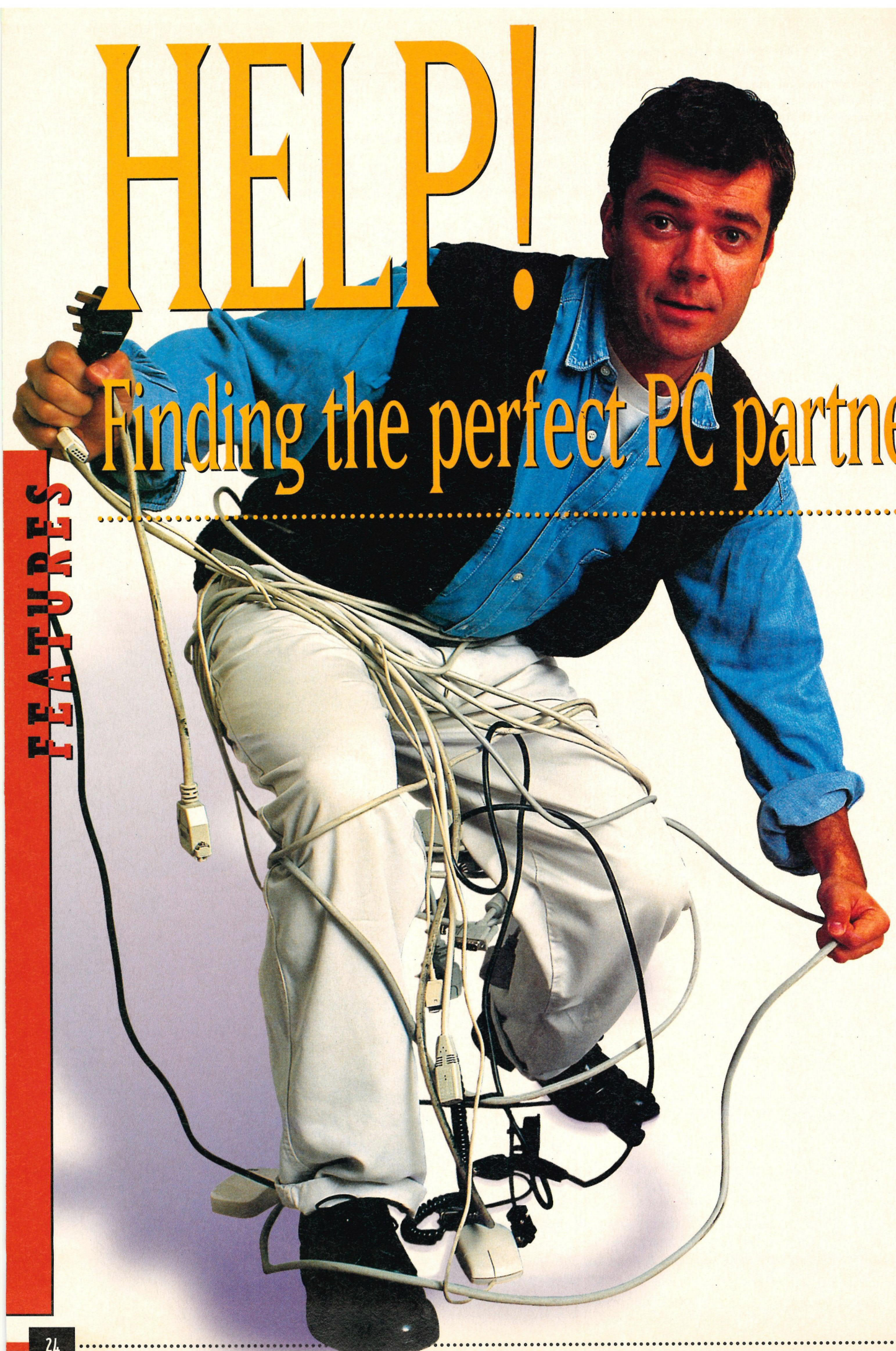
Sam & Max Hit the Road™ and ©1993 LucasArts Entertainment Company. All Rights Reserved. Used under Authorization. Sam & Max is a trademark of Steve Purcell. LucasArts is a trademark of LucasArts Entertainment Company. The LucasArts logo is a registered service mark of LucasArts Entertainment Company. IBM is a registered trademark of International Business Machines.

AVAILABLE FOR THE IBM PC AND COMPATIBLES. VISIT YOUR RETAILER OR CALL 1-800-STARWARS.

Marketed and Distributed by U.S. Gold Ltd., 1-4 Cuckoo Wharf, Lichfield Road, Birmingham B6 7SS. Tel: 021 606 1800.

HELP!

Finding the perfect PC partner



Nearly eight out of every ten people who buy a PC need help setting the machine up and operating it, according to an independently researched IBM survey late last year. I don't suppose many of you are too shocked or surprised by this — a comment that should be shocking in itself.

About the only sensible analogy I can think of is with the car. If you buy a car, you need to take a course of lessons in how to use it, because without that knowledge you will be a danger to other car users. But many people drive cars for years and years without knowing anything about what goes on under the bonnet. If the car goes wrong, which older cars tend to do more often, there is a garage on just about every street corner which you can take the car to for repair.

If you buy a PC, you don't need to take a course of lessons in how to use it, because sitting at home you aren't considered a danger to other PC users. Contrast this to the office PC network, where training courses on using the office software usually are arranged, because without that knowledge you might well mess up data being transmitted on the network. And many people use PCs for years without knowing a great deal about what goes on under the lid. If the PC goes wrong, which older PCs tend to do more frequently, then you can ... well, what can you do?

You can't pop into the local PC 'garage', because there isn't one.

If your PC is still under warranty, you can send it back, or call out an engineer. If not, then you have to decide whether it's a software fault or a hardware fault (the car analogy is beginning to fall to bits here). Then you can try contacting the software publisher. Or the manufacturer. Or try to remedy the fault yourself. Or canvas friends for advice. Or visit a local computer dealer — again for advice.

The aim of this article is twofold. It will tell you where you can go for help and what kind of help to expect. We've put together what we believe is the most comprehensive guide of its kind to after-sales support: from hardware manufacturers, software publishers and games developers.

Also, it attempts to cover prevention as well as cure, with some guidelines to buying a PC — specifically — and software, so that problems shouldn't occur — and if they do, you will have a clear course of redress.

We'll deal with the latter first.

Where to buy

It is a sad and tragic truth that as the pace of PC technology moves at such an outstanding pace, whatever you buy will quickly become dated. The most you can hope for is to buy a machine which will fulfil your current criteria and be capable of being upgraded. The last thing you want to do is part with your hard-earned cash and find yourself the disillusioned owner of an underpowered, slow dinosaur of a PC which should have been confined to history two years ago. It can happen.

The biggest single problem with buying a PC is that there is no one standard PC. A Megadrive is a Megadrive manufactured by Sega to a single set of specifications. PCs are produced by hundreds of different manufacturers using third party components to a wide variety of specifications. You can't just go into a shop, ask for "a PC" and start writing the cheque. You need to know quite a bit about what sort of PC you want.

If you are thinking of buying a new PC — or your first PC — in the near future, it will pay to expend a little effort to learn about PCs before wading into a quagmire of facts, figures, sales, hype and smooth-talking sales people. The list below has some suggestions of what you should be looking for and which questions to ask.

The golden rules

Before you do anything, you should ask yourself two key questions:

- What will I use a PC for? Business, games or a combination of both (be honest)?
- How much can I afford to spend? Set an upper limit as an optimum price (say, £1,000, but of course it depends on your budget) and a top limit, above which you will not (cannot) go, no matter what's on offer (say, £1,200). This gives you a bit of flexibility, but also makes it less likely that you will go over your absolute budget limit.

Next, you need to work out some details of the type of PC you want. If you do want to use the PC for anything processor-heavy, such as games, or graphics packages, you'll need to make sure that the PC you buy is up to the job and won't slide into obsolescence within six months. The following list of specifications comprises PC Review's minimum recommendations for an all-round PC which will cope with entertainment software, and other leisure utilities such as graphics, or music. And remember, we said *minimum*.

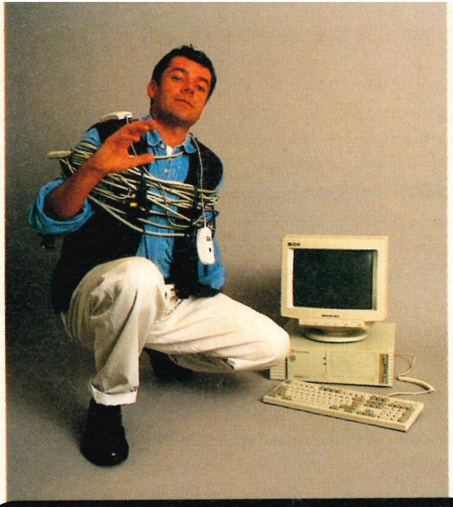
> "If you are thinking of buying a new PC, or your first PC, in the near future, it will pay to expend a little effort to learn about PCs."

Essentials

- Processor: 486 SX, running at 25MHz. Go for 33MHz if you can, and 66MHz if the budget will stand it. Pentium technology — essentially the 586 chip — is now available, but it is still expensive. Warning: "Pentium Ready" or "Pentium technology" are nice pat phrases to be seen on an increasing number of PC adverts. It means the manufacturer claims the machine is capable of being upgraded with a Pentium chip. If you see "Intel Verified" it means that Intel — the manufacturer of the Pentium chip — has tested it with this PC.
- Memory: 4Mb minimum. This is the standard amount which most PCs sold in the high street are fitted with. It is fast becoming inadequate. Eight megabytes really should be the minimum if you can afford to pay the extra.



Buying a PC is a nerve-wracking and confusing experience, even for second and third time buyers. Mistakes can be costly, but Paul Boughton's guide to buying PCs aims to make your buying decisions as safe as they can be. It also includes an extensive guide to the after-sales service provided by hardware, software and games companies to tell you who you're going to call when the chips are down.



● Operating system: MS-DOS v6 (should be v6.2). DOS gets upgraded with great regularity, and sometimes you will find machines aren't being supplied with the latest version.
● Graphics and display. Go for SVGA (Super Video Graphics Array). VGA is still common and most programs still use it, but SVGA-only is becoming increasingly common.
● Hard drive: minimum of 120Mb.
● Sound card: should be Sound Blaster Pro-compatible. Make sure you get speakers.
● Floppy drive. A single 3.5", 1.44Mb (high density) will do just fine.
● Mouse. A two-button, Microsoft compatible mouse should be included in the package.
● Expansion slots. The clever question to ask here is how many free expansion slots there are in the machine you're considering, and "free" means with unrestricted access. We've seen far too many machines with, say, six expansion slots, two of which are in use, and with another two blocked by cabling — or even by the power supply unit — so that in fact only two are free. Your sound card and graphics card will probably take up two slots, so it is worth checking.
● Serial and parallel ports. One parallel and two serial ports is a good standard to look for. The parallel port is where you'll want to plug a printer; one serial port can take a mouse (the mouse might plug into a dedicated socket next to

Hardware manufacturers' After Sales Service

Manufacturer	Warranty period	Telephone hotline	Normal/premium rate charges	Service hours	Site visit calls (UK mainland)	Notes
Amstrad Consumer Electronics Tel: (0277) 228888	One year on site with third party company	Yes	Free	9-5 (Mon-Fri)	Within one working day	Hotline number only made available to customers once PC bought.
Western Systems Tel: (081) 845 8383	One year (return to base). Can get on site cover.	Yes. Main number	Normal	9-5.30 (Mon-Fri)	See warranty	
Evesham Micros Tel: (0386) 765500	One year on site with third party company	Yes	Normal	9-6 (Mon-Fri) 10-4 (Sat)	24-48 hours	Two hotlines. One for own-make Vale PC available to owners only. General hotline (0386) 769403. Claim average answer time of 2.5 minutes
IBM Tel: (0705) 321212	Varies, 1 to 3 years return to base	Yes	Normal	24 hours, (365 days)	Mostly return to base	
Opus Technology Tel: (0293) 821555	One year (return to base). Can get on site cover.	Yes	Normal	9-5.30 (Mon-Fri)	8 working hours	
Dell Tel: (0344) 720000	Varies on range. On site available	Yes	Normal	Varies on range. 8-8, Others 24 hour	On site calls next business day.	Dell Dimensions range: 12 months. Dell collects and returns machine within four days.
Elonex Tel: (081) 452 4444	12 months on site can be extended to seven years	Dedicated lines: (081) 452 6666	Normal	9-5 (Mon to Fri) 9-1 (Sat)	Within one working day	Different warranty for notebooks
Dan Technology Tel: (081) 902 9922	12 months parts and labour	Yes	Normal	9.30-6 (Mon-Fri)	Site visit: £25	Faults in second year will be diagnosed and repair first year.8 hour estimate made. response.
Watford Electronics Tel: (0582) 487777	12 months return to base. On site service available	Yes	Normal	9-6 (Mon-Fri)	8 hours	Help on (0582) 745500.
Olivetti Tel: (0908) 690790	12 months on site	Yes	Normal	9-5.30 (Mon-Fri) 10-4 (Sat)	Within 24 Hours	Customer services on (0908) 603398.
Acer tel: (0753) 523024	Varies, most desk tops, notebooks, 12 months on site	Yes	Normal	Maintenance company 9-5, Acer, 9-5.30 Mon-Fri)	Reponse next working day	
AST Tel: (081) 568 4350	Three years (return to base)	Yes	Normal	9-12.30 - and 1.30-5 (Mon-Fri)	No site visits	Telephone help on (081) 490 1100. AST sells through dealers only.
Packard Bell (0753) 831914	1 year on site	Yes	Free	9-5 (Mon-Fri)		Additional warranty - 1 year £111; 2 years £185.
Hewlett-Packard	12 months on Tel: (0344) 773100 return to base	site. Two years				All other support services should be checked with dealer
Tandon Tel: (0527) 550550						No information forthcoming. Did not respond to repeated calls.
Viglen Tel: (081) 758 7000	12 months back to base. On site option available for £39	Yes, on man number	Normal	9-5.30 (Mon-Fri)	Next working day	
Tulip Tel: (0293) 562323	3 years on CPU, keyboard, mouse 1 year for monitors	Yes, for dealers	N/A	8.30-6 (Mon-Fri)	Check with dealer for services.	
Compaq Computers Tel: (081) 332 3000	Varies, depends on dealer	Yes, on main number	Normal	9-5.30 (Mon-Fri)	Depends on dealer	If on site visits agreed, within 2 days, depending on availability of spares.
Zenith Data Systems Tel: (081) 568 5050	12 months on site for desktop PCs and laser printers	Yes	Free	9-5.30	By next working day	

"The PC industry is still in its infancy; it's still a frontier industry and frontiers attract cowboys," says the PCMDA.

the keyboard socket), the other you can add a modem to later.

● Software. It is quite common to get a bundle of software with your PC in addition to MS-DOS. Windows 3.1 (at least) should be included and there is often a business utility and a piece of entertainment software. If not, why not ask? You may get a dealer who is feeling particularly generous. Nothing venture, nothing gained.

● Warranty details. It is important that you know what cover your PC has. If it goes wrong or you have a technical problem, what do you do? Who is responsible — the dealer or manufacturer? Or both. Look out for a telephone hotline you can call. Our survey of the principal hardware and peripheral manufacturers, on these pages, gives a good indication of what is available.

● Delivery date. Do not let your supplier be vague about when you can expect your PC to arrive at your home. Get a specific date. And find out in advance who pays for the delivery charges.

Desirables

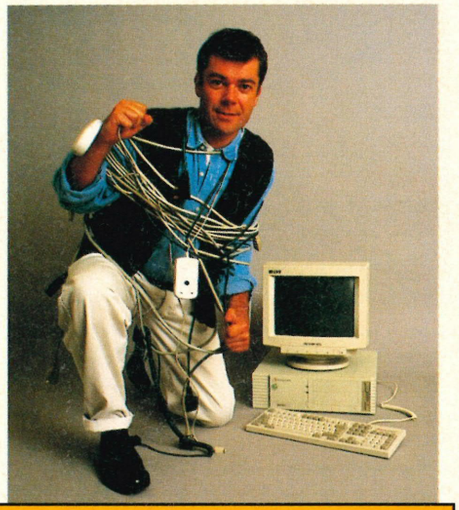
● Joystick. Two-button analogue model. Check that the PC you're going to buy has a game port, or buy a game card as well (takes up a free expansion slot).

● Double speed CD-ROM drive. Some software houses have already stated they will have switched to CD-only product by next year. Others will almost certainly follow. If you buy a PC with one we would recommend a minimum running speed of 33MHz and 8Mb RAM. 25MHz, 4Mb machines are already beginning to struggle with the latest multimedia products. We'd suggest that unless you know you want a CD-ROM drive now, this is something you could leave until you find you need one, but prices for double-speed devices are pretty good at the moment. One reason for holding off might be to wait for prices of triple speed drives to fall.

And how much will this 'minimum' PC cost? We reckon you could get this set-up for around £1,200, including VAT, after comparing prices from the shops. And if you were to scour all the adverts and mail order pages searching for bargains, you could probably get it cheaper.

High Street-wise

To some extent deciding what type of PC you want, the configuration, the extras, is the relatively easy part. Actually getting what you want at a reasonable price is a potentially tricky business. But there



BUYER BEWARE!

The complexity of computer hardware and software, technical ignorance or inexperience of the buyer, mixed in with advertising jargon all combine to make buying a PC an often confusing and bewildering experience. And that's not including the fact that some advertisements may be misleading.

The Advertising Standards Authority is the independent self-regulatory body which is responsible for supervising the non-broadcast adverts in the United Kingdom which includes the advertisements that appear in PC Review and other magazines.

It investigates complaints that advertisements break the rules contained in the British Code of Advertising Practice or the British Code of Sales Promotion Practice.

In 1993 the ASA received a total of 9,603 complaints, 7,773 of which were for advertisements. Of this total 2,018 were investigated, 612 had the complaint upheld and 62 are still unresolved.

Complaints about computers is the sixth largest area dealt with — 428 complaints, a slight fall on the 526 for the previous year.

A sample of the areas of complaint dealt with by the ASA in 1992 follows:

● If a computer game requires a certain computer memory size to operate it, the memory size needed should be clearly stated. "One unhappy complainant," says an ASA report, "found his son could not use the game he had given him with the computer he owned. Failure to indicate such important information is a recurrent problem for the authority."

● More than 20 per cent of complaints the ASA receives about the non-receipt of goods concern computer equipment offered through mail order. "If there is an estimated availability date for a new game or piece of equipment, the products should not be advertised until their release is certain," it says.

● Advertisers often fail to make adequate checks to ensure that the products they advertise are available at the time the advertisement appears. The ASA says: "Advertisers should remember that the Code requires goods to be delivered within 28 days and that the delivery time should be stated in advertisements."

● Incorrect illustrations used in adverts provide an "irritating and avoidable" area for consumer dissatisfaction, says the ASA. One advertisement indicated the price of a computer with a black and white monitor when the photograph used featured a colour monitor.

● Similarly, failing to give the correct and all inclusive price of items is a frequent fault. "Any limitations on the price, availability of the product on offer itself must be clearly stated."

● Adverts should not exaggerate the capabilities of a computer or software. "One advertisement showed a colour monitor with what appeared to be a scanned photographic image of an eye. However, when our complainant received the computer he found that it was incapable of producing such images. Such complaints are regrettably all too frequent," reported the ASA

● Computer magazines have an important role to play, They should also make sure the advertisements they carry are accurate, says the ASA. "Advertisers have to ensure that they have followed the Code in spirit as well as the letter. As informed specialist media, the computer publications should be well qualified to pick up some of the more obvious mistakes to safeguard readers against being misled or disappointed."

It concludes: "The computer industry's advertisements should be as clear and logical as its products are reputed to be."

But it pays to be able to read between the lines when looking at advertismenets.

If you are browsing through advertisements with a view to buying a PC or add-on, make a note of the following checklist of possible pitfalls:

1) "Pentium Ready" or "Pentium technology" sounds very impressive, but all it means precisely is that the machine is capable of being upgraded.

And even that may be a little misleading. As Amstrad was quick to point out in a press release recently, its PC9486 machines have been been officially "Intel Verified" for upgrading to Pentium OverDrive technology, making these PCs "future proof," according to the firm's marketing boss.

"Intel's verification laboratories really put the systems they test on the rack. When they say the Amstrad PC9486 is Intel Verified, it means that Intel are guaranteeing to the customer the system will work with the next generation processor technology — so they have to be sure," says David Hennell, director of international marketing.

Intel is testing PCs from other manufacturers as well; if you're interested in whether a particular model is 'verified' contact Intel on (0793) 285551.

2) Computer games and business software both require a certain amount of memory to run effectively. Check that the minimum specifications required are compatible with your PC. And for games software, don't forget speed. A game may well be able to run at 25Mhz — but will it run well or just judder?

3) Price. Check the price carefully. Does it include or exclude VAT? Are there any hidden extras which are not immediately apparent? A £700 486 may seem a bargain until you realise the monitor costs extra. Prices should refer to what you see in the ad. So if a mouse is shown, it should be included in what you actually get.



is nothing like getting a look and your hands on the real things. If you are a first-time buyer the chances are that you will head for your local high street to see what is on offer "off-the-peg," as you might call it.

For most people that will mean Dixons or Currys, both familiar household names. The chances are that near where you live there will be one of these. It's likely there will be an independent retailer in your local high street as well, and there may be one of the ever-expanding PC World computer superstores nearby.

Dixons has 200 outlets stores which incorporate in-store Business Centres and plans to expand this to 350 within three years. In addition to its high street stores, Currys has about 150 Curry Super Stores. There are eight PC World outlets, in Croydon, West Thurrock, Brentford, Staples Corner, Cardiff, Bristol Parkway, Leeds, and Northampton, with another four planned to be opened this year.

Now it may come as a surprise to you to know that Dixons, Currys and PC World are all owned by Dixons. And it has a precise marketing strategy for selling PCs. So it is useful for the 'virgin' PC-buyer to know what that is. Dixons' stores target the first time-buyer who wants to use his PC for business and for working at home. Currys targets 'family' use with the emphasis on business, education and games.

The advantages of purchasing from these stores are obvious. You can see what you are buying. They are reputable retailers from whom you may have bought stereos, radios, washing machines, or kettles with very little trouble in the past. The products come with 12 months on-site warranties with extended cover available.

Dixons says its staff should know something about all of its products and then individual staff are given special training about specific items.

Nothing too frightening or complicated, but ... the choice of PCs and peripherals on sale is not exactly extensive. And there's no negotiation about exact configurations. What you buy is what you see, straight off the shelf. You cannot ask for extra RAM to be inserted or mix 'n' match between monitors, keyboards and hard drives, although you should get a choice of printers.

That leaves PC World. These stores are targeted at the second or third time-buyer. The staff receives training direct from the PC manufacturers so they should be able to answer the most technical of questions. The stores have an area dedicated to installation and problem-solving. And, perhaps more importantly, you have more flexibility in buying a PC which matches your desired specifications. You can have your machines configured to your own standards. But maybe the first-time buyer may find it a little daunting.

Independent outlets

So where else might you buy a PC? Virgin Megastores has 24 outlets throughout the UK with another six planned this year. It is eventually planned that all these stores will sell a "Virgin"

FEATURES

EVERY WHICH? WAY BUT LOSE

Knowing just how to complain can be a difficult thing to do. But you have to know what you are doing.

● Firstly decide what you want the outcome of your complaint to be. That could mean replacement of goods, a refund, compensation or a simple "sorry."

● Find out the proper person to complain to. Haranguing the receptionist or junior sales assistant of a company or store is pointless. Get the name of a person at the appropriate level of authority — store manager, for example.

● If writing, keep your letters short and to the point. State your complaint or problem and what you want done. Including abusive or obscene remarks about the company or individuals may be fun and therapeutic by letting off steam for you, but it could be counter productive. After, you want results not a verbal punch-up. Be polite.

● Set a deadline for when you expect a reply or result. Be reasonable. You will rarely get instant action or satisfaction. Fourteen days is reasonable.

● Make sure the company complained about receives your letter. Send it by recorded delivery.

● Send copies — not the originals — of relevant documents, bills, invoices. And do not forget to keep copies of your letters.

● Do not give up. Be persistent.

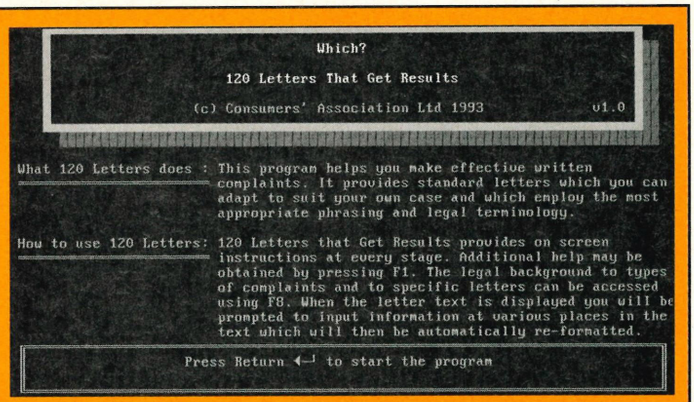
And if you really want to know how to complain professionally, with confidence and a great degree of authority, then a new program from the Consumers' Association could help you.

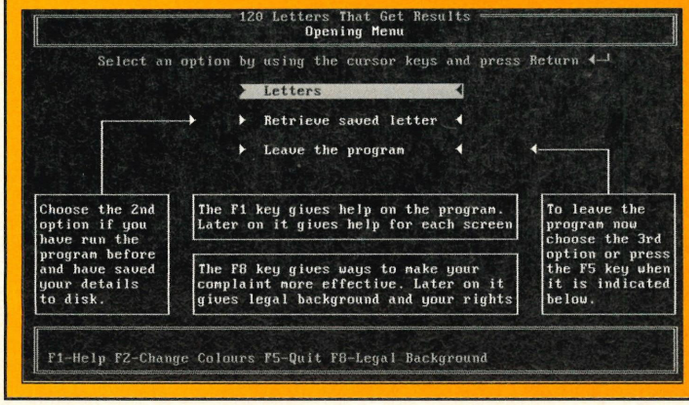
120 Letters That Get Result, based on the best-selling book of the same name is being marketed as a "solicitor on software". It provides standard letters which you can adapt to suit a particular case and which use the most appropriate legal phrasing.

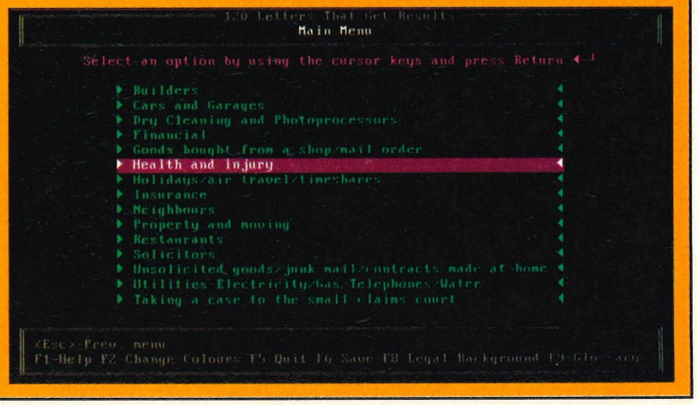
The letters cite relevant legislation, state clearly the desired outcome and prompt the user to set deadlines. And if your problem is not quickly or reasonably resolved, there are guidelines for taking your complaint to court. At every stage the legal background and a glossary of terms can be consulted.

"Don't be fobbed off with feeble excuses which have no legal basis. With this program you can be in the driving seat instead of being taken for a ride," says the association's Ashley Holmes, Head of Legal Affairs. And they depend on knowing the legal basis for your complaint, following correct procedures and using the right jargon.

120 Letters That Get Results is available now, price £34.99 from the Which? shop, 359-361, Euston Road, London NW1.







WHO CAN I TURN TO?

If you are unhappy with what you have bought and have failed to get any satisfaction from the manufacturer or dealer, the following organisations may be able to help or advise you:

- **The Advertising Standards Authority, Brook House, 2-16 Torrington Place, London WC1E 7HN. Tel: (O71) 580 5555.**
- **Personal Computer Direct Marketing Association, PO Box 48 Royston, Herts SG8 6JS.Tel: (0763) 262987.**
- **Consumers' Association, 2 Marylebone Road, London NW1 4DF (071)830 6061**
- **Office of Fair Trading, Field House, 15-25 Bream's Buildings, London EC4A 1PR. Tel: (071) 242 2858.**
- **Mail Order Protection Scheme, 16 Tooks Court, London EC4A 1LB.**

Locally (see your telephone book for addresses and numbers).

- **Citizens' Advice Bureaux.**
- **Trading Standards Department.**

branded 486 PC packages. But at the time of writing they are not on sale yet and customer choice does not seem to be the main priority. You buy the Virgin brand or nothing.

Makro, the cash and carry warehouse chain, also sell PC hardware in its 23-strong chain of stores. A vast range of goods is sold — from clothes to TVs and ice cream to toilet rolls. Prices are considerably lower than in the shops.

But you cannot just turn up at these outlets and buy. You have to be registered with the store and the qualification for that is you run a business or buy on behalf of a business. Therefore, this is an avenue of investigation not available to all.

Silica has been a well-known name in retail and mail order since 1978. Now it is set to raise its profile further by setting up 20 outlets throughout the country specialising in PCs, peripherals and software with the promise of offering "advice and assistance and unconditional after-sales support." There will also be on-site service teams to "evaluate and fix any technical problems."

Many of these Silica outlets will be found in Debenhams stores. The chain sees an opportunity to penetrate the high street because "staff in current high street stores have baffled mainstream customers with technobabble or only know how to work the cash register," said Ken Browning, Silica's retail controller, recently.

There are also many independent high street dealers and chains operating throughout the land, who at their best, should have a detailed knowledge of product and be willing to discuss your individual needs and construct a system to suit you. Finding a good local dealer whom you can trust and talk to is like manna from heaven when you're buying PC-related goods.

But there's a compromise. The appealing discounts of the large multiple stores may not be available here. And there's the problem of warranty and maintenance. The recession has not been easy to small retailers and long-term survival is not guaranteed. So make sure any after-sales deals will carry on should the retailer go out of business.

Armed with your set of PC requirements, you can ask the retailer some simple questions about the machines you are being shown. Do not be rushed into buying. Take your time and think about it. Today's bargain offer will more than likely still be available tomorrow.

Mail order: it's in the post

A flip through the pages of any of the business-orientated computer magazines will reveal a bewildering number of mail order companies, appearing to sell a myriad of PC s — both with known brand names and some with names that you probably haven't heard of and won't again — and every conceivable peripheral or gimmick Then there are the manufacturers selling directly.

You just fill in the form ordering what you want, send it with your money and, 28 days later, your sparkling new power machine, designed and configured to your own high and demanding specifications arrives or your doorstep.

Now we all know that most mail order dealers are run by decent, upright people who want to earn a nice living by keeping you, the customer, happy and satisfied. And mail order remains popular, despite the fact that a number of mail order outfits have gone out of business in the past few years. So is there any way of making sure that you have picked one of the good ones?

There is the Personal Computer Direct Marketing Association, an embryonic organisation, which aims to ensure its members operate to the highest standards. It has a code of conduct, strict membership rules, a seal of approval which appears on the advertisements of members.

Part of the code of conduct insists members must despatch mail order goods with 14 days, whereas 28 days is the generally accepted time you should have to wait. But, says chairman Keith Warburton, his members normally send out goods within two days. "You don't need to put up with lousy service," he says.

The PCDMA was set partly in response to suppliers going bust. One computer systems company went down with about £1 million of customers money. He says: "There was no way to tell if a customer was dealing with a flaky company or a decent company."

The drawback is that after one year of operation the PCDMA only has seven members.

"Because a company does not belong to the



Hexx, thugs and orcs 'n' trolls



"There's something undeniably addictive about the whole thing..."
PC GAMER

PCDMA it does not mean it is a cowboy," says Mr Warburton.

It seems that many reputable companies do not see the need to join.

"The PC industry is still in its infancy; it's still a frontier industry and frontiers attract cowboys. Who knows, one day those cowboys may become lawmen," he says. You can contact the Personal Computer Direct Marketing Association at PO Box 48 Royston, Herts SG8 6JS.

If the worst comes to the worst and things do go wrong and you don't get satisfaction, then you could be in for a long battle to get things put right. You should contact the Mail Order Protection Scheme, at 16 Tooks Court, London EC4A 1LB,

Peripheral and software manufacturers' after-sales service

Manufacturer	Products	Warranty	Telephone hotline	Normal/premium rate charges	Service hours	Site visit calls (UK mainland)	Notes
Microsoft Tel: (0734 270001)	MS-DOS, Windows, early learning (Creative Writer), CD-ROM reference (Encarta, Art Gallery)	Yes. See Notes	Yes	Free	9-5.30 (Mon-Fri)	No	Service is available to registered users and lasts for 90 days from when it is first used.
Borland Tel: (0734) 320022)	(database: Paradox; spreadsheet: Quattro; languages: Turbo C)	Yes	Yes	Normal	Office hours	See Notes	Free help support for installation, bugs for product lifetime. Also consultancy support for getting most from product. Fees vary according to service. May be possible to arrange on site visits.
Silica Systems Tel: (081) 309 1111	Retailer/distributor; exclusively deals with ReelMagic card	Manufacturers warranty plus Silica cover available	Yes Main number	Normal	9-6 (Mon-Sat)	For corporate clients	Free delivery and pick-up. Six day turnaround.
Media Vision Tel: (0494) 465050	CD-ROM drives, some software	Yes, varies with product	Yes	Normal	9-5.30 (Mon-Fri)	No	Technical support on (0264) 333406.
Gravis Tel: (0293) 538666 (Zye Technology)	Ultrasound sound card, some joysticks	Generally one year, but can vary with product	Yes	Normal	9-5 (Mon-Fri)	Rare, but have done	General technical help available on (0293) 531221 plus 24-hour bulletinboard (0293) 618628
Creative Technology Tel: (0743) 248590	CD-ROM drives; exclusively deals with Creative Labs: Sound Blaster series	12 months	Yes	Normal	8.30-5 (Mon-Fri)	In extremely exceptional cases.	Technical support handled in Ireland on (0734) 344744. Calls charged at UK rates.
RC Simulations Tel: (0272) 550900	Joysticks, flight sticks	Yes, varies with product	Yes	Normal	10-5 (Mon-Fri)	No	
Suncom Tel: (0285) 642211	Joysticks	Varies min 12 months	No dedicated number	Normal	9-5 (Mon-Fri)	No	Replacement product sent out within two/three days
Spectravideo Tel: (081) 900 0024	Joysticks and joystick add-ons	Yes, basic 12 months	Yes	Normal	9-5.30 (Mon-Fri)	No	Sells own brand worldwide plus imported product
Roland Tel: (0252) 816181	Soundboards, music keyboards	Hardware one year	Yes	Normal	10-5.30 (Mon-Fri)	In exceptional cases	
Yamaha Tel: (0908) 366700	Music keyboards	Yes	Yes	Normal	10-4.00 (Mon-Fri)	If necessary	
Hewlett-Packard Tel: (0344) 773100	Inkjet and laser printers	Check with dealer	Yes	Free/Normal			HP First Fax line Free on (0800) 960271(24 hours). Printer support (010) 31 20 682 8291 (8.30-6 European time.)
Canon Tel: (081) 773 3173	Inkjet and laser printers	Varies, high end 1 year on site	Yes	Premium	9.30-5 (Mon-Fri)	Yes	
Citizen Europe Tel: (0753) 584111	Dot matrix and laserprinters	Two years	Yes	Normal	9-12.30 and 1-4.45 (Mon-Fri)	No	Customer support on main number. Contact retailer first.
Star Micronics Tel: (0494) 471111	Low-cost printers, especially dot matrix and laser	On low cost dot matrix printers warranty is one year return to dealer On high end printers there is one year one site cover registered within 60 days	Yes	Normal	Office hours (Help within one working day)	Yes	For support contact (081) 401 1230.
Fujitsu Tel: (081) 573 4444	Printers	12 months	Yes	Normal	9-5 (Mon-Fri)	No	Check details of warranties, back-up, with local dealer .
Epson Tel: (0442) 61144	Printers	Yes, 12 months on site warranty for laser printers.	Yes	Normal	9-5.30 (Mon-Thur) 9-4.30 (Fri)	Yes	Help on (0442) 227478. Pre-sales advice (0800) 220546 (Free)
Panasonic Tel: (0344) 862444	Printers, scanners	Yes. Lasers and monitors (2 years on site); LED printers and high-end matrix (1 year on site); Other matrix and scanners (1 year point of sale)	Yes	Normal	Office hours		Third party service agreements. Bulletin board support on (0344) 862072. Spares for product no longer in production held for five to six years.
Philips IMS Tel: (081) 689 4444	CD-ROM drives Monitors	12 months	Yes	Normal	9-5 (Mon-Fri)	Yes (monitors)	Faulty drives replaced rather than repaired
Quarterdeck Tel: (0245) 496699	QEMM memory manager	Yes, check with dealer for details	Yes	Normal (See notes)	9-5.30 (Mon-Fri)	No	Helpline is (071) 973 0663. Tech support is based in Ireland but calls are charged at normal rates. After 5.30 calls are switched through to the United States, again charged at local UK rates.
Symantec Tel: (0628) 776343	Norton Utilities, other utility products	Yes, two years	Yes	Free	9-5 (Mon-Thurs) 9-3 (Fri)	No	30 day money back guarantee if dissatisfied after buying product.
S&S International Tel: (0442) 877877	Anti-virus toolkit	No	Yes	Normal	24 hours (Seven days)	Yes	

as soon as possible. Buying direct from manufacturers with worldwide reputations may inspire more confidence. Many of the manufacturers operate pre-sales telephone advice services helping to put together the system you desire. They are also very good at supplying information about new developments and upgrades.

The main drawback of this approach is that you somewhat lose the "mix 'n' match" ability to put together hardware from various sources.

Secondhand bargains?

Buying secondhand is not a route we would recommend, unless you really know what you're doing. Buying a system from an honest friend may be all right, but if things do go wrong — whether intentionally or not — it may generate a pint of two of bad blood.

That said, there are bargains to be had in this area. But, even more than with mail order, you need to have some detailed understanding of the configurations of the PCs on offer. Areas to check out include local bankruptcy sales. PCs and peripherals from bankrupt business can often be snapped up at a nice price. But it is no use complaining if you end up with what you thought was a colour monitor but is in reality black and white.

After the sale

PCs are not meant to be used at home. They arrived there by accident, not design, and are not meant to be readily understood by ordinary people.

Other computers which have been used in the home for playing games, such as the Spectrum, Commodore 64, Amiga and more recently the Sega and Nintendo consoles, were all designed with home use and games in mind. PCs were designed to be used in offices and business and maintained by a system manager.

However, there are now something over two million PCs sitting in living rooms, spare bedrooms and studies in the UK. Until recently, the user would have to format the hard disk, install the operating system, any device drivers required by peripherals and customise their own start-up files (Config.sys, Autoexec.bat). Even the hobbyist-orientated Spectrum didn't require this sort of effort. No computer novice could seriously be expected to do this without at least verbal advice, but at least by the end of the operation, you would know quite a bit about the workings of the machine. These days, PCs generally come with DOS and bundled software pre-installed and configured. They also come with Windows, also pre-installed, which may not be perfectly intuitive but is a damn sight better than the enigmatic C:>. Ironically, you could use a machine like this happily for months, but the first time any piece of software needed start-up files reconfiguring, you'd be completely flummoxed.

Add to this the fact that sales of CD-ROM drives — many of them internal devices which need to be installed manually by you — are expected to hit six figures by the end of the year and you have another technological/configuration learning curve to overcome.

Last year Dixons Group plc, which effectively controls more than a 65 per cent share of sales throughout the UK, estimated that the combined sales of PCs, printers and software exceeds £3.5 billion.

So with all these people — many of them PC Review readers — becoming PC owners, how do companies cope with the inevitable problems, technological misunderstandings, and hardware and software faults. If your PC set-up goes wrong, or you can't get a piece of software to load, where can you go for help?

The key questions we have been asking as many companies as we could contact are: what after sales support can you expect for hardware, software and games? What can you expect from suppliers and manufacturers after they have got their hands on your money? Do they really care?

What happens if things go wrong?

AFTER-SALES SUPPORT

Entertainment software

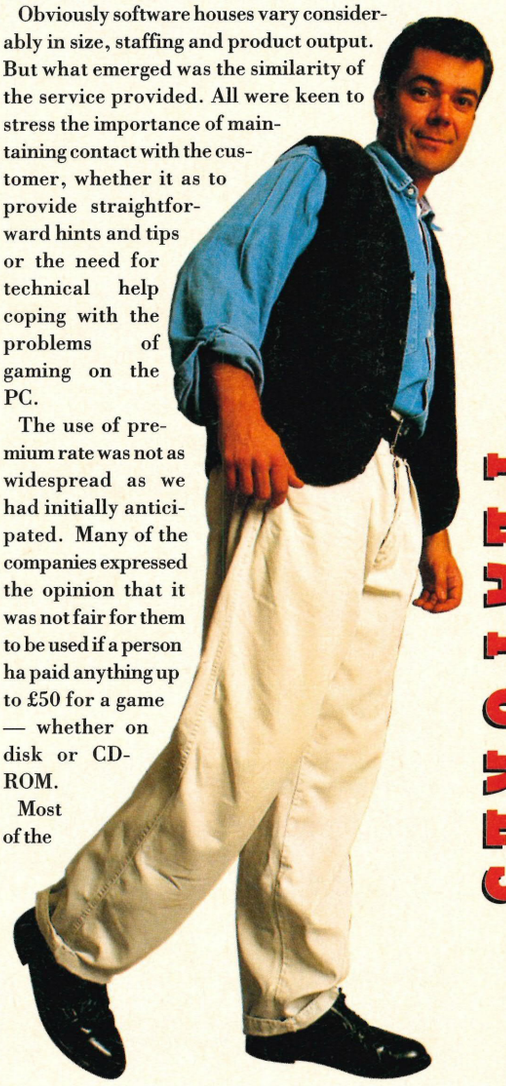
For our survey into software after-sales (see the results on page 32) we contacted 42 UK-based entertainment software publishers. The areas we examined included:

- Willingness to answer queries by telephone or post;
- What hours help was available;
- Would a customer speak to a person or would they be confronted by a recorded message?
- Whether telephone help was charged at normal rates or at the high-priced premium rates;
- How many people staff the customer service department;
- Were help/booklets and hint sheets available?
- The average daily call rate.

Obviously software houses vary considerably in size, staffing and product output. But what emerged was the similarity of the service provided. All were keen to stress the importance of maintaining contact with the customer, whether it as to provide straightforward hints and tips or the need for technical help coping with the problems of gaming on the PC.

The use of premium rate was not as widespread as we had initially anticipated. Many of the companies expressed the opinion that it was not fair for them to be used if a person ha paid anything up to £50 for a game — whether on disk or CD-ROM.

Most of the



Are you Hexx-perienced?



"Its got two things that most players crave for..."
PC HOME

software houses were prepared to send out hint sheets or solutions free of charge where they were available.

Probably the most annoying part for customers is the fact that most of the help is available only Monday to Friday in office hours. Essentially that means between 9 am and 6pm; only the automated lines operate 24 hours, including Saturday and Sunday. Where customers called outside office hours, software houses, said they would always try to help providing, of course, the expert was available.

Peripherals and utilities

Telephone back-up is vital if you buy peripherals. Buying a new printer, scanner, drive or monitor and integrating it with your existing system can become a nightmare.

The results of the survey for peripheral and software firms is on page 30. Areas looked at included:

- The warranty period on products. Most companies offer a minimum of 12 months cover with the option of extending the protection — at a price, of course;

PC entertainment software after-sales service (part 1)

Software house	Help service	Telephone/post	Normal/premium rates	Contact hours (Monday-Friday)	How many people running service?	Help books/sheets	Number of daily calls?	Notes
10 Out of 10 Educational Systems Helpline: (0742) 780370	Yes	Both	Normal	Office Hours	No dedicated person	No	Varies	Free lifetime soft ware guarantee.
21st Century Entertainment Helpline: (0235) 851533	Yes	Both	Normal	Office hours	One	Some facts sheets	Varies	Faulty software replaced with proof of purchase.
Accolade Europe Ltd Helpline: (081) 877 0880	Yes	Both	Normal	Office hours	Two	Books available (£4.95)	Varies	Plans for a dedicated helpline.
Activision Helpline: (081) 742 9400 Return to Zork: (0891) 555 113 touchpad only.	Yes	Both	Premium	Rec.Message	N/A	Return to Zork, £9.95	Av 12 per day	
Codemasters Software Helpline: (0926) 814 132	Yes	Both	Normal	9-5	One full-time	No	"Steady flow"	Call for help on main number.
Core Design Helpline: (0332) 297797	Yes	Both	Normal	9-5.30	Five	Free hint/solutions	Up to 100	Call for help on main number
Crystal Vision Software Helpline: (0477) 571644	Yes	Both	Normal	Office hours	No dedicated person	No	N/A	Shareware dealer. Installation calls dealt with. Games referred to individual companies.
Cyberdreams UK Ltd Helpline: (071) 372 4307.	Yes	Both	Normal	10-1 and 2-6	One	Darkseed, £8.45		Answerphone calls returned in 24 hours.
Digital Integration Ltd Helpline: (0276) 678 806	Yes	Both	Normal	10-4	One	Free hint sheets	N/A	
Domark Ltd Helpline (081) 780 2224	Yes	Both	Normal	10-30-5.30	Two	No	up to 60	
Elite Systems Ltd Helpline: (0922) 55852	Yes	Both	Normal	9-5.30	Three	Not yet	N/A	Just launched PC product, considering dedicated help lines for individual games.
Electronic Arts Technical Helpline: (0753) 546465	Yes	Both	Both	9-6 (Mon-Thur) 9-5 (Fri)	Eight	Various books, ranging from £5 to £18.45	av 200	Currently runs seven Premium rate hints and tips lines
Entertainment International Helpline: (081) 343 9143	Yes	Both	Normal	9-6 Tips 3-5 (Technical)	Three	Free hint sheets	N/A	
Europress Software Helpline: (0625) 859333	Yes	Both	Normal	9-4 then answerphone	Three	N/A	30-50 per day	Call main number
Gametek UK Helpline: (0753) 553445	Yes	Both	Normal	9.30-5.00	Two	No	"Loads"	Call main number
Grandslam, Tel: (081) 680 7044	Yes	Both	Normal	9-10 and 4-5.30	One	Some available	Varies	Call main number.
Impressions, helpline: (071) 351 2133	Yes	Both	Normal	Office	One	No	Varies	Plans for dedicated helpline, bulletin board (6pm-9am) and quarterly newsletter.
Infogrames Helpline: 071-738 8199 Alone in the Dark I and II (0891) 244 444 (premium rate)	Yes	Both	Normal/Premium	9-6	Two	Books, £3	20 per day	
Interplay Productions Ltd Helpline: (0865) 390029	Yes	Both	Normal	2-5.30	One	Cluebooks, £9.99	"Lots"	Call main number for help. Planning to extend hours to 7pm
Krisalis Software Helpline: (0709) 372290	Yes	Both	Normal	9-6	One	Some hints available	Varies	
Maxis Helpline (071) 250 0215	Yes	Both	Normal	9-6. plus answerphone	One	Some cheats	Varies	

☞

Are YOU a hexx maniac?



You'll need to be a, how shall we put it, special kind of person to play Hexx™, the stunning new RPG from Psygnosis. Because the Nameless One (that's him in the picture) does not take prisoners.

"Spectacular pyrotechnic spells...magical gameplay" PC FORMAT

He's a malevolent Wizard on the warpath. And he's just seized control of the Realm by subverting the Gods of Magic to his side. The dark side.

"There's something undeniably addictive about the whole thing..." PC GAMER

Your task is to lead a posse of four adventurers on a magical manhunt through the clammy depths of the Realm's dungeons to stop him. Dead. Hundreds of monsters, puzzles, locked doors and closed minds lie in your path...

"Parades glorious texture-mappedness and smooth scrolling..." PC ZONE

We could bend your ear with a list of hi-tech jargon that explains why Hexx™: Heresy of the Wizard is so itchingly addictive and ferociously playable. Technobabble on about Ramsave, Automapper, an Intelligent Inventory System, and the full screen, 3D, lightning fast first-person perspective. (Fully texture-mapped, of course).

But frankly that kind of Derek Anorak detail makes our eyes glaze over. All it means is that Hexx is undoubtedly the most intuitive, accessible and enjoyable game you will encounter this year. As the man from PC Action kindly put it, Hexx is "one of the best first-player perspective RPGs I have ever played."

A textbook case, perhaps, of Hexx appeal?

PSYGNOSIS

Ahead of the game

● Telephone back-up;
● What hours help is available;
● Would a customer speak to a person or would they be confronted by a recorded message?
● Were site visits available? Most companies do not offer on site visits as part of their standard service. Where available, it is mostly for business users and on products such as printers?

PC systems

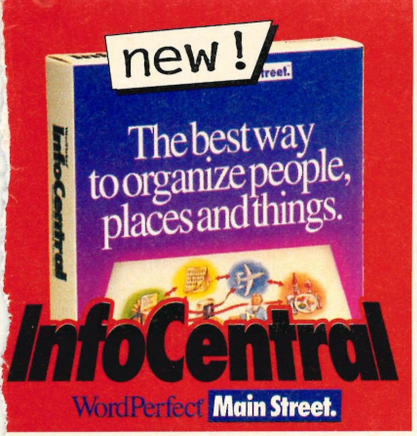
Warranties vary considerably according to where you have bought the PC. Most include on site visits with a telephone help service available five days a week and, in some cases six. Most manufacturers claim to get an engineer to you within eight hours or one working day. See page 26 for the low-down on who offers what. Areas looked at included:

● The warranty period on products
● Telephone back-up
● Hours help is available
● Were site visits available

Interestingly, getting information out of the manufactures was the most difficult of the three areas looked at. Not indicative of the service available to the public, we hope.

