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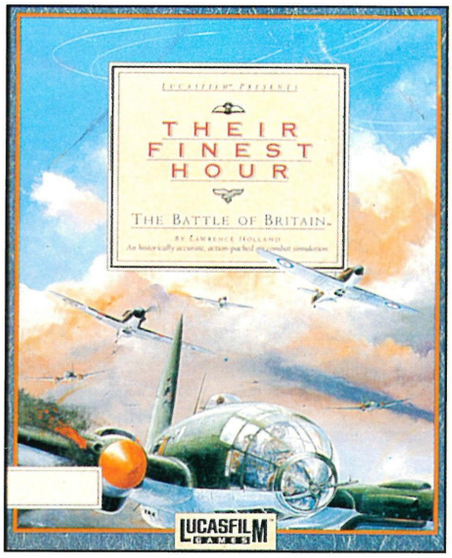
PC review
All the way from the USA
ISSUE 18 APRIL 1993

FLIGHT FOR PC

Only you can stop the Luftwaffe

The Summer of 1940. Hitler's war machine has humbled all of Europe - except Great Britain.

Now, the all-conquering Luftwaffe plans to soften up Southern England for an invasion known as Operation Sea Lion.





Only the RAF can halt their relentless progress. The odds are stacked against them.

Now, above the Home Counties; Spitfires and Hurricanes are locked in deadly combat with Messerschmitts and Heinkels. There can only be one winner.

This is The Battle of Britain.



Graphically stunning, historically accurate and thrillingly realistic (with instant-replay feature), Their Finest Hour resets the stage for the ultimate dogfight.

One thing's certain, this Lucasfilm spectacular will provide you with many fine hours of pure entertainment.

Available on: Atari ST, Amiga and PC and Compatibles (CGA, EGA, MCGA, VGA and Tandy ® 16 colour. Requires 512k Ram. Supports AdLib™ sound card). Mouse or joystick.

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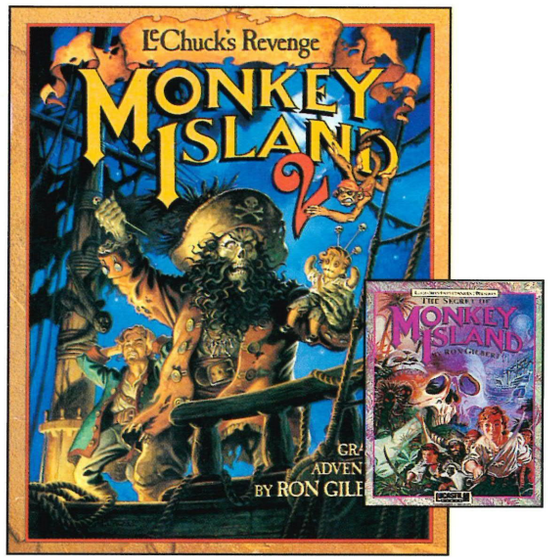
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LAUGHS FOR PC

Side-splitting pirate adventure

Just when you thought it was le end for LeChuck, he's back.

The legend states that "when LeChuck wants you dead, you're dead"- grim news for his old adversary, young Guybrush Threepwood.





But fear not. Big Whoop holds the key to great power. All is not lost.

In this stunning graphic sequel, young Guybrush's adventures will have you rolling in hysterics. Beware, you'll laugh so hard, milk will flow from your nose.

Behind every pirate is a really gnarly chair and in front of Guybrush is a saga so savage it'll put hairs on your chest.

With 256 colours (PC version), variable difficulty modes, interactive reggae music and "point 'n' click" interface, you'll be transported to Monkey Island in a flash.



So, brace yourself, the fun starts here. Who knows when it will stop?

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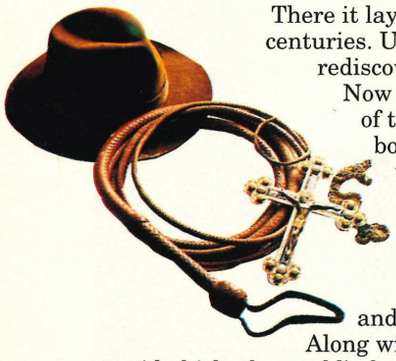
ADVENTURE FOR PC

Who can save Civilisation from destruction?

Who else? It has to be Indy.

It all began a few thousand years ago, when Atlantis sank to the ocean bed. With it, the secret of the most destructive force on earth also sank without trace. Or did it?





There it lay undisturbed for centuries. Until the Nazis rediscovered the Kingdom. Now it will only be a matter of time until they have a bomb so powerful it will draw World War II to a conclusion. Schnell!

Enter the man with the funny hat and the bull whip. Along with Sophia, his trusty side-kick, the world's future rests on their shoulders.

Is this too much to ask? No way!

Join the intrepid duo in dazzling 3D with full music and sound effects as The Fate of Atlantis and the world is decided.

So, here goes!



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