PC entertainment software after-sales service (part 2)

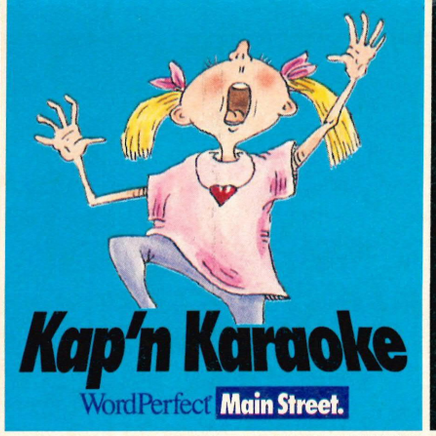
Software house	Help service	Telephone/post	Normal/premium rates	Contact hours (Monday-Friday)	How many people running service?	Help books/sheets	Number of daily calls?	Notes
MicroProse Software Helpline: (0454) 329 510	Yes	Both	Normal	2-5	Five	Books, £4-£5), Free hint sheets	150-200 calls/ 100 postal enquiries	
Microvalue-Flair Helpline: No	Yes	Postal	N/A	N/A	N/A	N/A	N/A	Investigating plans for Premium rate helpline, possibly from the autumn.
Millennium Interactive Helpline (0223) 846023	Yes	Both	Normal	8-7	Four plus answerphone	No	10	
Mindscape/ Software Toolworks Helpline: (0444) 239600	Technical only	Telephone	Normal	Office hours	1	No		Technical help only .
Mirage Tel: (0260) 299909	Yes	Both	Normal	9.30-8.30	No dedicated person	For some games	6	Call on main number
Novalogic	Yes	N/A	N/A	N/A	N/A	N/A	N/A	PC disk games are handled by US Gold, CD-ROM product by Optima. Novalogic investigating UK helpline service, but no starting date yet.
Ocean Software Ltd Helpline:(061) 839 0999.	Yes	Both	Normal	10-5	Three	Yes	av. 90	Help faxline (061) 839 0977.
Oxford Softworks/ CP Software Helpline: (0993) 823463	Yes	Both	Normal	3-4	Various programmers	No	1	Call main number for technical help.
Psygnosis Ltd Tel: (051) 709 5755	Yes	Both	Normal	8.30-5.30	Team of 13	Some	40-50	Helpline number distributed with product.
Renegade Helpline: (071) 481 9214.	Yes	Both	Normal	10-7	Two	For some games	Varies	Developing PC support
Sales Curve Interactive Helpline: (071) 585 3308	Yes	Telephone only	Normal	9-5.30	One	No	"Very little"	Messages taken, calls returned as soon as possible.
Sierra On-Line Helpline: (0734) 303322	Yes	Both	Normal/Premium Some hint sheets	9-5	Three/Four	Adventure books, £7.99	"Several" Hundred"	Help for latest game on premium rate number (0891) 660660. Older games help on (0734) 304004 (automated service at normal rates. For other help and installation enquiries, call main number.
Sony Electronic Publishing Helpline: (071) 911 8700	Yes	Both	Normal	Office hours	0	No	Varies	Formed in November, now actively developing support. Call on main number or help and (071) 911 8667 for answerphone
Team 17 Helpline: (0924)201846	Yes	Both	Normal	10-4	Two	No	25-30	
Time Warner. Interactive Helpline: (0604) 790785	Yes	Both	Normal	Office hours	Unknown	N/A	N/A	Recently formed alliance of Atari Games, Tengen and Time Warner. Currently moving to new premises. New phone numbers and help back-up to be announced soon.
Ubi Soft Helpline: (081) 343 9055	Yes	Both	Normal	9-12.30 and 1.30-5	One	For some games	Varies	Contact on main number.
US Gold Helpline: (021) 326 6418	Yes	Mainly phone	Normal/Premium	11.30-1 and 2-5.30	Seven	Books, £7.99-£12.99	av 250	Runs a series of 15 Premium numbers for individual games. Numbers supplied with game.
Virgin Interactive Entertainment Helplines (081) 964 9361 and 081 964 8242	Yes	Both	Normal	10-1 and 2-5	Two	Hint Books, £5 Free hint sheets	Varies	Plans for automated help lines
Zeppelin Games Helpline: (091) 3857755	Yes	Both	Normal	9.30-5.15	Three	Free hints/solutions for all games	20	Postal enquiries dealt with in 24 hours.



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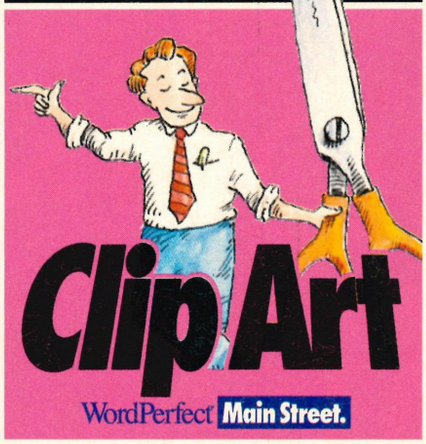
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COMPETITION

The Gravis Ultrasound is a highly advanced, yet affordable, sound card — one of the best you can buy for your PC. Now Gravis has taken its Ultrasound technology and enhanced, improved and upgraded it, with the Ultrasound Max. And we've got five to give away in this incredible competition!

Just look at what you'll get if you win: the 32 voice wavetable synthesis Ultrasound Max!

Its 16 stereo digital channels enable 32 voices to play at one time, in 16-bit, 48KHz stereo playback and recording, it incorporates a Professional Voice Crystal expansible 192 general MIDI instrument set, and it has all the right connections to fit into your PC set-up.

The Ultrasound Max has a CD-ROM interface for single or double speed Mitsumi drives, Sony CDU-31A or CDU-33A, or Panasonic 523, 562, and 563 drives, it has a speed compensating game port which eliminates joystick 'drift' in systems up to 100MHz, a built-in watts per channel stereo amplifier, and supports Windows 3.1, Sound Blaster, general MIDI, MT-32 and the Microsoft Sound System.

The Ultrasound Max package comes with a host of software to help you get the most from your card — with copies of Epic Pinball and the latest shareware version of Doom to boot.

For more details about the Ultrasound Max, contact Zye Technology on (0293) 538666.

Competition Rules

- Employees of EMAP Images, Advanced Gravis, 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 non-negotiably final. You have been warned.

Remember, if you want to enter more than one competition in each edition of PC Review, you can save money on stamps by putting your entries in one single envelope. Please mark clearly on the front of the envelope which competitions you enter.

Take Me To The Max

Name .....

Address .....

.....

.....

.....

Answers

1 .....

2 .....

3 .....

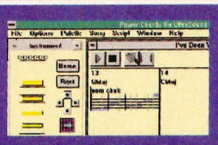
❑ Tick this box if you do not wish to receive further information from companies associated with this competition

Closing date July 15, 1994

PC Review Issue 33 July 1994

Ultrasound Max

- 32 voice wavetable synthesis
- 16-bit, 48KHz stereo playback and recording
- 3D holographic sound
- 16 stereo digital channels
- Expansible 192 general MIDI instrument set
- DDSP-dedicated digital sound processor
- CD-ROM interface
- Game port
- Built-in stereo amplifier





Each Ultrasound Max prize pack also includes:
Mega-Em (Sound Canvas, MT-32 and Sound Blaster emulator)
Patch Maker Lite (modify and create MIDI instruments in Windows)
Modus (Windows MOD player)
MIDIsoft Recording Session (Windows music composition, recording and sequencing program)
Power Chords (guitar-based music sequencer and drum machine)
Patch Manager (easy loading and auditioning for patches)
Playfile and PlayMIDI (digital audio and MIDI file playback)
Winsoft Sound Station (multimedia stereo control system)
Wavelite (Windows-based .WAV file editing program)
Ultrasound Studio (DOS-based recording studio)
3D Demo (showcasing that 3D holographic sound)

Plus Epic Pinball
Doom (shareware version)

How to enter

If you want to be in with a chance of winning all this kit for free, all you have to do is answer the following three questions correctly:

1. MIDI stands for
a) Multimedia International Dynamic Interchange?
b) Multi-user Integrated Data Instructions?
c) Musical Instrument Digital Interface?

2. Wavetable synthesis means
a) Using sound created from samples of actual music instruments or sound sources?
b) Sounds are mixed from a matrix of digital emulations known as the 'wave table'?
c) Different sounds can be blended into each other using an interleaving technique similar in principle to overlapping waves?

3. 3D holographic sound is
a) Sounds sampled from the original from a laser reader.
b) A technique proprietary to Gravis in which the sound appears to be projected all around you, and above and below as well.
c) The ability to mix sound and pictures in a single application.

When you think you know the answers, mark them on the coupon opposite. Then complete the form, send it (or a photocopy if you don't want to spoil your copy of the magazine) to:

Take me to the Max!
PC Review
EMAP Images
30-32 Farringdon Lane
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Your entry must reach us by July 15th, 1994. This is the closing date and any entries which arrive after that will not be included in the prize draw.

Please note: The Ultrasound Max requires a 386 or 486-based PC running DOS 5.0 or later.

PC REVIEW.....

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DIGITAL IMAGE DESIGN

Talking to your PC

Inputting data into a PC via the keyboard has always been a bit of a chore — especially for terrible typists. But with the new IBM Personal Dictation System, all this could change. Via voice recognition, you will be able to talk to your PC which will then respond to your spoken commands. Steve Boxer reports.

FEATURES

A poll of everybody who has ever used a PC — and particularly, anybody who regularly plays games on a PC — would undoubtedly reveal one universal item of hatred and disdain: the keyboard. Keyboards are cumbersome, awkward and inefficient: apparently, the QWERTY layout was originally designed to slow typing down, because early typewriters were so clunky that they found it difficult to keep up with quick typists.

The computer industry knows this only too well, and for years, the search to supersede the keyboard with a new input device has had it scratching its head. At one point, the pen was the likeliest contender, but then pen-based machines started shipping, and instantly proved that they were never going to become practical — even now, years after the first pen machine was shipped, none can deal with joined-up handwriting, and none can even offer decent recognition accuracy without laborious, discretely entered input.

But there is an effective solution to the input problem, which has been hovering around for years without hitting the mainstream: voice recognition. A number of companies have been working on this for years, but have only really succeeded in coming up with what are, effectively, technology demonstrations: expensive, user-unfriendly systems, often requiring high-end, proprietary hardware, designed for specialist uses. This, however, is no longer the case. Creaky computer giant IBM, of all people, has scored a major coup by coming up with the first practical and affordable voice recognition system. It's called the IBM Personal Dictation System (IPDS), consists of software, an ISA or MCA adapter card and a microphone. It works over IBM's OS/2 2.1 operating system and costs £815.

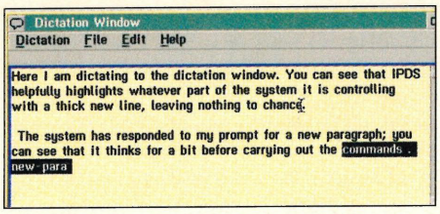


Is this the beginning of voice recognition for the masses?

So, does it work? And if so, how come no-one else has been able to come up with such a system? And when will it get any cheaper? We spent a few weeks living with IPDS, and concluded that it definitely heralds a breakthrough in voice recognition — if you like, it marks the arrival of voice recognition as a mainstream technology. But if the pros dominate, remember that it's still early days for voice recognition, so there are bound to be cons, too at a later date.

IPDS: for and against

IPDS' main current drawback is that it only operates under OS/2 2.1, which, for very good reasons, is not an operating system favoured by games players. Although OS/2 2.1 actually has very good support for DOS and Windows applications, and you can buy a version of it specifically designed for installation on top of an existing DOS/Windows setup, it's difficult to install and configure, properly and does rather confusing things to the Config.sys and Autoexec.bat files. As a result, you'll find it very difficult to get all your games to run properly under OS/2 2.1. There is a ray of hope, however; IBM says that it is "considering" writing a Windows version of



Dictation in action. Note how the machine, although it has recognised the new-para macro, is waiting for a few further words so that it can put this into context, just to make sure that it has recognised the word correctly.

IPDS, and that if it decides to go ahead, it will ship before the end of this year. The company would be bonkers not to do this, as IPDS for Windows would be a huge hit.

As regards hardware, IBM has committed itself to making a PCMCIA version of the adapter card. This will also go a long way towards popularising the product, particularly in conjunction with a Windows version of the software. Another problem is that PC Review readers no doubt have much higher priorities for spending £815 than on a voice recognition system. IPDS will undoubtedly get cheaper as it gets older, but I'm expecting a rash of rival products as companies realise that voice recognition has at last become accessible and affordable to the masses.

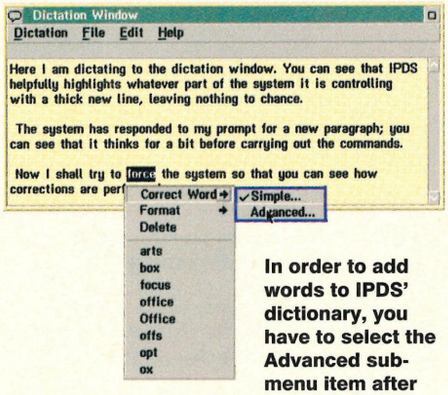
The technology

The software element of IPDS is a pretty heavyweight package that makes major system demands, requiring a whacking 16Mb of memory (half of which is due to OS/2) and a large chunk of hard disk space. It comes on 15 disks. Before you can install these, you need to install the adapter card and run typical OS/2-style diagnostic tests by putting a floppy disk in your machine and booting it up. The installation program is a breeze, although it does take about half an hour.

Once installed, however, you have to go through a number of further lengthy processes before the system gets up and running. This will be a feature of all voice recognition packages: IPDS is voice-specific; that is, it has to be trained to recognise your voice, and it won't recognise anyone else's voice accurately if it's expecting you to speak to it. That said, each IPDS machine can be trained for as many different users as you want; each user gets their own IPDS icon on the OS/2 2.1 desktop.

IPDS works in a unique way, which is the reason behind its low pricing and general accessibility. At the heart of the adaptor card is a custom ASIC (Application-Specific Integrated Circuit) chip, made by IBM. This is basically a processor-type chip which has been designed to run specifically with just one program, and its main task is to perform a large amount of statistical analyses very, very quickly.

The reason for this is that IPDS makes no attempt to understand the rules that govern language. Instead, IBM analysed a large amount of printed material (particularly national newspapers in the US) and found that it could define statistical relationships between words. The way this works is that if the system is unsure about a word you have inputted (it may, for example, think you have said one of three possible words), it searches its database, looks at the surrounding words and decides, after running statistical algorithms on the possible words, which is most likely to be correct. This may sound a bit haphazard, but it's actually all that's required to achieve accurate voice recognition. And IPDS' voice recognition is very sophisticated: it can, for example, distinguish between there, their and they're, thanks to the statistical operations it runs.



In order to add words to IPDS' dictionary, you have to select the Advanced sub-menu item after selecting Correct Word, bringing up this dialogue box.

Enrolment

The process of training IPDS to recognise your voice is called enrolment. When you go through the enrolment process, you start to realise just how well designed the IPDS package is, which further suggests to us that similar packages will appear soon from other companies (particularly if IBM drags its heels over releasing a Windows version). The enrolment process involves first registering your name and so on, and then reading in a set text to the system. Before you start reading the set sentences, the program takes you through a brief but comprehensive mini-tutorial which teaches you some of the techniques required to achieve accurate voice recognition.

The main technique you have to learn is to separate your words. You'll probably never have noticed before, but in conversation, everyone runs words together. To use IPDS, you have to learn to enunciate each word separately, and by the time you've finished the enrolment process, not only is this second nature, but you're also aware of just how short a gap you can leave between words and, therefore, just how quickly you can speak without IPDS mis-recognising too many words. Speaking discretely is not too much of an imposition; you can still get the machine to recognise up to 70 or 80 words per minute. It didn't take me long to reach the state in which I could input faster via IPDS than by typing. It is a bit embarrassing talking to a PC as though you are a robot, though.

The enrolment process is tedious. The US code requires you to speak 257 sentences, some of which are very long (the first part of the text is a description of the IPDS technology, and the second part is a Mark Twain short story), and the UK code has well over 100 sentences. The process takes between one and a half and two hours, as, although you can opt to leave mis-recognised words (which the system highlights in red) alone, it's a good idea to go back and correct them, in order to train the system as accurately as possible.

IPDS in action

When you've hacked your way through the enrolment processing, IPDS is still not quite ready to start taking your letters and memos. First, it has to process all the information you've given it, which involves major thrashing of the hard disk. I tested it on two serious machines: a 486DX2-50 Elonex and a Compaq ProLinea MT DX2-66, both with 16Mb of RAM and cavernous hard disks. Both machines are very swift and absolutely rock-solid, but the information processing stage still tied them up for over two hours. Luckily, this is a process which only has to be performed once.

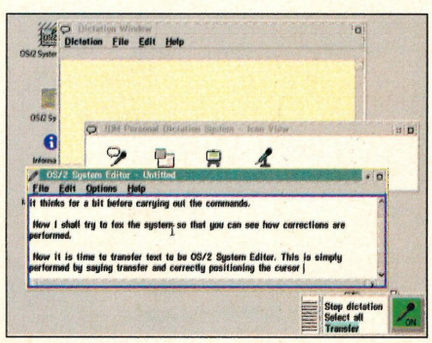
When IPDS has finished this, however, you're in business. When you launch IPDS by double-clicking on a speech-bubble icon with your name below it, a number of things appear on your desktop. First, there's the Dictation Window, a blank window with a menu which displays dictated text, and is where all the voice recognition action takes place. At the bottom right-hand corner of the screen, three new elements appear: a button which enables you to turn the dictation microphone on and off, a status window used by IPDS to show whether it has recognised any voice-acti-

VOICE RECOGNITION AND THE FUTURE

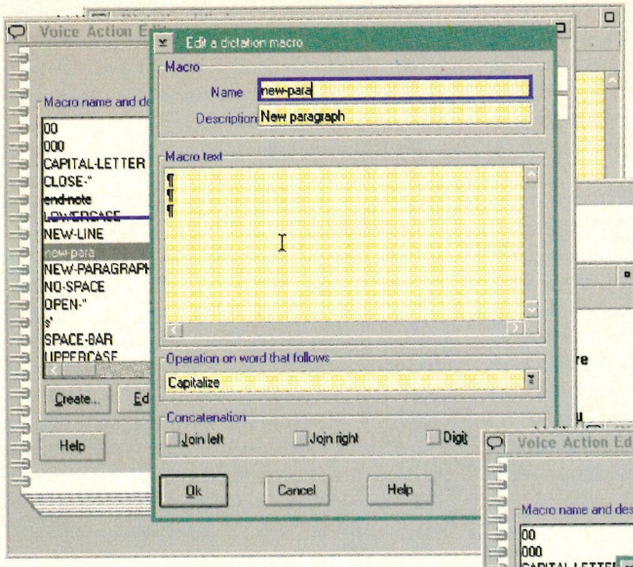
Although IPDS is clearly not the product that the vast majority of PC Review readers are waiting for, it is an extremely important package. It demonstrates to the world of software developers that voice recognition can be both workable (by the end of my week-long stint with the package, its accuracy levels were astonishingly high) and affordable. It's a big shame that it's an OS/2 application, as I really can't recommend that you switch to OS/2, even though it's an operating system that has its plus points.

As far as the competition goes, AVT, in particular, has shifted a fair few copies of its Voice Server application offering system-level control for Windows. IPDS is a hundred times more sophisticated than Voice Server, but it throws down a gauntlet which AVT and, no doubt others, will hopefully pick up in the very near future.

This is good news for everyone, as voice control over your PC is an absolutely wonderful thing to have. As soon as you get IPDS up and running, you start wondering why you put up with keyboards for such a long time, and you start hatching visions of tiny portables with microphones for input. At this moment, you should stop thinking of voice recognition as a wacky technology and start thinking of it as your next input medium.



A chunk of dictated text, after transfer to an application — in this case OS/2 System Editor. Note the list of voice commands given to the system at the bottom right hand corner of the screen.



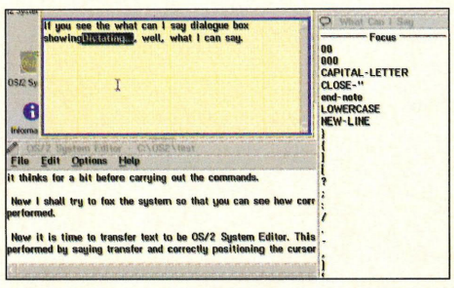
Editing a dictation macro in the Voice Action Editor: a simple process that doesn't require you to learn a macro language.

vated system commands you might want to perform, and a meter showing input volume.

If, at this point, you turn the microphone on and speak the words "What can I say?" into it, another window will open up showing the system-level commands available (obviously, these change according to the task you are doing, whether you're dictating, navigating the desktop or running another application). Say "Start dictation" and the system highlights the dictation window, giving you a "Dictating..." message.

And you're off — or just about. At this point, the training isn't completely over; the first hour or so spent dictating to IPDS is likely to throw up quite a few errors. You learn that the system has to be used in a disciplined manner. The best dictation technique, as explained in the exemplary manual, is to dictate in chunks, without watching the screen (things can get worrying, as IPDS doesn't make up its mind about a high proportion of words until it detects a finished sentence) and then to make any necessary corrections.

Correcting text before you place it in a word processor or whatever, is a pivotal discipline. This is because IPDS goes back to its database when you make corrections, so it carries on learning as you dictate. Making corrections is easy: you just click on a misrecognised word with right mouse button and a menu appears, with a list of words which IPDS thought you might have said (usually, the word you meant is on this list) and a Correct Word option. If you highlight this, you then get a choice of simple or advanced correction. If you think that the word you spoke isn't in IPDS' vocabulary, you should choose the advanced option, as this adds it to the vocabulary. Obviously though, making corrections requires recourse to the keyboard.



Controlling OS/2 System Editor by voice — much quicker, more satisfying and desk-space–friendly than fishing around with a mouse. This aspect of IPDS renders you less prone to forget important tasks such as saving files regularly.

Working with applications

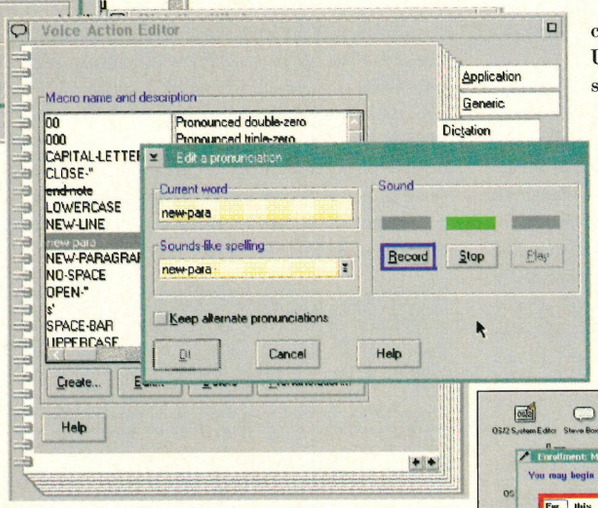
IPDS is not designed to work on its own — it's no good dictating text if you can't then put it into your chosen application. This is simply achieved: when you've dictated your chunk of text, say "Stop dictating", make your corrections, say "Select All" to select the text and "Transfer" to tell the system that you want to cut and paste it into an application. At this point, you begin to appreciate IPDS' system-level control. Fiddling with the mouse isn't quite eliminated, as you have to move the cursor to the point in your application at which you want to insert the text, but the process is very quick and painless.

You can then save the updated document in your word processor (or whatever the text is going into) and return to the dictation window. At the moment, IPDS offers full control over very few applications, but it does offer full control over the OS/2 2.1 desktop. That is, you can do anything with IPDS that you can do with a mouse on the desktop. Using the OS/2 System Editor, saving documents is a simple matter of saying "File Save", but it would be nice if you could do this with every application, or, say, run a spellcheck in your word processor with one voice command and verbal confirmation of corrections.

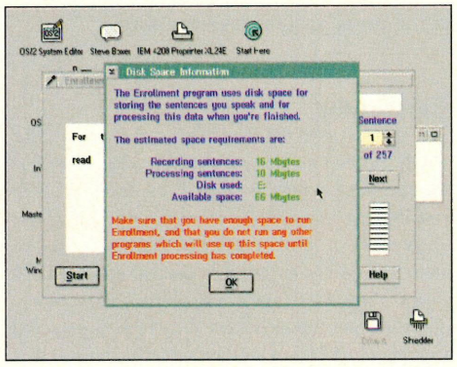
It is possible to add a measure of application control via IPDS' macro language, which is very impressive and, unusually for a macro language, doesn't require any sort of programming ability. You can also record dictation macros, which can, say, add a standard phrase or chunk of text after recognising just one word.

This is when the system really starts coming into its own — as a time-saver. Undoubtedly, too, more comprehensive voice command support for applications is bound to appear eventually as IPDS matures.

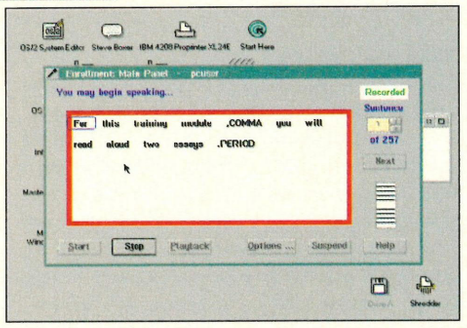
Again, IBM could undoubtedly achieve this quicker by switching its attention away from OS/2 2.1 and towards Windows, although the appaling lack of native OS/2 applications would make it easier for IBM to claim that IPDS could control *all* native applications.



Recording a pronunciation for a macro is a simple affair; the voice sample you record does not necessarily have to sound like the text, although you have to make sure that you remember it, and that it doesn't sound like any words that you use regularly.



Beginning the lengthy enrolment process: IPDS, commendably, is very candid about disk space requirements at this stage, and will happily let you drop back to OS/2 to free up some more disk space if required.



The enrolment process starts. It's rather like learning to read as a kid; this is a typical sentence length, and you have to work through 256 more before enrolment is complete.

VERDICT

Product:	**IBM Personal Dictation System**
Description:	**Voice recognition hardware/software system for OS/2 2.1**
Price:	**£830**
Support:	**TBA**
Networkability:	**Standalone**
Contact:	**IBM**
Tel:	**(0256) 56144**
Available:	**via dealers**

Points for: It actually works and is extremely affordable. In fact, it works superbly, is easy to use, and once you've used it, you won't want to return to the Dark Age of keyboards.

Points against: Requires OS/2; high system demands (notably 16Mb system memory); may take some integrating into your computing set-up.

Alternatively: AVT voice Server for Windows (which is cumbersome in comparison).

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Orc



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For 1 or 2 players, DARK LEGIONS boasts modem play. Sophisticated artificial intelligence. Pre-set scenarios with variable difficulty settings. And a wide range of set-up choices to make every game different and playing time limitless!

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Wraith



Wizard



Conjurer

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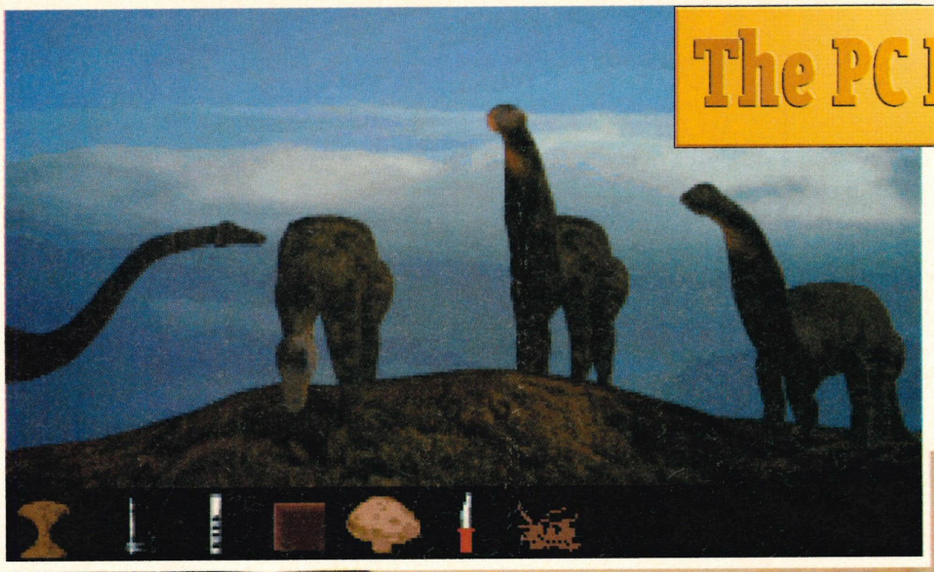
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The PC Review profile



Left and below right: These stunning graphics come from Lost Eden – developed by Cryo, but due to be released through Virgin in November.

Below: Jean-Martial LeFranc is one of Cryo's three directors, and represents the public face of the company.

Cryo

Cryo is a young company which has recently started to make a name for itself in the computer games industry. Cal Jones talks to company director Jean-Martial LeFranc to find out just what Cryo has in store for us in coming months.

CRYO

Based in the Chinese quarter of Paris, Cryo employs around 70 people in its rooftop offices (shown below) consisting mainly of artists and programmers. The company was founded in 1992 by Remi Herbulot, Cryo's technical guru, and Philippe Ulrich, who co-ordinates the graphics artists and is also responsible for Des Images, a spin-off company which produces films and television programmes. The third director and public face of the company is Jean-Martial LeFranc, who handles public relations.

Cryo doesn't always use the same publisher for its games. "We'll take a game to various different companies, and the first to make an offer gets to publish it," says LeFranc. In the UK, Cryo games have been published either through Mindscape or Virgin.



Founded just two years ago, Cryo has made a relatively quiet entrance into the PC games field. With only a few titles in its back catalogue, you couldn't accuse Cryo of being prolific, but what it may lack in quantity, it more than makes up for with quality. KGB (recently released on CD-ROM as Conspiracy), the acclaimed and visually spectacular Dune and, most recently, MegaRace (number one in the CD charts), have all been reasonably successful. And with games like Dragon Lore and Lost Eden due to be released this year, the future's looking very bright indeed.

Cryo develops for a number of different machines, including the PC , or, more specifically, PC CD-ROM. The storage capacity of a CD means that there's plenty of room for making a game look good (something that Cryo does very well, it has to be said), because graphics can take up a huge amount of disk space. And graphics are very important to Cryo, it seems.

"We decide how we want a game to look and then we design the game-engine to fit those requirements," says Cryo director Jean-Martial LeFranc. "Games are planned up to two years in advance because the graphics alone can take that long to develop." Indeed, the graphics for Dragon Lore have taken four artists more than a year to complete, so it's not surprising to learn that roughly 70 per cent of any team assigned to a game's development will usually be involved with the visuals.

But how, then, does Cryo know what sort of graphics will be around in two years' time? "It's easy to figure out what technology will be widely available when the game is released," explains Jean-Martial. "At the moment we're looking at real-time 3D mapping, full motion video, particularly M-PEG, video compositing, 3D graphics and digitising." Phew! That's enough jargon to send any technophobe running for cover in abject terror. In basic terms, though, it means that Cryo games are going to keep on looking good for some time.

But then there's the small matter of gameplay. When it comes to CD, more than a few development companies have been criticised for concentrating on graphics and sound instead of trying to make their games original and enjoyable. How is Cryo going to avoid falling into that trap?

"We try to balance presentation with gameplay. People who are interested in CD expect more of their games. They want something which is easy to master, not something which is over-complicated. We aim to give our games instant entertainment value, which means making them both attractive and also immediately simple to grasp."

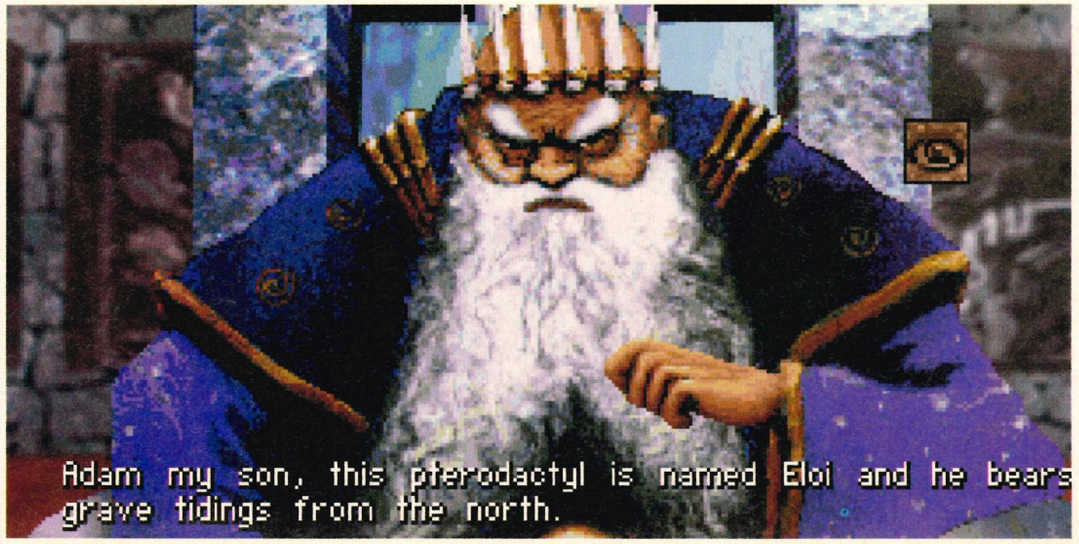
Well, MegaRace certainly fits these criteria — it looks impressive and you don't have to wade through an enormous manual before you can play it — but it's hardly original, is it?

"We don't try to be original," says Jean-Martial, somewhat surprisingly. "We're trying to attract Americans to our games and they hate it if you do anything too different."

That's a pretty damning thing to say, but when you look at the success of all those Sierra sequels you start to realise that he may actually have a point when he says it.

But if Cryo games aren't particularly original in concept, they still seem to have a quirky style all of their own. Where does Cryo get its influences?

"I look at toys, films and comics." And judging by the large box of Dark Horse comics in Jean-Martial's office, I don't doubt him. "We also play a lot of games here — network Syndicate and Doom are popular in the office. We like Origin and LucasArts too — they're very big here." And who knows? Perhaps Cryo may, one day, be as big in America as LucasArts and Origin are in Europe. That would be something.



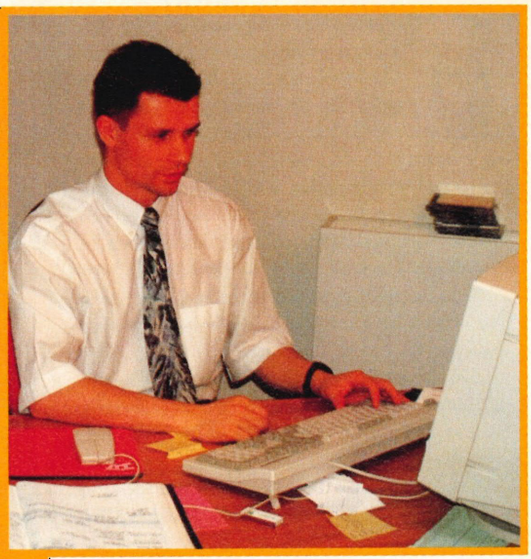
REVENGE

Cryo is working on several projects at the moment, including Scavenger (working title), a space game due to be released by Virgin later this year, and Commander Blood, the sequel to that old favourite, Captain Blood. Perhaps the most exciting, though, is a game called Revenge which Mindscape is hoping to release in March 1995.

Revenge is set in the year 2024, 20 years after aliens have landed on Earth with seemingly peaceful intentions. The scenario bears a striking resemblance to the old television series, 'V' — the aliens are actually far from friendly, and are now showing their true colours. You have joined a resistance group called (funnily enough) Revenge, and your aim is to rid the earth of the alien fiends. The game will be part adventure, part space combat, and is set half on Earth and half in space. The first mission takes place in San Francisco, and sees you hurtling along (or just above) the hilly streets as you pursue the enemy in a Rebel Assault style chase. You'll have more freedom of movement than in the LucasArts classic, but the action promises to be every bit as exciting.

Like most of the other Cryo games, the graphics for Revenge were created using 3D Studio for a semi-realistic effect. In the space sections the view screen is very large — there's no control panel to obscure your view because you'll have a head-up display. The sprites have been rendered in 360 degrees to avoid a flicking effect as you circle around them, and at this stage of development the game is approximately three times as fast as Origin's Privateer.

Although there's a long way to go before Revenge is complete, it's already looking hot stuff. You'll be able to follow its progress in a series of special reports which will appear in future issues of PC Review. Watch this space...



Above: Emmanuel Forsans is the project manager for Revenge, and will be overseeing the work of both the artists and program-



Left: Jean-Luc Sala is one of Cryo's top artists. He has worked on the box artwork for both Dragon Lore and Revenge.



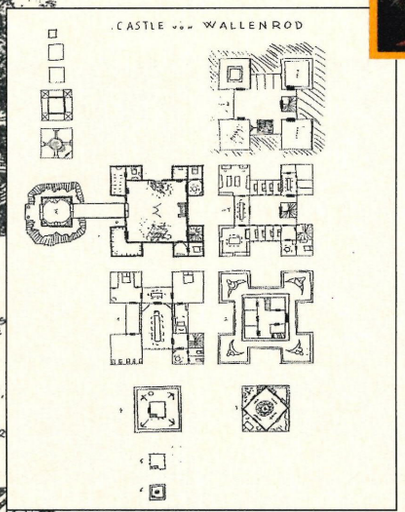
Above: Revenge is certain to get the adrenaline pumping. This picture comes from one of the urban sections, and shows you hot on the enemy's heels.



Right: This early montage is an example of what you might hope to see in the introduction sequence.



Above: The influence of Olivier Ledroit's comic artwork is seen clearly in this conceptual sketch.



Above: Castle Von Wallenrod — the ancestral home of the central character — as mapped by the Cryo team.



Above: Detailed preliminary drawings such as this Dragon above are the reason why many of Cryo's games are so graphically impressive.



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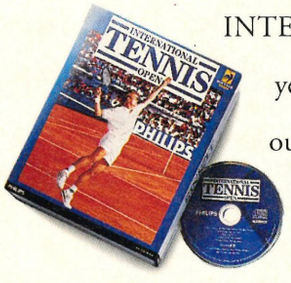
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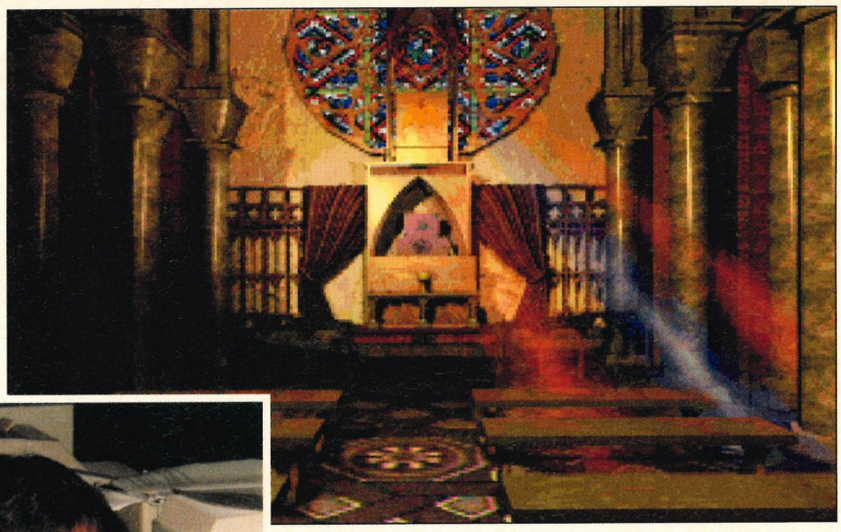
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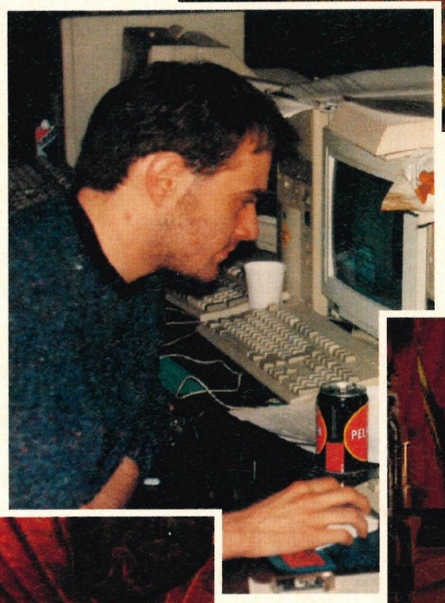
DRAGON LORE

Originally titled Dragon Tales, we first previewed this stunningly attractive adventure in our May issue. The game is too big to fit on one CD, so the first instalment will be released in July with the second part to come later on this year.

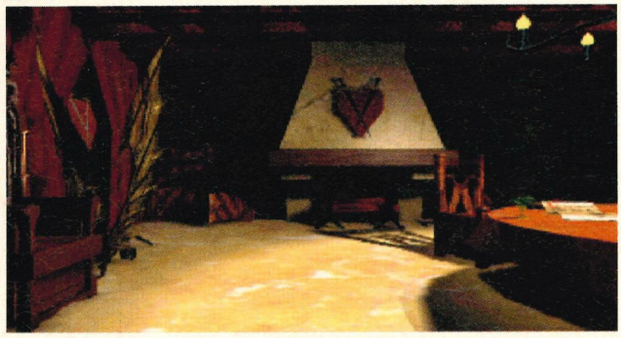
The story is based around a traditional fantasy scenario which features dragons, knights and vengeance, and was concocted by Francois Marcella-Froideval and Olivier Ledroit. Francois, a former journalist, worked as deputy to Gary Gygax, the creator of Dungeons and Dragons and chairman of fantasy game specialist TSR. He joined Infogrames in 1986 where he designed the scenario for Drakkhen, and also began a career as a script-writer for comic books. Olivier, one of France's top comic artists, teamed up with Francois to work on a number of best selling comics. The team has recently been signed up with Dargaud, the number one comic publisher in France.

Dragon Lore is visually lavish, and has taken four artists over a year to produce. The game, which features full screen graphics, was created using the graphics package 3D Studio. There are around 8,000 locations, plus 150 linking animations and sections where the central character grows, shrinks and even flies.





The Cryo staff are split into different teams, each of which is assigned to a different project. Dragon Lore is the first game by this particular team, which consists of one programmer, Fabrice Bernard (left) and four artists.







THE CRYO SOFTOGRAPHY

Dune
Virgin
1992
Based on David Lynch's film adaption of Frank Herbert's classic novel, this original computer version of Dune was an adventure which looks stunning even by today's lofty standards.

KGB/Conspiracy
Virgin
1992
KGB is a political adventure set in a pre-Glasnost Soviet Union, now available on CD as Conspiracy with an introduction by actor Donald Sutherland.

MegaRace
Mindscape,
March 1994
Futuristic arcade driving game. Compete on a virtual racetrack and try to destroy the opposition.

FORTHCOMING

Dragon Lore
Mindscape
July 1994
A 3D fantasy adventure in two parts, with the second instalment to follow at the end of the year. See seperate panel above for more information

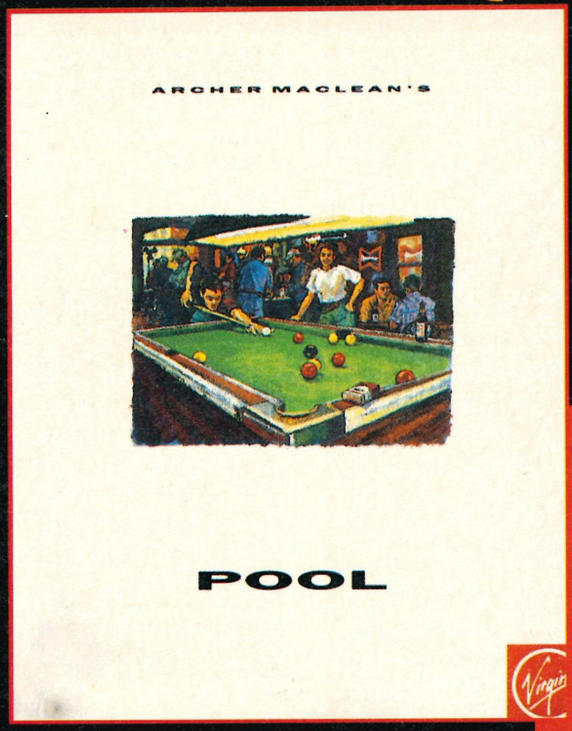
Lost Eden
Virgin
November 1994
A role-playing game/adventure featuring huge dinosaurs and primitive tribes.

Scavenger
Virgin
Christmas 1994
The title of this space game has yet to be confirmed — Psygnosis is working on a game called Scavenger 4, so the name of Cryo's game is likely to be changed to avoid confusion. Both games of course, will be very different from one another.

Commander Blood
Publisher TBA
Christmas 1994
Top secret and very exclusive, this is the long awaited sequel to Infogrames' cult classic Captain Blood. It hasn't been signed to a publisher just yet, but is bound to be snapped up very soon.

Revenge
Mindscape
March 1995
A fast-paced mix of space combat and adventure. See previous page for more information.

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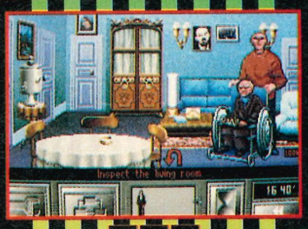
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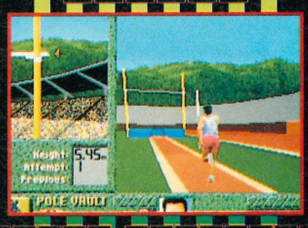
KGB



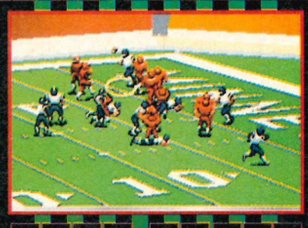
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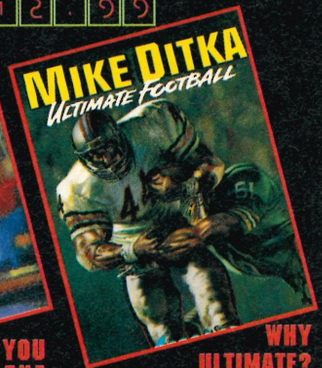
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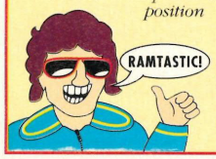
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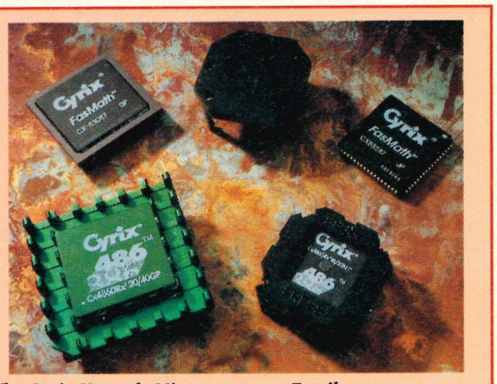
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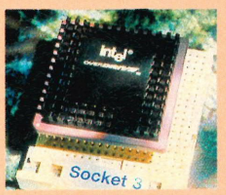
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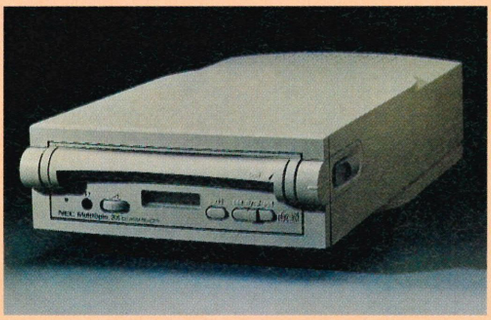
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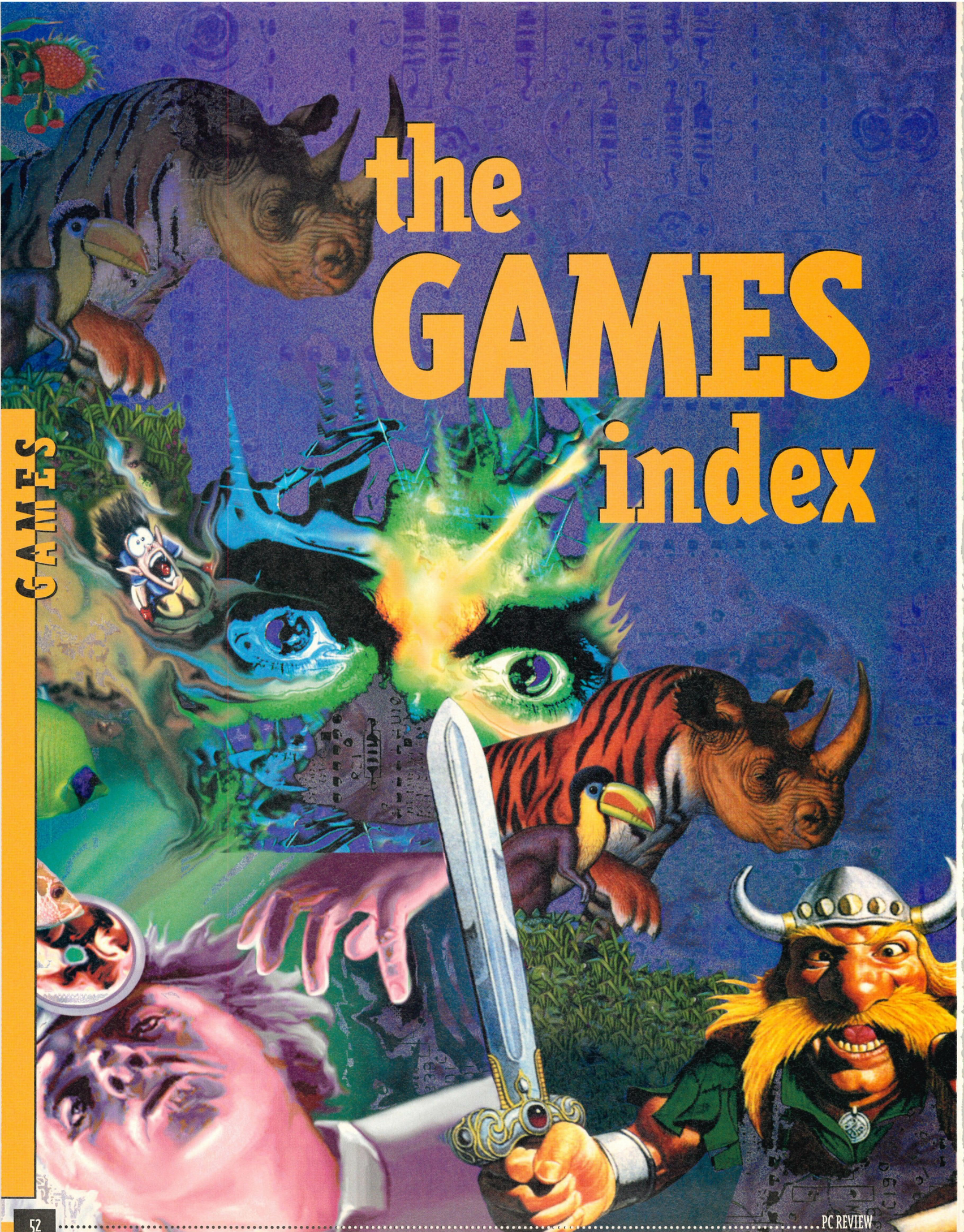
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the GAMES index



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 10 to rate games. We chose 10 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 pro grammed, very disappointing.
- 3-4 A game with some good ideas but seri ous drawbacks: poor controls, poor ani mation, maybe just plain tedious.
- 5 A solidly average game. Competent with out 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 game play, innovation, graphics or sound to be worth an eight.
- 9 Outstanding as an all-rounder. Few, if any, failings, in graphics, sound, atmo–sphere, playability, ease of use, etc.
- 10 Sheer perfection.

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Pacific Strike v











Intro screen extravaganza: from the top, lining up on the deck in Pacific Strike, and below that, the mean and moody Pacific Air War.

Pacific Strike and 1942: Pacific Air War, so alike but, oh, so different. And when two new heavyweights enter the same ring, someone's got to come out with a bloody nose.

Pacific Strike

Pacific Strike is the WW2 follow-up to Strike Commander. It uses much the same technology and comes with the same characteristic Origin hallmarks: heavy on the graphics, not so heavy on the realism, and laced with an interactive storyline.

On paper it should make a first rate flight sim (sorry, flight 'game' is probably a better description). WW2 is a very playable era in terms of the machinery and the style of combat, and the gameplay in Pacific Strike is tailored to make the most of that: the trademark Origin talkie bits (deliberately OTT in a gung ho, comic book "God Bless America" kind of way) are there to drag you into the story and channel your progress — because the the structure of the game changes continually, bringing in new responsibilities and challenges.

So, having started on a single mission where you get in a plane, do what you're told to and shoot who you're told to, you then move the USS Enterprise for more varied assignments. There you get to meet more people, fly more missions, get promoted (so you can chose your own plane), then chase for another promotion. Get that one and although you're still taking orders from above, it's now up to you to plan each mission carefully before taking part.

Why? Because your success or failure in the air directly affects the ongoing campaign. Fail to sink a ship when you're supposed to (or do what I did and try to take out one of your own 'just to see what happens') and you're going to upset the balance in a big way — you can't afford too many screw-ups.

So yes, it's nice to see a flight sim with a developing structure rather than the usual staid 'here's your choice of missions, now get on with it' approach to flight sims.

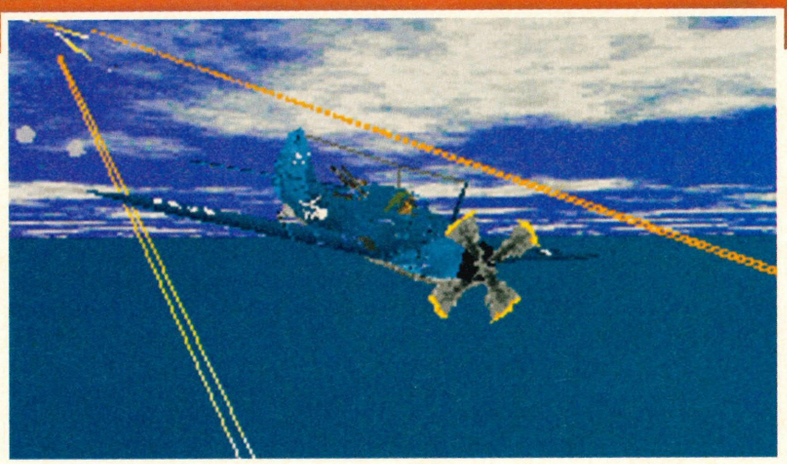
When you finally get round to the flying bits, you get all the expected trappings of a modern flight sim — starting with plenty of realistically modelled planes to jump into. Rendered, of course, in ridiculously detailed, Gouraud-shaded, texture-mapped 3D, plus the obligatory external views, a virtual cockpit, weapons and victim views, tail gunners and some staggeringly nice detail touches — like wing fragments blasted from planes, deck guns and torpedo wakes.

Time to bail out

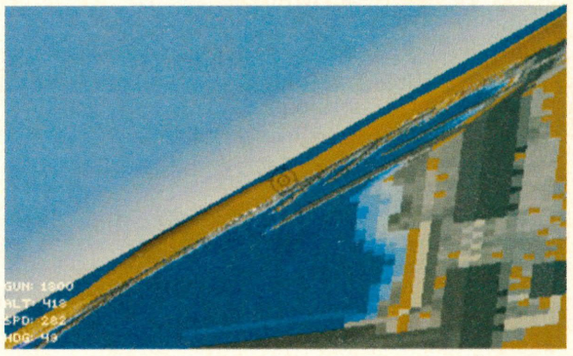
Unfortunately, that's where Pacific Strike starts to come apart at the seams.

It's ugly. The planes — texture mapped for all they're worth — are ugly, the gunfire and flak effects are ugly, the land is ugly, and the sky is a lurid nightmare.

s Pacific Air War







The diagnosis? A severe, no, fatal, case of galloping pixelmania. If it had worked, then fine ... but it doesn't.

Standing still, the objects are superbly detailed, that's true — just take a look at a shot of the ships. But unless you catch them from exactly the right angle when you're on the move they look dirty and indistinct, a mess of pixels fighting for top billing. This makes it very, very difficult to work out what the hell is going on around you.

Which then throws the entire combat out of whack. I still can't decide whether the enemy are difficult to shoot down because the AI is particularly tough, or because you can't tell one blotchy pixel from another against the sky and sea textures. Then add yellow cheese wedges (apparently my gunfire) blanking out half the screen to make things even harder.

Nor does it make life any easier when a ship graphic decides to weave around occasionally, either. One minute it's a two-pixel floating brick, then it vanishes, then it reappears somewhere to the left, vanishes again and then suddenly comes alive in all its texture-mapped glory at the last minute (yes, yes, lovingly detailed — but shouldn't the red bit be below the waterline?). All very off-putting when you're trying to drop a 1,000lb bomb.

It's no better on the ground: we're talking real hair-raising bendy-pixel experiences here. Take a look at the harbour in the screenshot on the right. Honest, that's a harbour ... when what it actually looks like is a grey, green and yellow writhing mess as you fly past. This distortion wasn't so evident in Strike Commander because there you were doing Mach whatsit at 20,000ft. As far as it mattered to you, the ground was only there to keep the sky up. In Pacific Strike the nature of the machinery and the combat means you spend a lot of time toddling along at low altitude with plenty of time to admire the scenery. And it hurts.

Clunk, whirr, thud ...

Things then go from bad to worse. Because it's so heavy on the graphics you need an almighty fast PC to run Pacific Strike anything like you'd want it to. True, we've come to expect that from Origin (denizens of the planet Pentium) but this is getting daft. And while it's also true that you can turn the detail levels down, unfortunately without the fancy graphics to tart it up Pacific Strike looks like a plucked chicken.

What else? Oh yes, the the old problem with Strike Commander, namely in-flight pauses while the game struggles to produce a sound effect for a hit, is back again.

Dogfighting is all about seat of the pants flying, slick moves and fast reactions. You can't do that when your plane is taking a nap ten frames behind you, which is what happens here. The jerky, constantly interrupted flight in Pacific Strike completely spoils all the fun of a good dogfight or a smooth bombing run, and it became a monumental chore just to fight my way through each mission.

On all but 50MHz and 66MHz 486DX PCs I found it unplayable. Even on these machines it wasn't always smooth. To be honest, Pacific Strike is begging for a Pentium to hold its hand. But that's hardly justifiable for a game which, although a technical heavyweight, can hardly claim to be ground-breaking.

Maybe it seems reasonable in the States. PCs are cheaper there. Over here, a Pentium PC is not an average home PC, no matter how much the Intel/Electronic Arts mutual admiration society would like you to believe that it is, and it's not likely to be for quite a while yet. By the time Pentium PCs are genuinely affordable, who the hell would want to play Pacific Strike anyway? It'd be yesterday's game.

Shot down in flames ...

I didn't start out wanting to put the boot in on Pacific Strike. I like flight sims. I prefer WW2 action/combat sims to serious jetfighter simulations, but I liked Strike Commander and still play it regularly (I even got quite hooked on all the interactive movie malarky that went with it). So Pacific Strike should have been my idea of 'flight sim heaven'. It's not.

In its favour, the missions are tough, the game is varied, and the storyline gives it all a distinct, (almost) exciting character.

It's all let down by the implementation. The talkie bits are static, head-on shots and could have been varied for a bit of dramatic effect. They also really need the speech pack (which will costs you another £19) to bring them to life. The air combat might have been good if it wasn't totally stuffed by the speed problems, interruptions, ugly graphics and heavy handed texture-mapping. It didn't take long before I

Top: Pacific Strike goes for thrills 'n' spills action rather than deadly serious flight simming. Middle: Fly past incredibly detailed ships, but don't get to close ... or it's a bizarre bendy pixel experience for you (above).



RIP Pacific Strike, 'talkie' bits and all.

was dreading the thought of flying another mission.

Pacific Strike is one to avoid unless you're a total Origin junkie and have the equipment to get some life out of it. Personally, I can't see myself playing Pacific Strike one minute longer than it takes me to write this review ...

... One last thing: if you are going to shell out on Pacific Strike, wait and see if there's a CD version on the cards with the speech pack and a data disk thrown in. It'll work out cheaper (by miles) and will be a hell of a lot more convenient.

1942: Pacific Air War

On the surface, 1942: Pacific Air War is every inch a mainstream flight sim if you stack it up against the larger than life excesses of game like Pacific Strike. It shares the same territory, of course, but joins the fray a year later in game time.

The easiest comparison to make is with the venerable polygon-based (but extremely playable) Aces Over the Pacific. Think of PAW as a graphically-updated, more sophisticated version of Aces: in single missions or pilot career mode it flies smoothly, has a good difficulty curve to the flight model, and reasonably tough enemy pilots.

You get a variety of planes to fly on either side of the Japanese/American fence and, hardly surprising, they're texture-mapped, shaded and heavily detailed. This time it works, though. The planes are well defined in and out (and to my mind come across 'cleaner' when viewed from different angles than the even more detailed planes in Pacific Strike), the virtual cockpit pans smoothly, and the overall effect is pleasing on the eye.

Yes, you do get some wobbly texture problems when you're near the ground, and, to be honest, the landscape between ground targets is as interesting and feature-filled as Milton Keynes on a wet Sunday afternoon. Sure, MicroProse has chickened out of texture-mapping the ships and the land-based targets — but the game is none the worse for that. The ship detail can't compare with that of Pacific Strike but it's still passable, and a hell of a lot easier to cope with when you're flying up close to them.

And, having made such a big deal about it over Pacific Strike, it would be unfair of me not to mention the performance of PAW. Well, it's way beyond 386 territory, but then what isn't these days? It struggles with full detail on a 486/25 which is disappointing, but axing the sky and sea texturing makes it perfectly playable. On a 33MHz 486 and above it zips along with all the options turned on. Very, very smooth indeed.

As a straight flight sim it's a thoroughly playable, well presented little mover. There are some things about the flight controls that I'm not so keen on — like having to use keys to jump in and out of the virtual cockpit, for one thing, the lack of two-way radio communication, and having the various primary, secondary and rocket ordinance buttons dotted at different ends of the keyboard.

None of these make life any simpler when you're in the thick of the action, but it's not exactly a major handicap to life and limb. All in all, a promising first half, with no own goals.

Ingredient 'X'

The single mission/pilot career/mission builder approach has been tried and tested to death. There's nothing wrong with the way it's been done in PAW, in fact it's been done very well. But on it's own it's not enough to make PAW stand out from the crowd.

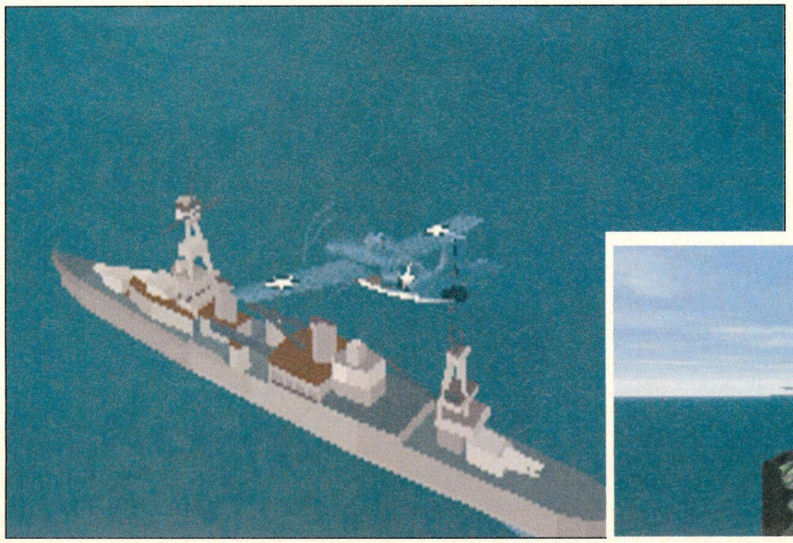
It's the carrier battle option which does just that; the 'magic ingredient X' which transforms PAW from mild-mannered, flight sim into an all round 'big game'.

MicroProse has welded on an improved, stripped-down, version of its naval strategy game Task Force 1942. So, when it comes to fighting the war in the Pacific not only do you get to fly around shooting and bombing seven shades of manure out of enemy ships, planes and land bases, but you also get to command entire task forces and decide which ships, planes and land bases to clobber.

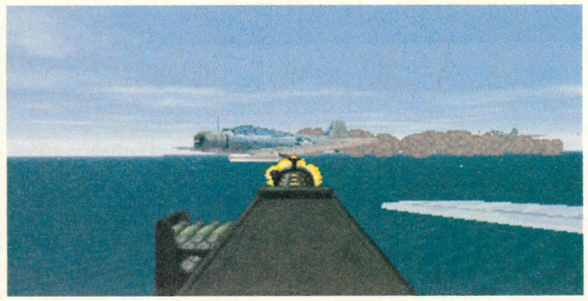
Depending on the scenario you chose, you're given your fleet orders at the outset, and varying degrees of intelligence regarding enemy movements (you can play either American or Japanese forces). From then on it's up to you.

First you organise Combat Air Patrols to protect your own ships and bases from air strikes. Then you need to send out air searches to track enemy fleet. And, you need enough firepower left over to make up a decent attack force. Do something

→



Left: with clean, simple lines, texture mapping where it works, and polygons to fall back on, Pacific Air War an easy game on the eye.

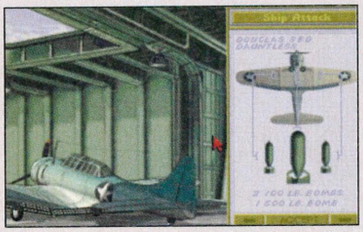


Right: bored of doing the sensible thing in Pacific Air War? Then shoot your own wingmen down with your tailgun ... Great until you want to swap planes and find you haven't got any left.

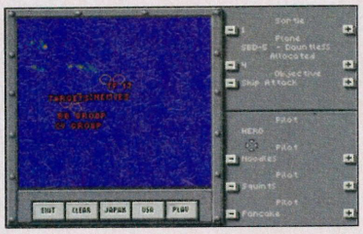
HEAD TO HEAD

1942 PACIFIC AIR WAR — PACIFIC STRIKE

Pacific Strike and Pacific Air War take a very different approach to the same scenarios. Here we take the two through a similar mission — same planes, targets and locations — from take off to 'bombs away'.



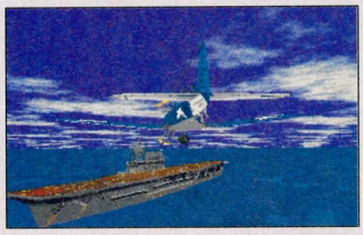
The pre-match warm up. Will it be big bombs, or *really* big bombs?



Fly with Squints, Noodles and Pancake ... Vindaloo anybody?



Kick off at dawn, and get ready for the long flight ahead of you.



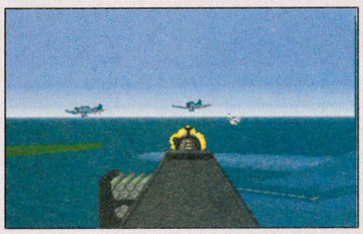
For comparison's sake, I thought I'd fly past a convenient carrier.



Soft, strong and thoroughly good looking. And plenty of detail.



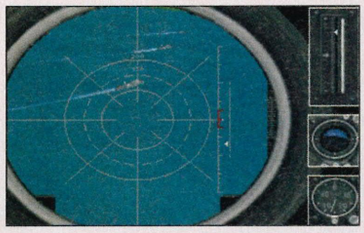
Lurid, loud, and detailed. Now, will you please sit down in the back!



Oi, leave my mate alone! Stick her on auto and pepper Johnny Nip.



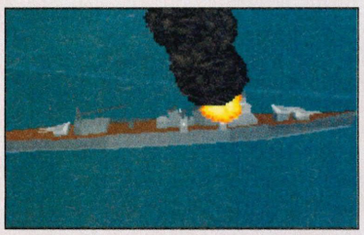
I would shoot them if I could see them ... nice explosions though.



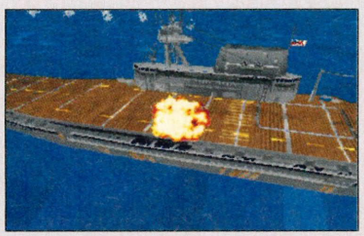
By the way, while I'm doing this aiming bit, who's flying the plane?



No targeting rubbish here, just let her rip and hope you hit the ship.



Gotcha! OK, so it's not the ship I was after, but a hit's still a hit.



Yes, I know it's a US carrier. It's all I managed to hit, though.





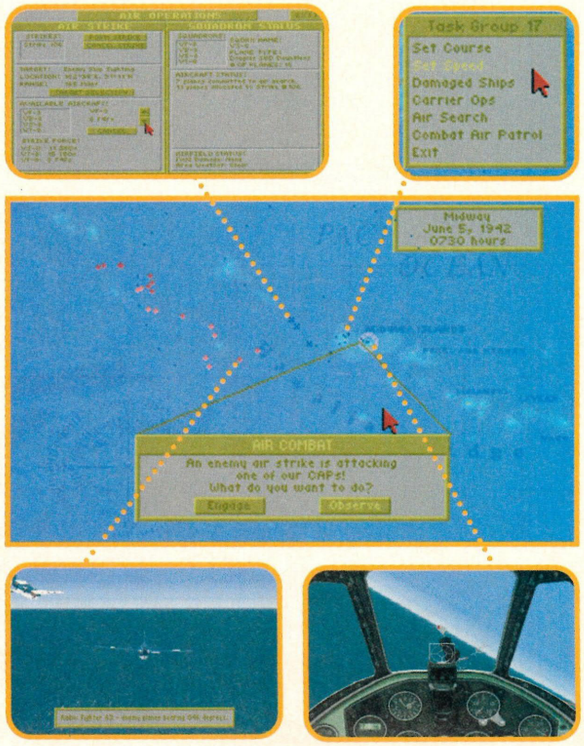
VIRTUAL COCKPITS

What flight sim could get by without a virtual cockpit these days? Top we have PAW's contribution, and on the bottom it's Pacific Strike. PAW is hampered by having to toggle the cockpit on and of with the keyboard, but pans smoothly and returns to a neutral position more quickly. Strike's cockpit is easier to get at, but a bit difficult to see out of.

PAW wins the contest because it's got virtual legs: it may have worked for Douglas Bader, but I never feel comfortable flying without my knees ...

PACIFIC AIR WAR – CARRIER BATTLES

Plan your strikes (top left), direct your task force (top right), then drop in to the action: fighters escorting a dive bomber strike (bottom left), a Combat Air Patrol fighting off a Japanese Zero attack (bottom right).



daft like sticking B17s up as base air defence, and you'll see them fluttering out of the sky like so much confetti. Still, sometimes you don't have much choice — it's a tough game, and the damage reports come in thick and fast.

As soon as your search planes encounter enemy ships or air strikes, the sighting is flagged on the map. It's up to you to second guess their movements, and put together a suitable strike force — get it wrong and the squadron of torpedo bombers you dispatch is likely to return having completely failed to locate a target the size of a small town, or shot up like swiss cheese by an overwhelming air defence.

Get it right (or if you're under attack) and you are given the option to join in the attack or observe the computer generated result.

Of course, you're going to join in. That's when the game kicks you straight back into the cockpit for some serious combat. And I do mean 'serious', because PAW in the air is quite a sombre game, a feeling that is enhanced by the uninspiring soundtrack and startlingly average sound effects. There were times when I almost found myself wishing for some of the 'wham, bam, thank you ma'am' atmosphere of Pacific Strike. If I, with my usual tactical ineptitude, decide to send all 60-odd planes at my disposal to attack a single task force, I expect all hell to break lose. It does, but in a rather restrained way at times.

But wait! Enter the single most useful feature in the game (known to man, even) ... the humble F8 key. What happens when you hit F8? You cycle through all the available aircraft, swapping from fighter to dive bomber to torpedo bomber as the mood takes you. It's a simple option but an absolutely brilliant one (and it even carries over when your plane gets shot down, because the game moves you to the next available aircraft).

Say for example, you're the lead plane in a flight of Devastators trying to dive bomb a carrier. You get to make your attack run again and again simply by swapping to the next plane as it starts its attack run. From a campaign point of view you don't have to rely on the tentative abilities of computer-generated pilot intelligences, you can make sure the job gets done yourself.

"It's the link between the carrier battle strategy and the flight simulation that tips the scales"

Or suppose you've chased a plane all over the sky before finally nailing him, then find yourself miles away from the ships you're supposed to be protecting. Simply stick that one on autopilot, then cycle through the other available planes until you find one that's up to something interesting.

What better way could there be to cut the dull bits out of a flight sim, and keep the action on full throttle?

A thorough flight sim of this quality and this playability would probably rate an eight on its own. There are so many neat touches to the game, from the range of available planes, the way the ships evade attack, the changeable weather and daylight conditions, to the bomb targeting screen. It's even got cruise control ... but it's the link between the carrier battle strategy element and the flight simulation that just tips the scales and makes 1942: Pacific Air War a nine-rated, first class, 'must buy' game.

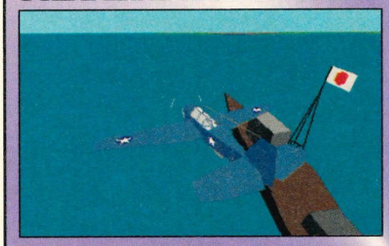
Nose to tail ...

Strike and Air War are complete opposites. Pacific Strike immediately nails its colours to the mast in a blaze of gaudy technicality. You'll either love it or hate it. I know where I stand: to me it's too ugly, cluttered and jerky to be playable.

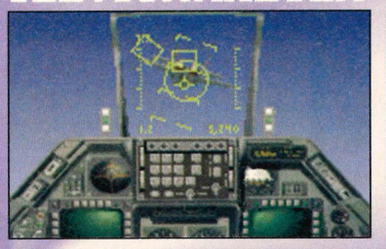
Pacific Air War, on the other hand, makes far less of an immediate impact. But it has immeasurably more to offer in the long term, and smooth and attractive flying. MicroProse needs a top rate flight sim to restore a bit of pride in what it once regarded as its home turf. Pacific Air War does just that.

■ **John Bennett**

ALTERNATIVELY



Aces Over the Pacific
Sierra/Dynamix, £34.99
Rated 8, Issue 11
Practically on a zimmer frame these days, Aces is still the benchmark by which WW2 flight sims are rated. Simple polygons hide a comprehensive, and above all playable, game which Dynamix failed to improve upon significantly with the more recent Aces Over Europe. Should be in any flight sim fan's collection.



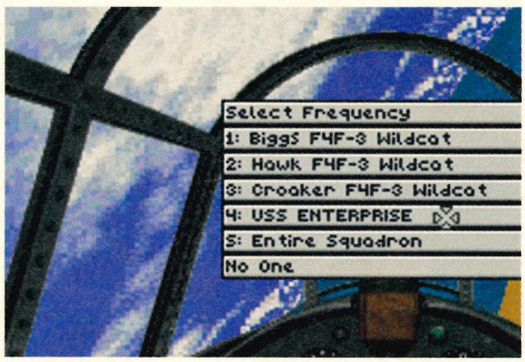
Strike Commander CD
Origin/EA, £49.99
Rated 8, Issue 21
Usually gets a 'love it' or 'hate it' reaction whenever its name comes up, Strike Commander is definitely an acquired taste. It's a jet combat flight game where you fly as part of a squadron of mercs, and it also boasts all the same outrageous system demands of its kid brother, Pacific Strike.



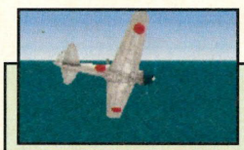
·TECHSPEC· **4** RATING

Pacific Strike, ugly, cluttered and jerky.

Publisher:	Elec Arts / Origin
Price:	£49.99
Contact:	(0753) 549442
Minimum PC:	386 (486 recommended)
Minimum memory:	4Mb
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster, Roland



Pacific Strike at least allows you to dish out some orders while you're up in the air. 1942: Pacific Air War is all about taking (orders) not giving when you're in the hot seat.



·TECHSPEC· **9** RATING

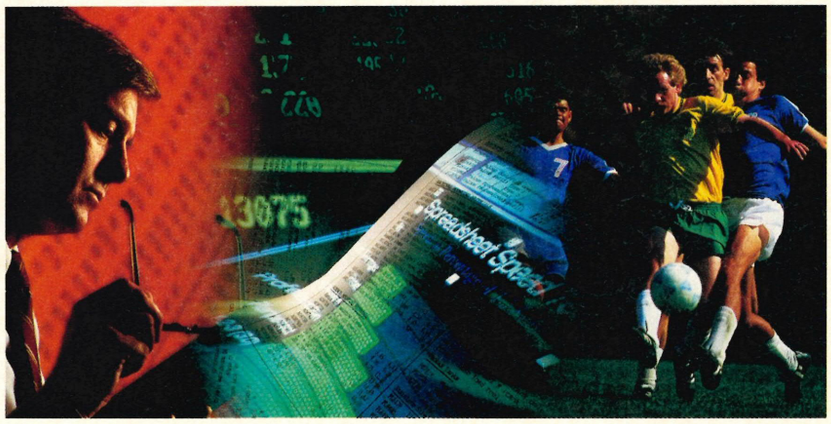
1942: Pacific Air War, smooth and attractive

Publisher:	MicroProse
Price:	£44.99
Contact:	(0452) 326532
Minimum PC:	386
Minimum memory:	4Mb
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster, Roland

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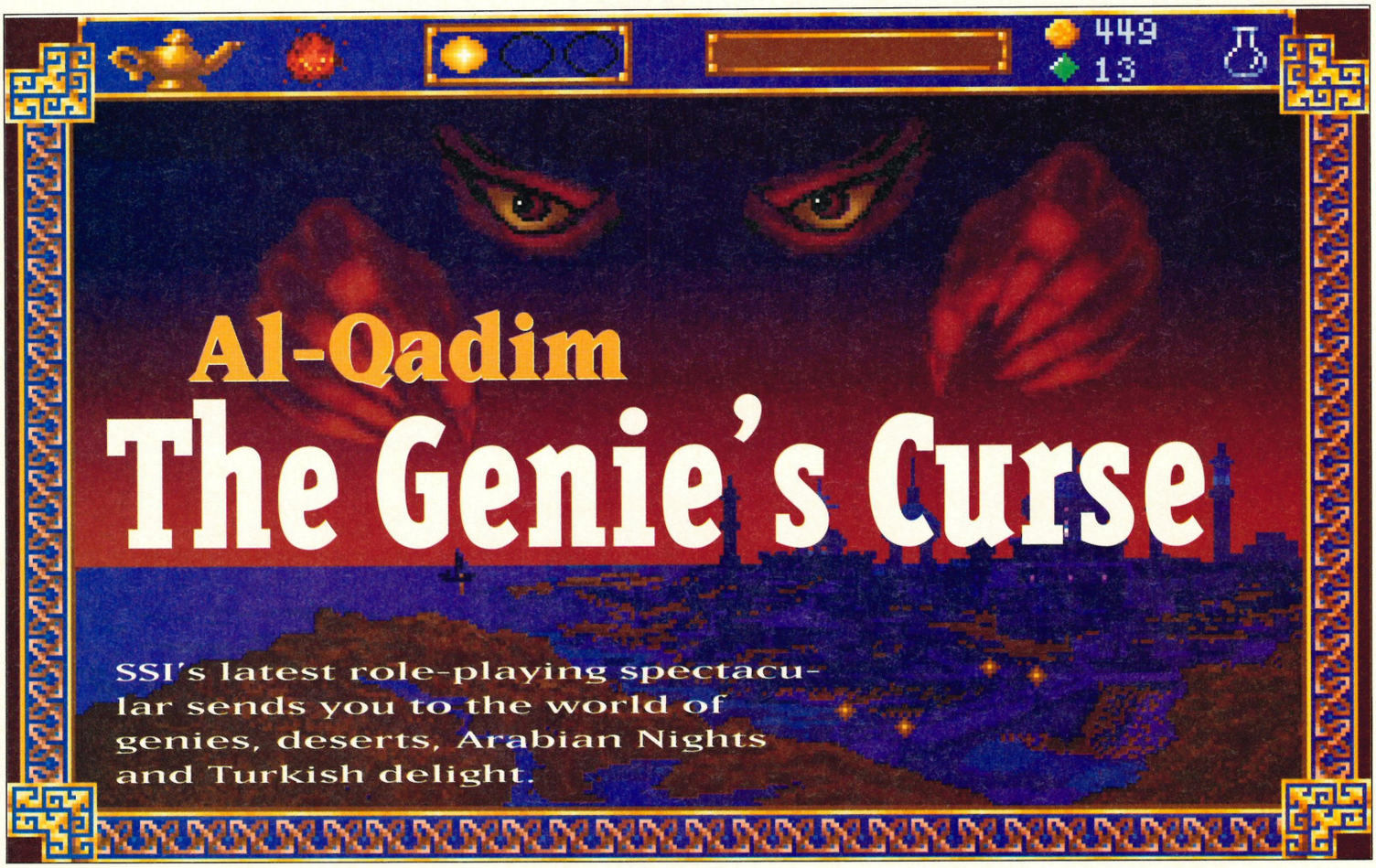
Amount enclosed:_____ cheque / postal order

Access/Visa#_____ Expiry Date:_____

Signature: _____ Name _____

Address: _____

Post Code: _____ Tel. No. _____



Al-Qadim
The Genie's Curse

SSI's latest role-playing spectacular sends you to the world of genies, deserts, Arabian Nights and Turkish delight.

DISK ONLY

Al-Qadim marks something of a departure for SSI. Although it's based on an Advanced Dungeons and Dragons series, it isn't bogged down by hit points and statistics (they're there all right, but they don't intrude into the gameplay) and thus provides the ideal introduction to role-playing games. Nor is it firmly rooted in the tedious realm of orcs, goblins and elves — I'm not saying that I hate orcs, goblins and elves, but they crop up so often in RPGs that it's nice to get away from them once in a while.

Set on the Arabian Nights-style world of Al-Qadim, the game follows the fortunes of the son of the disgraced Al-Hazrad family. At the start of the game your character (let's call him "you") has just completed a rigorous training course which will allow him to become a corsair. With this honour comes the hand in marriage of the Caliph's beautiful daughter — something that no young man with half a brain would turn down.



Left: Much of the game revolves around getting different people to help you — and doing something in return. To reach this sorcerer you must first journey through a dangerous dungeon filled with traps and riddles.

Pure genie-us

Unfortunately, disaster strikes as soon as you arrive home with the good news. Many powerful families in Al-Qadim control genies, and it so happens that your genie has run amok, sinking a ship carrying the Caliph, his daughter and your brother, Tarik. Although you manage to rescue the Caliph from the beach where he has been washed up, the Caliph suspects that the genie's actions were ordered by your family, and promptly claps them all in jail. The only thing keeping you out of his dungeon is that fact that you don't know how to command the genie and must, therefore, be innocent. Instead you are exiled from your home town, Zaratan, but you are at least free to uncover the mystery behind why the genie acted as he did.

> "It's compelling enough to keep you playing until the very end and features all the classic elements."

The story unfolds gradually during the course of the game, and contains several twists, numerous subplots and one or two surprises. It's compelling enough to keep you playing to the very end and features all the classic elements of a role-playing game — damsels in distress, evil sorcerers and magic — along with genies, magic carpets and, yup, there's a camel in there too.

It doesn't take itself too seriously, though, which is a good thing in my book. The story does have some serious moments, but on the whole it's a lighthearted tale and this comes as quite a relief after playing those dramatic and occasionally tragic Ultima games.

Easy going

The beauty of Al-Qadim is that it's so easy to get into. You don't have to go through the process of rolling up a character before you start — you simply have to choose a



In the magical world of Al-Qadim, earth, air, fire, water and even acid has a life of its own.

name for him. Yes, I know many of you enjoy creating characters, choosing their vocations, alignments, portraits and so on, but this way you're able to jump straight into the game and get on with the action. The only problem is that some of you may be disappointed because you don't have the option to play a woman, but then it wouldn't fit in with the storyline — Al-Qadim is a world where men are men and women wear veils, like it or lump it.

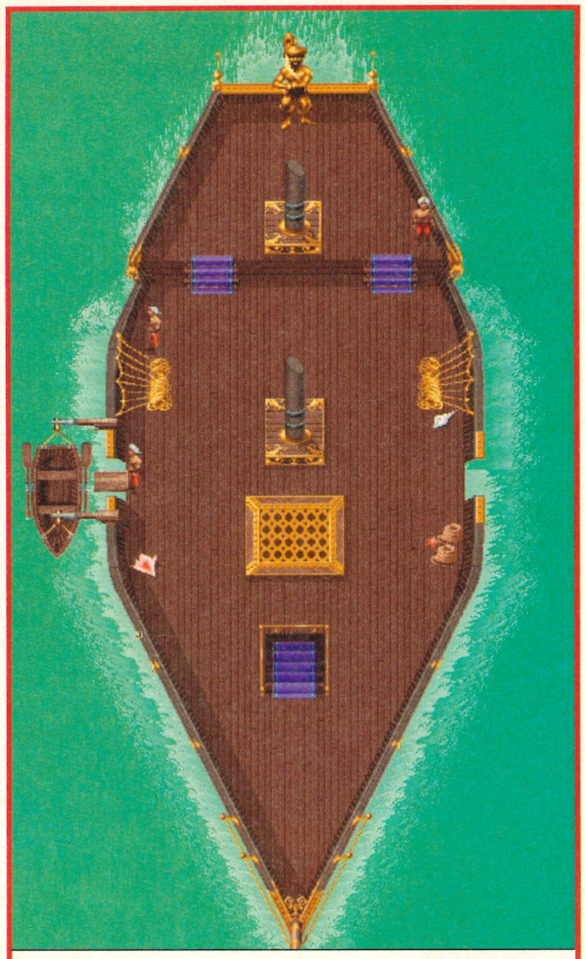
The controls are also very simple. Using the mouse is by far the best option, although you can also use the keyboard or joystick. The right mouse button controls movement, whilst the left mouse button is used for actions such as fighting, talking to people or opening doors. The action is always appropriate to the item you click on. For instance, if you click on a door you will always try to open it, whereas if you click on a monster you will automatically start fighting.

Mortal combat

Which brings me on to combat. You usually use a scimitar, a gift from your father which is has its own 'intelligence' and will never harm a good character. To strike, you must click the left mouse button and you will swing the sword in whatever direction you are facing. You start off with one combat move, but as you gain experience from killing monsters and solving puzzles, you can visit the weapons master in Zaratan who will teach you a new move. There are three moves in all, each represented by a gem at the top of the screen. The longer you hold the mouse button down, the more gems will light up and the more powerful your stroke will be. You also have at your disposal a sling, which can be used to fire magical rocks or 'shards' at your opponents. These shards contain different spells, ranging from flaming arrows to lightning bolts. Shards may be bought from shops, but you will also find them hidden in chests or vases. To use the sling you must first go to the menu, enter the weapons screen and ready a shard, then once you've returned to the main screen, press the space bar. Whenever you enter the menu all action pauses, so you can drink a healing potion, read a scroll or ready a shard without worrying about being killed.

Your hit points are represented by bar, also at the top of the screen, and every time you take damage the bar will be depleted. Healing potions will help to restore health, but there are other potions such as giant strength, invulnerability and protection which can make fighting a bit easier on you. Potions, like shards, may be purchased or found, so you should always make sure that you're stocked up if you're about to enter into a difficult contest.

Naturally, if your hit points reach zero you die and it's game over (unless you've saved your game — which you should do often, in any case). The game will also end if you're caught doing something you shouldn't be doing, such as entering restricted parts of the Caliph's palace or



Part of your quest involves finding and renovating an abandoned ship. Once you've licked it into shape, you can travel to different islands with the aid of the magical statue who steers the ship.



A portal from your ship leads to the astral plane. You can heal your wounds here, but at the end of the game it's a dangerous place.

I DREAM OF GENIES



This is the genie who gets you and your family into deep trouble at the start of the game. Can you get him back under control?



Female genies can be just as troublesome as their male counterparts. This fiery lady is particularly demanding.



Still, not all genies are that fierce. These twins are happy to help you as long as you can remember their complicated names.



It'll take a lot of patience and a lot of running around before you are able to get an audience with this chess playing genie.



The inventory is accessed from the menu rather than the main screen, which leaves more space for Al-Qadim's colourful graphics.



At the start of the game you have to navigate a hazardous maze in order to complete your corsair training. Watch the saws...



The family home looks very nice, but it won't all be roses after your pet genie runs riot.

stealing, in which case you'll be left to rot forever in jail.

Progress occurs at a decent rate — I was never well and truly stuck, but I did need to use my head on several occasions. There are five difficulty levels ranging from very easy to very hard, so you you should find one to suit you. I think the game would provide more of a challenge to a newcomer than it would to someone more experienced in RPGs. I completed the game in about three days, but that's not such a bad thing — I got through the game so quickly because I couldn't stop playing it, not because it was too small or far too easy.

"Al-Qadim is a thoroughly enjoyable game, with plenty of action and a darned good story."

Al-Qadim is also quite attractive. The graphics are colourful and uncluttered, and although the animation isn't anything like as realistic as Ultima VIII, it's far from bad. The one thing I did think was a little strange was the perspective. The viewpoint is somewhere between isometric and top-down, but the angle the characters are seen from is considerably less steep. This looks particularly peculiar when you see them from the side, because it looks almost as if they're lying down on the sand. However, this is something you get used to, to the extent that you stop noticing it after a while.

The sound is reasonably good too, though I wouldn't say the tunes were "grand cinematic musical themes", as it claims on the box. Pleasant, yes; grand and cinematic, no. In any case, the music is appropriate and it didn't get on my nerves, which is as much as you can usually hope for.

Al-Qadim is a thoroughly enjoyable game, with plenty of action and a darned good story to boot. It contains some 'arcade' sections in which you have to dodge past arrows or spikes, but unlike Ultima VIII which attempts much the same thing, it's so easy to control that it adds to, rather than detracts, from the gameplay. It would be a good choice for anyone who hasn't yet tackled an RPG because it's both fun and easy to get to grips with, but it will also provide some light relief for hardened fantasy game players. It isn't deep or meaningful in any way, but who cares? It's a good laugh.

■ **Cal Jones**

TECHSPEC

8

RATING



Easy to get into – and fun to play.

Publisher:	US Gold
Price:	£35.99
Contact:	(021) 625 3366

Min PC:	33 MHz, 386, MS-DOS 5.0, mouse
Min memory:	4Mb, compressed disk not rec
Min graphics:	VGA
Sound:	Orchid, Pro Audio, Sound Blaster

ALTERNATIVELY



Ultima VIII: Pagan
Origin, £44.99
Rated 7, Issue 31

The latest instalment in the Ultima series mixes role-playing with arcade action in much the same way as Al-Qadim. However, although the animation is superior, the fiddly controls make it a frustrating game to play. The plot is well crafted, but despite being an Ultima fan I prefer the SSI game for its speed and user-friendly simplicity.



Dark Sun
SSI/US Gold, £45.99
Rated 7, Issue 26

Dark Sun is visually similar to Al-Qadim, but it's more of a traditional RPG. You control a party of characters who fight as gladiators on a harsh, desert planet, and your immediate aim is to get them to escape. It has all the usual RPG paraphernalia , statistics, character generation, but it isn't off-puttingly heavy. Fun, but not as compulsive as Al-Qadim.



D-DAY, The Allies' daring push against the Nazi invasion, the largest manned landing in history, a day for liberty, a day for freedom. Yet D-Day would never have happened had Germany's air, land and sea-power not been diminished.

It is your job to succeed in destroying the German forces occupying Northern France, in Operation OVERLORD the air campaign leading up to D-Day. Overlord gives you the opportunity to fly the Typhoon Ib, the Mustang III or the Spitfire IX. The game features the revolutionary INSIDE COMBAT LOCK system, the cinematic VIEW MATRIX and most realistic graphical portrayal of aircraft and gameworld, in any historical flight simulation to date.

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The Settlers

If your desire to conquer territory and establish civilisation wasn't satisfied by Populous or its many clones, this latest world simulator could be just the thing you're looking for.

In two-player competition mode a split-screen display lets you see every move your opponent makes. Other two-player modes allow you to unite against a common enemy.

Ever since Populous was created on the Amiga five years ago, programmers have been steadily releasing their own little world simulators. A world simulator has to have three elements: cute, tiny people walking around looking busy, some sort of mission for the people to look cute in, and lots of colourful terrain graphics. If you don't know anything about this genre and it sounds interesting, you should take a look particularly at Populous II, Robin Hood, Powermonger, and (in the strange sub-category of city simulators) SimCity 2000 and Caesar. But that's enough advertising for now.

The aim of this game — possibly the most complex of the world simulators released so far — is deceptively simple. You have to build up a population, expand your territory and conquer your neighbours. It's neither as easy nor as dull as it sounds, because it involves constructing roads and a wide range of buildings, exploiting the riches of the earth, managing an economy and distribution network, and creating a strong defence force.

Before you reach that stage you have the opening menu to deal with. This offers a bewildering number of options: one-player, two-player co-operation and two-player competition modes, training and demo games, a variety of missions and world sizes, and a choice of controls (mouse or joystick). You also get to select up to three computer opponents of varying abilities. Some of these have apparently just learned to walk upright and couldn't manage an economy if it bit them in the head, others will try to skin you alive before you build your first gold mine.



A world of your own

Having made your selections you're probably feeling pretty pleased with yourself. This is a mistake. The most complex part of the game is still to come. It begins innocently enough: you have to build a castle in a relatively flat area, near to stocks (such as trees and granite) which allow your settlers to build houses. You can also consult your personal geologist about underground riches in the surrounding terrain, such as gold, iron, coal and granite.

Having built your castle it's time to help your settlers create the rest of the city. You have a choice of 23 different kinds of building, ranging from woodcutters' huts, through a variety of farms, mines, trades

and army outposts, to stock yards. Some sites within your borders may only be large enough to construct small buildings such as a fisherman's house; others will let you assemble anything from a steel works to a garrison. Mines can only be built in the mountains.

> The Settlers is a difficult game to get into. It took me almost a day of playing to get to grips with it.

Naturally, you need to establish a good road system to link settlements and create an efficient distribution network. Flat roads are preferable to steeply-sloping roads, because on steep slopes your settlers tire more easily and the distribution of merchandise is slower. As you make progress in the game you can also construct waterways, which allow the navigator to transport goods.

There are 25 different kinds of settler to make use of the road network and buildings you create. They begin with a carrier who is always on the look-out for goods to transport, and continue with construction workers, wood and stone cutters, foresters and joiners. As your territory grows you will make use of the other professions, such as farmers, fishermen, quarrymen and miners, millers, bakers, blacksmiths, locksmiths and knights. As soon as you construct a building for them to work in, they go about their tasks automatically.



Training games take you through the basic areas of rural property, construction, food, natural resources, tools/weapons, and combat. They aren't massively helpful but provide a relatively smooth passage into the game's complexities.

Knights are particularly important if you're ultimately going to win the game. As soon as you build a guard hut, a knight leaves the castle to occupy it. This has the effect of expanding the borders of your territory, allowing you to erect new buildings and exploit more of the natural resources. Knights are quite vulnerable to attack from enemy forces, however — as are exposed warehouses and mines. You need to manage your resources care-

SETTLERS' MAP

This is the main game screen where all your decisions have practical results and from which all other menus are accessed.

This is where you will find the geologist's icon at the start of the game. He'll help you discover how rich your territory is in terms of natural resources. Other functions become available according as you progress.

At the beginning of the game this icon allows you to build a castle; after that it's used for constructing various other kinds of dwelling.

Messages keep you up-to-date with important events such as the locations of your knights, discoveries of natural resources (for example, coal, iron and gold), and the state of play.



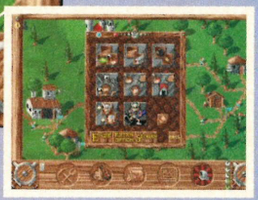


Your settlers involve themselves in a large number of tasks, ranging from simple building duties to defending the realm. This prospector has just discovered a coal seam.





The ultimate aim is to build an organised, prosperous city and gain control of your enemies' territory. When you have enough knights and your own lands are prosperous enough, you can begin the conquest.



The distribution menu helps you keep an eye on the supply of goods and personnel within your territory. Commodities (eg food, wood, iron, coal and wheat), implements (tools and weapons) and important characters (such as knights) can all be controlled.



It's a good idea to keep regular tabs on your enemies — luckily, your opponent hasn't made much progress in his subversive activities.



The property map displays terrain currently controlled by each player. It's a quick and useful guide to the strength of your opponents.



The terrain map allows you to examine property in its natural environment. The different colours represent deserts and fields and things.



The statistics menu allows you to examine in detail the number of buildings you control, your settlers' professions and much more.

fully and maintain safe and varied supply lines if you're going to survive against the toughest opponents.

Everything you've read so far has been relatively simple. As soon as you've established a basic economy, the game expands to include factors such as making tools and weapons, keeping track of stocks, exploiting and defending resources, managing the food chain, controlling and defending warehouses, studying (and understanding) masses of statistics related to these subjects, and building adequate defences to protect what you have created. The number of trained knights, the amount of gold you own and the quality of your distribution network all play a part in defending the realm.

Once you're confident that your city-state is strong enough to cope, it's time to have some real fun — by attacking your enemies. For this you have to make sure that your territory is well defended and your knights are adequately trained. There are five different strengths of knight in the game and training them involves a delicate balancing act: leave them in the castle and they will be well instructed in the art of killing things, but this will leave your city poorly defended; send them to the outposts and you provide greater protection for the city but the enemy may have more powerful knights than you.

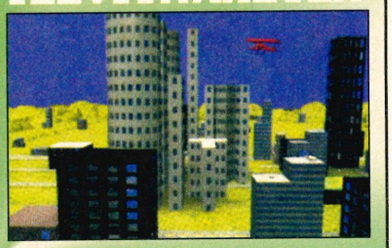
You can only attack enemy defence installations such as castles, watch-towers and guardrooms — the game doesn't cater for the more evil player who might want to destroy everything in sight, including that humble fisherman you don't like the look of. As your knight approaches his target the defending knight emerges and combat takes place. There can only be one winner, and if your attack is successful you automatically take control of the enemy building, thus expanding your territory further.

The fun doesn't end there. If you know that an enemy is launching an assault on your territory you can intercept him with a counter-attack, and a bloody battle ensues. It's a good idea to try and cut short all of your opponent's attacks because he has no qualms about burning any important building he finds. If he picks on one of your warehouses or destroys your only coal mine, you're in trouble.

ALTERNATIVELY



Populous II
Bullfrog/Electronic Arts, £34.99
Rated 8, Issue 15
Populous is a contest between the forces of good and evil played on a randomly-generated landscape. Your basic aim is to flatten land, allowing your cute followers to build their own civilisation and wipe out the enemy in a series of bloody battles.Natural disasters of all kinds can be used to spice things up.



SimCity 2000
Maxis, £39.99
Rated 9, Issue 29
SimCity 2000 is about town planning. Town planning isn't the first thing that comes to mind when considering exciting careers; SimCity 2000, however, is very exciting. You are given complete control over a city's development, including sewerage, roads, buildings, business, leisure, finance and futuristic arcologies.

Long-term prospects

The Settlers is a difficult game to get into. It took me almost a day of playing to really get to grips with the basics and to grasp something of the way the various gameplay elements interact. The best way you can learn is during play.

Experience teaches you to assess the quality and strength of your opponent(s) throughout the game, and to determine his weak points. The action ends when there is only one city remaining in the game world, but you can stop before this if one territory gains a significant advantage before this happens.

The size of the world you choose is also important, and is to a large extent restricted by the amount of memory you have. A size one world only allows 500 settlers at most, whereas a size eight world can accommodate 64,000. As you might expect, the complexity of the game increases as you move up the scale. In addition, there are around 270,000 billion (so the manual claims) different combinations of world size, terrain type and opponent strength, so finding a fresh challenge should not be a problem.

The action is controlled using a complex but logical series of menus and icons. Although the joystick controls are more than adequate, a mouse helps the game flow more smoothly.

The graphics which support the action are just about the most impressive found in any world simulator. The terrain maps are colourful, the buildings are brilliantly designed, and the characters are cute and easily distinguished by colour or physical appearance (no mean feat considering there are over two dozen of them). The animations in particular are excellent, whether it's characters going about their daily business, trees blowing in the wind or spot effects such as the distribution of supplies.

The Settlers is a very impressive game indeed, and certainly bears comparison with Populous II in the league of world simulators. Its astounding long-term depth and great complexity are well supported by excellent graphics and a logical menu system. It should be pointed out that the concept isn't entirely original — but this game takes it to a new level. If you have any interest whatsoever in building a small world inside your PC, buy it.

■ **Gordon Houghton**



SVGA mode gives you a broader perspective on the action but sacrifices a little clarity. Icons and menus are much more difficult to distinguish.

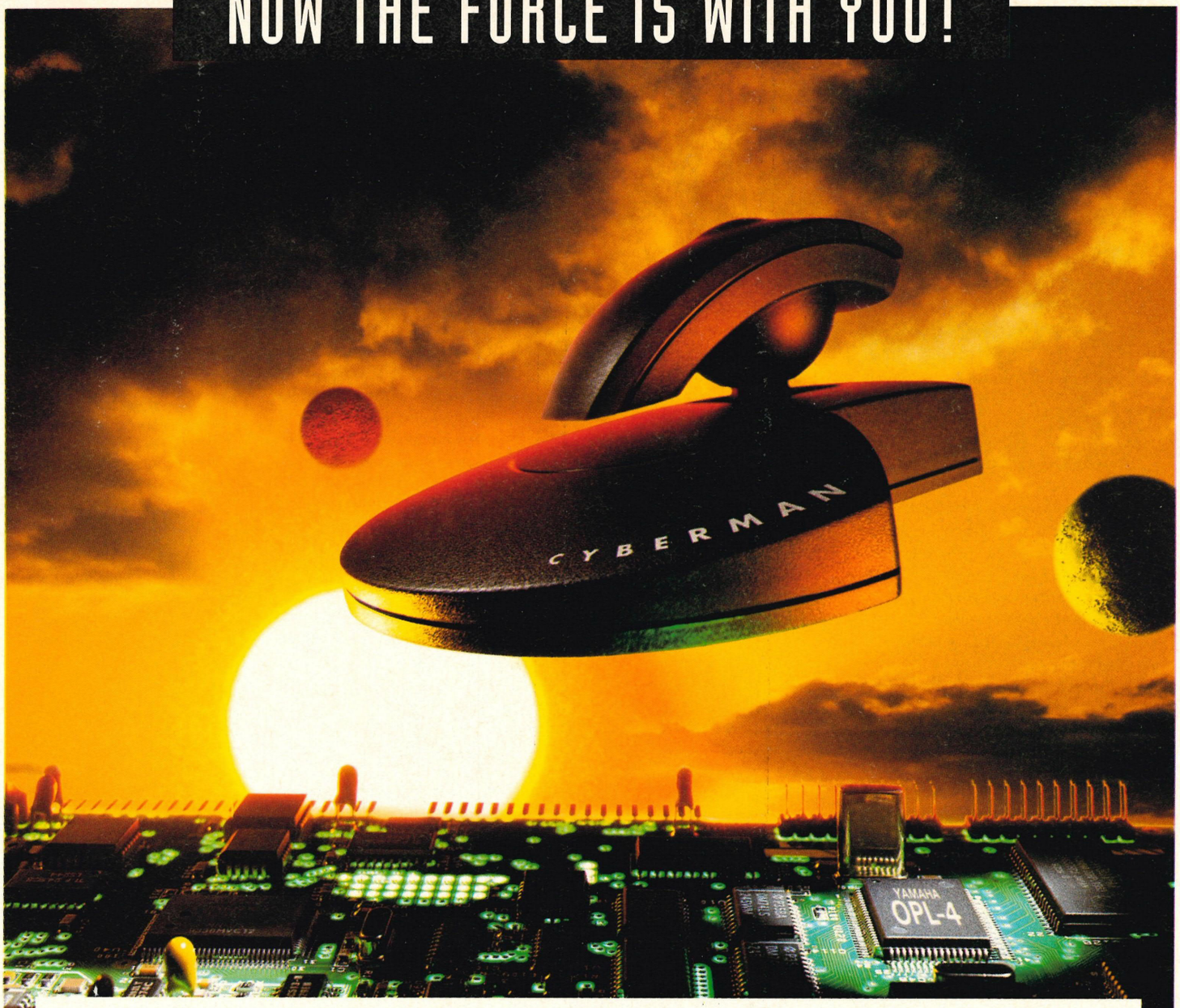


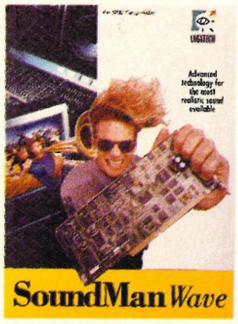
TECHSPEC 8 RATING

The Settlers is a must-buy for fans of Populous.

Publisher:	Blue Byte Software
Price:	£33.99
Contact:	(0727) 868005
Minimum PC:	386, MS-DOS 5.0, mouse
Minimum memory:	1Mb RAM
Minimum graphics:	VGA/ SVGA
Sound:	Sound Blaster, Ad Lib, Roland

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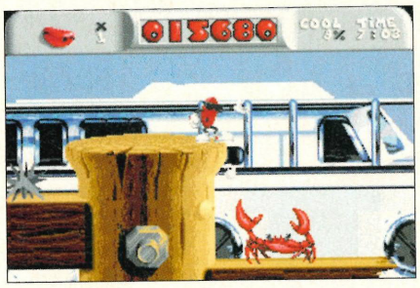
*Guaranteed fully compatible with SoundBlaster, AdLib and General MIDI. With SCSI CD-ROM interface, joystick- and MIDI port. Includes 5 valuable software packages.

Cool Spot

TECHSPEC

Minimum PC:	386
Minimum memory:	2Mb RAM
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster
Publisher:	Virgin
Price:	£29.99
Contact:	(081) 960 2255

RATING 6





Cool Spot hits the beach via his 7Up bottle and proceeds with the fun.

Platform games have never really captured the PC gamesplayer's imagination and while abyss-leaping hedgehogs and fruit-firing plumbers run rampant on the console machines, the PC has traditionally been a 'serious' machine, a big lump of complicated metal that you play flight sims and RPGs on.

But things have started to change and now there's often nothing better after a hard days orc-worrying than sitting down with your joystick and jumping a few precariously placed ledges.

Naturally there's an awful lot of this going on in Cool Spot, the new platform game from Virgin, where your aim is to guide the aforementioned hero — yes the big red tiddly-wink in the shades and Nike trainers — through the various levels, collecting items, killing baddies and racking up points.

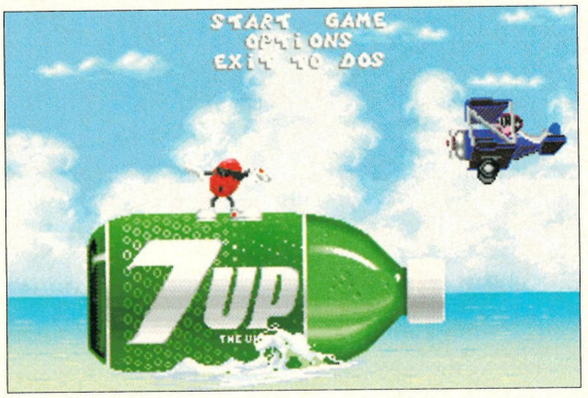
It's typical platform fare really. After Cool Spot's 7UP bottle washes up on the beach, he must negotiate the platform levels (including the beach, boatyard, boat, toy room, etc), battling crustaceans and dodging cheese-hurling rodents wearing pyjamas. Why? Well the point is to free Cool Spot's friends who have been locked in cages at the end of each level. Sounds easy? Well it isn't. There's a tough time limit on each level to contend with.

While Cool Spot does nothing radically new,it's still a lot of fun. On the down side, the soundtrack is a bit dull and I'm a bit dubious about the game's longevity. It's fun for a while but like the Megadrive original, you'll soon find that after you've ploughed your way through levels one to five you've then got to turn round and go back again.

But it will take you a while to get that far and with bonus levels, balloons, rampaging moths and air bubbles, Cool Spot is a good platform game.

It's not great, or fantastic, just good. Pleasantly good in fact.

■ **Dean Evans**

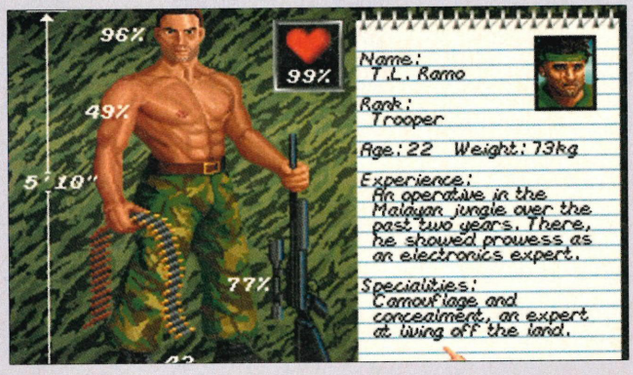


Sabre Team

TECHSPEC

Minimum PC:	386 , mouse
Minimum memory:	2Mb RAM
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster, Roland
Publisher:	Krisalis
Price:	£29.99
Contact:	(0709) 372290

RATING 7



Sink your teeth into that little lot — there's statistics galore in Sabre Team.

Like MicroProse's UFO: Enemy Unknown, Sabre Team is a turn-based combat game based around those fearless guys in Balaclavas, the SAS. But unlike UFO there's no complex global overview, or any resource management, just pure, undiluted and often very tense action. You make a move, the computer



makes a move. In fact it's a bit like playing chess with hand grenades ...

But despite the arcade-style isometric 3D view, Sabre Team is essentially a strategy-based affair where you must guide your squad of eight SAS troopers successfully through five increasingly difficult and deadly missions including a hostage rescue on an ocean liner and a sabotage attempt in an underground base.

The gameplay itself revolves around board game-style 'turns'. Each of your team members has a limited number of 'action points' which are spent performing actions like walking, turning or firing a gun. Ultimately what it all boils down to is a simple case of you shoot the bad guys, they shoot you, you rescue the hostages, you shoot the bad guys a bit more and then you escape to safety and the bright glare of media attention.

OK, it's actually a bit more complicated than this. You've got to plan your moves and cover all possible directions and at times the game becomes intensely nerve-wracking. Imagine edging slowly through the corridors, not knowing which door the terrorists will charge through ...

The speech is good and the dramatic music adds greatly to the atmosphere, but the combat does tend to become tedious. What Sabre Team lacks is variety; all that really changes from mission to mission are the graphic backdrops.

But I don't want to give you the wrong impression. I liked Sabre Team. It's a tense, often compelling game that will pose a stiff challenge to even the hardest of hardened strategists. It has its dull moments, certainly, but if you're a fan of board game-style gameplay and you liked UFO, you might want to give this game the proverbial whirl.

■ **Dean Evans**

The Lost Files of Sherlock Holmes

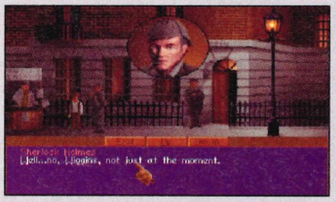


The elements of logic, mystery, irony and adventure in the Sherlock Holmes stories make the pipe-smoking detective a natural target for programmers. Although this EA version doesn't reproduce any of the plots found in the books (a sensible idea), it does keep faith with the characters and atmosphere.

The Case of the Serrated Scalpel is the only crime you have to solve: an actress has been murdered outside the theatre where she worked and Jack the Ripper is the suspect. Even though there is only one case, there is a good deal of questioning, puzzle-solving and exploration to be done (around 50 locations).

The screen is divided, LucasArts-style, into a graphics window and a text/icon panel; in addition there are separate screens for the inventory, the handy game configuration utility, the map (used for travelling) and Dr Watson's Journal. This Journal is one of the more impressive features, with pages of detailed investigation notes running into three figures.

The CD-ROM version is virtually the same as its floppy disk cousin, with the exception of additional speech and video sequences. If you like Electronic Arts' interpretation of Holmes and Watson — and there's plenty to recommend it — you'll probably also enjoy Software Toolworks' CD-ROM, Sherlock Holmes Consulting Detective. It's available for around £40 and features 90 minutes of full-motion video, digitised sound and speech.



■ Gordon Houghton



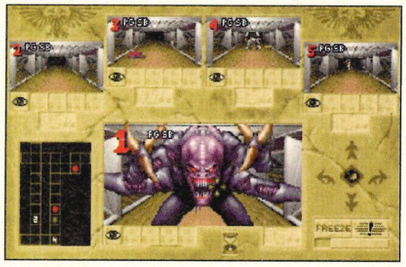
· TECHSPEC ·

Minimum PC:	286, MS-DOS 5.0 (mouse rec)
Minimum memory:	590K RAM (EMS rec)
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster, Roland MT-32
Publisher:	Electronic Arts
Price:	£39.99
Contact:	(0753) 549442

RATING **7**

Space Hulk





Take one huge derelict starship and add several squads of heavily armoured space marines. Next blend in some frantic, and often suicidal combat, 30 million throat-ripping alien creatures and then pour the mixture on to a CD. Finally sprinkle with 10 new missions, innovative graphics and CD quality sound effects and leave to cool. End result? Space Hulk. It's delicious.

Space Hulk is a strategic, 3D shoot 'em up, and your task is to guide marines into an alien starship infested with millions of 'genestealers'. Your forces are controlled using an overhead map screen and a 3D Dungeon Master style view, allowing you to move individual marines around the corridors, telling them to turn, open/close doors and to use a certain weapon. In fact, it's just like that bit in Aliens where the marines get ambushed and Sigourney rescues them in the APC and ...

Anyway, this CD version features 10 new missions, better graphics and improved speech and sound. It's an enhancement over the disk-based version, if not a massive improvement.

If you haven't got Space Hulk, go out and buy it. If you have got it, why not buy it again?

Space Hulk is dark, tense and utterly compelling.

I recommend it highly.

■ Dean Evans

· TECHSPEC ·

Minimum PC:	386 PC, mouse
Minimum memory:	4Mb RAM
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster, Roland
Publisher:	Electronic Arts
Price:	£39.99
Contact:	(0753) 549442

RATING **7**

THE ORIGINAL
THE BEST
BLASTER
THE
PC
SOUND
STANDARD
SOUND
CREATIVE
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Hand of Fate

CD ONLY

Hand of Fate is Westwood's sequel to the extremely pretty adventure, Legend of Kyrandia. The floppy version was reviewed in our February issue, and now, five months later, the CD version has arrived. As with most CD conversions, it only differs from the original by the addition of speech.

The game itself is quirky, pleasantly challenging and mildly humourous. Like Kyrandia, it's very attractive, though some may find it twee: I suppose fluffy bunnies and dancing trees aren't everyone's cup of tiffin. Still, I enjoyed it.

It's set once again in Kyrandia, but the terminally dull Brandon (hero of Legend of Kyrandia) has been replaced by the much more lively Zanthia. Her task is to find out why bits of Kyrandia keep disappearing, and put a stop to it before it's too late.

There are many colourful locations to explore, and the puzzles require a little thought but aren't so tough that they'll frustrate you. Hand of Fate will suit players of all ages — but I can recommend it to almost anyone.

■ Cal Jones



TECHSPEC

Minimum PC:	386, MS-DOS 5.0
Minimum memory:	2Mb
Minimum graphics:	VGA
Sound:	Ad-Lib, Sound Blaster Roland
Publisher:	Virgin
Price:	£49.99
Contact:	(081) 9602255

RATING 8

Sam and Max Hit the Road

CD ONLY

Take one canine detective, one psychotic rabbit, a big-foot and a sadistic, pint-sized country and western star and you get Sam and Max, the latest adventure from LucasArts. Sam and Max got rave reviews when it was released on floppy disk at the end of last year, so it comes as no surprise that LucasArts has produced an all-talking, singing and dancing CD version.

Sam and Max is a cartoon-style graphic adventure based around the amusing exploits of two "freelance police": Sam (the dog) and Max (the rabbit). They're violent in a way that Tom and Jerry could only aspire to and generally behave in a very anti-social manner. Although the colourful, cartoon graphics will appeal to younger players, much of the humour is actually quite sick and is best appreciated by adults.

The game has plenty of those wacky puzzles LucasArts is famous for, and if you like Monkey Island and Tentacle, you're bound to enjoy this. My only complaint is that the interface is a tad fiddly, but beyond that, it's a polished and amusing game which is improved immensely by the addition of speech.

■ Cal Jones



TECHSPEC

Minimum PC:	386, MS-DOS 5.0
Minimum memory:	4 Mb
Minimum graphics:	VGA
Sound:	Ad-Lib, Sound Blaster
Publisher:	LucasArts /US Gold
Price:	£45.99
Contact:	(021) 625 3366

RATING 9

ShadowCaster

CD ONLY

ShadowCaster is another game which has made the inevitable transition to CD-ROM after originally appearing on floppy disk. In basic terms it's an Ultima Underworld style first person perspective role-playing game, but there are one or two differences which set it apart from other examples of the genre. Like most RPGs it has a plot, but it isn't vital to the gameplay so I won't go into it in any detail. Basically, you play Kirt, seemingly human but in fact one of the last members of a race of shapeshifters. His mission is to save his race from extinction by defeating the malevolent demon Veste.

The reason why this is fairly unimportant (and also why ShadowCaster differs from other RPGs) is because there's no character interaction and no plot development. Puzzles are also minimal, and there's a lack of statistics — you have a health bar and a power (magic points) bar. This is great if you don't really like RPGs, or rather, the excess baggage associated with them, but not so good if you want a game with depth. The saving grace is Kirt's ability to "morph" into various different shapes: he can become anything from a pixie to a stone giant or dragon. Assuming the correct shape is often vital to completing a section, but uses up magical power.

The CD version has some digitised speech in the intro, plus a few extra, impressive animations. Most notable are the two additional levels near the end of the game. However, I completed the original in two days, and a couple of extra levels won't keep you going for too much longer than that.

■ Cal Jones



TECHSPEC

Minimum PC:	386, MS-DOS 5.0
Minimum memory:	4 Mb
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster
Publisher:	Origin Systems
Price:	£39.99
Contact:	(0753) 549442

RATING 7

UFO : Enemy Unknown

CD ONLY

Around 75 per cent of the games we receive on CD have already been issued on floppy disk. The CD version of MicroProse's UFO seems little different from the original: no digitised speech, no extra animations. The only improvement is that the bugs which existed in the floppy version have now been removed.

UFO is a strategy game based around the alien invasion of Earth. You head up the organisation set up to deal with the UFOs, but your technology is inferior to that of the aliens. The idea is to build and maintain a base where your soldiers, scientists and engineers work to combat the alien threat. Whenever you radar-detect a UFO, you should send an interceptor plane to shoot it down. If successful, you can then deploy a squad of soldiers to investigate the crash site. The game then switches to a 3D isometric view where you move your men around in turn-based combat. Once you've killed all surviving aliens, you're free to return to base with the alien artefacts and weapons. These can then be researched and manufactured. Several missions and a lot of research later you get to follow the aliens back to their homeworld for the final showdown.



UFO is an absorbing and addictive game and although combat can become repetitive, the overall depth of strategy is enough to make up for this. Worth getting if you don't already have the floppy version.

■ Cal Jones

TECHSPEC

Minimum PC:	33 MHz 386, MS-DOS 5.0
Minimum memory:	2Mb
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster Roland
Publisher:	MicroProse
Price:	£49.99
Contact:	(0454) 326532

RATING 7

Syndicate Wrecked



Syndicate was one of the most exciting and original games of 1993 combining strategy with action in a tense battle for global domination. It's set in a grim future in which the world is run by ruthless corporations. Your aim, as a young executive, is to take your company to the top using a team of cyborg agents, to fight it out on the streets in a series of ultra-violent missions.

At the start, you have no territories, a basic supply of weapons and a handful of agents equipped with unsophisticated cybernetic bodyparts. You also have a small amount of money which can be used to equip your team or ploughed into research: important because you need to keep on developing new weapons and better bodyparts. This requires money, which you earn by taxing territories you've conquered.

Depending on your main objectives, each mission requires different tactics. You control up to four agents in an isometric landscape, moving either individually or as a group. Each will react according to how you set his drugs: adrenalin makes an agent faster but reckless; perception improves awareness and intelligence will increase self preservation.

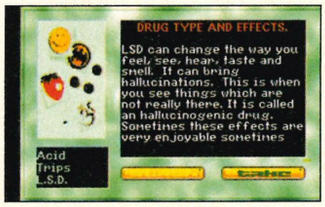
This CD version also includes the American Revolt add-on disk: 21 new missions and network play if you have access to a Novell network and MS-DOS 6.0. Syndicate is a brilliant game so if you missed it first time around, go out and buy it now.

■ **Cal Jones**

· TECHSPEC ·

Minimum PC:	33 MHz 386 , MS-DOS 5.0, mouse
Minimum memory:	5Mb
Minimum graphics:	VGA
Sound:	Sound Blaster
Publisher:	Bullfrog/EA
Price:	£44.99
Contact:	(0753) 549442

RATING **9**



Wrecked is a well intentioned platform game about drugs. Presumably, the idea is that by presenting narcotically-tempted (challenged?) youngsters with a lesson about the dangers of drugs in a form they can relate to — a game where you collect, take and mix drugs for different effects — we can turn them away from the evils of controlled substances. Ho, hum ...

Whether the psychology of the thing is right or not, I don't know, but even if you can accept the thinking behind it, there's a better reason for avoiding Wrecked: it's a lousy game and it costs nearly £50.

Graphically, it's inept. The control system is naff, the sound is horrible and the platform gameplay (bar the basic concept) is so bereft of original ideas it makes me want to break down and weep.

Any redeeming features, you ask? Well ... oh, all right, the info about drugs use (and abuse) is quite well put across as a combination of static info screens and the effects on the central character. Trouble is, you have to play the game to get at it, and that's about as much fun as a spliff soaked in paraquat.

■ **John Bennett**



· TECHSPEC ·

Minimum PC:	386
Minimum memory:	640K
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster
Publisher:	Healthwise
Price:	£49.95
Contact:	(051) 708 9984

RATING **2**



The Horde

Brain not big enough for SimCity 2000? This game of mediaeval township husbandry is a little simpler, has a dose of sword-powered violence and could be more your sort of thing.

Anybody remember the BBC Micro? Anybody remember that stupidly simple (but stupidly addictive) game called Kingdom that came on the free Welcome cassette? In Kingdom you were king of your realm which was under regular threat from flooding and nearby bandits, who pilfered your rice stocks. Your part in the game was to allocate resources so that some guys guarded the rice, others kept an eye on the flood defences and the rest kept the rice rolling in. And I bring all this up, not simply out of nostalgia, but because, if you were to replace the bandits with the voracious Hordling monsters, the Teletext graphics with smart isometric visuals and 35 minutes of comic, quarter-screen, full-motion video snippets, and the barely interactive gameplay with some pleasant arcade action, what you get, more or less, is The Horde.

"The Horde is a jolly game, reasonably simple, but with enough variety to hold your attention."

You star as young Sir Chauncey, ex-royal scullion recently promoted to knight and landowner after Heimlich Manoeuvring good King Winthrop out of choking on a tricky gobbet of mutton. Unfortunately, nasty Chancellor Kronus Maelor has it in for you and he's vowed to ensure your downfall by taxing you out of sight at the end of each year. Survival depends on spending the year turning your land into a flourishing township, full of happy farmers whose crops help pay the tax bill.

You don't really have to do much to entice the inhabitants, because with each new season another couple set up home on the landscape. The problem is keeping them and their crops going, because at the end of each season the ravenous Hordlings bounce out of the hills to devour the crops and, if they can, the farmers.

At the start of each simulated season, you get two minutes to set up defences around the town using an icon-driven toolbox and a scrolling map. Defences cost cash so you can't afford to go mad. But as time goes on, tougher, faster and smarter Hordlings come out of the woodwork and you have to invest some of Chauncey's post-tax profits on new and better defences.

Anyway, when your two minutes are up, The Horde start marching on the town. At this point, you take direct control of Chauncey and have to run around town looking for Hordlings that have broken through the defences, and then chop them up with a big sword. The more stupid Hordlings are easily dealt with, but later in the game you come across the almost unstoppable Juggernaut Hordlings and the Shaman Hordlings who teleport around town, zapping houses with fireballs. Of course, if Chauncey gets too close to a Hordling it starts chomping on him, to the distress of his life-ometer in the corner of the screen. When the life-ometer reads zero that's the end of the game.





In between seasons, the game sometimes pauses for a bit of FMV, in which you're given a Community Chest-like bonus or disaster. The king may give you a magic tree full of money, or Kronus may inform you that he has just temporarily abolished all forms of transport, thus reducing the influx of new farmers. As usual the acting isn't A1 stuff, but the video clips jolly things along very nicely.

Indeed I was surprised to find that The Horde is a rather jolly game. The gameplay is reasonably simple, but has strong enough measures of variety, subtlety, action and challenge to hold your attention. Just as I was becoming sceptical after surviving four years of the same stuff in one area, I had to start from scratch in an entirely new part of the country and adopt new tactics. And though there are only five different areas, I've been playing for almost a week now and I'm having a hell of a job getting through the second. Even the graphics and sound are very good.

■ Paul Glancey

Once a year, Chauncey visits Ye Shoppe where, for a price, he can learn Masonic Secrets (ie how to build stone walls, not the stuff about handshakes), enlist knights or archers, or buy power-ups like magic health-restoring stones, bombs and even flame throwers!

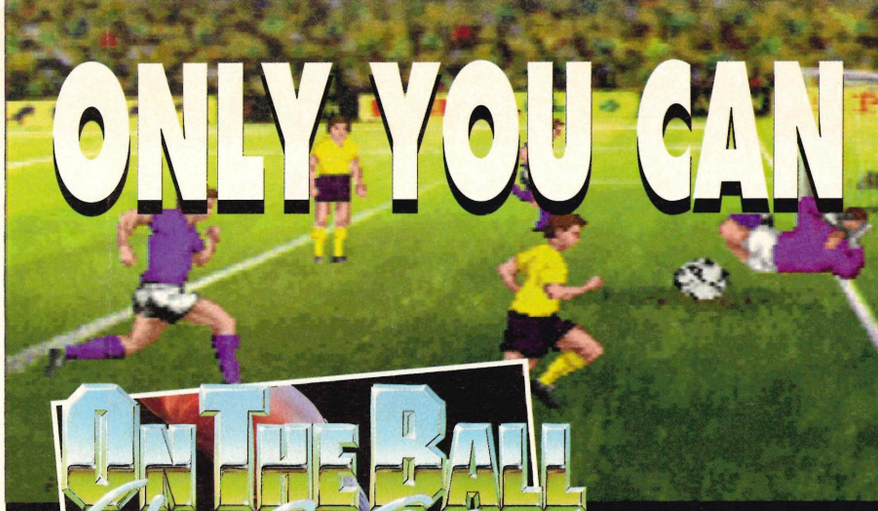
CD ONLY

• TECHSPEC •

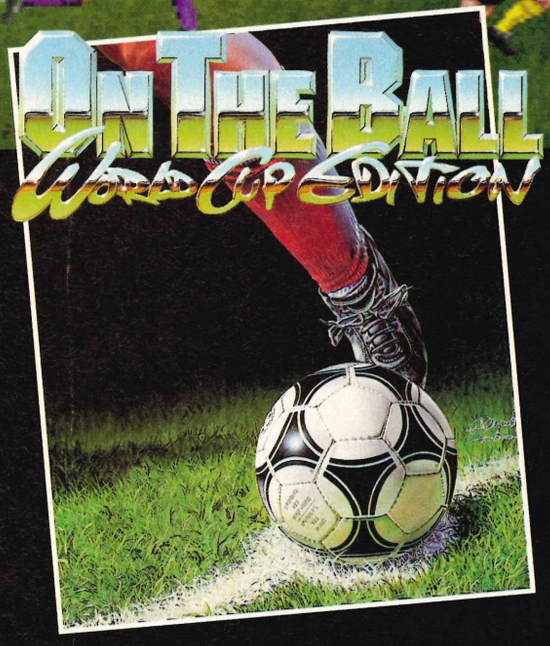
Minimum PC:	386 with CD-ROM
Minimum memory:	4Mb
Minimum graphics:	VGA
Sound:	Ad-Lib, Sound Blaster
Publisher:	US Gold
Price:	£44.99
Contact:	(021) 625 3366

RATING **7**

ONLY YOU CAN MANAGE!



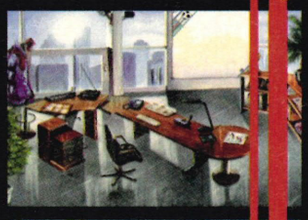
Sports Strategy



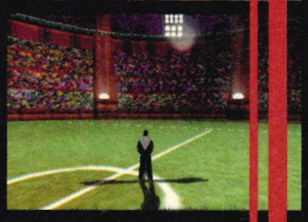
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Out: End June, PC, Amiga 1meg, Amiga 1200

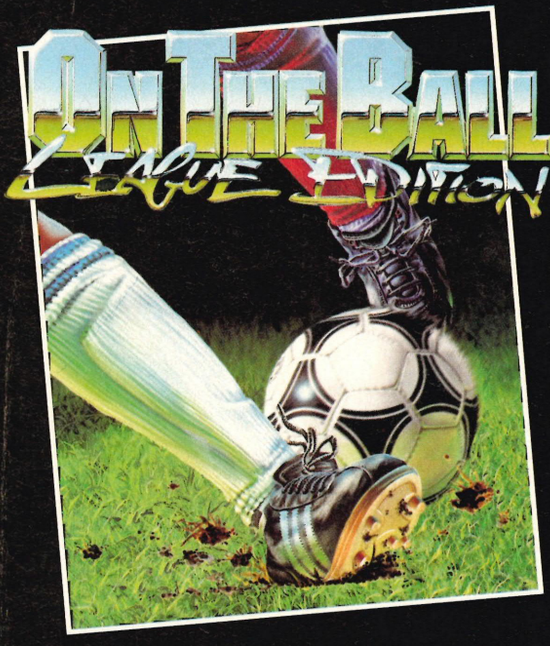






COMING SOON





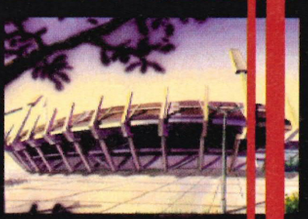
Combining meticulous detail and realism with sensational animated graphics and irresistible presentation, this game will inspire the football strategy genius in you.

Featuring: Unique digitised TV style match coverage: running commentary (spoken on CD): training seminars: sponsorship: home and foreign transfer lists: comprehensive data and statistics: team finances and morale: player and manager politics: expert opinions: press praise and criticism: cup conditions: uniquely accessible interface: 1 - 4 players. And still more!

Out: End August, PC, Amiga 1meg, Amiga 1200







EVERYTHING BEFORE WAS JUST TRAINING.



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Lemmings 2: The Tribes

CD ONLY

This full-blown sequel to the puzzle classic of clog-popping rodents contains 120 more levels and 43 new lemming-types to master. The fundamental gameplay is the same as ever, but instead of comprising a bunch of disconnected levels, Lemmings 2 has a quest angle to the gameplay. The idea is that the lemmings' home island is doomed, and the twelve diverse lemming tribes have to journey across ten levels each to return the pieces of a talisman, their key to safety.

As ever, the idea is to get gangs of non-stop wandering lemmings across a hazardous landscape by bestowing special skills on individuals. Whereas there were only a few such skills available in the original game, there are now dozens; wall-builders, hole-fillers, archers, kayak-paddlers, magnetic boot-wearers. To be honest, I got the impression that that was perhaps going too far, and because many of the levels in L2 are more convoluted than those in the first game, it's not a game that suffers fools gladly.

Buy it if you liked the original and yearn for newer challenges. Or if you missed the original, buy this anyway — there's a free copy on the CD.

■ **Paul Glancey**

· TECHSPEC ·

Minimum PC:	386, single speed CD-ROM
Minimum memory:	4Mb
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster, Roland, Tandy
Publisher:	Psygnosis
Price:	£29.99
Contact:	(051) 709 5755

RATING 8



Wolfenstein 3D

DISK ONLY

Released two years ago, Wolfenstein 3D is one of the most influential games ever. The fast shoot 'em up was the first game to use smooth, multi-directional scrolling, and has spawned many imitators. After Wolfenstein, ID wrote Doom. The rest is history.

Wolfenstein is controversial: you play an American POW who must try to escape from a Nazi fortress, and this involves killing lots of guards, SS officers and, eventually, Hitler himself. Good taste is definitely not on the menu, but it's enjoyable and amusing if you're not too easily offended.

Wolfenstein is obviously less sophisticated than Doom — the graphics are less detailed, there are no stairs, slopes or lifts and it lacks a multi-player option. It is, however, fast, smooth and, most importantly of all, fun.



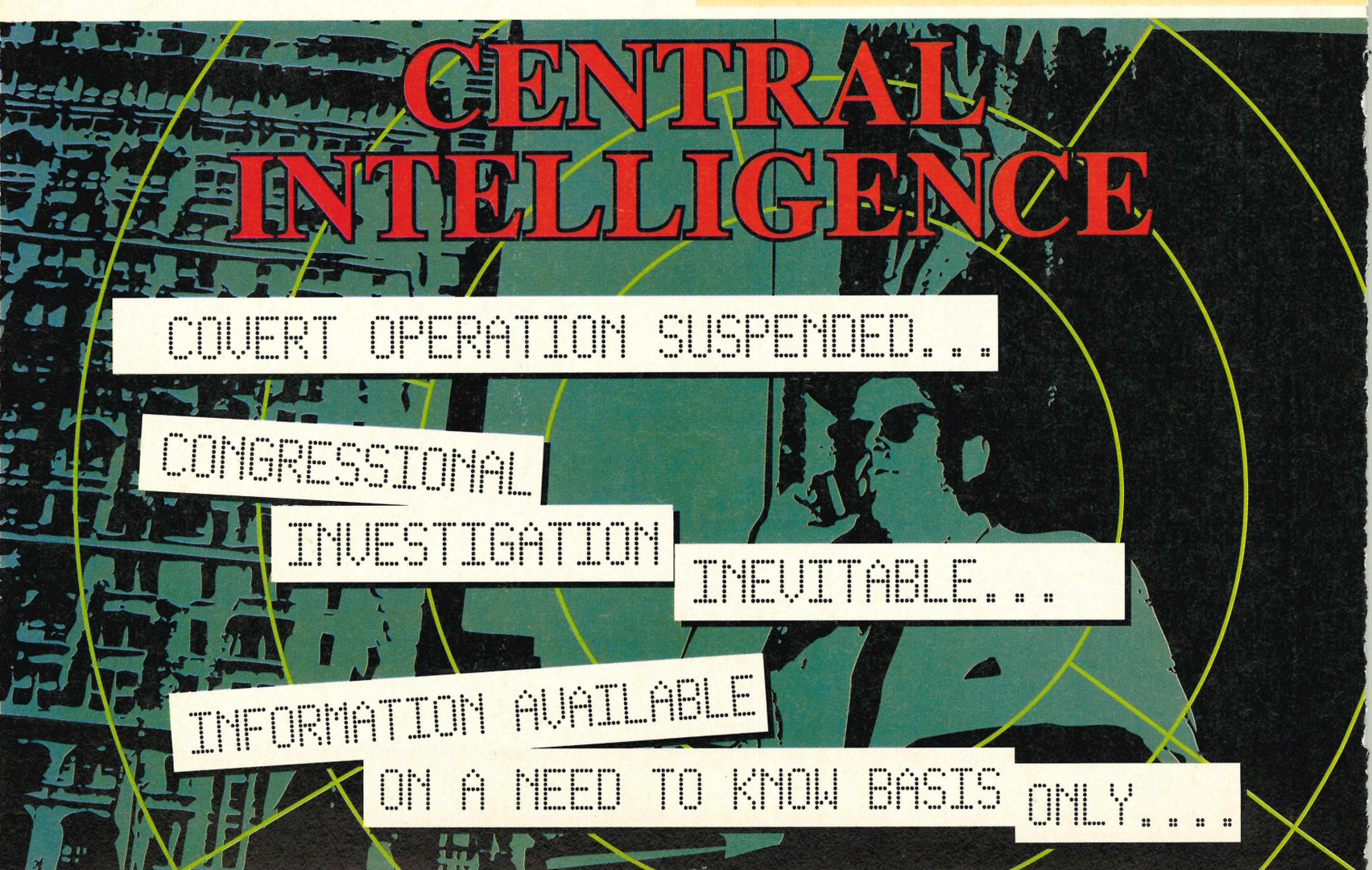
In addition, the package contains three "Nocturnal Missions" which were not released as shareware, plus a hint manual which contains level maps. I'm not sure I approve of the latter — half the fun is not knowing what's around the corner. But if you haven't played this yet, it's worth having. Just don't expect it to be Doom.

■ **Cal Jones**

· TECHSPEC ·

Minimum PC:	8086 (386 recommended)
Minimum memory:	640K
Minimum graphics:	VGA
Sound:	Ad-Lib, Sound Blaster
Publisher:	Mindscape
Price:	£19.99
Contact:	(0444) 246333

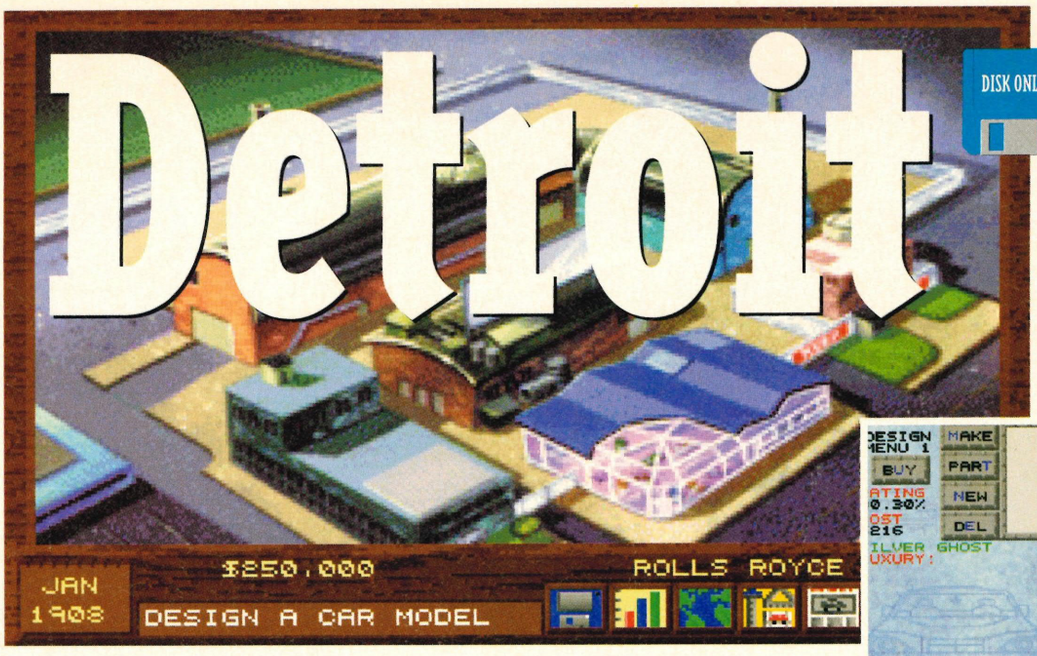
RATING 7



Detroit

DISK ONLY

You'll need to crank your brain in gear to play this latest empire building sim — as well as your carburettor.







Detroit is an empire building/business simulation which casts you in the role of a fledgeling Henry Ford. The year is 1908, and the car industry a mere figment of your imagination. Starting with just a single factory and one primitive design, your aim is to turn your dream of full-scale car manufacture into reality.

Your most important task at the outset is to get the design of your first machine right. You decide the body shape, features, and even the colour of your prototypes. This is one of the best parts of the game, but you'll have some tricky decisions to make. Should you go for the luxury, high end of the market, or cut costs and try for volume sales? What's going to be the selling point? Speed, fuel economy, safety? If you want to keep ahead of the competition you'd better take on some technicians and invest in research. And when you've hired the labour and your assembly line is going flat out, you'd be well advised to make sure there's enough left in the kitty for an advertising campaign — or else no one's going to know you exist.

Every aspect of the automobile industry, from design and testing, to construction and sales, is handled in quite considerable detail. Detroit has been well thought out, is satisfyingly dense, yet ultimately is a little too dry and lacks appeal.

The fundamental problem is that the game has no sense of movement. Although there's a global map which you gradually get to expand over, the actual growth of your company takes place in the abstract, in sales reports and end-of-turn statements. Detroit is similar in style to Impressions' Airbucks, though much better, but both games lack the fluidity and excitement of Railroad Tycoon, the principal inspiration for the genre. Although you have three rivals, as in Tycoon, you get little feeling of competition. You don't see them expanding into your territory, you don't feel threatened. The automobile industry is notoriously cut-throat, and this basic absence of ruthlessness makes playing Detroit too much of a bloodless book-balancing exercise and not enough of a game. It lacks flair.

That said, it's still absorbing and easy to get into, although the interface could be much better. Sound and graphics are standard for a game of this kind, but I don't think that's a serious issue — I can forgive a strategy game anything if it's got a good engine. Detroit revs along at a comfortable rate, but the handling leaves something to be desired. We're not talking about a Lada here, but we're not talking Rolls Royce either. It's a bit of a Volvo really. Does the job all right, but it's not going to fire the imagination.

■ **Simon Shaw**

We're not talking Lada here, but we're not talking Rolls Royce either.

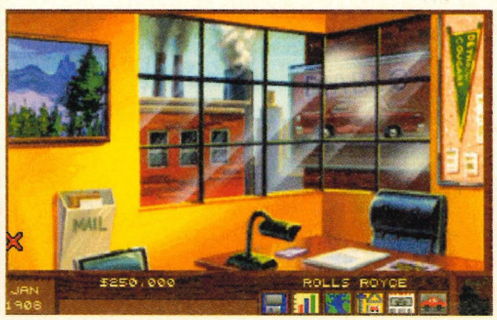
Top: This is where you get to put together your prototypes. I've come up with a rather elegant family sedan in a fetching shade of fuschia — so much for "any colour as long as it's black"!

Above: It's vital to keep up with technology. Hire technicians, then assign them to research key areas of development, such as brakes, engines, suspension. If your rivals get too far ahead, you'll be left with an obsolete line.

Below: In the office you hire and fire personnel and also generate the business reports which are your best clue to understanding market trends. Clicking on the filing cabinet accesses game functions.

Below right: No use having a great product if no one knows about it. Pop in here to set up an advertising campaign. You can target specific market sectors through magazines (leisure, business, etc) or perhaps put some money into sports sponsorship.







Could do with a turbo-charger.

TECHSPEC 6 RATING

Publisher:	Impressions
Price:	£39.99
Contact:	(071) 351 2133
Minimum PC:	286
Minimum memory:	640K
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster, Roland

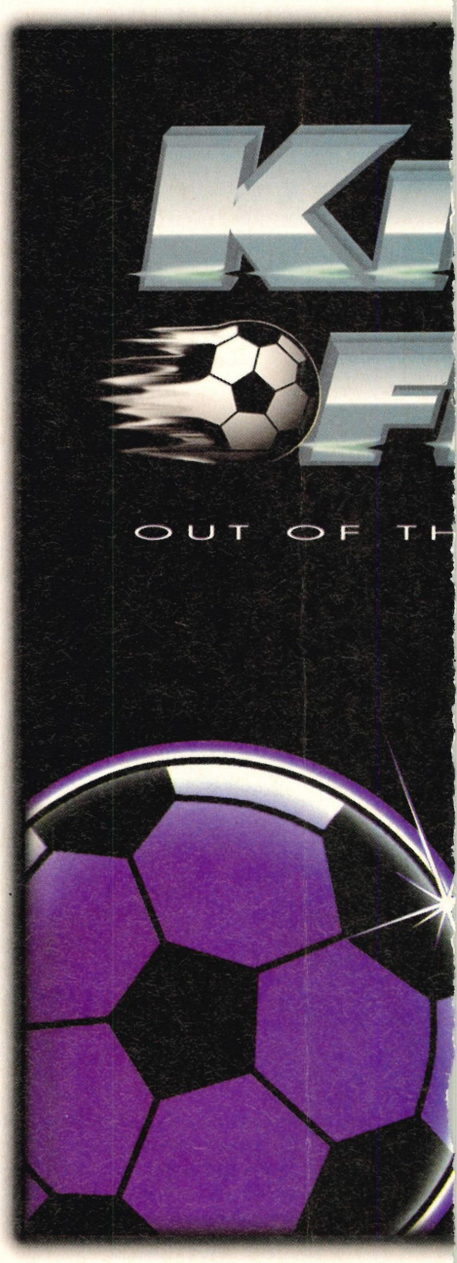


KICK

you know it's...







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CD32 PC & COMPATIBLES PC CD ROM

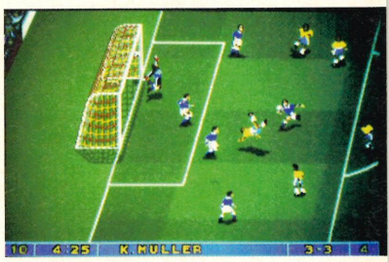
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KICK OFF 3



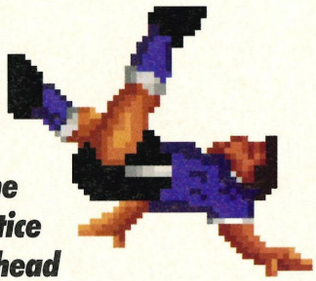


*the Brazilian **Playmakers** to split the opposition with pinpoint passes or the German **Sweeper** to build from the back. Play the ball to the dashing full backs from Cameroon or release the flying Dutch **Wingers**.*



PC COMPATIBLES

KICK OFF 3 is packed full of dynamic features that set it apart from any other football game.



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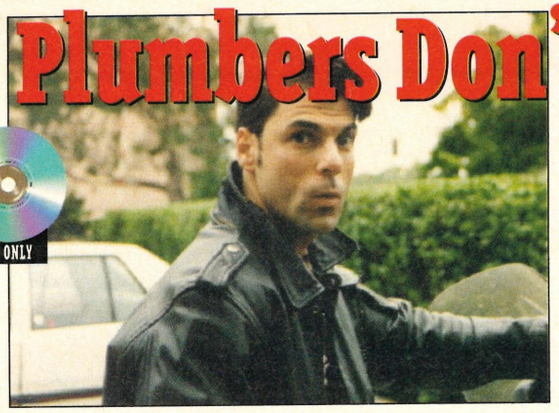
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Plumbers Don't Wear Ties



CD ONLY

Lawnmower Man ... Microcosm ... Quantum Gate ... come back, all is forgiven. OK, so we said that they were all graphics and no gameplay when we reviewed them, but I now realise that PC Review has done these (and other CD-ROM games) a terrible injustice. For I have just played Plumbers Don't Wear Ties.

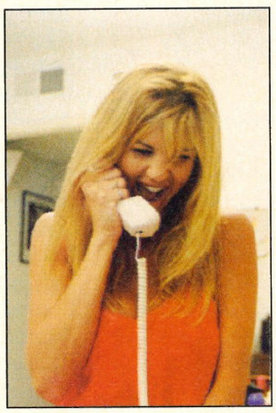
Actually, I haven't. You can't play Plumbers Don't Wear Ties. You can watch it, perhaps, but I'm not entirely sure that it's a game at all. Billed as an interactive romantic comedy, Plumbers is far more like an on-screen Viz photo story. Except that it isn't as funny. And the standard of acting isn't as high.

The plot is played out as dialogue spoken over a series of still photographs. At rare intervals, you get to choose what path the 'action' should follow, from a multiple choice list. Whatever you choose first always seems to be the wrong option, so that you end up being dragged back to try some of the other story-lines to give the game a false veneer of non-linearity. The set of options is introduced by a narrator who wears a chicken's head, a three piece suit and flip-flops. The only purpose that he serves, as far as I can see, is to drag out the playing time of the game to 105 minutes.

A True Romance Part one: John and Jane's eyes meet across a crowded car park — it's love at first sight. Oh dear.

The story itself is that boy (John) meets girl (Jane) and you have to get them together in a clinch by the end of the tale. In real life, this should be fairly easy: they're both single, and attractive in a stereotypical sort of way, and they bump into each other in a car park. In the game, though, the path of true love has been roughened by the fact that he's a plumber and she's a "Daddy's girl", whatever that is. So what?

A True Romance Part two: The bit where BT start to make a profit — John gives Jane a call — or something.



The dialogue is deliberately corny, and since there's no animation the acting is limited to tableau gestures and facial expressions. These are intended to be hammy, but most of the time the characters look as though they may be about to have a particularly troublesome bowel movement.

What's really naff about Plumbers is its embarrassingly amateur attempts at self-referential parody. No. What's really naff is that these are deliberately amateur self-references. So that the narrator gets 'taken over' by a karate-kicking woman halfway through. So that they leave one of the out-takes in because it's 'funny'. So that Jane's knickers are a different colour in each scene — hey, let's send up poor continuity control! — and there's an obligatory chase scene where all her clothes fall off. This might work if the script was any good and the story even remotely engaging.

Plumbers is like those 1970s Confessions of a Window Cleaner films made by fourth formers. In fact, it almost makes it into the 'so bad, it's good' bracket, but I would categorically advise against spending any of your own money on this.

■ **Christina Erskine**

· TECHSPEC ·

Minimum PC:	33Mhz 386, Windows 3.1, CD-ROM
Minimum memory:	2Mb
Minimum graphics:	256 colour VGA
Sound:	Windows compatible stereo sound card
Publisher:	United Pixtures
Price:	£29
Contact:	(061) 429 0242

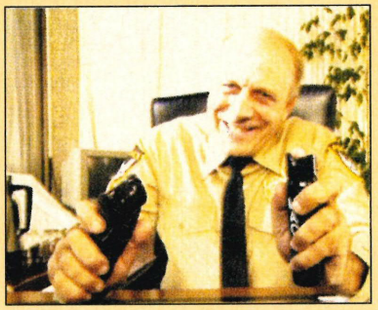
RATING 1

GAMES

SimCity CD

Compared to the brilliant SimCity 2000, the original SimCity game looks positively ancient. But despite its chunky buildings, lack of water pipes and total absence of arcologies, SimCity is still a highly addictive game and if you've got a CD-ROM drive you can now play SimCity CD, a revamped, multimedia town planning experience that boasts jazzed up graphics, speech and video .

The digitised speech is very crisp and clear and enhances the usual text information about traffic problems and citizens demanding marinas. But it's the video snippets you'll probably be most interested in and these pop up whenever something dramatic happens like a dodgy decision, a problem or a disaster. In fact it's actually quite impressive when an FMV clip shows your grim-faced adviser telling you that your road network is falling apart or that your smoke-belching power station is about to go kaboom.



· TECHSPEC ·

Minimum PC:	386, mouse
Minimum memory:	2Mb
Minimum graphics:	EGA, VGA, MCGA
Sound:	Sound Blaster, Pro Audio Spectrum
Publisher:	Interplay
Price:	£49.99
Contact:	(0865) 390029

RATING 5

At first glance SimCity CD looks and sounds great. Everything is, as they say, peachy. But, when you've been playing SimCity CD for a while, any positive feelings you might have about the game, will soon degenerate into frustration.

Although the speech is actually quite good, after about five minutes it becomes unbearably annoying. I'm sorry but I don't need to be told that I've selected the "road" icon, I know I've selected it, I can see that. And when "citizens demand stadium" keeps being repeated every 10 seconds, you soon find you're frantically searching the menu bars for the option to turn it all off. In fact it's probably better to play in silence because the speech seems to slow the whole game down to a crawl.

And then there's the video clips. Now these are a nice idea, but after a while even these become tiresome — great ham acting from the cast, though. Of course you can switch the speech and the video clips off but then you're left with little more than the original game which you can get for £16.99 on the Kixx XL budget label.

You really have to wonder why anybody would want to play the old SimCity game when you can get much more variety and a bigger challenge with SimCity 2000. OK, you can import your old SimCity towns into SimCity 2000 but if you're used to the complex depth of SimCity 2000 then I doubt a few video clips and a bit of speech can persuade you to buy SimCity CD.



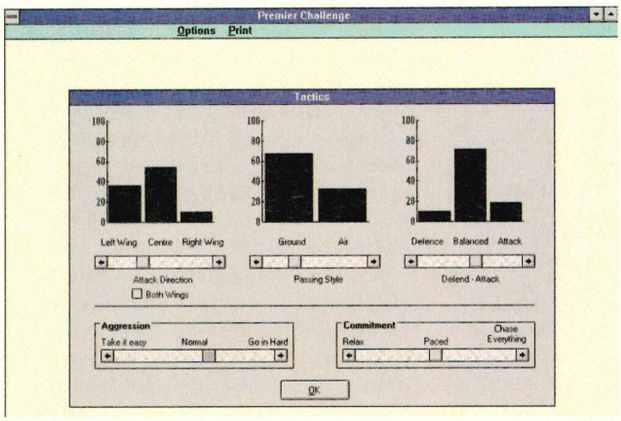
Whizzy graphics and sampled speech surprisingly make the game more irritating, rather than enhanced.

To my mind you're better off sticking with SimCity 2000. It's bigger, better and much more fun. If you want to play on CD, I'd suggest that you try to hold out for Christmas when Maxis will be releasing SimCity 2000 CD, a version that will feature extra scenarios and even a building editor. But don't quote me on that OK?

■ **Dean Evans**

CD ONLY

Premier Challenge



The tactics screen: you can adopt any style from the Wimbledon approach (hard-tackling, long-ball) to the more cultured Manchester United approach (neat passing, lots of skill).

Football strategy games running under Windows are a rarity. WinSport's Premier Challenge redresses the balance, providing a complex, very playable and (at times) exciting football program.

At the start of the game you are offered control of a randomly-selected club; refuse the post and you get a choice of any team from the four main divisions (non-league clubs aren't catered for). Obviously, most people will choose the team they support.

Premier Challenge gives you control over the major aspects of running a football club. The most important part is how you perform on match days: after picking the team you determine the formation and select from a variety of tactical options.

A wide range of statistics will please fact freaks. Over 1,800 players are included, with detailed breakdowns of their performances, fitness, training schedules and value. You play in all the major competitions (League, Coca Cola Cup and FA Cup) as well as play-offs, end-of-season matches and friendlies. Naturally, all the League tables, leading goal scorers and transfer dealings are listed in great detail.

If things get too sticky financially, you can always cheat — by changing jobs, transferring the top players to your squad, arranging a sponsorship deal or using the magic sponge (which instantly solves your injury problems).

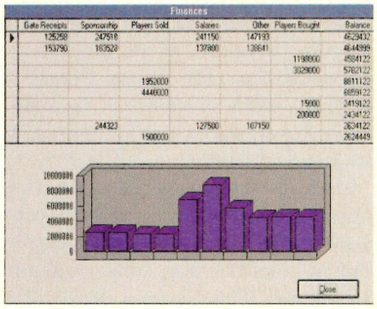
Premier Challenge's strengths lie in its wealth of detailed statistics, its concise presentation and, of course, the chance to control your own team and affect football results — an irresistible pull for any footy fan. The drawbacks lie in graphics (the match sequences are pretty poor), the in-game commentary (very minimal), and the fact that the club player lists are about a year out of date. Despite these defects this should still appeal to anyone who fancies the challenge of running a football club.

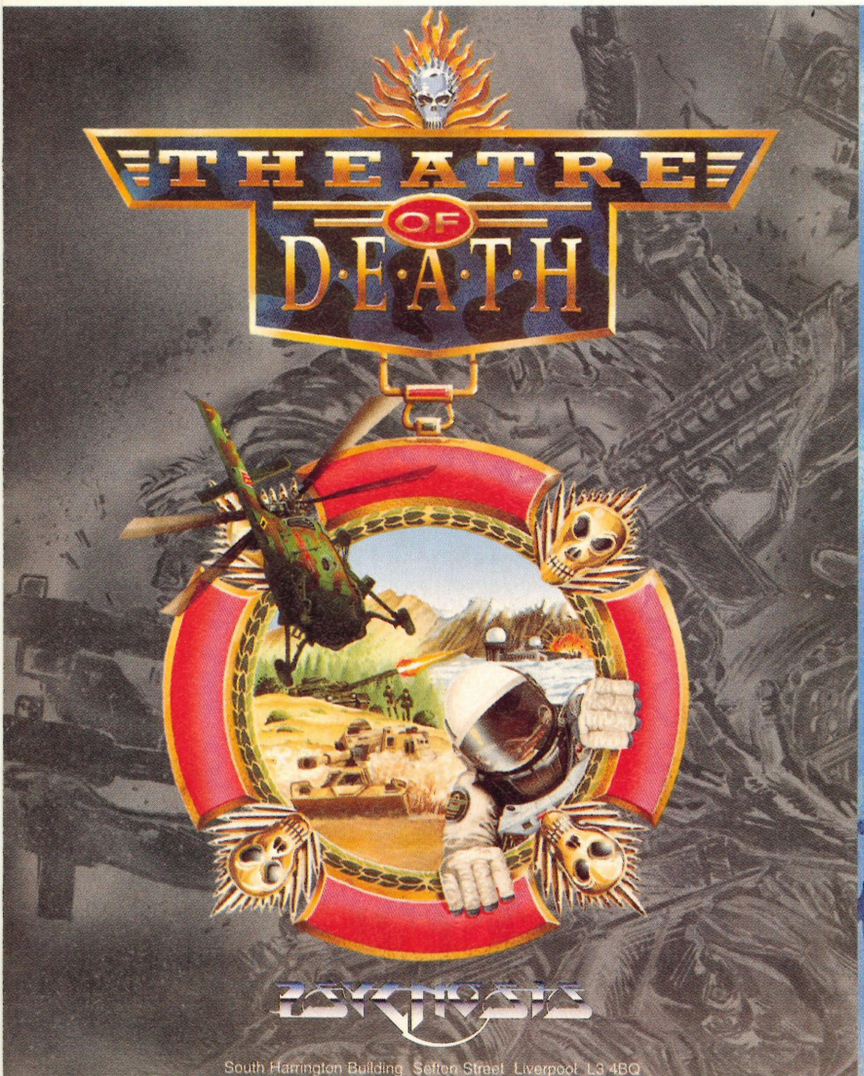
■ **Gordon Houghton**

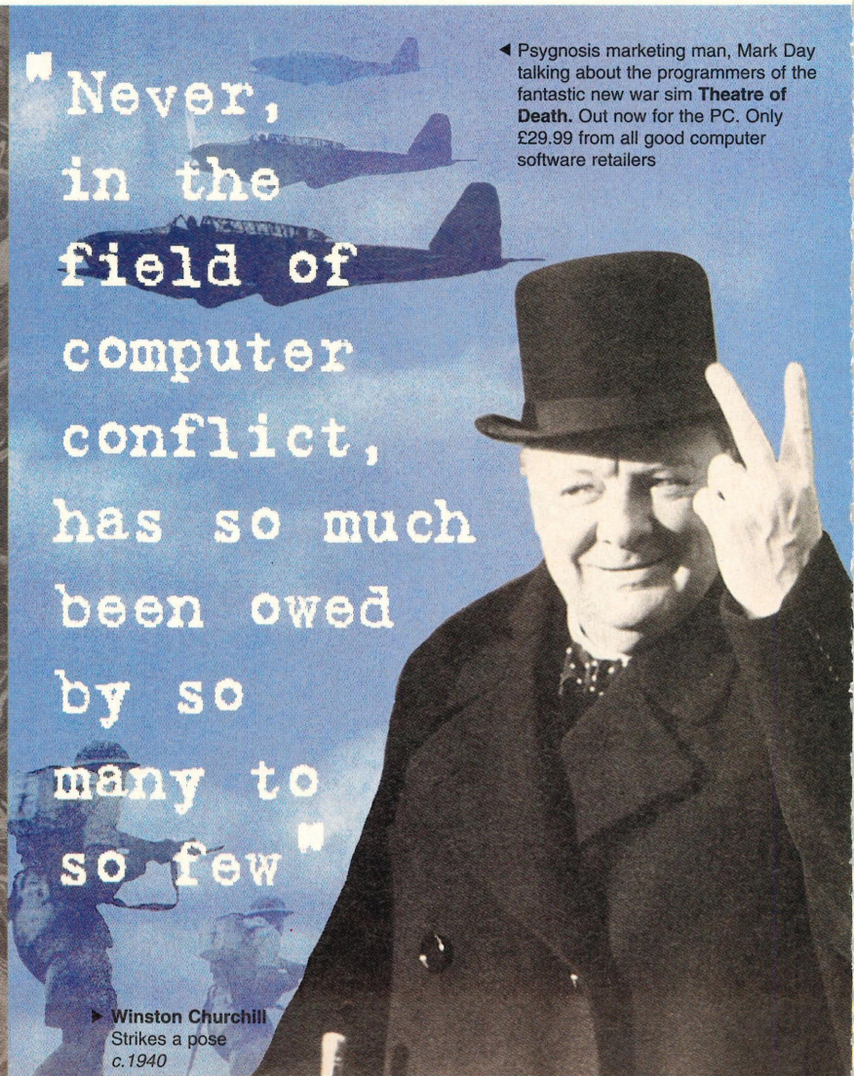
· TECHSPEC ·

Minimum PC:	386SX, MS-DOS 5.0, Windows
Minimum memory:	1Mb
Minimum graphics:	VGA, SVGA
Sound:	Ad Lib, Sound Blaster
Publisher:	Winsport
Price:	£34.99
Contact:	(0628) 473315

RATING **5**





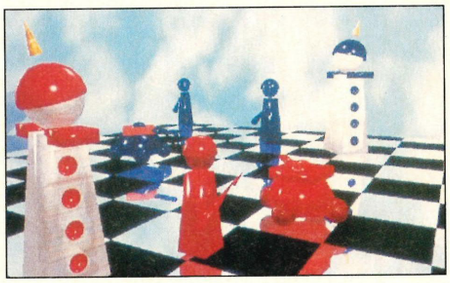


◀ Psygnosis marketing man, Mark Day talking about the programmers of the fantastic new war sim **Theatre of Death.** Out now for the PC. Only £29.99 from all good computer software retailers

▶ **Winston Churchill** Strikes a pose *c.1940*

Budget games

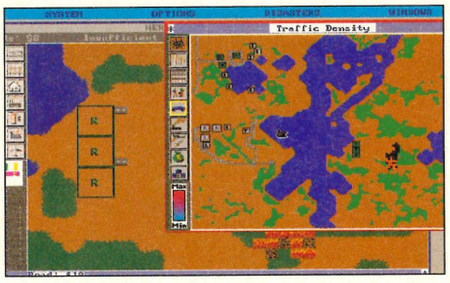
This month's crop of budget bargains includes the good, the bad, the classic and the best forgotten...



Theatre of War
360/ Hit Squad
£12.99
Full price version rated 6, Issue 12

Odd and unusual game which defies categorisation. It is neither action or strategy, chess simulation nor war game yet contains elements of all these. The central idea of the game is to destroy your opponent's — either human or computer controlled — emperor piece, with the action set against three backdrops, mediaeval, Great War, and contemporary. Perhaps a little too clever for its own good. Originally released in the autumn of 1992, price £34.99.

★★



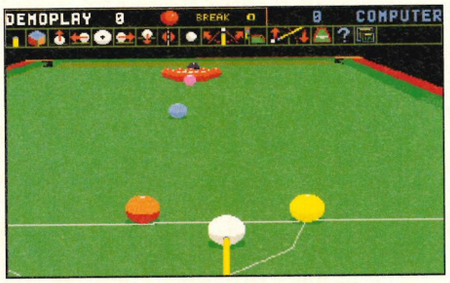
SimCity Classic
Maxis/ Hit Squad
£16.99

A classic game of its day, but this original artefact now looks distinctly primitive when compared to the later SimCity 2000.

Essentially SimCity Classic is the same sort of game, build your empire, balance the budgets and watch out for fire, flood and monsters suddenly appearing to destroy your handiwork. Without the 3D view to the game it really looks dated. And is this really a budget price? When originally released — sometime before PC Review was launched (nearly three years) — it cost £17.99. Not much of a saving here.

You'd probably be best advised to save up for SimCity 2000 to avoid disappointment.

★



Jimmy White's Whirlwind Snooker
Virgin/ Hit Squad
£14.99
Full price version rated 9, Issue 11

Classic game which has stood the test of time. Originally out in 1992, JWWS has retained all its freshness and playability. Impressive attention to detail lifts this simulation to capture the sports feel, whether playing against the computer, another player or just impressing yourself with trick shots. A must buy. Originally priced at £30.99.

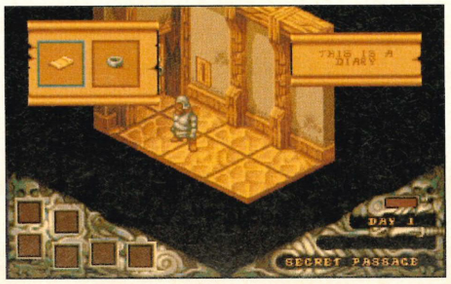
★★★★★



King's Quest III: To Heir is Human
Sierra/ Kixx
£14.99

A truly ancient offering — from 1986 — from the seemingly never-ending King's Quest series. It does not compare too well with today's PC offerings. Describing the graphics of this interactive 3D adventure as 'lifelike' is laughable today. But what really lets the game down is the sheer tweeness of this series.

★



Cadaver
The Bitmap Brothers/Kixx
£14.99
Full price version, rated 7, Issue 3.

Stylish, clever and playable, this 1991 adventure can trace its roots to the early 1980s Spectrum classics such as Knight Lore. Five levels of exploration, problem-solving and battles to keep you amused and entertained. Original price, £35.99.

★★★



Lure of the Temptress
Virgin/Hit Squad
£14.99
Full price version rated 8, Issue 10

Tried and tested adventure which used what was then (mid 1992) a new system called 'Virtual Theatre.' Virtual Theatre attempted to create a believable environment in which to play. It succeeded and still succeeds in doing this fairly well. Original price £35.99. Enjoyable.

★★★



MiG-29M Super Fulcrum
Domark/ Hit Squad
£14.99
Full price version rated 7, Issue 2

Enjoyable compromise between realistic flight simulation and pack in the action shoot 'em up with realism coming a poor second. For example, there is no cloud, wind, passing of time or night flights. Nevertheless, the mission scenarios are fun enough. Now showing its age, Super Fulcrum first took to the air in 1991 with a £40.85 price tag.

★★

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PC MAGAZINE UK EDITOR'S CHOICE OCTOBER '92

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Average street price	£499	£479	£479	£489	£449
Maximum resolution in dots per inch	400 x 400	300 x 300	300 x 300	300 x 300	300 x 300
Windows 3.1 driver @ 400 dpi	YES	-	-	-	-
Amiga driver @ 400dpi available	YES	-	-	-	-
Print speed	6ppm	6ppm	4ppm	4ppm	6ppm
Straight paper path for all media	YES	-	-	-	-
PCL 5 printer command language	YES	YES	YES	YES	-
Resolution improvement/enhancement	YES	YES	YES	YES	-
Standard RAM	2Mb	1Mb	1Mb	1Mb	0.5Mb
Full A4 page graphics @ 300dpi with standard RAM	YES	YES	YES	-	-
Full A4 page text @ 400dpi with standard RAM	YES	-	-	-	-
Warm up time	<45 secs	<90 secs	<34 secs	<15 secs	<35 secs
First page of text output	<15 secs	<20 secs	<34 secs	<34 secs	<19 secs
Layout 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	8	13	26	8	-
Resident bit-mapped fonts	14	18	-	7	7
AGFA Intellifont scaleable font technology	YES	-	YES	YES	-
HP LaserJet III emulation included	YES	YES	YES	YES	-
EPSON FX emulation included	YES	YES	-	-	YES
IBM ProPrinter emulation included	YES	YES	-	-	-
Standard tray capacity	100	150	100	100	150
Cost per copy**	1.65p	1.80p	2.40p	2.10p	1.95p
Min-max paper weight in gsm	60-157	60-105	60-105	64-105	60-157
Able to print on OHP film	YES	YES	YES	YES	YES
Able to print on 157gsm card (manual feed)	YES	-	-	-	YES
Printing - noise level	<48dB(A)	<50dB(A)	<48dB(A)	<46dB(A)	<45dB
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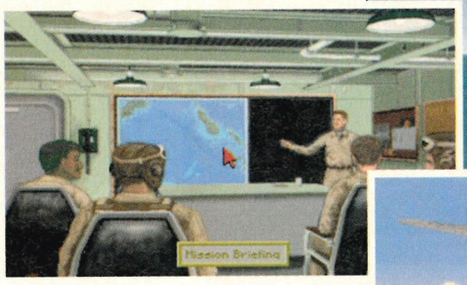
Everything the PC aviator could possibly want! – courtesy of MicroProse

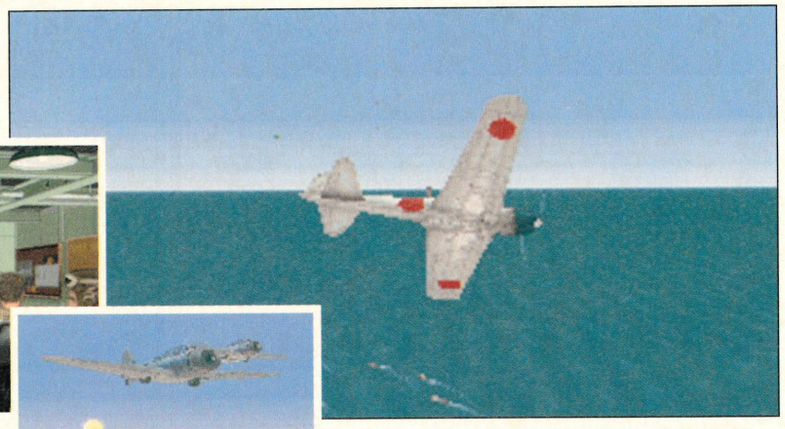
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The jacket comes in a choice of khaki green or beige, and in three sizes, so one of these should suit you just fine.

You'll also find lots of goodies in the MicroProse Aviator Pack, a veritable treasure trove containing a MicroProse rucksack, Fleet Defender mug and T-shirt, highly desirable aviator sunglasses, a limited edition F14 pin badges, and other little knick-knacks. And finally, you get a copy of Pacific Air War, which in our humble opinion, is the best Pacific theatre flight sim on the market at the moment. Read the review on page 54 for the full evidence.

Now, there are only four sets of these prizes to give away, so roll up your sleeves and get to work with the not-too-taxing questions we've set below (readers with long memories will be relieved to hear that we're not going to ask you to identify aeroplanes this time around). And if you don't win one of the first prizes, well, we're giving away 10 (yes, 10,) copies of MicroProse's very excellent F14 Fleet Defender.





The prizes

Four first prizewinners will win the following:

- MicroProse flying jacket
- MicroProse 'aviator' pack with lots of great things in it
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- Plus 10 runners-up will win a copy of F14 Fleet Defender.

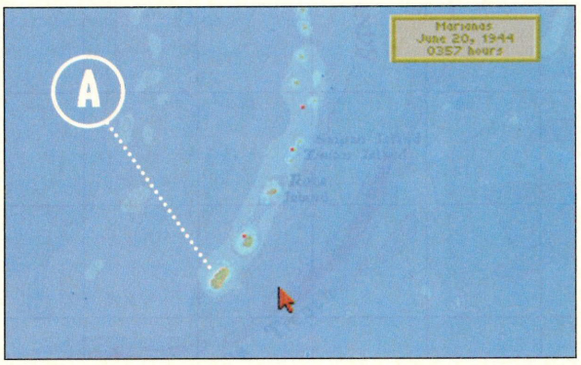
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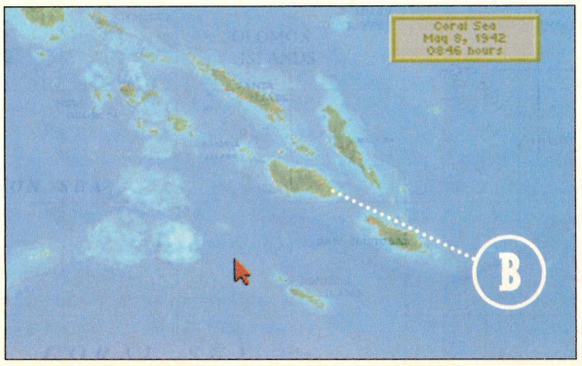
On this page you will see two maps of areas crucial to the Pacific War in 1942, taken from the game Pacific Air War. We want you to identify the islands marked on the maps as A and B.

When you think you know the answers, mark them on the coupon below. Then complete the form, and send it (or a photocopy if you don't want to spoil your copy of the magazine) to:

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It must reach us by July 15th, 1994. This is the closing date and any entries which arrive after that will be folded into a paper aeroplane and nosedived into the bin.





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Answers
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medium ❒ large ❒ extra large ❒
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PC Review Issue 33 July 1994

COMPETITION

Beneath a Steel Sky

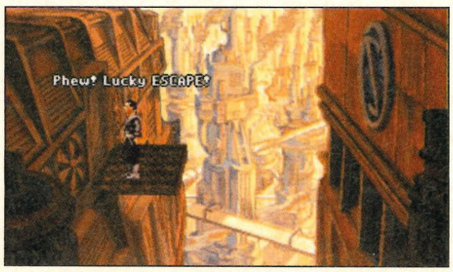
The sky may look gloomy, but the outlook's bright. Judith Kunst has a solution for Beneath a Steel Sky.

The start

Take the rung (on the left) and use it on the door opposite. When the guard has gone, go downstairs and then right. Look at the junk, use the circuitboard on the robot shell and talk to Joey. Try to use the transporter. Go right again and talk to Hobbins. Ask what's wrong with the transporter, then ask Joey to start it. Stand on the lift. Hobbins will come to complain. Go straight to the room on the right, open the cupboard and take the spanner. Return to the lift. When the transporter has put a drum on the lift, use the hole to descend. Joey will follow. Look at the lock. Ask Joey to open the door. Reich will come in. After he dies, search his body. You now have an ID card. Leave through the door. Walk right. Use the ID card on the terminal next to the lift and read everything. Access to the security services isn't possible yet.

The factory

Enter the factory (on your right) and talk to the woman (Anita). Lamb sends Anita away. Tell Lamb you are a security officer looking for a fugitive. Go right and talk to Potts. Try walking left into the store room — the alarm will go off. Ask Joey to check out the store room. When he returns he'll tell you that there's a fuse box inside, but he can't do anything with it in his present shell. Use the spanner on the cogs in the machine next to the store room. Retrieve the spanner from the broken machine. Go left and use the spanner on the welder robot. Ask Joey if he would like a new shell. When Joey has his new shell go back to the entrance of the store room and ask Joey to disable the fuse box. After Joey returns enter the storeroom. Lift the gangway. Pick up the putty and give it to Joey for analysis. Exit. You'll be searched by Potts. Leave the factory. Go as far right as you can go and enter a room with a sleeping mechanic.



Make sure you talk frequently to everyone, especially Joey. This may mean asking the same question more than once.

The power room

Talk to him. Try to press the buttons on the machine on the right. Use the spanner on both buttons, then ask Joey to press one button while you press the other. After the mechanic leaves, use the switch to turn the power off. Take the lightbulb. Use the putty on the socket. Switch the power on. When the door has been blown open press the switch on the right. Return to the lift.

Downstairs

Use the card in the slot by the lift. Wait for Joey and go down. Enter Bellevue (the entrance next to the second lift). Use the card to open Reich's door. Enter the apartment. Move the pillow and take the magazine. Leave Bellevue and go right to the sculpture. Enter the travel agency. Talk to the man. Book a tour. Give the magazine to the man as payment. Take the ticket. Find Lamb, talk to him and give him the ticket. Return to the factory.

The factory

Meet Lamb for your tour of the factory. Once you're on your own, go right past Potts and talk to Anita. Give her the ID card to get the jammer. Talk to her again. She will tell you to get a Schriebmann Port. Leave the factory and use the ID Card on the terminal next to the lift. Choose 4. Enter the number for the area code (page six of the manual) and address. In security services press 2 (Special Operations). Press 1 (file adjustment). Press 1 and 2. Now Lamb is D-Linc. At this point, exit the terminal. Then when you ave done so, take the lift down.

Lower walkway

Go to Burke's Bio Surgery. Use projector and talk to the hologram. Tell her you want a Schriebmann Port. Ask Joey to use his natural charm on her. Repeat until successful. Enter the surgery and talk to Burke. Offer him absolutely every organ that you have. After getting the Schriebmann Port talk to Burke and ask him how to get to ground level. He'll advise you to go and take out insurance. When he has done so, go to the insurance company. Look at the statue. Talk to Billy. Ask him for a special policy and say that Burke sent you. When he leaves, ask Joey to use the welder on the statue. Take the anchor. Take the lift to go upstairs. Talk to Lamb. Offer to feed the cat. Look at the red cable next to the lift. Ask Joey to cut it. Go back down and take the cable. Go to Bellevue and use Lamb's card to enter his apartment. Use the machine to feed the cat. Take the video cassette. Go back upstairs.

LINC space

Return to the fire escape near the start of the game. Use the rope on the anchor to make a grappling hook and use it on the sign on the opposite building. Walk through the door into the control room. Use the ID card in the slot next to the interface. Use the interface. Take the ball. Exit to the second room. Use the "open" symbol from the inventory on the carpet bag. Pick up the birthday present and the magnifying glass. Use the "decompress" and the "magnifying glass" on the two files in the inventory. Use them on the ball too. Exit right (not the one in the middle!) and use the passwords (from the inventory) in the holes to get to the other exit. Take the book and the bust. Use the magnifying glass on the new file. Disconnect. Use the ID card on the terminal. Press 4 (security services). After typing the codes choose "view document". Read the three documents. Return to the main menu. Choose "special operations". Choose "special status request". Exit terminal. Use the ID card to call the lift. Go down and take the lift near Bellevue to descend to the park.

The park

Retrieve the circuit board from the junk. Talk to the guard. Go left and talk to the doorman. Ask Mrs Pierson to sponsor you. Tell her that Overman is your father. Enter her apartment and talk to her. While she is telephoning, use the video cassette in the VCR. Take the dog biscuits from the bowl. Exit. Meet Mrs Pierson back in the park and ask about Spunky. Use the biscuits on the plank (near the lift) and the rope. When Spunky is in the pond, enter the cathedral. Go to the exit which leads to a locker room. Open the lockers. Discover Anita. Go back to the doorman.

The club

Enter the club. Talk to the barman and the card players. Look at the door near the band. Ask the barman where the door leads to. Return to the factory.

The reactor

Go to the entrance of the reactor. Open the lockers and use the overalls. Go right. Use the control panel. Choose 2 (open reactor door). Enter reactor. Pick up Anita's card. Return to the lockers and use your coat. Leave the factory.

LINC space

Go to the room with the two security guards. Use the ID card in the slot near the lift to enter the control room. Use Anita's card in the slot next to the interface. Use the interface. Go to the exit; in the room with the carpet bag, use the blind from the inventory on the eye. Leave immediately through the middle exit (if you're too slow you'll be thrown out of the LINC space and will have to try again). Ignore the crusader. Go through the exit in the middle and use the "playback" (from the inventory) on the well. Disconnect after Anita's instructions. Go to the park.





Courtroom

Talk to the gardener and the boy. Talk to the gardener again until he admits he's Eduardo. Enter the courtroom (left of the club entrance). After defending Hobbins, go to the club, use the jukebox and select "you search but find nothing". Go to the card table and when Colston leaves, grab his glass.

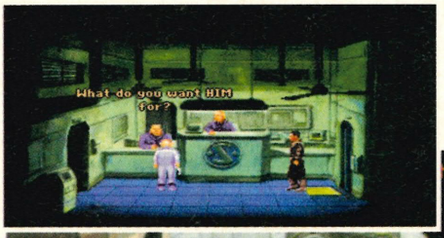
Try to work out which objects will be useful and which won't. As many of them will help you access other areas.

Fingerprints

Go to Dr Burke. Give him the glass to get new finger prints. Return to the park and go to the locked shed. Use a card on the lock to open the door, go inside and take the secateurs. Go back to the club. Use the metal plate next to the door.

Subway

Use the box. Use the metal bar on the crate. Pick up the wooden lid and put it on the box. Use the box. Use the metal bar on the grille. Use the secateurs on the grille. Use the narrow passage. Walk right. Keep left at the junction. Walk on BUT STOP BEFORE THE HOLE IN THE TUNNEL WALL. SAVE THE GAME! Use the light bulb on the socket just before the hole. Go through the door and RUN IMMEDIATELY to the other exit. Use the metal bar on the plaster. Use the metal bar on the brickwork. Pick up the brick. Use the metal bar on the swelling. Use the brick on the crowbar in the vein. When the robot opens the door enter the room. Use the grill and watch the attendant. Go through the open door to the room with the pit. Use the control unit. Choose 2 (reduce temperature). Walk on the cover of the pit. Use the metal bar attached to the grill. Return to the first room. Walk right and enter the room with the robot. Use the circuit board on the robot's slot. Talk to Joey. When he returns, ask him to open the tap on the nutrient tank. Follow Joey inside. The attendant falls into the hole. At this point in the proceedings, go to the other exit and walk right into the control room.





Second control room

Use the ID card on the terminal. Choose 2 (access restricted area); choose 1 (open door). Exit terminal. Leave the control room. Search Gallagher after his death and take the circuitboard from the robot. Return to the control room and use Gallagher's card in the slot next to the interface. Use the interface. Use the blind on the eye in the first room. Go on to the room with the carpet bag; use the blind on the eye and hurry through the exit in the middle. Ignore the crusader. Go through the exit in the middle. In the room with the well go through the right exit. Take the "tuning fork". Return to the room with the crusader. Use the "divine wrath" from the interface on the crusader. Go to the exit on the right. Use the "oscillator" on the crystal. Pick up the helix. Disconnect. Leave the control room.

Ken

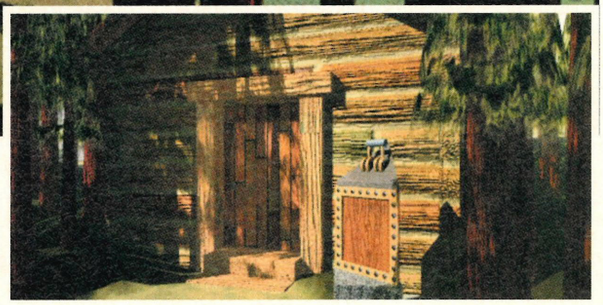
Go right through the open door. Use Gallagher's card on the computer. Pick up the tongs next to the tissue tank. Use the tongs on the tank and the cold tank. The tissue is now frozen. Walk into the next room. Open the cabinet under the second console. Put the circuitboard in the cabinet. Use the console. Choose all numbers. Talk to Joey. Walk into the next room. Use the hand panel. Ask Ken to use the hand panel. Ask again. After using the hand panel simultaneously with Ken the door opens, but Ken is stuck. Leave him. Walk into the next room. Go to the end of the pipes where the rungs lead down.

Finale

Use the cable on the pipe support. Climb down the rungs. Use the tongs on the orifice. Use the cable. SAVE THE GAME. Talk to Ken and ask him to sit in the chair.

Myst

Cal Jones tells you how to escape Myst Island in an introduction to this puzzling adventure.



Myst Island

When you arrive, pick up the note and read it. Go to the chamber by the dock and use the dimensional imager to find out what the marker switches look like. Explore the island and count the switches, then enter the number in the dimensional imager to get hold of the message.

Next, go to the library. Place the pages in the red and blue books to receive messages. Examine the bookshelf. Most of the books have been destroyed, but a few are still intact. Of these, each describes a different Age — note down any information contained in the books.

Examine the paintings. The left picture opens a secret passageway to the tower, and the right picture opens the door to the outside. Then look at the map. This controls the rotation of the tower. When the marker switches are flipped, the island's buildings also become visible on the map. Click on the tower until the line turns red. The line will then lock on to buildings which contain books connected with the various Ages.

After opening the bookcase, enter the passage and take the lift to the top of the tower. There are two ladders: one in front of the lift and one behind it. Climb the front ladder to view the building, then climb the rear ladder to discover the answer to the puzzle connected with that building.



You can hold only one red or blue page at a time. Clicking on a new page will cause the page you are holding to return to its original location.

To the Selenitic Age

The book to the Selenitic Age is inside the spaceship. To open the door, you must generate the correct voltage (59 volts) in the power station. Inside you'll find a panel which controls ten generators. Click on each one and note the voltage generated. You need to press the right combination of buttons to add up to the target voltage. If too much power is generated, one of two circuit breakers will trip, causing the right gauge to fall to zero. If this happens, you must go outside to check which breaker has tripped. The switches

are located outside the power station and the spaceship. The switches will be down if thrown — push them up to reset.

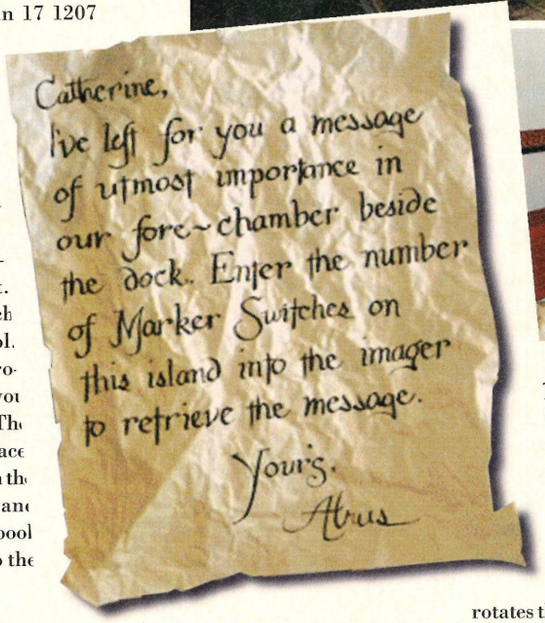
Next, go inside the spaceship and play the keyboard notes according to the sequence found in the Selenitic book in the library. Listen to each tone and match it against the tuner sliders on the opposite side of the ship. Click on the animation to be transported to the Selenitic Age.

You'll need a pen and paper to note down information and clues you uncover during the game.



To the Stoneship Age

Go into the planetarium, turn off the lights and sit in the dentist's chair. Enter the dates Oct 11 1984, 10:04am, Jan 17 1207 5:46am and Nov 23 9791 6:57pm in the star plotter and make a note of the constellation shapes. Compare these to the Stoneship book in the library to find out which shapes these constellations are associated with. Then go to the bird bath containing the sunken toy boat. The surrounding pillars each bear a constellation symbol. Click on the symbols appropriate to the constellations you viewed in the planetarium. The toy ship will rise to the surface as will the real ship sunken in the docks. Go to the docks and board the ship and find the bool which will transport you to the Stoneship Age.





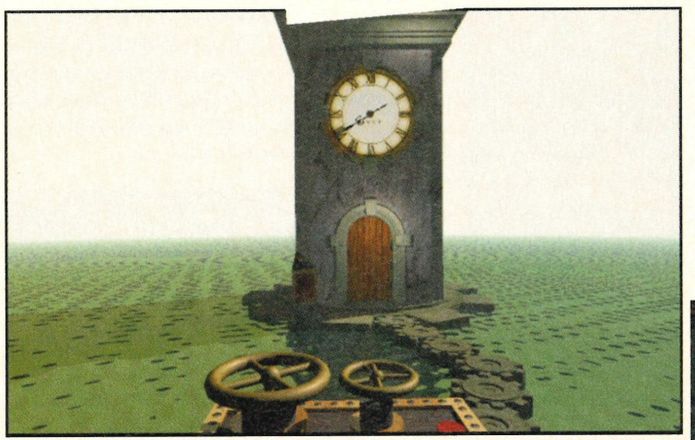
To the Mechanical Age

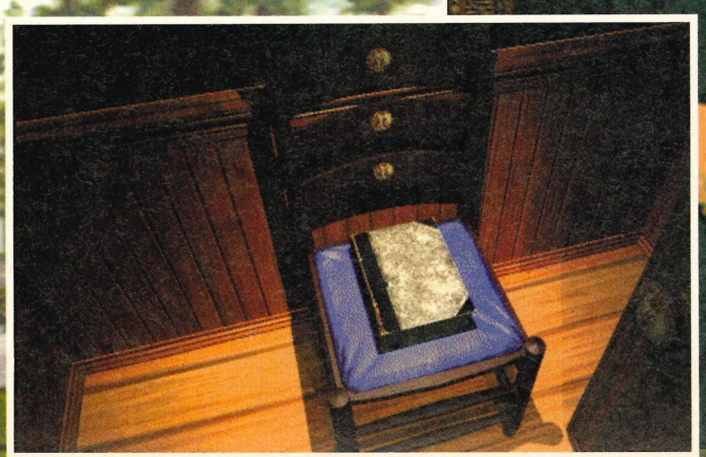
o to the clock tower and set the clock to 2.40 to bring up the causeway. Now you need to set the gears to the correct combination (2:2:1). The left lever rotates the bottom and middle gears, whilst the right lever rotates the top and middle gears. If you pull and hold the lever down, both gears turn once, but the middle gear will continue to turn. The far right lever resets the puzzle.

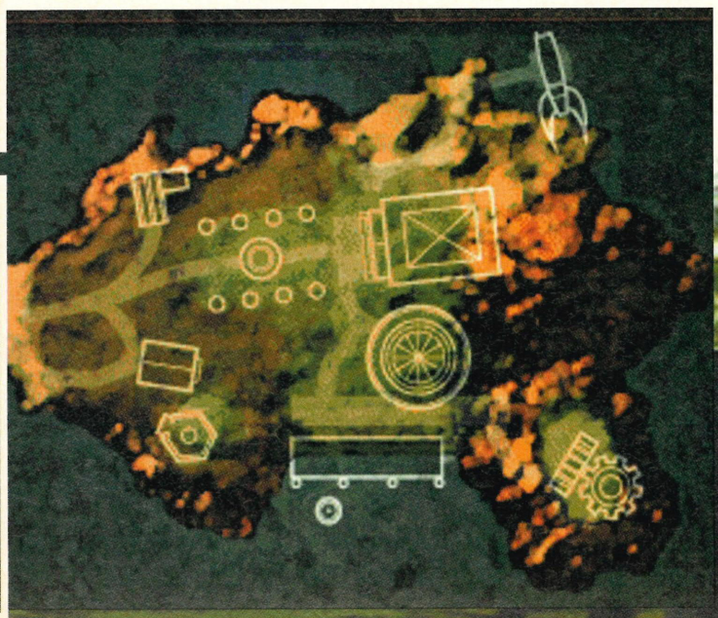
When you've solved this, a door will open in the giant cogs near the dock. The book inside will transport you to the Mechanical Age.

To the Channelwood Age

Go to the log cabin and enter the combination (7,2,4) to open the safe. Take the matches and use them to ignite the furnace pilot. Turn the wheel clockwise until the furnace is lit — this powers the tree lift and will bring it above ground level. Wait until you can no longer hear the lift moving upwards, then turn the wheel anticlockwise to turn the furnace off. Quickly go outside, walk forward one step and then turn round to see the tree lift. Walk to it, and as the lift reaches ground level, click on it to enter. It will take you to the book which will allow you to enter the Channelwood Age.







Megarace

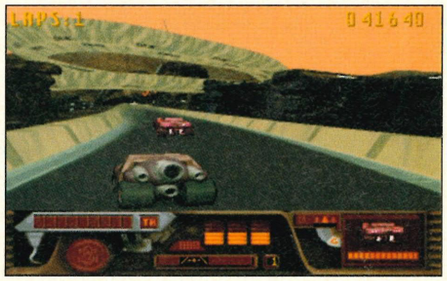
Andrew Watts from Romsey in Hampshire has discovered a nifty track-skipping hack for those of you still going round in circles in Megarace on CD-ROM. Firstly complete the first race (if you can't do this, give up now!) and save your game as CHEATMNU. Quit out of the game and back up the saved game by typing:

COPYCHEATMNU.SAV CHEATMNU.BAK.

Now load the original CHEATMNU.SAV into your favourite hex editor and tweak it so it looks like the one below.

00000000 33 30 00 00 00 00 01 00 02 00 02 00 00 00 33 4C
00000010 45 46 54 20 20 20 20 3A 2E 2E 2E 20 34 52 49 47
00000020 48 54 20 20 20 3A 2E 2E 2E 20 1E 53 50 45 45 44
00000030 20 55 20 3A 2E 2E 2E 20 2C 53 54 4F 50 20 20 20
00000040 20 3A 2E 2E 2E 20 39 46 49 52 01 00 01 00 01 00
00000050 01 00 01 00 01 00 01 00 01 00 01 00 01 00 01 00
00000060 01 00 01 00 01 00 01 00 01 00 01 00 01 00

Now reload Megarace, load the CHEATMNU saved game and select a car for your next race. A menu will appear enabling you to choose any level.



UFO

Jarle Berakvam from Stavanger in Norway has written in with a tip for MicroProse's superb strategy game UFO: Enemy Unknown. If your Xcom organisation keeps running short of money, try the following cheat and give yourself oodles upon oodles of cash.

Firstly start a new game and then save it in the first save game slot. Now use a disk editor and edit the file:MPS\UFO\GAME_1\liglob.dat. In the first line, ie, the first hex address type in the values: 00 E9 A4 35. Now restart the game, load the saved game and you'll now have $900 million to play with. If you run out of money again, simply repeat the procedure.

Rebel Assault

If you own a CD-ROM drive and were lucky enough to get your hands on a copy of the May issue of PC Review, you'll no doubt have been playing the two chapters of the brilliant Rebel Assault demo. But what you probably didn't know, and what Thomas Daniel from London is just about to point out, is that you can also play



chapters three and six of the game as well.

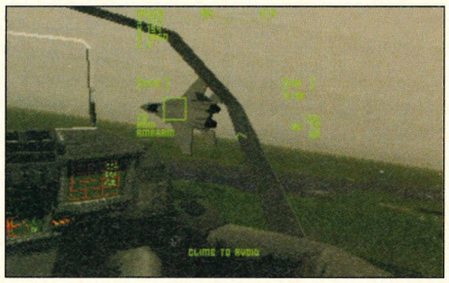
To access these extra playable levels (namely the training run on planet Kolaador and the battle in the asteroid field) type 03 or 06 on the death star intro screen. And if this wasn't good enough, you can also reset your damage to zero by pressing the Plus (+) key.

TFX

It seems that we were big in Norway last month because yet another keen Norwegian games player has dropped a letter to the PC Review tips pages. Ketil Stadskleiv from Beitastad has a cheat for TFX that allows you to bump up your rank. How do you do it? Simply DEBUG any TFX.SAV file and then enter any one of the following codes:

E013F01 (1st Lieutenant)
E013F02 (Captain)
E013F03 (Major)
E013F04 (Colonel)
E013F (General)

then type W and Q to save and exit.

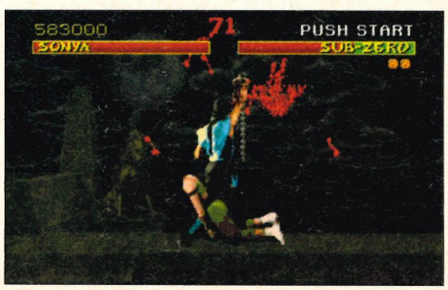


Mortal Kombat

Struggling to finish Rayden? Desperate to pluck out Lui Kang's heart? Well thanks to Robert Rundle from Andover now you can beat 'em up with confidence.

Here then are the all-important Mortal Kombat finishing moves:

Jonny Cage — towards, towards, towards + high punch
Kano — down diagonal towards + low punch



Lui Kang — 360° rotation towards opponent
Rayden — towards, towards, away, away, away + high punch
Sub-Zero — towards, down, towards + high punch
Scorpion — hold block + up, up
Sonya Blade — towards, towards, away, away + block

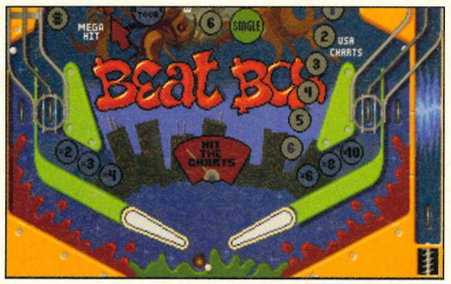
All of these moves can be performed on the keyboard. Although the moves can also be performed using the joystick, the finishing moves for Scorpion and Sonya won't work. So even if playing with joystick with these characters, you'll have to change controls to keyboard at the crucial point.

Finally, to fight Reptile, "score double flawless and perform a finishing move on the pit screen against the computer" — whatever that means?!



Pinball Fantasies

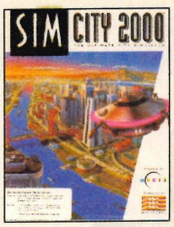
A quickie tip from Robin Goodall from Ely follows hard upon the tips (Earthquake and Extra Balls) we printed in the May issue. If you're still caught up in a pinball frenzy why not try typing in the following four codes: TECH, GREETS, TSP and GABRIEL. Once again, enter these codes when you're looking at the table, not when you're actually playing. Oh, and I've no idea what they do. Someone's pinched my copy ...



Warning

Do not attempt the cheats marked with the Danger icon, unless you have access to a file editor such as Norton or PC tools and you are confident that you know what you are doing.

PC Review will not accept any responsibility for damage to data caused by trying out these cheats. And remember: always Back up your files before editing them so that you can restore the originals if you need to.



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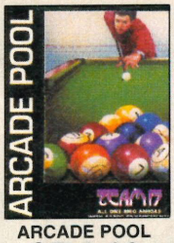
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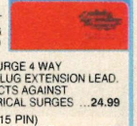

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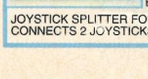

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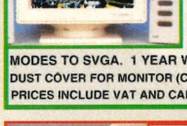
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HELP WANTED

I'm totally and utterly stuck on Goblins 2. I've got up to the second level where Kael is but I can't give the nymph the honey. Can anybody help please? *Mark Boylan, Chelmsford*

After buying Police Quest III from a local second hand market, I found that some of the manuals are missing. I can't open the locker and the game seems to ask for a number that is in the manual. Also how do you subdue the man in the park (Aspen Falls)?
Stephen Bryan, Co. Durham

Answer: Oh dear. Yes I'm afraid you're going to need a manual and the best way to overcome the problem is to ring Sierra (0734) 303322 and ask them to send you a new one. As for the man in the park, you'll need to beat him about the head with the nightstick and then cuff him while he lies on the ground. Sadly both the nightstick and the cuffs are in the locker. Ah...

I have reached the end of the first Underworld adventure but I cannot destroy the Slasher of Veils. I have buried Garamon's bones and listened to his advice about throwing the eight talismans into the lava, but I only have seven. I have been unable to obtain the ring of humility and although I know where it is I can't find it. *Nigel Evans, Surbiton*

Answer: After you've switched the switches in the order Derek suggests, the ring should appear on the plinth in the middle of the room. If this fails to happen, you might have a bugged copy and the best thing to do is to contact the EA helpline on (0753) 546465.

I'm hopelessly stuck in the Labyrinth of Time. When I walk into the street and fall to the lower level, I enter a surrealistic maze. The only place I can get to from there is the Mayan Ziggurat. What do I do next? *Kristin Aarke, Norway*

I cannot get in to the Goblin village in Simon the Sorcerer. You said get the shopping list which I did and took it to the shop, which I did. But then you started talking about Milrith and grappling hooks. Please help. *Greg Paris, London*

Answer: To get into the village you've got to climb into the box that the shopkeeper leaves outside the shop and this box will only appear after you have picked up the magic ring from Golum. To get the ring, give Golum the swamp stew.

How can I get out of the Goblin village in Simon the Sorcerer?
Chris Rogers, Northumberland

Answer: To get out again, put the bucket over the Druid's head and use the flaming brand on it. The Druid will then turn into a frog (but only if you've talked about his shape-changing skills before) and leap through the iron bars. Next hide in the casket until the Goblin guards leave and then use the saw (that the frog will bring you) on the bars to escape.

I'm stuck at the top of the Tower of Doom in Simon the Sorcerer. I know the Demon's true names and have the mouse and the shield. I also have the spear, the wand, the pebble and both spell books. What do I do? *Dave Lacey, Macclesfield*

Answer: By the sounds of things you don't seem to have the candles. Down in the tower's torture chamber there is a wooden chest which you must place on the slab of stone and then crush by pulling the lever. The candles are the last ingredient required to perform the spell that will send the Demons back to hell.

I am stuck in Simon the Sorcerer. I have found the Milrith using the metal detector but I can't dig it up. Please help! *Joseph Ray, Middlesex*

Answer: You can't dig up the Milrith but the archaeologist can. In the snowy wastes lies an unusual pebble. Use the pebble on the blacksmith's anvil and he will split it to reveal a fossil. Take the fossil to the archaeologist and then walk off the screen. Now go to the spot where you discovered the Milrith and the archaeologist will have started digging there. Simply pick up the ore and take it to the blacksmith so he can make it into an axehead.

Send your tips to: QED Tips at PC Review, Priory Court, 30-32 Farringdon Lane, London, EC1R 3AU. Your cries for help should go to Help Wanted at the same address as above.

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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Mach 3	£16.00
Mach 2	£15.00
Mach 1+	£13.00
Mach 1	£11.00

CD Software

Microsoft ;

Encarta 94	£69.00
Cinemania 94	£35.00
Dinosaurs	£35.00
Art Gallery	£35.00
Musical Instruments	£35.00
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Mozart	£35.00
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Pagan - Ultima 8	£27.00
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Strike Commander	£27.00
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T.F.X.	£27.00

Floppy Software

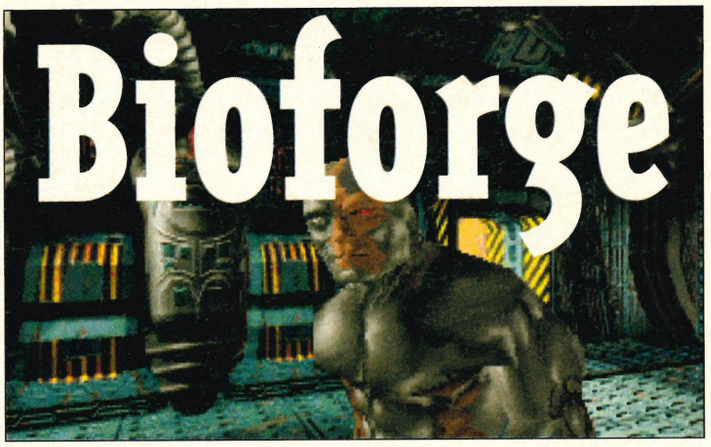
Flight Simulator 5	£22.00
FS5 Paris	£13.00
FS5 New York	£13.00
FS5 Washington	£22.00
F14 Fleet Defender	£25.00
Harrier Jump Jet	£19.00
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Sim City 2000	£22.00
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Bioforge

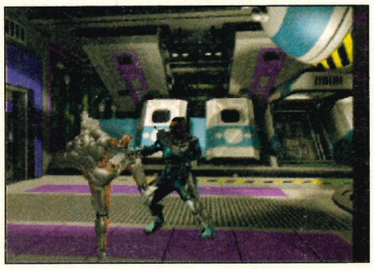


Interactive movie is a phrase to strike dread into the heart of any committed games player. It conjures up images of badly digitised actors, appalling and inappropriate accents and little in the way of gameplay. However, Richard "Lord British" Garriot's first non-Ultima project looks set to remedy this. Bioforge is an action-adventure which bears a slight resemblance to Alone in the Dark. The graphics are very different, but the use of Alone-style cinematic cut-scenes and realistically animated 3D characters gives it that movie feel.

The story centres around Lex, a character who wakes up to find that not only is he stranded in a strange and unfamiliar place, but his memory has been wiped and he has been transformed into a cyborg. He can't remember who he was and how he got there, but he will slowly uncover the truth during the course of the game.

The game contains a mixture of puzzle solving and arcade-style combat. There is often more than one solution to a problem: if you're better at combat you might want to try and fight your way out of a situation, or alternatively you could try and think your way out of trouble. At the start of the game you don't know anything about your previous identity, but the way you act during the game affects this. For example, if you progress by killing everyone who gets in your way, you could find out that you were a serial killer before your transformation.

The incredibly detailed background graphics have been created in 3D Studio, but unlike the static Alone in the Dark backdrops, many are animated and it's even possible to interact with them. The character animation is even more spectacular — Origin employees with dance and martial arts experience were fitted with sensors and then wired up to a computer which detected their movements. These movements were then applied to a 3D model to make the animation as natural as possible.



The most surprising thing about Bioforge is that it has been designed for release on floppy disk (most interactive movies are too big to go on anything but CD) in order to reach a wider audience. But how many disks will it come on. And will there be a speech pack? It's inevitable really.

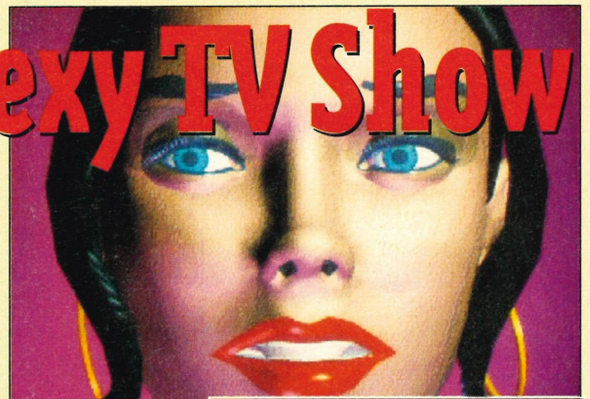
■ **Cal Jones**

"Are you looking at me?" Hero Lex gives a mean look.

FAXBOX

BIOFORGE	
Developer:	Origin
Publisher:	Electronic Arts
Release date:	June
Genre:	Action adventure
Minimum PC:	£TBA

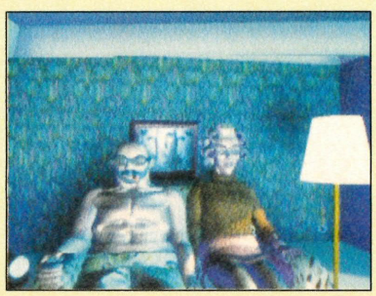
The Late Night Sexy TV Show



When trying to categorise games, The Late Night Sexy TV Show simply defies description. Suffice to say that it's an "adult game" (the title gives that much away), and describes itself as a "seduction simulation".

Set in the year 2000, the action centres around a sleazy gameshow in which contestants try to prove themselves the most expert lover and the greatest seducer. It sounds to me like the sort of thing you might see on Eurotrash on Friday evenings, but there you go.

Up to four people can play, and at the start of the game you must each choose your sex, appearance and characteristics. Central to the game show is the orgasmatron, (didn't they have one of those in Woody Allen's Sleeper?) a virtual reality machine which determines the winner of the show by analysing his or her actions during the game.



The orgasmatron compares the the psychological, physical and cultural profiles of each contestant with that of their potential partner, and once the two have enough in common, the seduction begins.

So how do you meet your partner's requirements? To progress in the game you must choose a topic and then answer a series of questions correctly. If you're right, you are given five options: progress in your career (success is sexy), dabble in business (fat wallets are also sexy), go shopping (as are material goods), ask the orgasmatron for advice or interrogate your partner to find out what you need to do to measure up to their ideal.

Once you're compatible, you enter the orgasmatron to do battle (or something). The aim is to steal your partner's "cosmosensual fluid" by choosing a position (some positions use more fluid than others, apparently) and then answering questions on erotica and sensuality. If you're right, you get to take your partner's fluid, but if you're wrong, they get to take yours. The winner is the person with the most fluid, of course.



If you're wondering who could devise such a, er, saucy game, it probably wouldn't surprise you to discover that it's an Italian company. Dynabyte has a low profile in this country, although you may recognise Nippon Safes Inc as being one of its releases. I'm sure though, that Late Night Sexy TV Show will raise Dynabyte's profile somewhat — it will certainly earn the team a bit of notoriety.

■ **Cal Jones**

The rubber-clad sex goddess Vera Syntex.

FAXBOX

THE LATE NIGHT SEXY TV SHOW	
Developer:	Dynabyte
Publisher:	Daze Marketing
Release date:	July
Genre:	Seduction simulation
Minimum PC:	£TBA

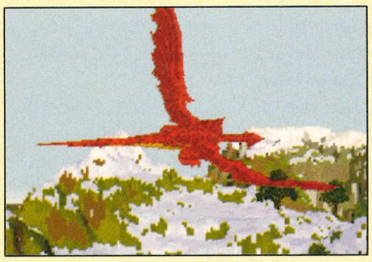
Nieblung's Ring



Mike Singleton has certainly made a name for himself in the computer games industry. Midwinter, Flames of Freedom, Ashes of Empire and Starlord are just a few of the games he has created, and those of you who have been around a little longer may well remember Lords of Midnight too. Now Lords of Midnight III is almost ready for release on PC, but rather than put his feet up, Mike, along with his company, Maelstrom, is already working on a new project.

Tentatively titled Nieblung's Ring, the adventure is based on Wagner's epic Ring Cycle and the German and Norse myths which inspired it. Valkyries, dragons and Rhine maidens all play a part, though you don't need to be an expert on the subject to enjoy the game.

You play a character called Sigmund, and you must undertake a series of quests which are based around the legends. At the start of the game you know the main tasks, but sub-quests are revealed as you progress. Rather than being puzzle based, the game centres around character interaction. There will be between 24 and 32 non-player characters, and each has a specific attitude towards you — and towards the other NPCs. These attitudes have been affected by personal vendettas and inter-family relationships. If you help one character and then approach another who happens to be his enemy, the second character will not act favourably towards you. They can also 'remember' how you treat them, so the idea is to try and win them all round — or play them off against each other.



Work on the game engine began 18 months ago: the 3D graphics are full screen to give a cinematic effect and the interface is designed not to intrude too much. The backgrounds were created by first drawing a map in DPaint and then using a 3D program to convert it into a fractal-based landscape. It is then smoothed to give it a more natural look.

The sprites are created from texture-mapped polygons which are animated in real time. The main character sprite (Sigmund) has 30 movable joints in his body. and as you move Sigmund around you can change the viewpoint so that you'll be able to watch him from different angles — rather like the external views in a flight sim. And yes, you do get to fly — on a dragon or winged horse.

Speech will be fully digitised, but there's a text option for the hard of hearing.

With full digitised speech and orchestral music from Wagner's operas, Nieblung's Ring will be released on CD-ROM no earlier than October this year. The intention is to make it the first game in a trilogy, though at this stage it's far from finished so don't hold your breath for the sequels.

■ **Cal Jones**

FAXBOX

NIEBLUNG'S RING

Developer:	Maelstrom
Publisher:	Psygnosis
Release date:	October, 1994
Genre:	Adventure
Price:	£TBA

Zool 2

Platform games have never been wildly popular on the PC. While the Amiga, Sega Megadrive and SNES have often had them coming out of their ears, PC gamers have been content to stick with flight sims, RPGs and adventures, dodging power-ups and parallax scrolling and sticking their noses up at anything that vaguely resembles a small, blue hedgehog

But if there's one platform game that did make an impact on the PC fraternity, it was Gremlin's brightly-coloured Zool, featuring a jumping, spinning, sword-wielding Ninja from the Nth dimension.

One year on and Zool is back in Zool 2, where just like in the first game, Zool finds six huge worlds need to be explored and conquered, worlds packed to the brim with meanies, bonus-fruits, springs, pits, spikes and secret rooms. Who says the PC can't do arcade games?

Zool 2 also introduces some new game characters. Now you can play Zooz — a female Ninja armed with a whip and a ponytail(?) — and Zoon, a cosmic wonderdog who features in one of the bonus levels scattered throughout the game.

And as if negotiating the platforms and slippery slopes wasn't hard enough, at the end of each world you must also do battle with Mental Block, the Master Morpher that controls the meanies and guards the exits in a series of diabolical disguises.

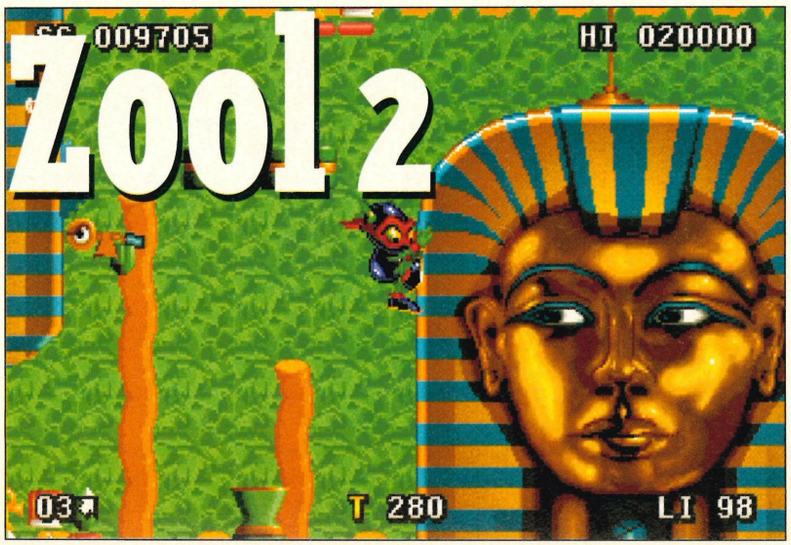




The Nth dimension is full of weird and wonderful worlds — oh, and a ninja called Zool of course.

Featuring smooth parallax scrolling, 256-colour VGA graphics, new music and beautifully animated sprites Zool 2 promises to deliver the wildest, brightest, fastest platform ride you can get. You can't get Sonic the Hedgehog on the PC, but why play a hedgehog when you can be a Ninja?

■ **Dean Evans**



FAXBOX

ZOOL 2

Developer:	Gremlin
Publisher:	Gremlin
Release date:	July 1994
Genre:	Platform
Priceß:	£TBA

Sim Analysis

It's the penultimate month in our Sim City 2000 competition, so once again Cal Jones dons her white coat and sifts through the latest entries.

It's the penultimate month in our Sim City 2000 competition, and still the entries keep pouring in. Back in our April issue we asked you to send in the best cities you could create in 50 years, and we would print the most interesting, be they incredibly successful, absolutely dreadful or just plain weird. As a bonus, our resident psychopath, er, psychoanalyst Cal Jones would analyse all the entries to we published in PC Review. Here's her verdict on this month's crop of contestants.



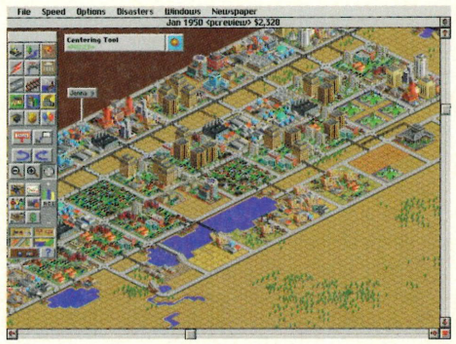
Subject One: Paul Carter of Melton Mowbray, Leicestershire

Carter City is built on a seemingly unedited landscape which contains plenty of hills and water. The town has been planned around these features, and the outcome is visually pleasing — the scenic railway along the valley is a nice touch as well as being practical. Paul must be someone who finds it easy to adapt to and make the most of his surroundings.

However, it isn't all roses. Paul has taken out a $10K bond, and even with tax at 8% he has only $93 dollars left in the bank. Carter City has a population of only 19,290, which is too small to generate the funds needed to pay off Paul's debts. Paul should think carefully about what he's investing in before he takes a financial risk.

Financial risks are one thing; disasters are another: yes, Paul is playing with them turned off. I get the feeling that he wouldn't like to see his carefully constructed city reduced to rubble by an earthquake. Did someone kick his sandcastle down when he was younger?

Next month is our last month in the Sim Analysis competition, so if you haven't sent in your entry yet, get a move on! We'll be taking a last look at your towns, but more importantly, we'll also be announcing the winners. Watch this space.



Subject Two: Catherine Anderson of Cheltenham, Gloucestershire

Whereas most people name their cities after themselves, Catherine has called her creation PC Review. This indicates possible shyness and a reluctance to blow her own trumpet. The land appears to have been flattened using the terrain editor — Catherine is a perfectionist who likes to plan well in advance. She may also have a fondness for the seaside, because she has included some coastline in her map.

Interestingly, Catherine's town hugs the edge of the map, which enforces my theory that she is a shy person — a bit of a wallflower, perhaps? She appears to have zoned her city carefully, but a closer examination reveals that this is not actually the case. PC Review is made up of 7x7 blocks, each with a park in the middle. Since this is not the best formation for optimum growth, I can only assume that Catherine tends to put aesthetics before practical considerations.

There is further evidence of this lack of planning: the port has been built next to a lake instead of by the sea, crime is out of control and there's a strange, bare strip of land down the middle of the town. Even so, the town is fairly successful — the population isn't outstanding but it is growing, and Catherine has achieved this with disasters on and no bonds. Not a bad effort, but could have been better with a little more planning.

Subject Three: Stewart Pinkerton of Rempstone, Leicestershire

Stewart has sent in two very different cities (well, actually he sent in more, but I chose two), Los Diablos and Happyville.

Los Diablos is dubiously large and prosperous (population 176,420) — I thought at first he'd cheated, but closer inspection reveals that he's taken out $350K bonds. He justifies this by saying, "most real cities and major corporations have huge debts which are not intended to be repaid in the near future: only the ability to pay the interest being relevant financially." Bit of a clever clogs, aren't you, Stewart?



Los Diablos looks nice: it has been built on a square plain surrounded by water (a lot of terrain editing has been going on here) and is powered entirely by the twin hydroelectric dams. It has been carefully zoned and includes both road and rail, and every lake has its own marina. Stewart must like water, or something. There are plenty of large, impressive buildings, and the airport has been placed on its own raised mesa in the middle of the plain.

Not only is it well planned, but health and education levels are excellent. The only black spot (apart from the debts) is the crime rate. A nice city, but as Stewart has what you might call a severe cash-flow problem, one disaster (disasters are on) could prove catastrophic. A case of putting all his eggs in one basket, maybe?

Happyville is a very different kettle of fish. It has been built on a large island and, surprisingly, no bonds have been taken out. Like Los Diablos, health and education levels are outstandingly



good, but in contrast crime is very low and the town has a much looser structure — there's something haphazard about the way it's been built.

Stewart has taken the trouble to name the island's salient features: there's Picnic Peak, Monkey Island, Pagliacci Park (does Stewart like opera?), Blue Lagoon (or does he have a thing for Brooke Shields?) and others. He's obviously enjoyed creating this town — in fact he describes it as, "the kind of small country town I would like to live in." Well, yes.

Stewart's towns are so different that it's difficult to say which reflects his personality most accurately. Maybe he's schizoid. Or maybe he simply enjoys acting out different roles and should think about an acting career.

Subject Four: Marcus Hawkins of King's Lynn, Norfolk



I'm not sure why this town is called "Ecocity" — just because Marcus has put his oil power station on a hill and surrounded it by trees doesn't make it green.

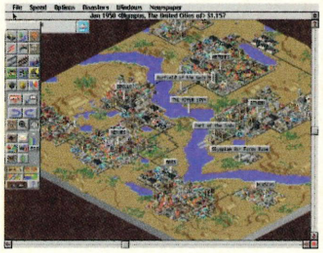
Still, pollution isn't that high, so he must be doing something right.

The town itself isn't all that remarkable, with the exception of the Mayor's house. Marcus has placed his abode on the other side of the river from the rest of the town, and it can only be accessed by a single bridge bearing the signs "Private crossing" and "No public right of way." Is Marcus anti-social, elitist, power-crazed, or what?

The buildings are mainly low-rise and the population small, and whilst there is a railway, it serves a very small area of the town. This lack of public transport, together with the high unemployment and the exclusiveness of the Mayor's residence leads me to believe that Marcus is a Tory. All this "eco" business is just a front. No, really.

But seriously, Marcus has played with disasters on and hasn't taken out any bonds, and has achieved a good standard of health and education in his city as well as a low crime rate. Ecocity is a reasonable effort, but Marcus should consider putting the interests of others before his own once in a while.

Subject Five: Bryan Yip of Hatfield, Hertfordshire

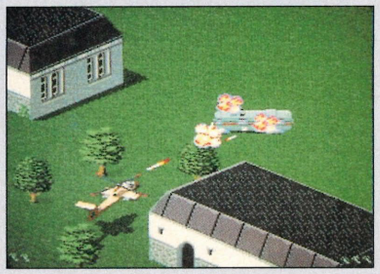


The United Cities of Olympus is not one city but a series of self contained, unlinked towns. Brian has based his creation on Ancient Greek mythology, with towns named after Athena, Artemis, Pan and other Greek heroes and deities. Is Brian a mite pretentious, perhaps, or simply well-cultured? His entry also came with a detailed explanation, so he's obviously keen not to be misunderstood.

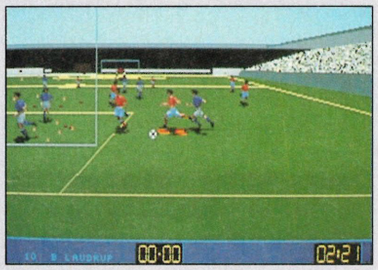
Each of the towns is well-structured and prosperous — the total population for the area is a whopping 70,740, with little unemployment and no extra expenditure in the form of bonds. By adopting an unconventional approach, Brian has created a successful "city," indicating that he is intelligent and imaginative. When confronted by a problem, Brian doesn't always plump for the obvious solution, but will consider various alternatives, however strange.

Olympus was not without its problems, however. Brian played with disasters on, and suffered as a result. Maybe the gods don't like you, Brian.

Coming soon



Hot on the heels of Desert Strike, Jungle Strike is (another) game of war waged against the drug barons — this time they're in deepest central America. You'll get to fly a Comanche attack helicopter, an F117-A Stealth Fighter, pilot a MX-9 hovercraft or ride an Assault motorcycle during the course of your 30-plus missions. Due out in July on both disk and CD-ROM at around £34.99.



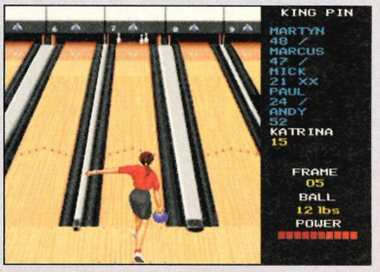
Oh no, more football games! Cunningly designed to coincide with the World Cup, Infogrames' Real World Football, is a footie playing sim with stacks of options, an on-pitch viewpoint and the chance to play the World Cup with the 'real' teams or introduce some of those which didn't make it into the tournament (England or Scotland, perhaps?). Should be out now-ish.



Cyberwar is a sort of Lawnmower Man 1.5, since it's also based on the original film. This sequel comes on three CD-ROMs, with more levels, more Cyberjobes, full colour footage from the film, ray-traced 3D graphics, everything, in fact, that made the original so visually compelling. This time your main mission as Dr Angelo is seek out and destroy the VSI weapons systems left behind from your last encounter. Due for release this autumn.



Robinson's Requiem is a role-playing game with a difference, since it's a bit of a cross-breed between a role-player and a full-blown simualtion. You play Robinson, a special agent marooned on a hostile planet after your spacecraft malfunctions. You must battle against heat, cold, rain, fierce animals and disease in order to survive — and if survival requires the amputation of one of your limbs, then that's what you must do. Available from Daze Marketing soon, real soon.



We've racked our brains and we can't think of another tenpin bowling sim, so it looks as though Team 17 is breaking new ground with Kingpin. Up to six players can take part, there's an aftertouch control system for precise bowling down the alley and character graphics are 3D-rendered. Best of all, it will only cost £14.99 when released in September on both disk and CD-ROM.

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 Pacific Air War, Sam &Max CD-ROM, or Syndicate on CD-ROM, this month's new Recommended games, simply answer the questions printed on the entry coupons, and send your entries 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 July 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.

GAMES

Pacific Air War WIN

Q Which base did the Japanese attack to start the war in the Pacific?



Answer.....

.....

Name.....

.....

Address.....

.....

.....

.....

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

Sam & Max Hit The Road on CD-ROM WIN

Q Which one is the dog, and which one the rabbit?



Answer.....

.....

.....

Name.....

.....

Address.....

.....

.....

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

Win Syndicate on CD-ROM WIN

Q How many new missions does the CD include?



Answer.....

Name.....

.....

Address:.....

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.....

.....

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❑ 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

Christina has been getting into training for the World Cup, looking at a number of the contenders in the PC football game stakes, including the late entrant, Real World Football from Infogrames.



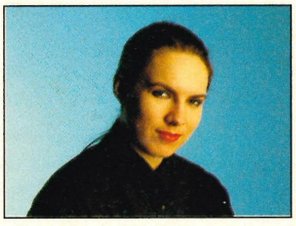
John Bennett

John hasn't hung up his chainsaw yet, nor his football boots, since he played in the Sensible Soccer World Cup held last month. He's also been singing the praises of Settlers and Pacific Air War .



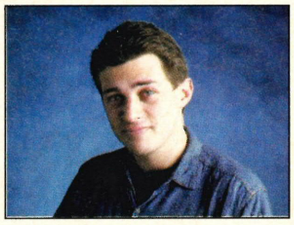
Cal Jones

It's been a bit of a quiet month for Cal on the role-playing front, until, right at the last minute, in came Al-Qadim from SSI. Cal also travelled to Liverpool for a sneak preview of Mike Singleton's Nieblung's Ring.



Dean Evans

Intensive, fearless research went into finding the very best design-your-own Doom for this month's cover disk, and Dean has had the arduous task of testing it too. Rest assured that he has left no stone unturned.



Paul Boughton

Paul undertook the mammoth job of compiling our after-sales support survey on pages 28 to 31 this month, which hasn't left him with a great deal of time for R&R. But there have been a good few Doom sessions .



REVIEWED THIS ISSUE

ON DISK

Pacific Air War	9
Al-Qadim	8
Settlers	8
Sabre Team	7
Wolfenstein 3D	7
Cool Spot	6
Detroit	6
Pacific Strike	4
Premier Challenge	5
Wrecked	2

ON CD-ROM

Sam & Max Hit the Road	9
Syndicate	9
Hand of Fate 8	8
Lemmings 2: The Tribes	8
The Horde	7
Lost Files of Sherlock Holmes	7
ShadowCaster	7
Space Hulk	7
UFO: Enemy Unknown	7
SimCity	5
Plumbers Don't Wear Ties	1

PC REVIEW RECOMMENDS

THE BEST OF THE LAST THREE MONTHS



Myst
Electronic Arts, £44.95 CD-ROM

Visually stunning, mentally taxing, utterly absorbing adventure set on Myst Island and four different worlds. Puzzles tend to be logic-based, but are by no means easy. This is a highly sophisticated game with a surreal atmosphere, and one of the few to offer a proper challenge on CD-ROM and to make real use of the multimedia elements in the game.



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 disk

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.

CIARÁN'S RANT

I always thought that Bill Gates' "computer on every desk" statement was just a clever marketing catchphrase, designed as a simple rent-a-quote for the lazy elements among the press (none of whom work anywhere near PC Review of course), but now it seems that I was wrong.

Why? Because the multi-millionaire — who's often been described as "the ultimate cybernerd" — is about to make a play for the hearts and minds of the truly computer illiterate, with the release of a new user interface called, strangely enough, Utopia.

Designed for those people who find Windows terribly complicated (yes, such people do exist, but then millions find the task of getting milk from a Tetrapak a little too much), Utopia is what its designers describe as an "analogy-based graphical user interface".

Basically, what this means is that the hard of thinking are to get their own version of the Windows environment. In this new digital nirvana, the traditional "desktop" image is to be replaced by a simplified depiction of an office: if you want to write a letter you just click on the notepad which is lying on the desk, if you want to watch a film just click on the TV, and so on...

Of course I have no real right to have a problem with this: Bill Gates could go the whole hog and people this imaginary office with cute Richard Scarry style rabbits and teddy bears if he wanted to. But I do have a problem — and my problem is all to do with the fact that this will be just one more way of fragmenting the PC user base.

As if things weren't bad enough already, what with the current confusion caused by the different disciplines of DOS and Windows, multiple sound card standards, different video cards and processes — now we have yet another user interface to sit on top of Windows (not to mention the fact that Windows 4.0 is on the way just to confuse things a little bit further).

And what's worse is that this 'innovation' is due to arrive just at a time when things were starting to come right for the PC. Just as the 486 standard is becoming accepted, the double-speed CD-ROM drive is taking its rightful place in the old 5.25" drive slot and the Sound Blaster is confirming itself as some sort of industry standard in the thoroughly confusing music sector, old Bill Gates has come along to throw a completely unnecessary spanner in the works.

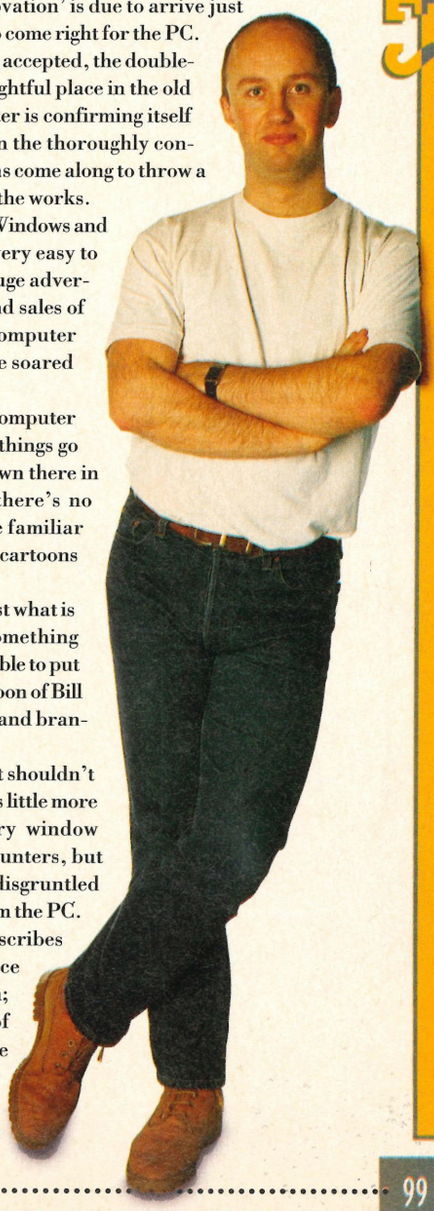
The plain fact of the matter is that Windows and Windows applications are already very easy to use — Microsoft itself has built a huge advertising campaign around this fact, and sales of the PC versus the Macintosh (the computer haters' traditional port of call) have soared since its introduction.

In fact, the only time that using a computer gets complicated nowadays is when things go wrong at the sub-Windows level (down there in the murky cellars of DOS), and there's no reason to believe that replacing the familiar Windows environment with childish cartoons is going to stop that happening.

And while we're on this subject, just what is going to happen in Utopia when something unexpected goes wrong? Will you be able to put things right by clicking on a little cartoon of Bill Gates dressed in plumber's overalls and brandishing a spanner?

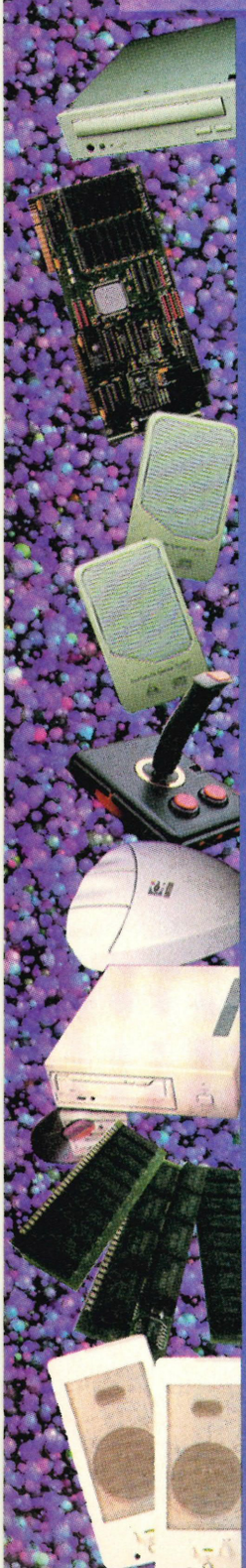
OK, so I'm being silly now, but that shouldn't take away from the fact that Utopia is little more than another piece of unnecessary window dressing which may attract a few punters, but will only serve to push the already disgruntled software developer further away from the PC.

My Concise Oxford Dictionary describes Utopia as being an "Imaginary place with perfect social and political system; an ideally perfect place or state of things." If only old Bill had paid more attention to the first word of that definition.



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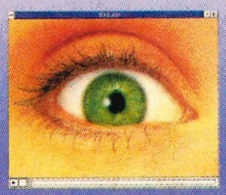
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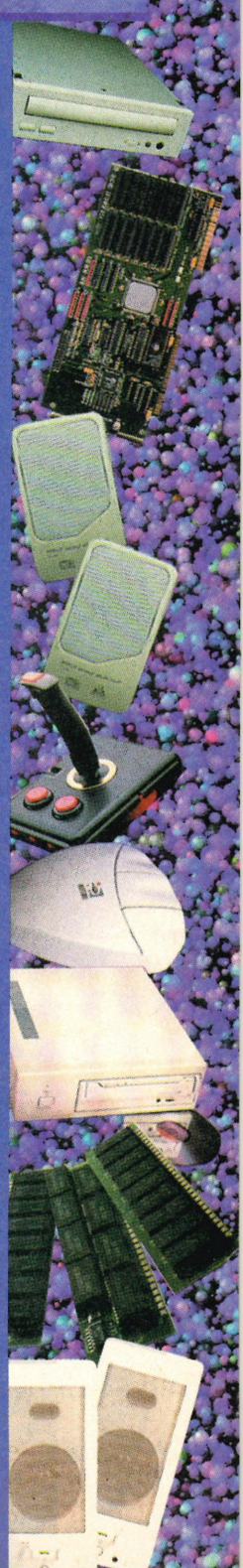
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the
PRODUCT
directory
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Reviewed this month PRODUCTS

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.

MULTIMEDIA UPGRADE KITS

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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

There are plenty of ways to give your PC a multimedia shot in the arm — the most convenient method being the 'all-in-one' multimedia kit. True, the vast selection can get confusing, but at least that means you can be sure that somewhere out there is the right multimedia set-up for your PC needs.



QCD Multimedia Video Kit

Multimedia video kit.

First up we have a top-of-the range kit from a new company, DiscteQ. The QCD Multimedia Video Kit comprises a 16-bit sound card, using the Jazz16 chipset, a dual speed Sony CD-ROM drive, speakers and an Intel Indeo Video Capture card.

On the software side, as well as the necessary sound, video and CD drivers, it comes with two packages from Asymetrix for combining video, audio and computer text and graphics to create multimedia presentations. Two CDs containing masses of video clips on a wide range of topics are also included to get you started..

Whilst everything may seem overwhelming when you unpack the box, once you get going it all fits together extremely easily.

The hardware installs with a minimum of effort and all the various drivers for each piece are automatically installed and configured. There are quite a few disks to wade through, but all that's required of you is to answer a few simple questions and change the disks when prompted.

At this price, the QCD Multimedia Video Kit is really aimed at business users needing the complete video/multimedia setup. From a home and leisure angle, perhaps it would make more sense to have the same basic bundle but replace the Intel Video card with the Reelmagic full-motion video card.

Still, like most hardware suppliers, DiscteQ does provide a range of less specialist — and less pricey — multimedia kits than this one, starting from around £199.

Alan Clark

★★

- **Supplier:** DiscteQ
- **Contact** (0844) 208448
- **Price** £703.83

Intel Indeo video capture card plus presentation software, 16-bit FM-synthesis sound card, dual speed CD-ROM drive.



Discovery CD16

Multimedia sound kit

A new kit from the Sound Blaster people, Creative Labs, the Discovery CD16 pack comprises a Sound Blaster 16, dual speed Panasonic CD-ROM drive and an OK-ish pair of speakers; all pretty standard fare on the hardware side — good value, reasonable performance — but hardly anything to write home about. But it's the variety of software that gives this package the thumbs up.

A total of seven CDs are provided with the Discovery pack covering games, courtesy of Syndicate and Conspiracy; educational software, with 3D Dinosaur Adventure and Kid Pix, and application software including a CD-ROM edition of Aldus PhotoStyler, Multimedia Music Explorer from Midisoft and the New Grolier Multimedia Encyclopaedia. The usual drivers and Sound Blaster utilities are also provided along with two (ancient) disk-based games, Lemmings and Indianapolis 500.

Again installing the sound card and CD-ROM drive is quick and easy. The software automatically configures the card and updates your Config.sys, Autoexec.bat and Windows System.ini files. One thing I was a little concerned about though was the memory requirements of all the device drivers (including the CD-ROM driver) and various other sound card files.

Even when using a memory manager like QEMM I was unable to break the 600K barrier that a lot of new games need. Thankfully not all of the programs are required to get the card up and running, but it may prove worrying if you aren't familiar with your system files.

On the whole then, we have standard hardware with a proven track record, backed up by a good selection of software. A safe way to start into multimedia.

Alan Clark

★★★

- **Supplier:** Creative Labs
- **Contact** (0743) 248590
- **Price** £378.83

16-bit Sound Blaster sound card, dual speed Panasonic CD-ROM drive, speakers, seven CD-ROM games and general interest titles.

MULTIMEDIA KITS

What's the best way to add multimedia hardware to your machine? For those of you who are brave enough and know what you're doing, you can mix 'n' match the various bits that you need from different sources to create your own kit. But certainly the safest and cheapest way is to buy a kit that's already been made up for you.

The most basic multimedia kit will contain a sound card, CD-ROM, the necessary drivers, cabling and installation manuals and maybe some software; normally just a few utilities and simple programs that come with the sound card.

Some halfway-house kits will simply package the sound card or the CD-ROM drive as an either/or choice along with the necessary extras.

More advanced kits will include better quality sound cards, faster CD-ROM drives, more software (varying from games to multimedia authoring software), speakers or headphones, and even video capture cards to complete the multimedia 'experience'.

The key to a good multimedia kit is, first and foremost, simple installation and reliable performance. After all, this package has been designed to work together so you shouldn't experience any setup or compatibility problems. Other than that it is a question of how well balanced the package is (it's no use if you get a state of the art sound card with a junky CD-ROM drive) and how well suited it is to your particular needs.

The latter should just be a matter of shopping around. It doesn't have to be a 'name' brand multimedia kit, either. The majority of kits are made up from standard components — like the popular Panasonic and Sony double speed CDs and the Sound Blaster 16 — and put together in a spot of fancy new packaging. There's nothing wrong with this, of course.

If the components are well known, standard ones — all you need to do is check a few individual prices, add them up and see whether you're getting a good deal or not. For once — as far as PCs are concerned — the chances are that you will be getting excellent value for money.



Digital Edge 3X

High-end multimedia kit

The Digital Edge 3X kit packs one hell of a punch: a Sound Blaster 16 SCSI-2 sound card, NEC CDR510 triple speed drive and a pair of active speakers. The SCSI (Small Computer Systems Interface) system it uses to hook these up does require a bit more PC knowledge than other hardware, but the kit is still relatively easy to set up.

Software is similar in content to the Discovery CD16, but the educational stuff has been replaced by multimedia presentation applications. The pack also includes Rebel Assault, an interesting music package entitled Altamira's Composer and KA's Speed CD.

As with the Discovery CD16 pack, I'm a little concerned about the memory requirements of all the device drivers, especially now that there's also SCSI drivers too; at times I could only manage 545K of



base memory, which would be a major stumbling block for games.

Memory problems aside, this kit is an good choice for people wanting fast performance hardware and a good range of software. But it does work out very pricey at £703.83 — if you're interested solely in the hardware, Daisy Multimedia does an identical kit (minus the software) for over £100 less.

Alan Clark

★★

Supplier: Creative Labs
Contact (0743) 248590
Price £703.83

NEC 3Xi triple speed CD-ROM drive, 16-bit SCSI sound card, active speakers.

Reveal CD-ROM drive

CD-ROM drive plus software

This one's simple enough. What you're buying into is a good first-time drive and the CD software to start your collection off on the right foot. It assumes, of course, that you already have a sound card, or are intent on buying one separately.

Anyway, the double speed internal drive is a fair all round performer, but it doesn't set the world alight. Certainly for two hundred and fifty quid, plus a bit of shopping around, you could easily find a better specified drive. But then you wouldn't then get the free installation video ...

More importantly, you wouldn't have the software to make use of the CD straight away (plus all the cables and bits and pieces you need to get up and running). Games aren't cheap. CD software isn't cheap. The Reveal CD bundle comes with 11 CD-ROM titles.

Say that's an average of £40 a title, and you're looking at over £400 worth of CD software. Not a bad start, indeed — provided the software is to your taste.

I won't list the lot, because these things are updated continually, but right now that includes Strike Commander CD, 7th Guest, Iron Helix, King's Quest VI, Zork and the obligatory encyclopaedia. All in all, a straightforward package provided the software catches your eye.



John Bennett

★★★

Supplier: CDL
Contact (0483) 755030
Price £299

Dual speed internal CD-ROM drive and software bundle. Comes with eleven CD-ROM titles.

Sound Sensation

CD-ROM plus sound card kit

This is a no-nonsense, good quality package, comprising a Panasonic 562-B CD-ROM drive, the new Sound Blaster AWE32 card and some mighty impressive 80 watt speakers — probably the most stylish, quality speakers to appear in a bundle yet.

The Panasonic is a good, standard drive, which is appearing in just about every upgrade kit known to mankind at the moment, and the AWE32 is a top-quality sound card.

But if the Sound Sensation gets good marks for its components, it gets none for documentation. We had problems getting the drive and the sound card to get on with each other, and although the CD-ROM drive has a manual which gives you lots of handy tips about not spilling acid on your CD, there's absolutely nothing about how to install it in your PC. There is, however, a single sheet on common problems, but for the first-time user a bit more in the way of instructions would be at least comforting, if not essential. Still, this isn't exactly first time buyer's multimedia hardware.

Christina Erskine

★★★

Supplier: Daisy
Contact (0743) 248590
Price £467

Panasonic 562-B dual-speed CD-ROM drive, Sound Blaster AWE32 sound card and Active Juster 80 watt speakers, plus installation software.

REELMAGIC LITE

FMV card

The ReelMagic card was a remarkable bit of metal and plastic when it first appeared last year. What it did, quite simply, was make full-screen, TV quality games and movies possible via an MPEG-encoded CD-ROM. The PC on its own didn't have the legs to shunt around the massive sound and video files quickly enough. ReelMagic was the answer.

That was then. Unfortunately, the ReelMagic card has been dogged by a lack of software support. Not enough games, not enough movies, not enough anything in fact. Dragon's Lair — years old — doesn't really set the pulse racing. And that's a major shame, because every time I look at the ReelMagic card in action I'm reminded just how amazingly powerful it is.

So now the ReelMagic Lite. What's the difference? Well, it's cheaper (not surprisingly) because it comes without the 16-bit sound capabilities on board — you fall back on your own sound card. That's one major difference, and explains the 'Lite' tag.

Other than that, Sigma has brushed up the Windows file viewer (although the DOS program is as anti-quated as ever) tweaked the cosmetics and the packaging around, added more in the way of demos, and smoothed off the rough edges in the installation routine.

All of which are welcome improvements, true enough, but it all comes back to software support in the end. At least we're now starting to get MPEG games coming through (Police Quest 4, The Horde, Zork, etc) but it's hardly as if the flood gates have opened.

What I thought might have been a saving grace was that the ReelMagic Lite is capable of supporting Philips CD-i movies and music videos. Now that amounts to a large number of titles already on the shelves, with plenty more to come. Great. Something to do till the games come along.

Until you read the small print, that is. Because the only CD-ROM drive guaranteed to produce the goods is a Sony. And how much life did I get out of the assortment of Mitsumi, NEC and Panasonic drives kicking round the office? None at all.

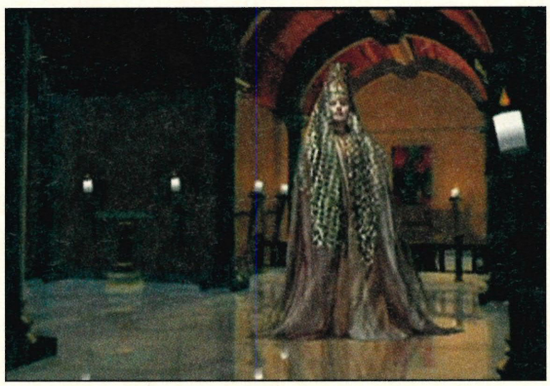
To be fair, I know Mitsumi has a driver on the way that should solve the problem for its double speed drive, but it really is typical of the ReelMagic card all over — great gear, lousy support.

John Bennett

★★

Supplier: Silicia Systems
Contact (081) 309 1111
Price £292.58

32K colours, 30f/ps full-motion MPEG video card. Connects via VGA feature connector, requires compatible sound card.



ESP Communications Accelerator

Modem enhancer

Hayes has always been the big name in modems. Synonymous with quality, they are far from the cheapest. But, as the old adage goes, you get what you pay for and a Hayes modem is the closest thing to a standard there is in this business.

What, then, is the ESP Communications Accelerator? Well, quite simply, it's a serial port card that works much faster than the average and has big buffers to prevent data loss in transfer. That's two benefits in one, really. Installation's as easy as putting the card in a spare slot and plugging in your modem. Then go into Windows and set up the software. Simple enough.

When, however, would you want to invest in the ESP? When you're using a modern, high speed modem — because older serial cards just may not be able to cope with the data transfer rates. If you have trouble getting your lovely new 14,400 modem to run then this may be your way out of a hole.

My guess is that Hayes haspicked their timing fairly well with the introduction of the ESP: 14,400 and especially 28,800 baud rates are probably pushing quite a few old cards to the limit at the moment, and if you're keen to seriously get in on the whole modem thing then the ESP may be the cheapest way forward. If you don't fit into that niche, then feel free to pass the ESP by completely. It's a specialist add-on, which solves a very specific problem.

Martin Klimes

★★★

Supplier: Hayes
Contact (0252) 775500
Price £75

Claims to run with just about any modem. The software needs to be installed in Windows.

BluePoint Wave FX

Wavetable sound card add-on

Now here's a neat idea: an add-on card that clips onto the SoundBlaster 16 to give it wavetable capabilities. Wavetable sounds considerably better than FM sound, particularly if you're into creating music on a PC, and it's equally good for games when they support it (not always).

Okay, so it's not sparklingly original because Creative Labs already has the Wave Blaster to do just that. But it appears that somebody forgot to (or didn't want to) copyright the port on the SB16 so it's fair game for someone else to make an add-on like this.

More importantly the Wave FX does exactly the same job as the Wave Blaster for quite a bit cheaper (£80 as opposed to over £140). It's easy to setup, simply clips on to your existing card in piggyback fashion doesn't need any software at all, and is General MIDI, GS, Roland SCC1 and MT-32 compatible.

If you happen to have a Sound Blaster 16 card kicking around the innards of your PC and want to expand its sound capabilities, take a look at this before making any rash — and more expensive — moves. The Wave FX does a very specific job, and does it well.

John Bennett

★★★

Supplier: Bluepoint
Contact (0908) 277007
Price £84.95

Adds PCM hardware wavetable capabilities to a Sound Blaster 16 sound card. GM, GS, SCCI and MT-32 compatible.

PREVIEW

BluePoint Classic 1000

Hold on to your old sound cards — help is at hand! Or it is if you happen to be the owner of a long-in-the-tooth 8-bit card.

The BluePoint Classic 1000 is an add-on card that you simply stick in a spare slot next to your existing 8-bit card and lo and behold you've got a combination of sound hardware that gives you your bog-standard 8-bit FM sound repro when you have to, and state-of-the-art PCM hardware based wavetable sound where ever games support it.

Yes, well, there's nothing you can do about the 8-bit bit (sorry). The wavetable sound is generally acknowledged to be the top notch stuff, and it makes a huge difference to game sound quality. But in practice, it's still limited to games with General MIDI or Roland support.

Still, it's nice to see someone come up with something reasonably cheap to extend the life of our existing hardware, rather than the usual "it's obsolete, throw it away and buy this new expensive one I just happen to have on my person" story.

The decision is yours. Spend £80-odd and add wavetable sound to your 8-bit clunker. Spend £100-plus on a 16-bit card to replace it completely, but no wavetable. Or go the whole hog and spend anything from £150 upwards on a 16-bit wavetable card. Decisions, decisions ...

DESKTOP PRINTERS

Panasonic KX-P4400 printer

Desktop printer

Lasers printers are usually considered too expensive to justify buying for the home. But now, for roughly the same price as your average colour inkjet, you can have laser quality printing thanks to the Panasonic KX-P4400.

This little printer is a bit different from ordinary printers. Instead of the usual large plastic casing spread all over the desk, the KX-P4400 comes in a nice, compact mini-tower ensemble.

Overall, it's a lot smaller, lighter and quieter than your average laser, and this is partly due to the fact that it's not really a laser printer at all. Instead it uses a similar technology based-on LEDs to produce the same results.

The other thing that sets it aside is its price: £499. For this sort of price you won't find any fancy features, but the end results are still good.

So in a nutshell (well mini tower case), a basic printer offering laser quality at a sensible price. Not overly endowed with mouth-watering features, that does the job.

Alan Clark

★★★

- **Supplier:** Panasonic
- **Contact** (0344) 853915
- **Price** £499

■ Low cost LED page printer. Comes with Windows and DOS drivers and utilities.

Canon LBP-4i

Desktop laser printer

For this sort of price you expect a compromise or two in a laser printer: either you get plenty of features but never mind the quality, or limited features but quality machinery. The LBP-4i falls into the latter bracket.

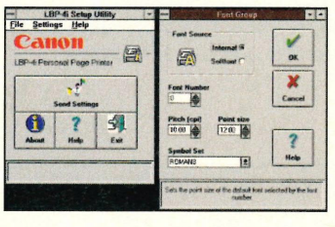
Its print quality is absolutely superb for the money you pay, and I've been waving print samples at anyone who'd stand still long enough to look. After that I'm rather at a loss as to what to say about it, because it's such an unobtrusive little printer. For one thing, it's one of the smallest lasers I've seen — about six inches high and only a few inches bigger than an A4 sheet of paper width and lengthwise — you almost forget it's there after a while.

It quietly goes about its job of knocking out four pages per minute, doesn't even have a control panel (everything is done by software) and simply hasn't caused me a single problem since we've had it here in the office. My only cause for concern would be how it would stand up to heavy punishment, because it does feel rather frail at times.

Most people looking at buying a home printer opt for an inkjet, because they're small and cheap. But if you want the advantages of a laser — quieter, faster and better print quality — and can afford to stump up the extra three hundred quid (street prices are around £500), then the Cannon LBP-4i comes highly recommended. All in all, it's a classy, neat and thoroughly unobtrusive little performer.

John Bennett

★★★★



- **Supplier:** Canon
- **Contact** (081) 773 3173
- **Price** £649

■ 300dpi, 4 page per minute desktop laser printer, with PCL5 page description language.

NEC 3Xp

Triple-speed external CD-ROM drive

I love having this drive hooked up to my PC. But then who wouldn't? It's superbly made, a doddle to install with a SCSI card and, not surprisingly, revoltingly quick. And it has those handy auto-reverse-type hi-fi buttons on the front when you want it to double-up as an audio CD player.

The 3Xp made absolute mincemeat of every heavyweight game or multimedia reference CD I could throw at it. Nightmare games like Strike Commander CD and Inca 2 — which usually take hours accessing the disk — have run smoothly for the first time.

It oozes quality and has the performance to match. But, and this is a big 'but', it's still over £300-worth of hardware even if you opt for the cheaper internal version. Given the current rate of change in CD-ROM drive technology, I'd be tempted to take the coward's way out and make do with a cheapo drive (the majority of which are usually more than capable of playing *most* games at a smooth, even pace). I'd expect to use it for a year and a half or so then throw it away. True, that's an expensive throwaway toy, but maybe it's less risky than shelling out on a quality drive like this one at the moment.

Still, if you're determined to spend large wads of cash on a state of the art CD-ROM drive, look no further — this is the biz. You'll just have to hope that someone doesn't come out with a cheap quad speed drive a week later.

John Bennett

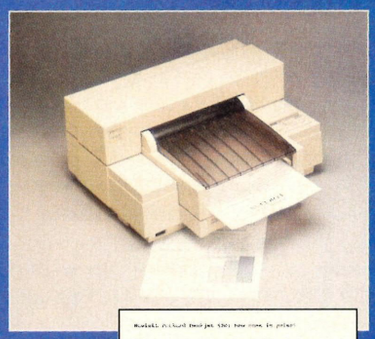
★★★

- **Supplier:** NEC
- **Contact** (081) 993 8111
- **Price** £374

■ Triple speed external MPC2 CD-ROM drive. Requires a SCSI interface card.

Hewlett-Packard Deskjet 520

Black and white inkjet printer





Just as inkjet printers are becoming more and more portable and laser printers look cute and compact, along comes the large and frankly unwieldy Deskjet 520. Not only hefty, but also plasticky: the paper tray lid and the 'flaps' which hold the output paper to make sure the ink is dry for a couple of seconds both seem fragile enough to snap (they don't, though, or at least not in the three weeks we've been using the printer).

The poor old Deskjet 520 also got off to a bad start when we couldn't find the power socket. We'd located the parallel socket, cunningly placed in the underbelly of the machine; the socket for the power lead turns out to be tucked away in a crevice close by. And unless I'm much mistaken, there's no mention of it in the manual either.

So, it's big, not too solid, and it's not immediately obvious how to hook it up. Thankfully, after all this palaver, the output is thoroughly satisfactory. The print quality is clear, good and black, fairly quick, but I've never yet come across a printer which prints at its brochure-advertised speed (perhaps because I rarely have cause to print row upon row of the letter 'M', or 'I'), and crisp, with few if any raggedly edges. Occasional smudging on glossy-ish paper is about the only negative I can come up with here, and it's also as quiet as all inkjets should be. It's dead easy to feed in the paper and collect it afterwards, and although it uses DIP switches for configuration, these are fairly easy to get at in a recess at the front (in marked contrast to the cable sockets, in fact).

Christina Erskine

★★★

- **Supplier:** Hewlett-Packard
- **Contact** (0344) 773100
- **Price** £316.08

■ Any PC. Comes with drivers for many mainstream business applications, also Windows 3.1.

KIDDESK FAMILY EDITION

Desktop safety net

You know how it is. Give your kids one whiff of the fun and games to be had on the PC and it'll be a pitched battle every time you want to get on the machine for a bit of work or a spot of light flight simming.

There's not a lot you can do about that. But when the inquisitive little darlings start delving into areas on your precious PC where no adult would dare to tread it gets rather worrying.

It could just be a minor inconvenience like a knackered and completely incomprehensible Config.sys (little Joey's been at it to get some cover disk demo working), a worse situation like overwriting crucial files, or somehow managing to delete the entire hard disk, heaven forbid.

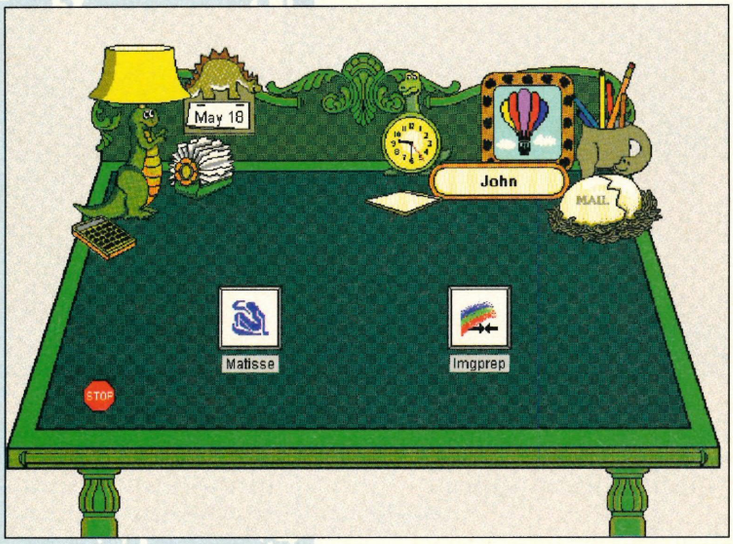
- **Supplier:** Children's Computing
- **Contact** (0869) 325000
- **Price** £34.95

- **386 PC minimum, Windows 3.1, VGA and mouse required. Runs DOS and Windows applications**

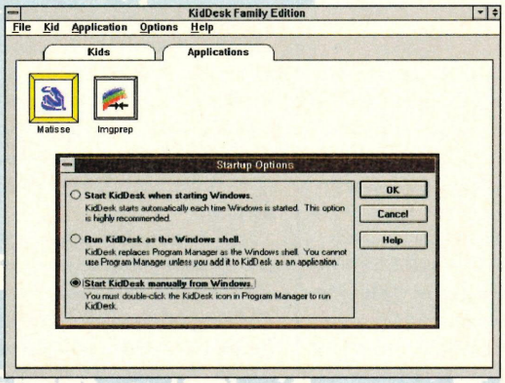
Nothing is ever going to safeguard your PC totally from your children (bless 'em) but KidDesk Family Edition goes a long way towards salvaging your peace of mind.

It's a colourful desktop front-end for your kids. You set it up for each member of the family, complete with the all-important password for the 'adult section' which is where you (and not them) set the safety levels and lock off applications and areas of the computer.

The child can personalise the desktop to his or her heart's content, and play with an attractive and friendly set of fairly standard mini-applications — notepad, calculator, calendar, paint package etc, even leaving imitation e-mail messages for other users set up on the desktop and recording an assortment of sounds to attach to events.



From the adult point of view, there are three particularly nice touches. One: you choose which applications (Windows or DOS) to set up on the desktop, and you can set time limits for using them. Two: you can disable the Windows multitasking so they have to stay within the confines of KidDesk. And three: you can set KidDesk to collect up files the child has worked with on the desktop — so they don't lose track of them (and you don't have to go searching for them).

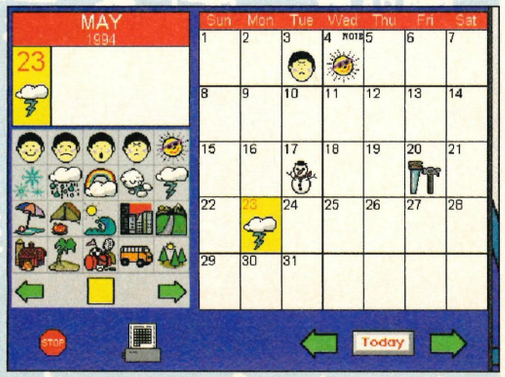


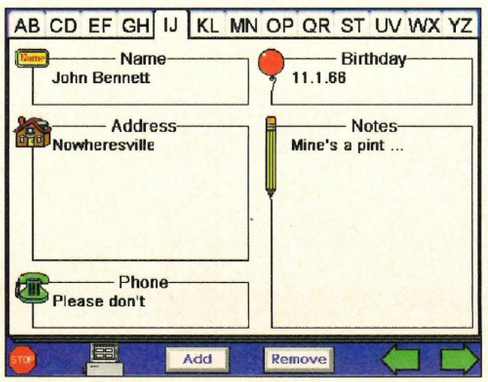
Presumably there's a way to get round it. I can't see it as yet. But then, contrary to popular belief, I'm not six and three quarters any more. In the meantime, it's one of the best ideas I've yet seen for keeping your PC safe from prying fingers, but still allowing the little so-and-sos to use it.

If you're looking for a safe, well-presented way to let your children play with your PC unsupervised, this is it.

John Bennett

★★★★★





Olivetti JP450

Inkjet printer

Ink printers are slowly advancing on the more expensive Laser printers in terms of quality, and now with the release of the JP450, from Olivetti, in terms of speed.

At an RRP of just £351.33 (including VAT), the JP450 offers the now-standard 300dpi print quality with a print speed comparable to that of low-end 4ppm (pages per minute) laser printers — which normally cost you something nearer £500 before you start adding the VAT.

Unfortunately the JP 450's performance has its suspect moments. Full page graphics do suffer from banding, text isn't as sharply defined as with other printers when using low quality paper, and the ink has a nasty tendency to bleed.

However, when the JP450 is used for small graphics and logos, and particularly given the benefit of good quality paper to work with, the results get a whole lot better.

Paper handling is also very good. A 120 sheet capacity internal sheet feeder keeps everything neatly within the one unit, whilst a Multi Purpose Device (MPD), available as an optional extra, will automatically feed paper and envelopes.

Economy is another strong point of the JP450, and it's something that is easily forgotten when choosing a printer; the refillable print head can be used with up to seven cartridges before it needs to be replaced. Each black cartridge will cost about £5.45 whilst the print head system will set you back just £20.85.

A wealth of other options include font cards and extra memory, but the most interesting has to be the addition of a colour kit. For roughly another £40 you get the colour cartridge, driver and manual as well as a 'garage' for storing both cartridges. Installation of the colour kit is just a case of inserting the new cartridge, flipping a switch, and changing the driver; simple!

For its price then, quality is generally very good, under the right circumstances, and it does provide a fast, low cost alternative to laser printers.

Alan Clark

★★

- **Supplier:** Olivetti JP450
- **Contact** (081) 785 6666
- **Price** £351.33

- **Inkjet printer with 300dpi resolution and 120 shett paper feeder. Can be upgraded to colour inkjet printing with add-on kit.**

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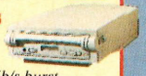
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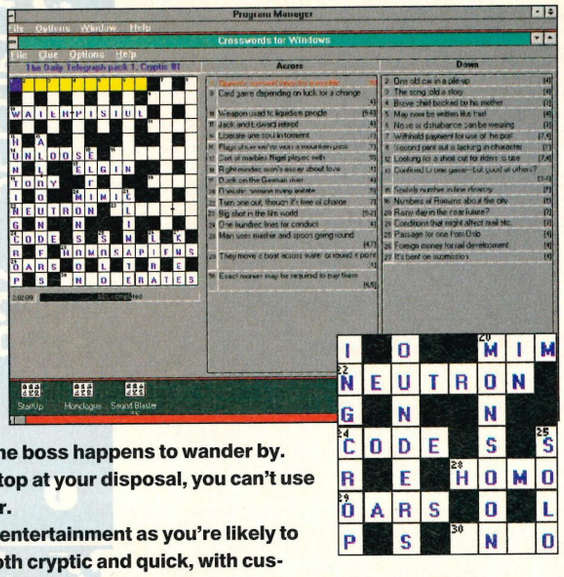
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VISA ACCESS SWITCH AMERICAN EXPRESS

THE DAILY TELEGRAPH CROSSWORDS FOR WINDOWS

Crossword puzzle



Before I started working for PC Review, I used to enjoy having a bash at the old Daily Telegraph crossword. I don't get much time for that any more, but now that it's available as a Windows program all that could change.

However much you enjoy crosswords, there a couple of points you should bear in mind if you're considering buying this program. The advantage is that you can (if you want) play it in the office, hiding it behind a spreadsheet if the boss happens to wander by. The disadvantage is that unless you have a laptop at your disposal, you can't use it to while away a long train journey or whatever.

Beyond that, it's as good a piece of Windows entertainment as you're likely to find. There are 200 crosswords to complete, both cryptic and quick, with customisable colours and typefaces and a scribble pad to help you work out those awkward anagrams. If that isn't enough, there are two anagram solvers, cheat modes to disclose individual letters or even whole answers plus an on-line help facility. The program is comprehensive, if nothing else.

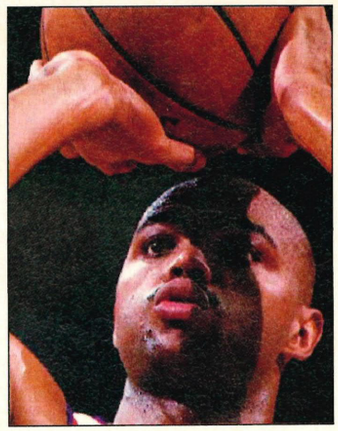
It's also easy to use thanks to its intuitive interface, and the puzzles themselves are true to the Daily Telegraph style. If you want a crossword program for your PC or simply fancy a change from Minesweeper, this is just the ticket.

Cal Jones

★★★★

- **Supplier:** Word Games for Windows
- **Contact** (0702) 468029
- **Price** £24.95

- **Minimum 386 PC, with EGA graphics or better, Windows 3.0, mouse and 1Mb of memory.**



Screen savers

Jack Nicklaus and Charles Barkley: In Your Face

I hate to be a spoilsport, but screen savers really are a waste of time. OK, so they're fun and diverting and they do add a spark of personality to a dull old PC, but in truth, they don't really serve a purpose — you'd have to leave a modern colour monitor on for ages before they was any danger of phosphor burn-in on the monitor.

However, Accolade has a couple of character licences, so it's going to use them, and how much the savers here will appeal depends entirely on how much you like Jack Nicklaus and pretty pictures of golf courses, or basketball and Charles Barkley. I guess a picture of the 13th hole at St Andrews, or Barkley looking gritty and determined, is more interesting than a pseudo-starscape or abstract geometric patterns, but it's all a matter of taste.

The pictures in both the Accolade savers are stills rather than animated, but they do cycle through a series of 22 pictures each. The Jack Nicklaus saver features both close-ups of the great man himself and some of the more scenic golf courses he has designed; the Barkley saver concentrates on the man himself, both in close-up and in action shots.

On the plus side, the quality of the pictures, digitised from photographs, is very high and both products cost under a tenner, which in PC terms, at least, is 'impulse buy' territory (not only that, but five per cent of the revenue from every sale goes to The Nature Conservancy, so it's environmentally correct as well).

Christina Erskine

★★★

- **Supplier:** Accolade
- **Contact** (081) 877 0880
- **Price** £9.99

- **4Mb RAM, Windows 3.1, 256 colour VGA required. Each take up around 1.6Mb hard disk space.**

Eagle Eye Mysteries/Eagle Eye Mysteries in London

Educational game

Jake and Jennifer Eagle are two teenagers who have set up a detective agency in Richview — their home town in America. The sequel program is set in London where they are on holiday staying with their Aunt and Uncle. In both these games you partner one or other of them to solve mysteries.

After a practice mystery — which serves as an introduction to all the program elements you start with simpler cases and can then progress to the more difficult ones. There are three levels of difficulty in the original game but just two in the London setting. The components of these two games are the same.

Each mystery starts at the 'home' location — Jennifer and Jake's headquarters in Richview or the attic room in their aunt and uncle's house in London. Typically a case starts with someone arriving to asking for help or with a phone call. One major element of the game is a map showing locations. Clicking on a location allows you to zoom in to get more detail of places you are interested in and clicking on a specific place names takes you directly to it to collect evidence.

In each case you have to work out who committed the crime. As you gather clues — by talking to people you meet and examining the scene of the crimes — the information is logged by Jake or Jennifer — whichever is your partner — in a portable computer called TRAVIS — the Text Retrieval and Visual Imaging System. You can review this information at any time.

The strategy for solving mysteries is to gather clues, form a hypothesis about who perpetrated the crime, choose clues that support this and then accuse the person you suspect. As you solve mysteries souvenirs of your detective work are added to a scrapbooks which you can inspecting to see the cases you've completed.

Eagle Eye Mysteries in London presents a US view of England and as such has a number of irritating features for anybody familiar with the real thing. Its idea of English jargon is also a bit odd.

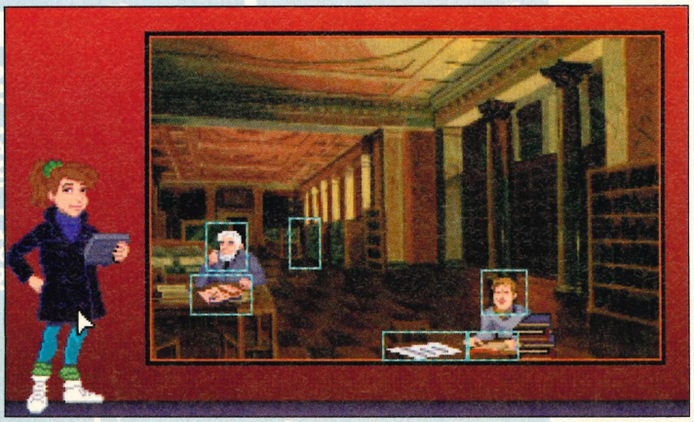
Our testers thought the programs excessively wordy. There's a great deal to read by way of introduction before you get going and solving the puzzles involves talking to people by reading what they say. However, even taking that into account they enjoyed the game's concept and felt there was plenty of interest included.

Sue James

★★★

- **Supplier:** EA Kids
- **Contact** (0753) 549442
- **Price** £39.99

- **16MHz 386, 1Mb of RAM and VGA minimum. Ad Lib, Sound Blaster, Roland support.**



SOUND FX Classic 3000

Reality sounds like this !



PC FORMAT *recommended*

"This card exudes quality, both in terms of build and performance"
PC Format, April 1994

Sounds so real, you'd think you were there. The Sound FX Classic 3000's PCM Wavetable Synthesiser (in hardware) gives you amazing true-to-life sounds enabling you to recreate reality on your PC.

The Classic 3000 is compatible with Adlib, Soundblaster. Microsoft, General MIDI, Roland MPU-401, Sound Canvas, Roland GS, and MT-32 instruments. If that's not enough, the Classic 3000's on-board 8 M-bit ROM contains over 300 samples of real sounds and instruments making it the most compatible card on the market today – and we mean really compatible – see PC Format, April 1994.

But the fun doesn't stop there. The Classic 3000 samples and plays sound at up to 16-bit 44.lKHz crystal clear CD quality. And there's more . . . the Classic 3000 incorporates a MIDI interface, a joystick port, multiple CD-ROM interfaces, an on-board digital stereo mixer, line in/out and microphone sockets, a 4-Watt amplifier, wave editor and multimedia software. . . all this for £199+VAT RRP.

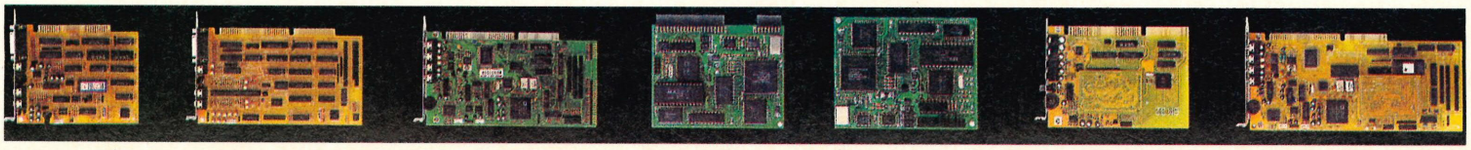
So whether you're a professional musician, an avid games player, or someone trying to find multimedia's missing link, the Sound FX Classic 3000 will give you every sound you'll ever need !

MT "the 3000 contains some of the best sounds I've heard on a PC card"
Music Technology, March 1994

Bluepoint Tel# 0908-277007

Bluepoint Monitor Corporation (UK) Ltd. 17-19 James Way, Milton Keynes. MK1 1SU

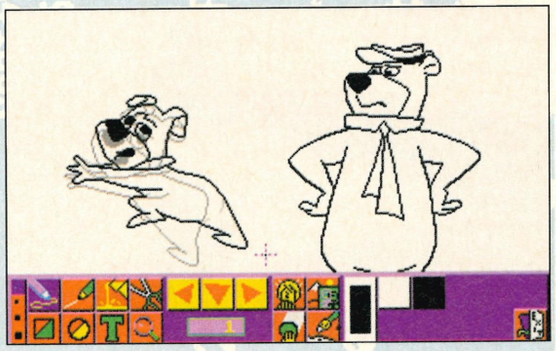
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Sound FX · Sound FX Pro · Sound FX 16 · Wave FX Plug, n' play · Wave FX Upgrade Kit · Sound FX Classic 1000 · Sound FX Classic 3000

HANNA BARBERA ANIMATION WORKSHOP

Animation and graphics package



"Flintstones, meet the Flintstones, they're the modern stone-age family..."

If you've ever fancied making your own cartoon, Empire's Hanna Barbera Animation Workshop offers the first-time animator the chance to mess around with the basics and create their very own animated short.

Like the Disney Animation Studio, HBAW's principal aim is to teach you how animation works and how you can use clip art and background pictures to create simple, but extremely effective animations. You can draw your own characters and backgrounds with the drawing utility, a feature familiar to anyone who's dabbled with Windows Paintbrush and HBAW also allows you to import images, cut, paste and generally play about with any of the preset artwork — William Hanna and Joseph Barbera are the creators of Tom and Jerry, Scooby Doo, Huckleberry Hound, Pixie and Dixie (remember them?) and many, many more.

HBAW is a simple but impressive package, with a clearly written manual and an easy-to-use, if rather gaudy, icon menu system. It's aimed mainly at the younger user and not for the kind of person who wants to render a Gouraud-shaded bouncing ball on a texture-mapped, light-sourced, ray-traced chessboard. If you want to that you'll need something a little more advanced and a lot more expensive.

The whole thing comes on only one disk, performs beautifully on the lowest of low-end machines and is packaged with an animator's scrapbook, showing you how an animation is constructed and a "How to draw with the Flintstones" video, which includes a step-by-step tutorial to get you started.

Empire has got a good, simple package on its hands, so if you want something that will educate the kids and shut them up at the same time, put HBAW somewhere near the top of your list.

Dean Evans

★★★★

Supplier: Empire
Contact (081) 343 7337
Price £49.99

Requires 2Mb of RAM and is compatible with Rombo video digitisers.



ten options in each. The select an appropriate set from the 25 possible options — you can go to the moon, or under the sea, or to the Wild West. Next come the auditions where you see what dance routines each of the actors — and again there's a wide choice of characters can offer. You hire the ones you want and your ready to put the elements together. This requires imagination to make good use of special effects plus a modicum of skill to ensure continuity and co-ordination.

Although this program is marketed for kids its the sort of fun that will appeal to a wide age range — and if you don't want to join in the movie making then you can provide the admiring audience when others have produced their masterpieces.

Sue James

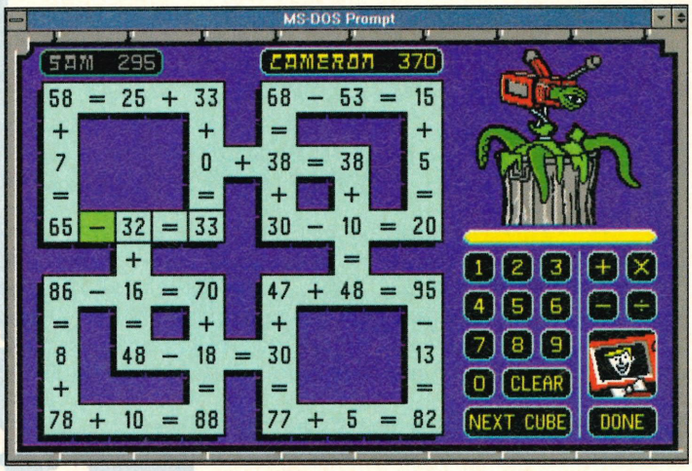
★★★

Supplier: EA Kidz
Contact (0753) 549442
Price £39.99

25MHz 386 with 2Mb RAM and VGA required. Supports Ad Lib, Sound Blaster and Roland soundboards.

Mutanoid Maths Challenge

Basic maths game



After exploring Mutanoid Maths Challenge for a few minutes I was ready to slate it for being irritating in the extreme and enough to put anybody off maths practice.

But after asking Sam, age 10 and normally reluctant to have anything to do with 'schoolwork' to try it out I had to revise my opinion. Half an hour later he was still at the computer working against the clock and against an alien opponent he was determined to beat. Beat him he did — by getting the maths problems right as well as improving his score by traditional computer game techniques.

The game presents a grid of sums with numbers and operators missing. The player has to fill in the missing bits. For example in the equation 17 + X = 20, you insert 3. There are three levels of difficulty. Level one involves only addition and subtraction, multiplication is included at Level two and division at Level three.

The game is constantly busy with sound effects, displayed messages and the occasional awful pun or riddle — but as it gives essential practice at basic maths skills, I'm not going to complain.

Sue James

★★★

Supplier: Europress Software
Contact (0625) 859333
Price £29.99

DOS 2.1 or higher, 512K, CGA or better and AdLib, Sound Blaster, and Roland sound support. In short it,ll run on pretty much any old wreck.

Video Jam

Do-it-yourself animated videos: edutainment

Video Jam is the computer equivalent of staging a puppet show but the fun and the skills are related to modern media. Today's kids want to produce action-packed pop videos not shoe-box productions of Hansel and Gretel.

This is a pick and mix package. Having assumed the role of director you choose first the type of music you want — there are six categories ranging from Rock to Classical with

Junior Essentials: Maths (Number) and Dinosaurs

Education software

The 10 out of 10 educational software series is designed to provide a fun element to reinforce learning at primary school level. The idea is that playing the games and scoring points from right answers will provide motivation and so the children try harder at tasks that test their knowledge and develop skills such as mental arithmetic and logic.

These programs require some adult supervision if you want to get full educational value from them and have two sets of instructions — a players' guide for details of how to play the games and parent/teacher guide to explains the software's coverage of school subjects and how to customise the program. So, while the children choose between games rather than subjects and by default



every game starts from grade one, if an adult wants to test a specific subject or to jump to a higher skill level then they can alter the starting grade. Given that the programs have been designed for the classroom as well as the home they provide record keeping facilities for up to 64 children in one class and up to 64 classes. Each named child has an individual achievement record and this is at the heart of the system. By playing all the games at all the grades the complete record gets filled in with red — meaning a score of less than 50%, yellow 50% or more or green 100% — and it is green that is the goal of the program.

From the child's point of view the games and how they are played are going to be the important element. The program keeps a high score table which counts corrects answers but you can obtain more points by playing at higher grades or speeds or with the timer on — and so skill in playing the games can boost scores. Our testers had definite preferences among the games — and on the whole preferred the ones that required them to shoot or zap the correct answers. Although these are not games that kids would clamour to play — or to buy — in preference to arcade or platform games they provide a certain reward for concentrating on school subjects.

The scope of the Maths (number) program is fairly tightly defined while Junior Essentials tests almost all the subjects on the school curriculum. In both these programs the games content and the content of the tests are not particularly closely related. Dinosaurs is rather different in that the games have a relevant theme to the subject matter — identification, general knowledge and classification of Dinosaurs, which in recent years have become a popular topic in every primary school.

Sue James

★★★

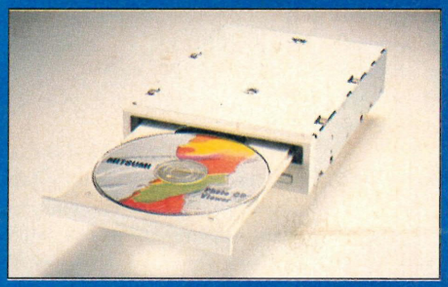
- **Supplier:** 10 out of 10
- **Contact** (0742) 780370
- **Price** £25.95 each

Each program will run on any PC, even with as little as 512K RAM. Minimum graphics are, however, VGA. No soundboards are supported.

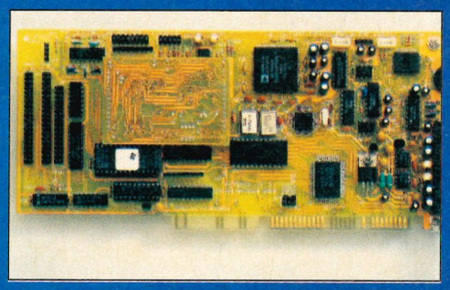
PC REVIEW TRIED & TESTED

Some software gets deleted from the hard disk the minute a review is written — some hardware we wish we'd never laid eyes on. But there are products we see every month which we wish we could keep.

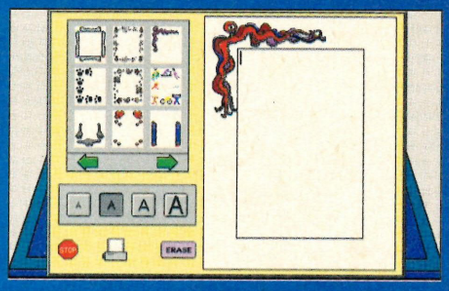
It is these programs, devices and systems — those which we've worked with and found enjoyable, reliable and, above all, genuinely useful above and beyond the call of duty, that rate an appearance on this page. Any of the products which feature here we recommend as worthy of inclusion on anyone's shortlist.



Mitsumi FX001D
Mitsumi, £169
Double speed CD-ROM drive: a competitive performer with a ridiculously low street price.



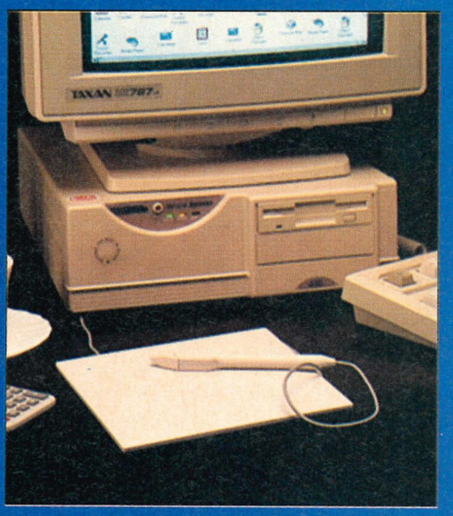
Sound FX Classic 3000
Bluepoint, £149
Great all-round card for music and games: now even cheaper than before!



KidDesk Family Edition
Edmark, £34.99
Excellent way of safeguarding the time your children have on your precious PC.



PC Dan Vantage Premium Multimedia PC
Dan technology, £1,570
Well-behaved, impeccably finished: a thoroughbred.



Micrograph Tabby
Micrograph, £53
Great little graphics tablet, easy to use and, again, very cheap.

Recommended so far: Gateway 2000 486/33SX, Fauve Matisse, Microsoft Art Gallery, Microsoft Fine Artist, Media Vision Double Fusion LX, Orchid GameWave, Bluepoint Sound FX Classic 3000, Micrograph Tabby, Dan Vantage Multimedia PC.

Shareware reviews

There's no need to spend a fortune on software, when shareware and public domain programs exist for just about every application you can think of. Alan Clark looks at some of the latest and best applications.

PRODUCTS

Total Concepts: The Solar System



This is a hypertext book that has been put together in order to detail practically everything you'd care to know about our Solar System. With stunning pictures supplied by NASA and covering all the planets, their moons, the sun, asteroids and other such interstellar objects, this is a very informative look at our closest planetary neighbours.

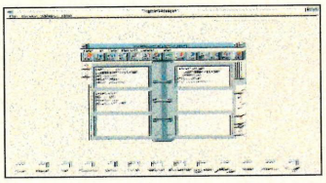
The guide itself is very simple to use; arrows allow you to scroll through the pages, whilst clicking on highlighted words will bring up further definitions or information.

Total Concepts is a good educational aid and great reference material for those of us interested in outer space. And as it's a Licenceware product, even though it's shareware it is still fully copyrighted.

Available from: PD Selections (0474) 325802

Price £5.00 PC REVIEW RATING 7

Business Cards



As the title suggests, this is a small utility for managing business cards that uses a simple database to allow you to keep track of all your business contacts.

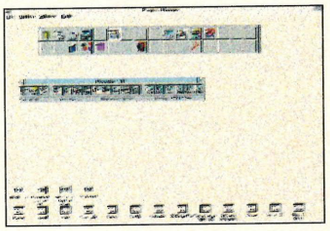
Although perhaps not as advanced as some commercial products that enable you to scan in business cards directly, this will let you format text, change fonts, sizes and colours to reproduce whatever information is present on the cards.

Everything is stored alphabetically in much the same way as a normal address book with lettered tabs for quick finding of names, or you can use the search option to bring up all cards coming under a specified criteria. You can also associate various applications with different business cards. So for example, you could click on your Bank Manager's card and access your accounts program!

Available from After Hours BBS (0785) 228214

Price £10 PC REVIEW RATING 7

PowerBar 1.11



This program launcher and replacement shell for Windows consists of two separate parts; a PowerBar and a Program Launcher.

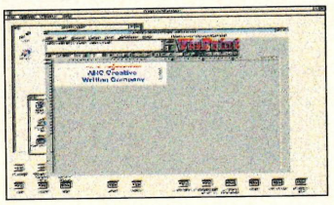
The PowerBar is simply a tool bar with a variety of options for controlling open windows on the desktop and running, copying, moving and deleting files. It also displays the time, date, amount of free system resources and memory.

The customisable Program Launcher allows you to group together all your favourite and most used applications. You can place it anywhere on the screen and specify how many tiles you want. Programs are setup in much the same way as you'd normally do under Windows, and once everything has been configured you can run all your applications from this small box of icons. As an alternative shell for Windows, PowerBar doesn't offer enough, but the Program Launcher is very useful for keeping together your favourite applications in one place.

Available from After Hours BBS (0785) 228214

Price £25 PC REVIEW RATING 6

ViaPrint



ViaPrint is a handy Windows utility for creating and printing labels, business cards, flyers, and practically anything else print related.

Using standard Windows True Type fonts text can quickly be added to an item. Colour can be used to liven it up and text can be rotated in any direction through 360 degrees.

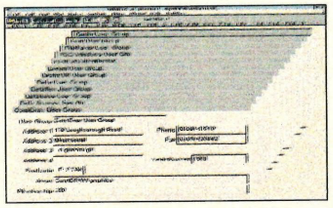
Up to ten Windows BMP format pictures can also be added to liven up your design. Page size, label size and amount of labels per page can be specified so you can create one huge label filling the entire page or print out pages of mailing labels.

Templates are provided for a range of every label stationary and to assist in creating mailing labels ViaPrint contains support for simple databases.

Available from After Hours BBS (0785) 228214

Price £19.95 PC REVIEW RATING 7

ButtonFile



ButtonFile for Windows is effectively a computerised Rolodex system; a mini database if you like. But before anyone starts complaining about how awful databases are to set up, ButtonFile already contains a number of predefined templates that cover virtually everything from business contacts to recipes and home inventories.

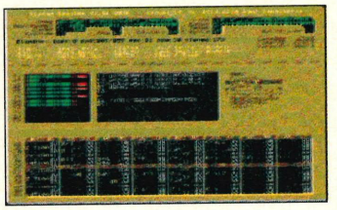
If what you want isn't available you can easily modify an existing template or create your own simply by using the mouse and tools from the menu. A toolbar gives you quick access to commands that will help you navigate through your mini database including search facilities, editing functions and there's also a set of index buttons to help you go from section to section.

Data can be printed as labels or forms and ButtonFile will even dial a telephone number for you. As databases go, not bad.

Available from After Hours BBS 0785 228214

Price £69 (£4 p&p) PC REVIEW RATING 7

Scream Tracker 3



This is probably the most eagerly awaited music module tracker within the PC demo scene, and finally Future Crew has released it. And even though Scream Tracker 3 in its present guise is only a beta and there probably won't be any further releases or updates of this program, it is the full version and it's being distributed as freeware.

Usable with Sound Blaster, Sound Blaster Pro and other FM compatible cards as well as the Gravis Ultrasound, Scream Tracker 3 supports up to 16 music channels. It's also compatible with a range of module formats.

Scream Tracker has some pretty comprehensive commands for creating effects within your music.

Anyone familiar with other music trackers shouldn't have any problems with this package, but there is a small help section available if you get stuck.

Scream Tracker 3 is an absolute must for any music writer.

Available from After Hours BBS (0785) 228214

Price $38.50 (incl $3 shipping) PC REVIEW RATING 8

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Graphics workshop

In last month's feature on graphics packages we touched briefly on the world of ray tracing. This month Alan Clark takes a closer look at this important design tool, searches out the best ray tracing software and hardware and explains how the process works.

Ray tracing is a design tool which enables you to simulate such real world things as shadows, reflections, light sources, 3D objects and textures on computer generated images. The process works by sending light rays through an original computer generated scene, then examining each pixel in the scene to discover what would then happen to the light cast if the objects involved were in the real world. Would it be reflected back, would it continue along its path or create a shadow? All is revealed in the ray tracing package.

Firstly though, you must make up your images. Images within the ray tracing world are made up from primitives: shapes such as cubes, spheres, cylinders, and cones. From these 'building blocks' you can create a whole range of other shapes by rotating, extruding and joining the various primitives together.

Once you've defined your images, colour and texture can be applied to them. The way this is done is dependant on the software you're using; colours and textures may already be predefined, or you might have to specify each element yourself.

Within ray tracing, adding colour and texture to an image or object is simple. So once you've created all your shapes and assigned them colours and texture, your next step is to add some form of lighting to the scene. Again this is software specific, but you normally have the option to add background lighting or spot lighting and sometimes, both.

Background lighting is general light that will illuminate the whole scene, whereas spot lighting can be directed at specific objects or places. The colour and intensity of the lighting can be controlled to create really atmospheric illumination.

The last three things that need to be added are the 'point of the view' — the location you're looking from, the 'target point' — what you are looking at and the focal length of the 'camera lens' you're viewing the scene through — wide angle, to include all objects within the scene, or telephoto to allow you to zoom in.

Now that your scene is complete all that's left to do is render it. The image is made up line by line as each pixel is examined by the software to see what happens to each ray of light — hence the name ray tracing.





The software

Unfortunately there's not actually a great range of ray tracing specific software available; 3D Studio is a 3D modelling package that will ray trace, but it does cost over £2,500 which puts it a little out of most peoples price bracket. Corporate ray tracing software is normally custom written and costs a great deal more.

3D Design Plus Version 2 from FastCAD, however, is one of very few commercial titles available at an affordable price, at £175.08. Unfortunately its user interface is a little cumbersome and unhelpful, but it does have a pretty comprehensive range of tools and the results are quite pleasing.

Luckily for all of us home computer users there are some good shareware packages available: Persistence of Vision (POV) and Vivid are the two most well known. Unfortunately neither of these packages have any kind of front end from which you can create your own scene. Instead everything has to be written in a scene description file.

Within this file you have to specify the X,Y and Z co-ordinates of each object, its colour and texture, lighting position, colour and intensity, as well as the view point, target, and other descriptive information. When you first start using either of these packages, these scene files may seem rather daunting, but you soon pick up on what's going on.

The best way of learning is to play around with the sample scenes that are included with the software; change various co-ordinates, colours and textures, then add your own simple objects. After a while you'll get the hang of things.

Now because everything's co-ordinate based, a pencil and some graph paper are invaluable aids when creating a scene file. It makes life a great deal easier to work it out on paper first before translating that information to the computer, but you don't come across any mistakes until you've rendered the scene, which, depending on the complexity of the objects and textures, and the hardware you're using, can take time.

For those of you who don't fancy the idea of lots of numbers, people have developed front ends, such as Moray, for both POV and Vivid that allow you to graphically develop the scene and set colours, textures,

SUPPLIERS

3DStudio
Price: £2,643
Contact: Autodesk, (0483) 303322

3D Design Plus Version 2
Price: £175.08
Contact: FastCAD (0923) 240272

Persistence of Vision
Price:Shareware
Contact: BBS such as After Hours (0708) 228214

Vivid
Price: Shareware
Contact: BBS such as After Hours (0708) 228214

General ray tracing files and updates
Contact: Raytech (0802) 832020

lighting, viewpoints, and then have the scene file automatically generated. This sort of user interface is particularly helpful when designing complicated objects.

All the screenshots accompanying this article were created with POV, and as you can see, some of the results are simply stunning.

Once you've grasped the basics of shape manipulation and construction with these types of POV graphic packages, then you can create practically anything you like.

Both POV and Vivid are available from a variety of BBS's and shareware libraries.

And for those of you with modems, there's even a BBS dedicated to ray tracing. RayTech has a variety of file areas containing specific files for both POV and Vivid, as well as other Ray Tracing software, fractal generators and other graphic orientated software.

This means of course that dedicated mail areas are also available to those with modems, so you can talk to other users, and ask for (or give) help and advice .

The hardware.

The generation of a ray traced scene requires a great deal of number crunching; reflections, shadows and lighting all require some pretty heavy algorithms to generate, therefore the more powerful machine you have, the faster the Ray Tracing software will work. But what exactly do you need to get going?

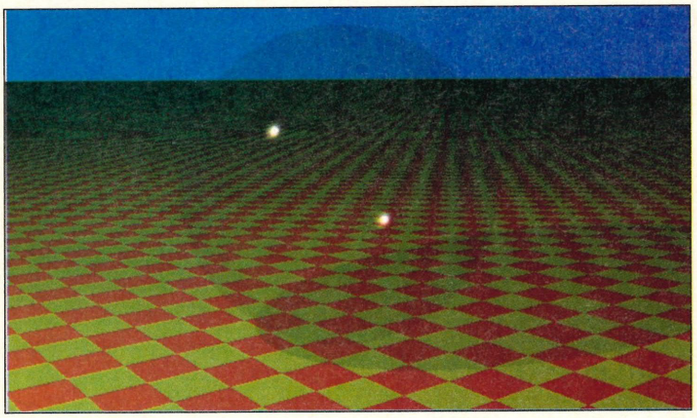
Both POV and Vivid will run on a standard 386; DX or SX doesn't make a difference. Around 4Mb of RAM will be adequate for a lot of scenes and both pieces of software make use of swap files when memory becomes full. To get the most out of ray tracing, a 24 bit graphics card is a must, but you can get away with a standard VGA card. Depending on the resolution of the final picture and the complexity of the scene, file size for the image can range from 600K upwards, so a reasonable sized hard drive is also a good idea.

So that's the most basic configuration and while it's OK for simple scenes, anything that requires a lot of reflections or shadows can take quite a few hours to render; sometimes it's best to leave the computer to render overnight or while you get on with something else.

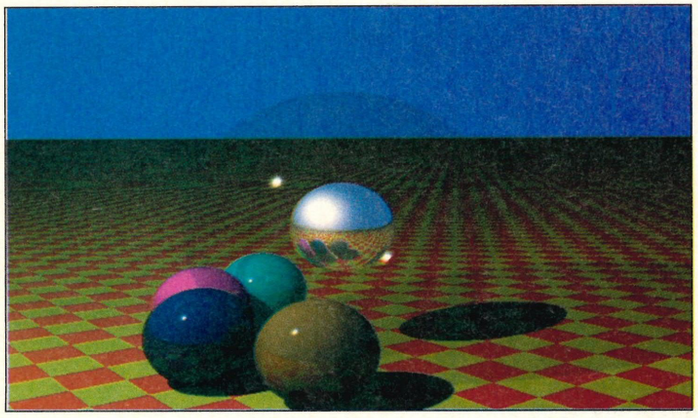
The addition of a maths co-processor greatly increases performance; both POV and Vivid will make use of this chip if it's present within your system. Basically the maths co-processor takes over all the mathematical functions which it can perform much faster than the CPU.

A faster processor will also help, but even with a DX2/66, rendering can still take some time. More memory also helps because the computer doesn't have to keep swapping information to disk; so eight or even 16Mb of RAM will also improve performance.

It's the same situation with any other area of computing really; the more powerful the machine, the faster the software will work, the quicker the scene will be rendered. The examples shown in this article were rendered using a 90MHz Pentium with 16Mb of RAM and a 540Mb hard drive; a little excessive but even so the slowest rendering, the Dragon, took just 20 minutes.



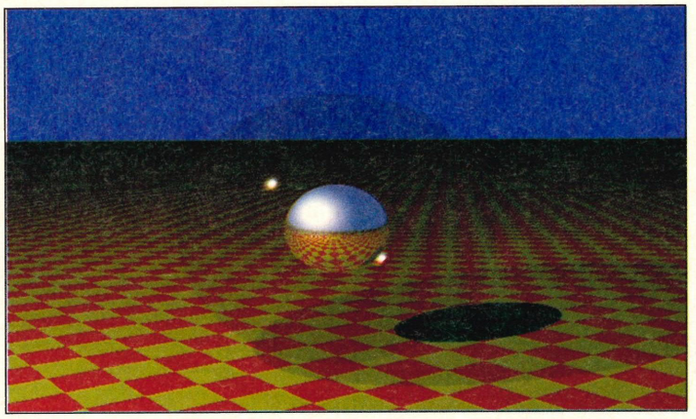
1) OK, to start with we have a chequered floor. This is made from an infinite plane along the Z axis which has been given a chequered texture. The sky is made from a huge sphere; the whole scene is actually within this. The clear sphere was created by making it almost white in colour and using a filter to block out a specific colour range. An Index of refraction was also added to control how the light moves through the sphere. Reflections from the floor have been kept to a minimum otherwise things can look a little messy. A single light source has also been added to provide some illumination.



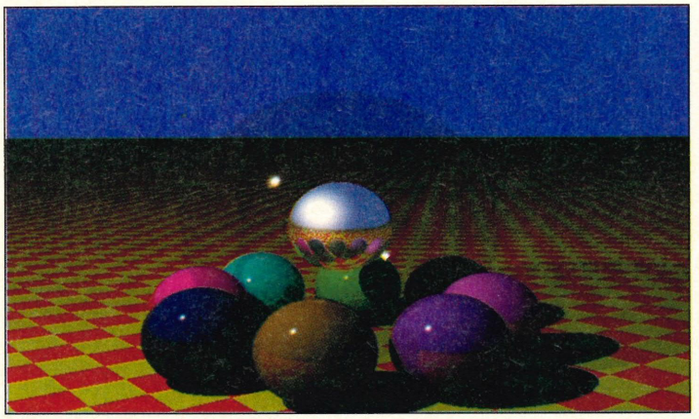
3) Now a few smaller spheres have been placed around the base of the transparent one. These have all been assigned a variety of colours and a glossy texture. Again notice the reflections of the chequered floor within the spheres and their reflections within the smaller central sphere too.

Four steps to rendering

So that's the theory behind ray tracing. Let me now take you through some simple steps to creating a 3D ray traced image. This particular scene is pretty basic stuff and simply consists of some spheres, one light source, a ground and sky. All the various stages were again generated using POV.



2) Next, another sphere has been created within the larger transparent one. This too has been coloured almost white, but has been given a high reflection value; you can see the reflection of the floor bending around it. Notice also the denser shadow of the smaller sphere.



4) And now, here we have the finished scene. A highly reflective sphere within a larger, transparent one, surrounded by smaller, shiny spheres, all placed on a chequered floor illuminated by a single light source. Complicated — but clever stuff.

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Help!

Don't Panic –

check the PC Review technical reference guide (then panic)

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.

DISK COMPRESSION

Disk compression seems like magic: you run the set-up program and, voila, your hard disk is twice as big as it was before! Of course, there is no such thing as a free lunch and you pay for the increased capacity in a number of ways. Your disk will be slower, it will be more sensitive to errors and some software may not work with it.

Let's deal with the speed decrease first. Disk compression works by recoding your data so that it takes less space. The recoding simply replaces repeating sets of recurring data by shorter symbols. For example, this printed explanation would be a bit shorter if we agree to code "disk compression" as "DC". The recoding is done by your machine's processor as the data is read from or written to the disk. If your machine is a comparative slouch — a 386SX or DX — then you will notice the time it takes to compress and decompress the data. This seems particularly unfair, as it is the lower powered machine that is usually coupled with a smaller hard disk and so needs "DC" most.

Most users can decide if the prospect of the loss of speed makes it worth trying disk compression as a way of avoiding buying a new hard disk drive. What is more difficult is the threat that the drive may be in some way less stable and the data less secure. There are a number of reasons why a compressed drive is less secure, but the most obvious one is that more data is packed into the same space. If a disk error occurs that wipes out a section of the disk, then you will lose roughly twice the amount of data that you would have lost on the uncompressed drive. This sounds serious, but in practice it isn't really much worse. Most files are so organised that if you lose even the tiniest fragment of the file's data it will refuse to load.

SOFTWARE ERRORS

A compressed drive isn't any more likely to suffer a hardware failure than non-compressed drive. However the way that the files are stored on the disk do seem to make it more sensitive to software errors. For example, if you have files open when your machine crashes, for whatever reason, then sometimes those files



will be lost. Similarly, software failures that result in irritating but not serious, disk problems such as cross-linked files, lost clusters and so on, can become very serious when they occur on a compressed drive and you carry on without correcting them. For this reason it is essential to run Chkdsk or, better, Scandisk (which comes with MS-DOS 6.2) before you settle down to use your machine and correct any problems that are found. If you start the day with a problem-free disk it is unlikely to develop any serious fault by the end of the day.

A compressed disk also makes your machine look slightly more complicated. The reason is that as well as the compressed disk there is an uncompressed 'host' drive added to your set-up. Having two drives when you started out with one is a complication, as is the matter of the compression drivers which have to be loaded when your machine starts up to do the compression/decompression.

The problems start if you try to reconfigure your machine manually — you have to leave the drivers where they are. If you delete them on purpose or by accident, then the whole of the compressed drive apparently vanishes to be replaced by an oddly named file. Whatever you do don't delete the odd file — it's the compressed disk's data. Simply reinstall the compression software using an option that tells it that there is already a compressed disk in existence. As long as you don't try playing about with your machine's configuration this sort of problem is unlikely to happen — but the fact that it can is another reason why compression is less secure.

OUT OF SPACE?

The final disadvantage is that some programs simply refuse to work or work unreliably from a compressed drive. Sometimes the problem is to do with running out of disk space. The amount of disk space shown on a compressed disk is just an estimate of how much you can store given that the compression manages to achieve a given compression ratio. If it doesn't achieve this estimated compression ratio then you can appear to have run out of space even though the file should have fitted into the available space. Some software simply cannot cope with this aspect of compression and instead of telling you that the drive is full, it crashes. Other software does strange things to the disk, usually by passing the compression, and also crashes. There really is no reason why this is necessary. It's all a matter of bad program design, but then we all know a few games and other programs that would qualify for that title! If you need to run a program that doesn't work from a compressed drive, then the solution is to make sure that the uncompressed (host) drive has enough space on it to install and run it. This often means running a utility to alter the amount of compressed and uncompressed space available — and this is yet another complication of using compression at all.

So finally, is it worth it? Not if you can afford a new multi-megabyte drive, but in the real world compression makes it possible to carry on having fun with a system that is past its use-by date.

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. This prompt will always occur, whether or not you wish to format another disk of the same type. So, 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 absolutely have to.

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 the device driver for extended memory. Look for the words Device= and the location of the file.

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 mailbox 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.

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.

BEFORE YOU MAKE ANY CHANGES TO YOUR CONFIG.SYS FILE, YOU MUST 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. 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

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 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!

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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 the place 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 interface is for use in 386 and 486 PCs and 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 can be used to enable 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.

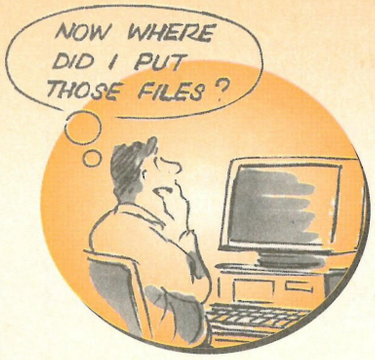
Io.sys: one of MS-DOS's two hidden system files. Needs to be present at start-up.

Joystick card: see game card.

Kermit: an old, not very advanced, protocol (method) for transferring files by modem.

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.

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.

REBOOTING

Press Ctrl-Alt-Del to restart the machine so that it runs through its start-up files again. If the PC has frozen up completely, press the reset button which should be at the front of the PC and labelled clearly.

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 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)

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.

OCR: stands for optical character recognition. Software which 'reads' text scanned into the computer with a scanner (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).

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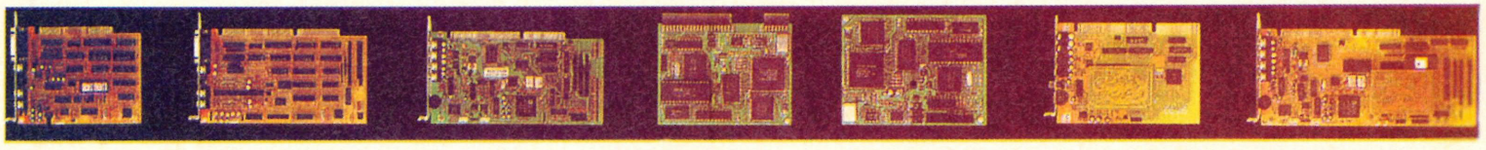
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and an extended memory manager (Himem.sys). The following line in your Config.sys file

```
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 disable 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 start-up, 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.

SHORT CUTS IN DOS

Typing in DOS commands over and over again can be a real pain, even if you can type quickly and accurately. However, there are a number of wildcards and 'switches' available in DOS, which will make life much easier.

DOS wildcards

Imagine you have a directory called Stuff. Inside Stuff, you have the following files:

```
Smith.let
Jones.let
Johnson.let
Smith.fax
```

Now, suppose you want to delete all the letter files — the files with the extension .let. You could type in

```
DEL SMITH.LET [Enter]
DEL JONES.LET [Enter]
DEL JOHNSON.LET [Enter]
```

which is a bit tedious, and prone to the odd typing error, which will just yield 'Bad command or filename' from the PC.

So instead, you could type

```
DEL *.LET
```

The asterisk is a DOS wildcard, and stands for any character or string of characters. So this command will delete any file whose name consists of a string of characters, followed by .LET.

Similarly,

```
DEL J*.LET
```

will delete Jones.let and Johnson.let, but leave Smith.let intact.

Now, in an even more far-fetched scenario, suppose that when you named the Johnson.let file, you made a typing mistake and ended up

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:

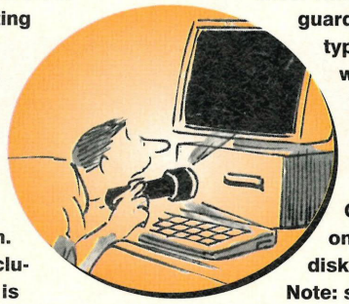
```
FORMAT A:/S
```

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.

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calling it Johnson.ley, and you never got around to renaming it. You can still delete all the letter files in one go by typing the command

DEL *.LE?

The question mark is also a wildcard and stands for any single character.

These two wildcards work with most DOS commands. For example, DIR *.EXE will show a list of all the executable files in the current directory (useful when you can't remember which command loads a particular program).

COPY A:\????.* will copy all files whose names are four letters long before the extension to the current directory. (I can't really think of a practical use for this, but at least it illustrates the point.)

REN *.DOC *.TXT will rename all the .DOC files in the current directory as .TXT files, and it retains the original names before the extension.

And so on. You'll find that these two DOS wildcards are understood by many programs as well.

Then, of course, there's DEL *.*, which deletes all the files in the current directory, so you need to exercise care when using this command.

You can, however, take precautions against using DEL *.* at the wrong time and in the wrong place:

DEL *.*/P

That /P is a prompt switch, and now you'll find that DOS prompts you to confirm each file deletion. This is a particularly useful command to know when you want to delete most of the files in a directory, but not all of them.

If you do delete the wrong files by mistake, and you have DOS 5.0 or later, then, before you do anything else, issue an UNDELETE command. In the same directory as the one you deleted files from, type

UNDELETE *.* [Enter]



This example assumes that you typed DEL *.* when you deleted the wrong files. So long as you haven't saved any more files since the accidental deletion, DOS should recover the ones you lost. They will be recovered with the first letter of each name replaced by a # symbol, and you can use the rename command to replace the correct letter, eg,

REN #ASLOST WASLOST [Enter]

The current name should be typed in first, followed by the new name that you want.

REPEATING AND EDITING COMMANDS

How many times do you need to find a file on floppy disk, but you're not sure which disk? You stick a likely-looking disk in the drive, issue a DIR command, get the next disk, issue another DIR command, and so on.

Next time you want to repeat the last command you typed, just press the function key F3.

It's also time-consuming if you type in a particularly long-winded command, and hit Enter, only to find that you mistyped a single letter somewhere in the middle and after 'Bad command or filename' you have to start all over again (this is, of course, why people use XTree or Windows).

For example, if you type

COPU WORDPRO\PERSONAL\JONES.LET A:\LETTERS

instead of bashing out the whole line again, press the function key F1, or even more simply, the right arrow key on the cursor cluster to the right of the main qwerty keys.

You should see the letter C appear on the command line. Press F1 (or right arrow) again to get the O, then again for P.

Now hit Y to replace the U with a Y, and then hit F3 (or press and keep pressed the right arrow key) to complete the command.

Alternatively ... instead of pressing F1, press F2, then U, until COP appears on the command line. Now hit Y to replace the U, and then F3 to complete the command.

F1 repeats the previous command one letter at a time. If you type a character at any point, this will replace the character that was there in the previous command. You can also hit the Ins key to add characters, and the Del key to lose them.

For example, suppose Jones.let is actually in a further sub-directory under Personal, called Letters. You could type F1, F1, F1, Y, the F1 key until you've reached PERSONAL\, then the Ins key. Now type LETTERS\, then F3 for the rest of the command.

F2, plus a character, will repeat the previous command up until the character that you specify. So, using the example above, if you press F2, S, you will see COPU WORDPRO\PER appear on the command line. Press F2, S, F2, S, and you'll see COPU WORDPRO\PERSONAL\JONE.

If you have DOS 5.0 or later, you can use Doskey. Doskey can be used to create command macros, which is somewhat out of the scope of these pages, but more simply, it can also be used to cut down on command typing.

First, it needs to be loaded. At the C:\DOS prompt (or from anywhere



if you have a PATH=C:\DOS command in your Autoexec.bat file), type

DOSKEY [Enter]

Now type, for the sake of example

DIR

You get your list of files in the current directory. Now hit the up arrow on the cursor cluster to the right of the main qwerty keys, and you should see the DIR command again, as with the F3 key, detailed above).

Press Enter and you'll get the directory listing again. Now hit the right arrow to get the 'd' again and hit the Ins key above the cursor cluster.

Now you should see the on-screen cursor change from a flashing underline character to a blinking block, press A then the up arrow and you'll see the command is now the pretty useless 'Dair'. Press the left arrow key to move back along the command until the block is over the A and hit the Del key to remove it. Under Doskey, you can use the left arrow key to move back along the command and change one or more of the letters whether you are in blinking block (insert) mode, or flashing line (overtype) mode.

DELETING SUBDIRECTORIES

One of MS-DOS's most annoying features is that when you need to delete a program from the hard disk, you can only delete the files in the current directory. Files that are held in a subdirectory of the current directory stay put. This means that deleting all the files in a program often means a series of commands such as the following:

DEL *.* (deletes all files in the current directory)
CD SOUND (moves prompt to the Sound subdirectory)
DEL *.*
CD .. (moves to the next directory up the 'tree')
RD SOUND (removes the empty subdirectory Sound)
CD GRAPHICS (moves prompt to the Graphics subdirectory)
DEL *.*
CD ..

and so on, for every single subdirectory. If you have MS-DOS 6, however, you'll find the command Deltree.

This deletes the files in the current directory, files in this directory's subdirectories and the subdirectories themselves. For example, if you type

DELTREE C:\WORDPRO

you'll get the message "Delete C:\wordpro and all its subdirectories (yn)?". Hit Y [Enter], and that's it.

All the files in Wordpro, all the subdirectories in it and the files in those subdirectories, not to mention the directory Wordpro itself, will be deleted. As you can see, Deltree is even more dangerous than DEL *.*.

NEXT MONTH

We'll have more on disk housekeeping, how DOS works with your files and moving around your hard disk, plus those useful tips for Windows users next month.

GLOSSARY

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 original 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: Shareware is actually 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: a soundcard or soundboard is an item 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 pixels with at least 256 colours on-screen.

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.

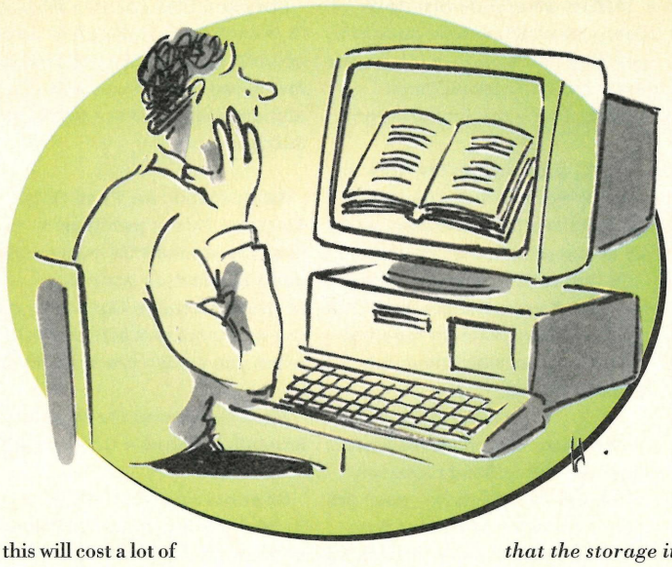
XGA: eXtended Graphics Array. IBM graphics mode.

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.



Boot trouble

Q I am having problems with my PC and would be very grateful if you could help. Unfortunately, I couldn't afford a new one and had to buy second hand. It is a 486 DX33, with 4Mb RAM and a 250Mb hard disk. The trouble is my hard disk fails to boot up every two or three days. I got in contact with the seller and he said it was still under warranty so he kindly sent it back to the manufacturer for me. In the meantime he gave me an old 40Mb one he had to see me through. The same problems occurred with this one as it had with the previous one. After consulting a friend he said it may be a problem with my I/O board. He looked inside and told me that everything was wired up right. The only way to get it going is to format from BIOS and reinstall DOS every two or three days. Do you have any other suggestions, if it is the I/O board, how much would a new one cost? I would be very grateful if you could print this letter soon as I don't have much hair left!

John Fitzpatrick
Glasgow

A *Given that the same problem occurs on both hard disk drives it seems unlikely that they are the source of the problem — although without this information I would have suspected that the hard disk was to blame. The boot failure seems to be due to the boot sector or partition table being overwritten — this must be so, since you have to reformat the drive to get it to work. The only reasons I can think of for this type of problem are the disk controller or its cables. I can't tell you how much a new disk controller will cost because there are four distinct types — IDE (about £20 or less), MFM (about £50 or less), ESDI (very rare now £50-£100) and SCSI (£100 or more).*

If this machine were my problem I would try a new set of cables first. This is a cheap option and a likely cause of the trouble. If replacing the cables and the controller don't cure the problem then the cause must be deeper in the system and could be anything from a badly designed motherboard to a piece of fluff stuck in the expansion slot connectors (I'm not joking ...).

Upgrading, disks and RAM

Q I have an Olivetti 286 PC running at 16 Mhz with VGA, Sound Blaster, 40Mb hard drive and 1Mb RAM. I would like to upgrade it to a 386 running at 25Mhz or 33Mhz. I would also like to increase the amount of RAM to 3Mb or 4Mb.

My friend says that I can get a motherboard with all this on it. How do I go about upgrading my computer? How much would it cost? Can I simply get a motherboard and install it into my hard drive and what important things should I do? What problems might occur?

I've heard that you might have to get RAM chips to match the chips in the hard drive. Is this true? Is it better to take my computer to a specialist, although I gather this can cost a lot of money.

I would also like to know how I could increase the amount of memory in my hard drive. My friend said that it would double the amount of memory in my hard drive and also give me some more conventional memory. Is this true? Is there a better way to increase the amount of memory in my hard drive? I know this will cost a lot of money so would it be better to get the motherboard before increasing the amount of memory in my hard drive or vice versa?

Steven Francis
Edinburgh

A *Yes, you can replace the motherboard on your machine quite easily. The only real problem is making sure that the new board physically fits within the old case and can be mounted using the available holes. Once you have the board in place, all your old expansion cards should work, but watch out, they might not be fast enough for long term use.*

As to the memory question, you are a bit confused about memory and disk drive capacity. This is a common confusion and even long-term PC users still suffer from it! Memory or RAM is where your programs run, and the disk is where they live when you are not using them. The two types of memory are separate and disks do not use chips of any kind to store programs and data. In other words, you cannot upgrade your hard disk by adding extra components to it. The storage it offers was set when it was made and cannot be changed.

However there is nothing to say that the storage it provides cannot be used more effectively. This is what disk compression software does for you. By packing data and programs into less space it seems to double the size of your drive. A good analogy is a three hour VHS video tape. You can't do anything to the tape to make it longer but by recording on it at half speed you can make it record a six hour program, ie, it seems twice as long. Disk compression is a good idea, but it can slow a machine down and make it more vulnerable to disk errors.

To get back to the motherboard upgrade for a moment. It is likely that you will need to buy some new RAM chips — SIMMs to be more accurate — to provide memory to run programs in. It is unlikely that your old motherboard's RAM chips will be compatible with the new. SIMM memory costs around £30 per Megabyte and I would advise you to get at least 4Mb.

Where is Amos?

Q In August of last year, I stumbled across an article in a computer magazine stating that AMOS was to be released on the PC under the pseudonym "Click and Play". Click and Play? What sort of



name is that for a quality programming language? Anyway it stated that AMOS was to come out in the summer of this year, and that Europress (which was to release the utility) was also to bring out another programming tool in January which would be a simpler form of AMOS. Since reading that article, I have been searching endlessly through shops, flicking through magazines for a glimpse of that god of a language, but in vain. What I would really like to know is, a) when is it coming out more precisely (please don't tell me they've abandoned the idea), and b) What is the name of this other language to be released?

Andy Hodgetts
Bristol

A Yes, you are right. Click and Play is the next product to be launched by Europress, but it isn't sure of a date as yet — which is why you haven't heard any more about it for a while. Europress produced AMOS on the Amiga and thought that it could develop a more or less identical product on the PC but as soon as it got started it realised that it would be possible to design a games creator that required no programming — that's right, no programming at all! It is going to be Windows-based and very flexible. It will be able to produce games of infinite variety, such as shoot 'em ups, car racing, and platform games. This novel approach sounds very interesting — we are sure to bring you a review just as soon as product reaches us, so keep looking.

Photo CD

Q I have recently bought a Toshiba XM-3401B CD ROM Drive. I would like to start using it for Photo CD applications. My drive is Photo CD compatible, but I believe I need some additional software to do this. Can you tell me if this is correct and what the software is called?

Andrew Whiteley
Kent

A Nearly all image editing programs are Photo CD compatible these days. For example, try PhotoFinish, or if you really want a full graphics package, Corel Draw 4 (pictured above) or 5. Which one you need does depend on what you want to do with the Photo CDs. If you only want to view them you could use PhotoCD from Kodak, but if you want to incorporate them in DTP or graphics then you do need a full editor.

Cirrus problems

Q Having failed to make the demo of SimCity 2000 on the April 1994 cover disk work, I called Maxis, which informed me that the memory manager this game (and many others — Doom, Mortal Kombat, Indy Car) use, DOS 4GW, has many problems with some VESA local bus systems which incorporate the Cirrus SVGA video cards.

The chap on technical support suggested that they had received a number of calls on this. It seems that Maxis is working on a fix, but are you aware of any other possibilities? It seems that this relatively common set-up is unable to operate the most popular games at the moment, and according to Maxis the operating system is likely to become very popular indeed.

Dr E C Carter
Surrey

A I have to admit that I find it surprising that the Cirrus SVGA card causes problems, because it's rapidly becoming a popular video card — but it does! Sometimes you can get around the problem by installing the software for a VGA resolution because the problem is directly related to SVGA used over a VESA bus. After installing the software you can even manage to coax it to work at SVGA by changing the driver. It's not just Maxis's software that is suffering. If you try to install Microsoft's Creative Writer for example, it fails with many Cirrus SVGA VESA cards. The solution here is to set Windows to use a VGA driver, install the software and then switch back to the Cirrus driver. Given the popularity of this chip set I'm sure that the problem will be cleared up soon.

Stoned?

Q I own an XT-2 (XT clone), EGA, 21.4Mb hard drive, a new external high density 3.5" disk and an external low density 5.25" disk drive, all this running in MS-DOS v3.30. The simple problem is that nothing at all works on it! Is there a cheap,

Q&A EXTRA

The half screen fault and parity errors

Q **I would like to offer some assistance to Ian Jones with the problem aired in the Q&A Section in Issue 28. The reason why his cursor will not move into the right hand half of the screen is actually because of his mouse driver. Games like X-Wing and Wing Commander require a mouse driver which is Microsoft mouse driver version 6 compatible. Unfortunately, if your mouse driver is loaded before the game (which of course it has to be) it will also affect the keys and joystick as well (don't ask me why).**

If Ian loads X-Wing without pre-installing his mouse driver he will be able to access the right hand half of the screen using his keys, I would suggest to Ian that he tries using the mouse driver included with DOS 5 or 6.

I would also like to help Peter Vrist with his memory parity error. As a field service engineer I have encountered this problem once when I was working on an Ambra Hurdla. At the time I was completely baffled because the machine seemed to work perfectly after I disabled the NMI. I then used Check-It Pro to test the memory for four hours continuously, which resulted in Check-It Pro showing up a bad RAM chip. After replacing the defective bank the problem was cured. Unfortunately I cannot categorically say that this is definitely the cause, but I feel that it is the most probable reason. To isolate the bad bank I would suggest that Peter swaps one bank of memory starting with the first (Bank 0) with another bank. Then cold start the machine if the parity error occurs at a different address you will know which bank is causing the error. I hope this has been of some help.

Mr L J Roseblade
Thatcham
Berks

A Many thanks for the answers — they are always welcome. Mouse drivers are a problem in that if you have had a mouse for some time it is almost certain that the driver will be out of date and getting a new one that is guaranteed to work is almost impossible. Fortunately the cost of mice has fallen to the point where a completely new mouse isn't out of the question for many users — but first it is worth trying Mouse.com from MS-DOS 5 or 6. Notice that this isn't always automatically included by the installation program so you may have to search the installation disks (at the moment it is on disk 1) for mouse.co_ and then use the command

expand a:/mouse.co_ c:\mouse.com

to uncompress the file. To confuse the issue, some readers wrote in to say that the solution was to go back to an older mouse driver. It seems that what works, works, and what doesn't remains a mystery! I hope that this information helps the many readers who have written in with similar 'half screen' problems.

As for memory errors, yes, I agree they can be strange — especially if they are transient errors. In this case all you can do is test the memory for a long period of time to see if the error can be caught. Check-It is a good diagnostic, but it isn't cheap so a better option for occasional use is the SI utility from Central Point. This isn't shareware or freeware, but it is given away as promotion for the full package — which is worth buying anyway. The only problem with moving memory modules around in the way that you describe is that you have to be confident about hardware and it is still difficult to know exactly which module is causing the trouble.

cost-effective way of upgrading the machine to a 386, 486 or even a 586?

My second problem is that I have managed to get the Stoned virus on my computer a few times. I have had the New Zealand v1 and v2 variants at different times and now have a different variant. F-Prot can't get the virus off my machine. It says that the virus is on the master boot sector and calls it a new variant. It must be a very new variant as my version of F-Prot was created in January of this year. How can I get rid of this virus and what is it doing to my PC?

And last but not least, I am shocked at how the software houses treat the users of older computers. Surely it would help to sell more copies of a game if it were an all systems supporting package.

Johnny Ryan
Ireland

A *How are you managing to get viruses so often? Most users never see a single virus in years of using a PC. Fortunately the Stoned virus isn't particularly dangerous, although it is very infectious and spreads rapidly if you don't get rid of it. My guess is that you keep on getting the Stoned virus because you have some infected floppy disks that you keep on using!*

OK, what can I tell you about the New Zealand variants? New Zealand 1 and 2 both print "Your PC is now Stoned" — they were also supposed to print, "legalise marijuana" but there is a bug in the virus. They don't do anything more damaging, but they do infect any floppy disk that you place in the drive and you can lose files when the virus first infects the machine. The only other mutations I can find out anything about haven't got names — one displays "Your PC is now Sanded" (don't ask me what it means!) and one, with the bug removed, prints the full message.

It really doesn't matter what mutation you have on your machine, as the cure for all boot sector viruses is the same. The only complication is that New Zealand also uses the partition table so you have to perform a physical reformat or at least an FDISK repartition.

First boot your machine from a clean, ie, not infected, write-protected system disk. Next back up all your files. Perform a physical format of the drive — how this is done varies from machine to machine and you will have to look it up in the manual. After this you will need to repartition the drive, ie, use FDISK and logical format it, ie, use FORMAT C: /S.

If all this sounds like too much work then an alternative is to buy a virus detection and clean-up program that will deal with boot and partition sector viruses — Dr Solomon's Anti-Virus Toolkit is one such program.

As to the problem about support for old machines I agree that it is very sad, but I can understand why manufacturers have abandoned the XT. It just isn't fast enough for the sort of games and other software that we would like to use today. The only comfort I can offer you is to look in the shareware catalogues. There you will find games for CGA and EGA graphics that work well on an XT. Your best option is to upgrade your machine with a motherboard swap — or better wait until you can afford a new machine.

Finally — have a guess how much you can buy an XT for at the moment. I've seen one advertised for £99 complete with keyboard and colour monitor.

An Amiga emulator

Q You might like to know of an Amiga Emulator for the PC. I recently purchased the Hot Sound & Vision CD-ROM. On the disk is an Amiga Emulator. To run it requires a VGA card, Microsoft compatible mouse (COM1) and a minimum of 512K extended memory. It emulates Kickstart 1.2, Version 33.192. The program has no hardware emulation. I have not had any need for the program yet, so I can't comment on how good it is?

Whilst writing, with reference to the letter headed "Why no DIY?" in Issue 31, is it really that difficult to make a DAC for the printer port?

Matthew R J Tuck
Somerset

A *Yes, you could make a DAC (digital to analogue converter) for a parallel printer port, using nothing but a handful of resistors and active components. You would also need some software but at the end of the project, would you really want to use it when a sound card complete with DAC, ADC and FM synth can be bought for £50? My point is, you can build things for yourself, but most of the time it would be last decade's technology.*

Q&A UPDATE

The type of Q&A letter that really makes me break out in a cold sweat is where the writer tells me a long tale about how they installed some software or hardware which didn't work and how they tried changing just about everything in an effort to get it to work. Why does this upset me so much? The answer is that I can tell that they have lost track of exactly what they have done. They have made so many changes that their machine no longer works properly and they have no way of getting back to where they were.

To avoid this situation, when you install new software or hardware you should never start making changes to your machine set-up unless you are sure you can undo them.

If you are installing hardware, you need to make and keep a list of what interrupts, DMA and base addresses each device is currently using. The standard devices — printer ports, disk controllers and serial ports — have standard assignments and are very rarely changed or used by other devices. The only IRQ numbers which are free in a standard system are 5,10,11 and 15. These are often used by less standard devices such as sound cards, network cards, video input cards, CD-ROM cards and so on. If you have any of these cards in your machine find out and write down which IRQ number they use. A DMA channel isn't always used by an expansion card, but in most cases channels 0,1,3,5,6 and 7 are available. Again for each card in your system, find out which DMA channel they use and write it down. Finally, find out and write down which I/O port address each card is using. Some also make use of areas of standard memory and again you need to make a list.

Doing this may not be easy, but without it you are working in the dark. Have a careful look at the manual that came with each expansion card and then look at the cards to see how the jumpers are set. If you discover that any of the expansion cards are using the same IRQ, DMA or I/O port then you have found a configuration problem.

When you install new hardware, you can use your configuration list to select unused IRQ, DMA and I/O port addresses. If you have to start moving things around you can refer back to the list to discover how everything was set up. It is very important to realise that if you are tempted to change the IRQ, DMA or I/O port that a card is currently using you will almost certainly have to change whatever drivers or software that uses it so that they know about the change.

When it comes to keeping track of your software set-up you only need to make a copy of two files for MS-DOS — Config.sys and Autoexec.bat — which are stored in the root of the drive, ie, usually c:\config.sys and c:\autoexec.bat. If you are altering Windows as well then you need to copy System.ini and Win.ini which are both stored in the windows directory, ie, usually c:\windows.

Once you have copies of these files on floppy disk you can do more or less what you like to your machine's configuration safe in the knowledge that you can copy the originals back. This isn't a 100% guarantee that your machine will be restored to its original state, because it is possible that new software will replace existing files and not tell you about it. It is also possible that you will have to change the way drivers are set up if you alter the IRQ, DMA or I/O port address of any installed hardware. However in most cases you should be safer with than without a back-up configuration disk.

It is also worth repeating the advice that when you make changes you should make them one at a time. Always attempt to make the smallest change you can to see what the effect is. The most common mistake is to change everything at once —only to find yourself unsure about exactly what change is responsible for something starting to work and something else ceasing to work.

Also try and keep notes of what you have done — your memory isn't as good as your machine's! And of course, whilst when you are installing something new you may naturally get impatient and want to see it work. Try not to get too impatient — after all, if you rush at it you could spend a lot longer trying to undo the damage.

■ Mike James

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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.

Cool shareware

The saga continues ... after reading David Evans' letter (Issue 29) I felt that I had to write in about the standards of shareware.

As a newcomer to the world of PC gaming, I was initially quite confused about shareware, Public Domain and all sorts of stuff. So, trying not to risk more confusion, I purchased Frontier and Wing Commander.

I managed to install Wing Commander fairly easily, but Frontier was hell. And it wasn't until I'd spent 45 minutes racking up a massive phone bill to the IBM helpline, that I finally managed to get Frontier up and running.

And then it happened. No, not repeats of I Love Lucy, but I bought Doom. After 15 minutes I was chasing round bloody carcasses, pulling switches and generally smiling. Shareware, I thought, is so cool! I had it running in 30 minutes. And it was the same with Wolf 3D, Blakestone, Galaxy Trek and Brix!

So my point is: shareware is great, a bunch of great games for £2 or more and no fuss in installing them.

Alex Beck
Address unknown

Software prize WINNER

My pet hate

All I see lately are articles, commentaries and adverts extolling the virtues of CD-ROM, and I want to disagree with most of them.

CD-ROM is heralded as the way forward and a technological breakthrough. It will save time, hard disk space and costs etc. What it actually does is to give manufacturers and software houses another excuse to mug us out of more money.

CD-ROM drives do not match hard disks for speed. There are, almost every week, new CD drives on the market which are faster and better than last week's. How long will it be before those people buying CD-ROM now will have to upgrade? Not long I think.

Graphically CD-ROM gives software producers a good base to work on and they become unrestricted by the cost of floppy disks. This is good. What isn't good is the effort they appear to put into gameplay. I read review after review where the looks of a game are praised, only to be offset by disappointing gameplay.

Prices haven't fallen either.

Software houses (watch out Origin, here it comes), are releasing CD-ROM games that are not playable from the CD itself. Ultima VIII, for example, needs a massive 35Mb in addition to your owning the CD-ROM. What's the point? I'd feel tempted to keep my tiny hard disk (40Mb) if it was only for the want of a few megabytes to save games and store set-ups and buy a CD-ROM drive. As it is I think I'll upgrade the hard disk long before being tempted to shell out for a CD-ROM drive.

I believe the market has a long way to go in this area before it stabilises. Tempting as it is, I will not buy a CD-ROM until I'm convinced the quality of the games and technical specification of the hardware makes it a truly worthwhile purchase.

Mike Hicks
Theydon Bois, Essex

> CD-ROM? What's the point? I won't buy until I'm convinced it's a truly worthwhile purchase.

... And another thing

I have read Cal Jones's review of Ultima VIII (Issue 31) and agree with her assessment, although I have since seen other effusive reviews. I am playing on a 486DLC, 40Mhz with 8Mb of RAM and using Smartdrive (not used during installation). But "ten seconds" from fade out to fade in between locations! You have to be kidding. It takes 45 seconds on my machine and God knows how long to load and save games.

My other gripe is it is too easy to be killed through no fault of your own, mainly due to the control system and speed. The fights look good but trying to line up blows is sometimes a problem and, whenever there is too much going on, the control slows down so much that the monsters catch you too easily.

I have spent much of this game playing as a cowardly version of Will Carling. It is often better to run and sidestep from fights as to stay and continually get slaughtered. But then you can't increase your fighting statistics very quickly — a bit of a Catch 22 really.

I have played Ultima games and spin-offs since I first got a machine (Ultima VI was the first), but I think this game will rapidly lose its appeal for someone using a slow 486 who has not played Ultima before. That said I am still too addicted to want to leave it.

Anyway, using the coward's method, as I am, it seems to me that anyone who is attempting to get into the Necromancer Catacombs won't be able to proceed easily. So here is a bit of a cheat/tip to get in.

You are supposed to be finding the Necromancers to get them to teach you spells. Once you have the Key of the Caretaker however, providing you have the correct reagents, you will already know the spells (read the manual).

I used Rock Flesh to get past the ghost and a fare bit of side-stepping, I might add. But I think a better spell may be Grant Peace. Although you target this spell, it kills all ghosts and skeletons in sight, but not ghouls.

Once you are in the catacombs, find the room with the chest and the ghoul creeping around. When you enter you will fall through the floor, but this is the way to get to the Necromancers. After you return to the catacombs, the way to the Stone Cover is jump down, turn left and go through the door to the south western corridor of the catacombs. It will make sense when you are there. Then keep heading south and make sure you have your Create Golem spell token with you.

At the moment I am in the Hall of the Mountain King, in the pit of death and it is even more frustrating than ever. Now, I wonder about that door guarded by the arrow trap?

Mike Hicks
Theydon Bois, Essex

GIVE ME MORE MONEY

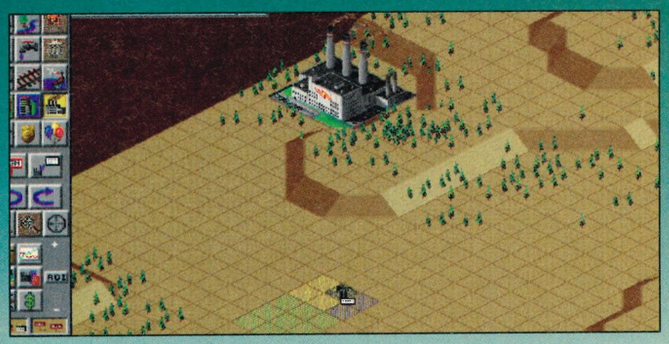
I read your May issue, and you were talking about a Maxis program that gives more money in SimCity 2000. I would like to know where I can get a copy of that program, and if it works with the full-based SimCity 2000.

Johan Eskils
University of Sussex

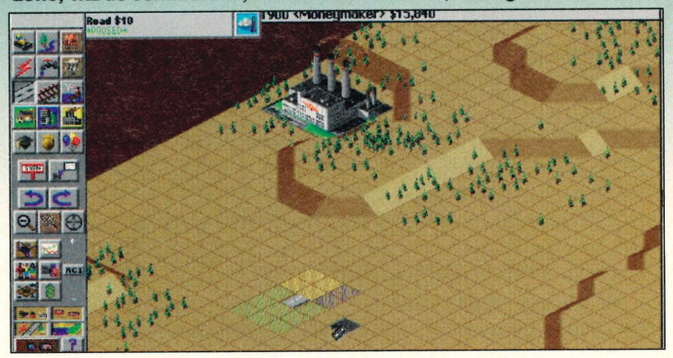
It's not a program, and it's not really a cheat — it's a playing technique which we outlined in Issue 30, which will help to ease financial worries in the early stages of the game, although it is quite expensive to set up. Since yours is not the only inquiry about the Maxis 'moneymaker', the sequence on the right shows how to do it.

However, if you do want to cheat good and proper, there's the hack which we detailed in Issue 32. For this you need a file editor such as Norton or PC Tools – don't attempt this unless you know what you're doing, and do back up your files first so that you can restore the game if it all goes wrong.

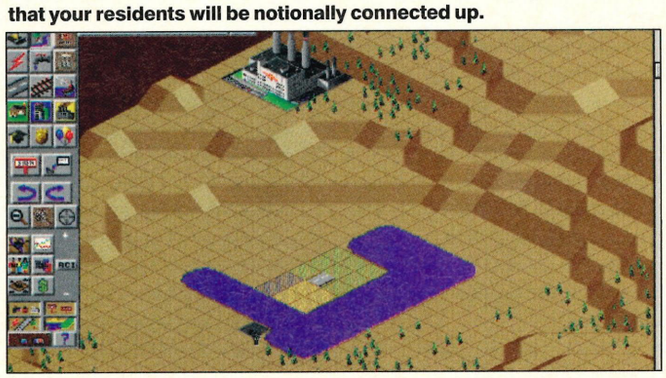
Start a new game and save it immediately. Go into the save game file, locate line 0000020 and change the eighth number on the left from 00 to 77. Two billion credits will now be yours.



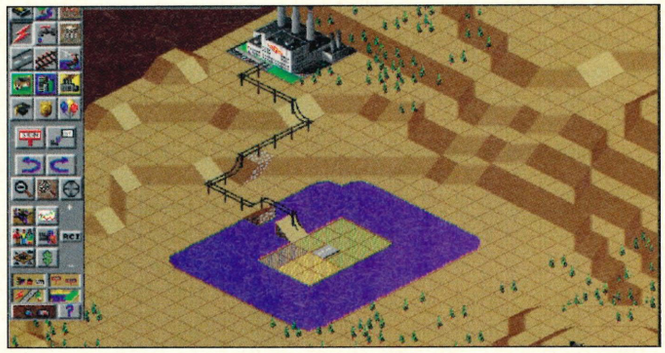
Find an expanse of flat land, preferably away from your main city area and place a power station. Designate a 3x3 square as a residential zone, 1x2 as commercial, and 2x2 as industrial, arranged as above.



Now place a single square of road in the centre of the rectangle so that your residents will be notionally connected up.



Surround the zoned rectangle completely with three squares of water, to keep your mini-city entirely self-contained.



Connect the mini-city up to the power station with power lines. Now go off and build your main city elsewhere.



The mini-city you have created needs no maintenance – low crime, low pollution – but they all pay you taxes...

Mood music

Don't know if it's the mood I'm in or what, but I think the May issue is great. Thanks.

Steve Southwood
Via CIX

Teccy Boff

I would like to say that I like the basic design of the 'new look' PC Review games review section, however I do feel that the TechSpec box at the end has a few serious omissions:-

1) When specifying Minimum PC, saying "386" doesn't narrow the field down enough. Does this include 386SX-16, or does it mean 386DX-40? There's a hell of a difference.

2) A clearer mention if the game is CD-ROM would be nice, maybe a silver disc, instead of a blue dot for the rating number? It would also be nice to have them separated out in the index.

3) Also instead of "Minimum Graphics", could it be "Graphics Modes Supported", which would inform a person if a program not only supported the minimum graphics of VGA, but also had an SVGA vesa mode or not.

4) And finally it would be nice to know the Hard Disk space taken up by a program, be it 700K like Elite 2, or 35Mb (if memory serves me correctly) for Strike Commander. This also holds true for CD-ROM games, as some require quite large amounts of HDD space (7th Guest), whereas the more user friendly ones (DOTT and Rebel Assault) don't.

Simon Hillier
Via CIX

The long wait

May I congratulate you on an excellent magazine, made even better by the new look of last. Yours is the best magazine in the ever expanding selection of publications for the best home computer about.

I am even more satisfied with my subscription now, except for the fact that my copy arrived in the post several days after it arrived in the shops.

This meant that I had to endure the agony of waiting an extra 60 hours (including Sunday). I thought the idea of a subscription was that my copy would arrive before the rest of the world bought their copy off the shelf.

The inclusion of a packed CD-ROM was a bonus which will unfortunately have to wait until I can afford a CD-ROM drive, which in itself will have to wait until I can afford to upgrade my ancient 286 to something a bit more useful.

On my cover disks I prefer to have shareware programs such as Top Draw or decent shareware games like Doom, instead of demos that won't let you save, print or do anything vaguely useful.

I like the new layout and is it my imagination or is there even more news, views and reviews to the pound? And at last you have started putting scores to your shareware reviews. It's about time.

Just a little point. Why does Paul Boughton in his review of Imaginaria for Windows completely slam it and then give it four stars. A mistake surely, or does someone else dish out the stars?

Yes, I agree Doom is the best game ever, having spent many a lunch break playing your cover disk version surreptitiously on my office 486. When I upgrade my own machine, the registered version will be one of my first purchases. A virtual reality version of Doom would probably have to have a health

warning on it. No-one under the age of 18, no-one with a weak heart, no pregnant women, no-one under five feet (like some fairground rides) and no-one who is likely to run out with a chainsaw and attack their next door neighbour after playing...

I look forward to the first issue of PC Games, but will there be anymore What PC Games, or is PC Games the replacement?

Trevor Homfray-Cooper
Ware, Herts

Paul Boughton writes: It came as somewhat of a surprise to me to find Imaginaria had four stars. I had, in fact, only given it one star. The galaxy of stars which attached itself to the review happened later. Therefore, it is a mistake.

Who was that masked man?

We are members of the Birkdale Interactive Computer Club (Ladies' Division) and we want to know who was modelling the Virtual Reality helmet on your brilliant front cover in May. What a dynamic pose! And that pearly white smile! Wow! That cover certainly had high impact. As regular readers of PC Review, we can't think of a better cover since March 1992.

Anyway, does he work for PC Review? My friend Vera thinks he does, but I don't. She has started having swoonsome feelings and can't sleep without a copy of that issue on the pillow next to her. I reckon he was a professional judging by the confidence he displays.

Please let us know.

Vera Dalesbled and Doris Cragswell
Birkdale Interactive Computer Club (Ladies' Division)
Lancashire

Shareware is great. A bunch of great games for £2 or more and no fuss in installing them.

A plea for reality

I enjoyed May's PC Review because of the Virtual Reality feature. For I am very interested in this matter.

Unfortunately, here in Cyprus there has not been a lot of interest in VR (at least not yet!). As a result there is not any software and little information available. I would appreciate it if you were able to send me any information concerning VR theory, plus all about this new VFX1 VR model. How compatible is it with our computers? What kind of games is it compatible with and will it work with all simulations such as flight or 3D space simulations?

Would it be possible to order this system through PC Review? If yes, could you please send me an order form?

My feeling is that your CD addition to the magazine is an excellent idea and well worth it too.

Erotocritou Erotocritos
Nicosia, Cyprus

I'm glad you liked the feature, and I hope you saw last month's issue (Issue 32) in which we published an update to the original article on the VFX1 and the games planned for it.

Plea bargaining

I am in desperate need of some help. We are big Ultima fans and while waiting for Ultima VIII we got bored. We bought Arena: Elder Scrolls, which is really excellent. However we are badly stuck. We are after the sixth bit of staff (I think) and have been directed to Camlorn, in the province of High Rock. Once there, we ask the nice townsfolk about the place we are after and they tell us that the Brotherhood of Seth know about it and we should ask there. Yet there is no Brotherhood of Seth in the town and we have explored the town inside and out ad nauseum and have still found nothing. We are totally stuck. Help! Is this a bug, or is there somewhere to go? After getting stuck on this we acquired Ultima VIII. We are now stuck on that too. We have done the necromancers bit and interred Lothian but we *cannot* find where to go for the pilgrimage. We have done the wind bit and have taken the Breath of Wind and the Heart of Earth. We have also freed Hydros. Devon is in prison and Bentic is dead. The sorcerer still won't talk to us so we cannot get to the Sorceror's enclave and no-one will talk to us about anything useful. We have mapped and mapped the two catacomb levels plus all of Lithos, Hydros and Stratoses bits and can find nothing new. Oh we also have the obelisk tip and have had a chat with the ancients in the tomb of someone-Gor. Now we are stuck on both our games and desperation is at hand. Especially for me because now my man has the excuse to play Championship Manager every day and he knows I hate it.

Please help or at least publish this plea. We really are desperate.

Liz Henwood
Via CIX

PS I have no doubt that you get tons of letters pleading for help, but please consider us, and my fate of being condemned to a life of Championship Manager ...

Sequential subversive

I'm here to whinge on behalf of those poor people who bought Elite 2 (Frontier). I just read in your mag that Elite 3 is coming out. So soon? Does this not hint to the fact that Elite 2 was the most incomplete piece of software to come out in a while? Why do your engines fall off after only a year, when you want to go on exploration missions? Why is everything within 500 light years mapped? When you land on a new planet, I want an info read out, with gravity, and oxygen and that. Why do assassination victims *never* leave the space station where they should be? Why can you not tell your auto-pilot to match velocities with something, or go into orbit? I sense I'm beginning to rant, but you get my point. I could go on for another page or so as well.

Elite 2 is a brilliant game, *but* it could have been so much better, had people taken a bit of effort to playtest the damn thing. I didn't play for long before many of these problems were apparent. It strikes me that if programmers are writing a sequel they could do an awful lot worse than put a note in the manual asking for your comments.

I also have one last point (will this never stop, eh?). If Elite 3 is coming out in response to complaints, make it in an upgrade as well, Mr Braben, so us poor bods can finally be happy with your game? Don't get me wrong, I *do* like it, especially the realism (I don't care what people say, this is what space flight will be like, apart from hyperspace of course), but it pains me to think how much better it could have been.

Rupert Smith
Via CIX

If programmers are writing a sequel, they could put a note in the manual asking for comments.

Wonderful world

I wondered if foreigners (for which read: citizens outside England) are allowed to participate in the prize-competitions published in your magazine (especially the May issue).

Thanx for any info.

H Lieuw
Amsterdam

Of course you may participate in competitions — the more the merrier. Indeed, we even let people from overseas win sometimes: I seem to remember we had a prizewinner from Greenland not so long so.

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

COMPETITION WINNERS

Issue 30

Star Trek competition (Issue 30)

So Cher wasn't Spock's mother after all, as so many of you wrote in to point out. Still, never mind, it didn't deter the majority of entrants, who were all in with a chance of that tasty first prize of a set of Star Trek videos.

However, there can only be one first prize winner, and the Star Trek video collection is winging its way to Mr A Doberski, of Reading, Berks. Runners-up prizes of Star Trek: Judgment Rites go to Mr M Davidson, of Bromham, Wilts; Derek Ford, of Rednal, Birmingham, and Daniel Molleycraft, of Cockermouth, Cumbria.

Answers: 1) A; 2) we'll accept anything except A; 3) A; 4) B; 5) A; 6) C; 7) B; 8) B; 9) C; 10) B; 11) B; 12) B; 13) B; 14) A

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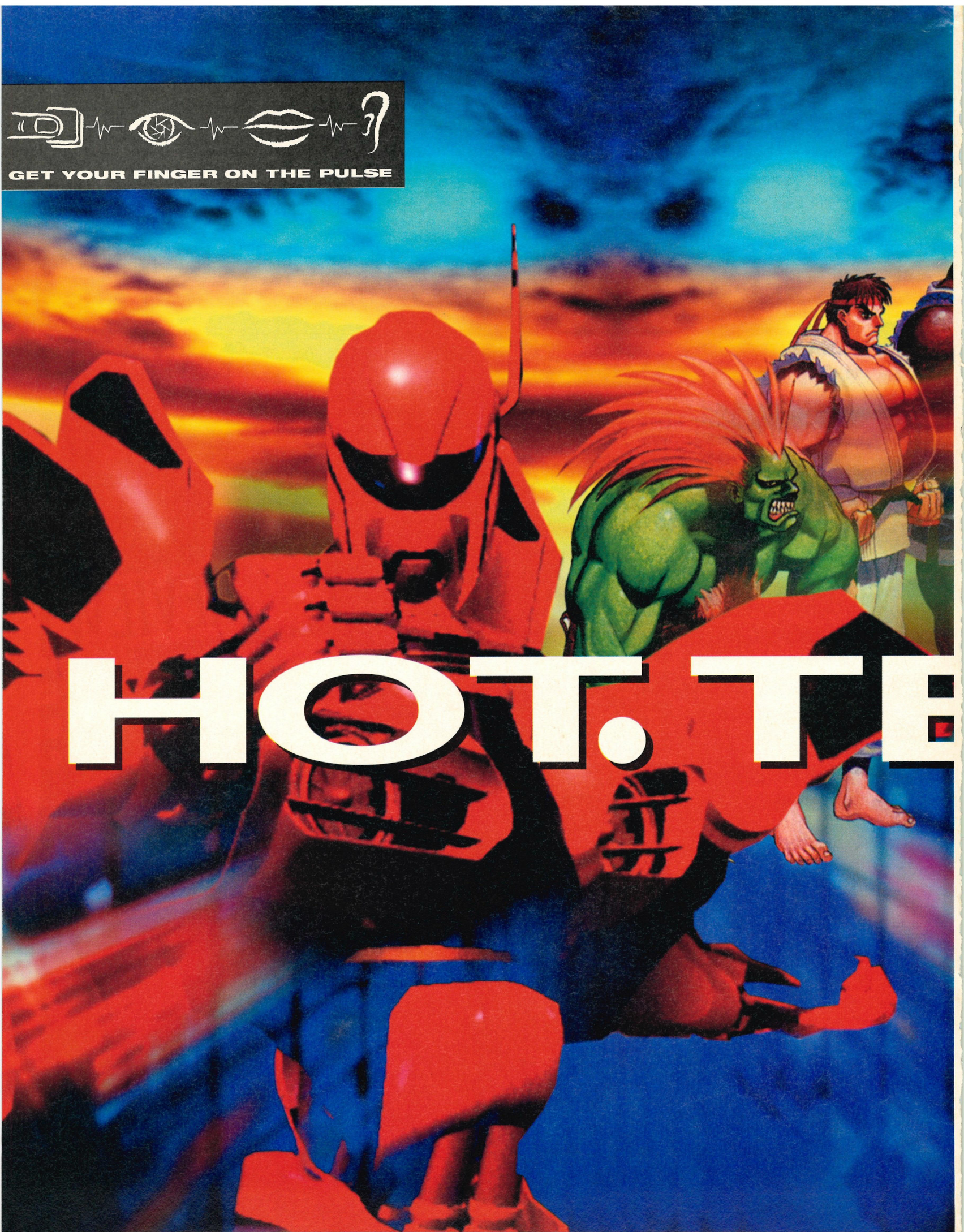
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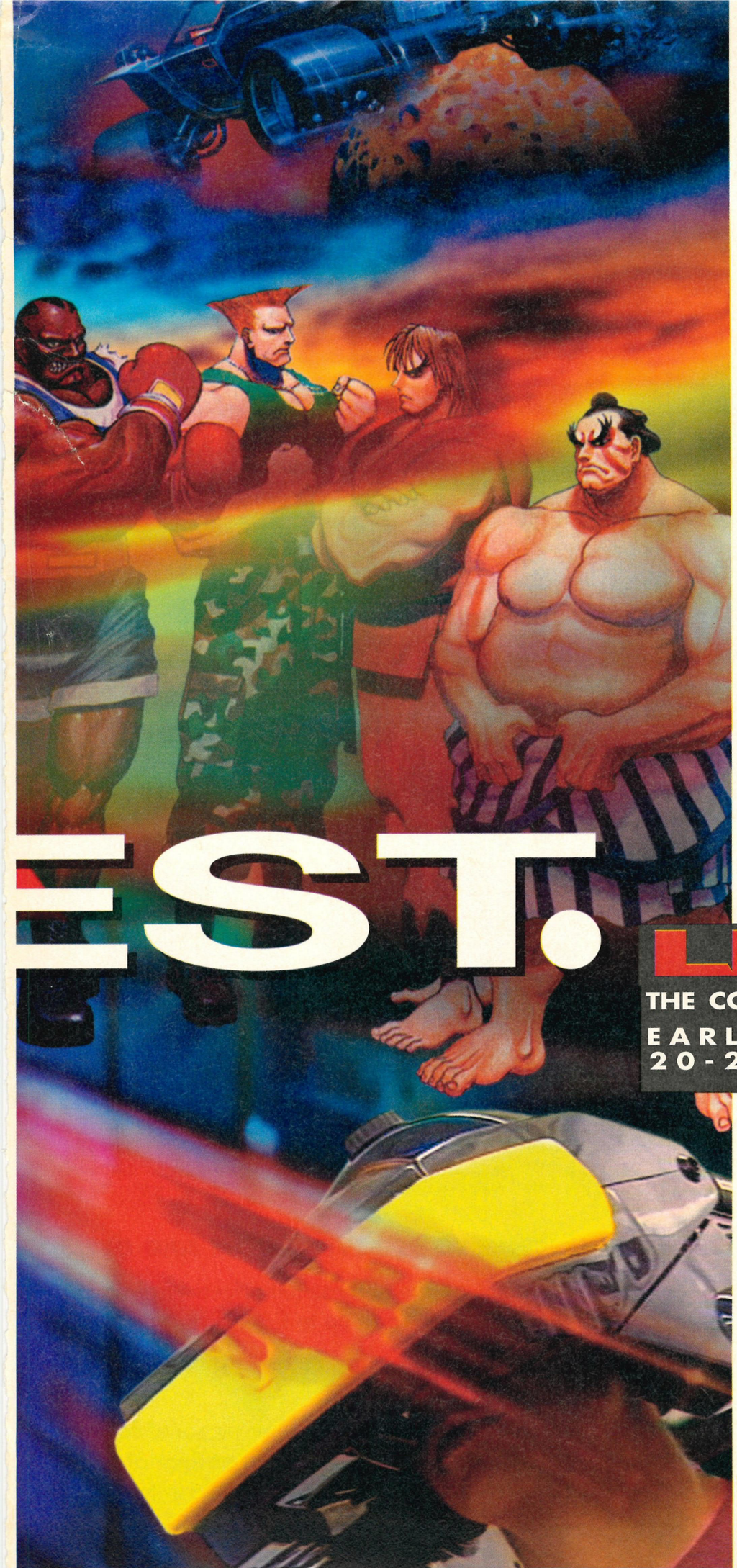
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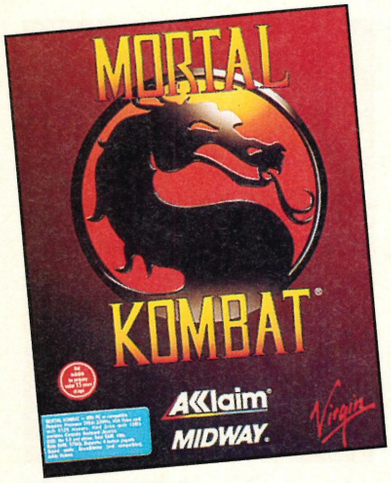
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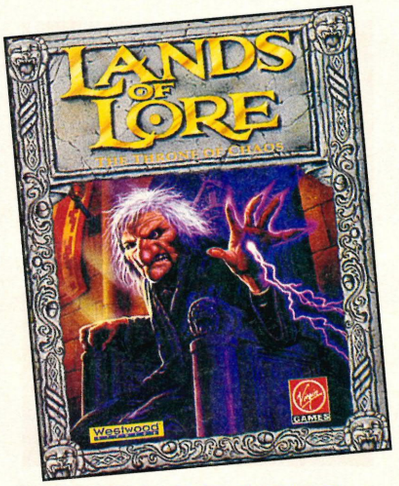
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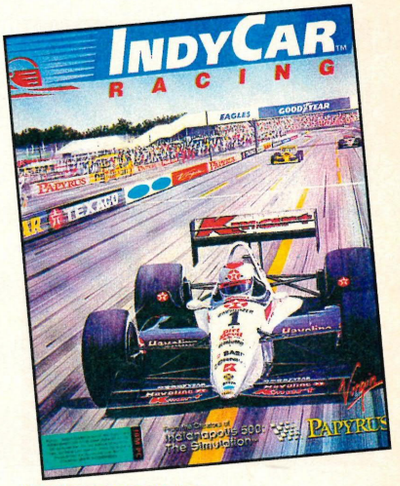
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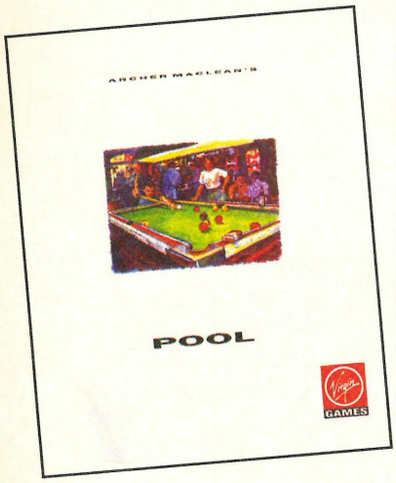
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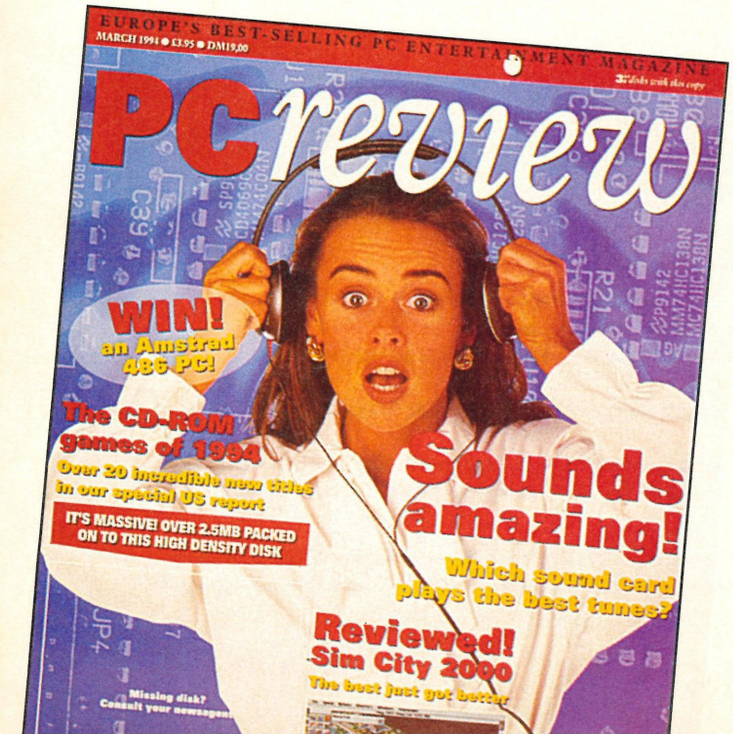
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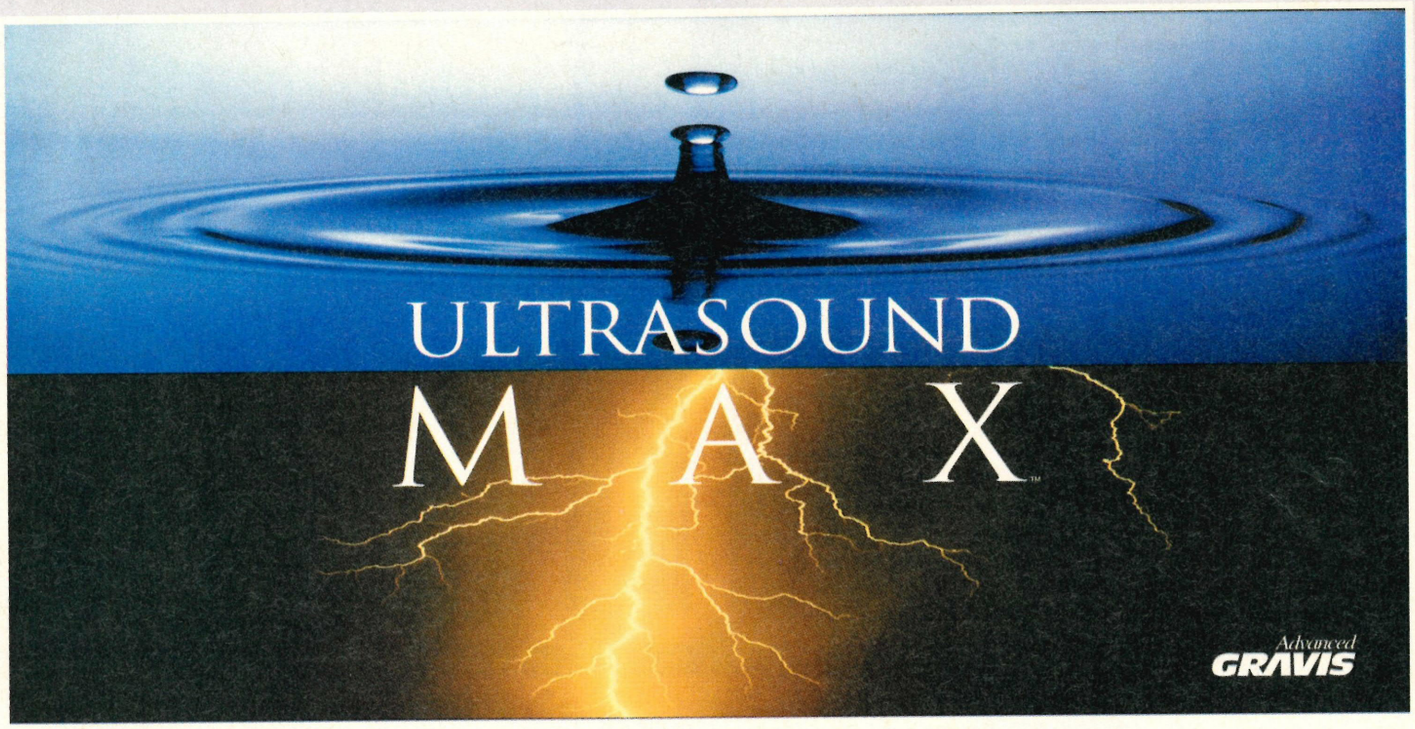
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The great multimedia scandal

Due to pressure of space, we've been unable to bring you our report on current use and abuse of multimedia on PC CD-ROMs. Fear not — it'll be in next month's issue.

Windows 4 — Chicago

Will Microsoft's latest version of Windows, currently in development, revolutionise the way you use your PC? Find out in next month's special report.

Games

Well, there are games 'slipping' and being delayed all over the place, but we have been told to expect (and we daren't be any more definite than that) Theme Park, Delta V, FIFA Soccer, 11th Hour and Robinson's Requiem to be winging their way to us in time for the next issue.

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- More tips for DOS — and those promised Windows tips

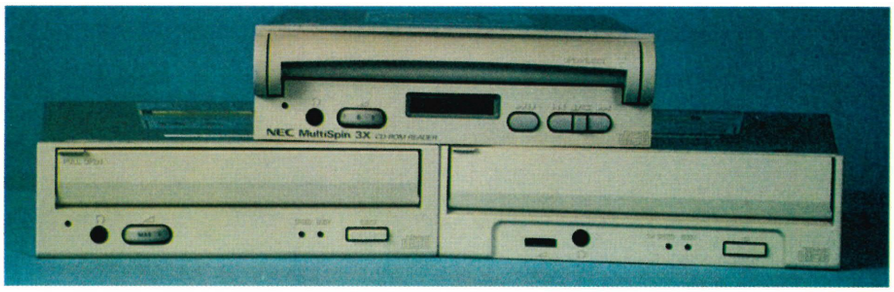
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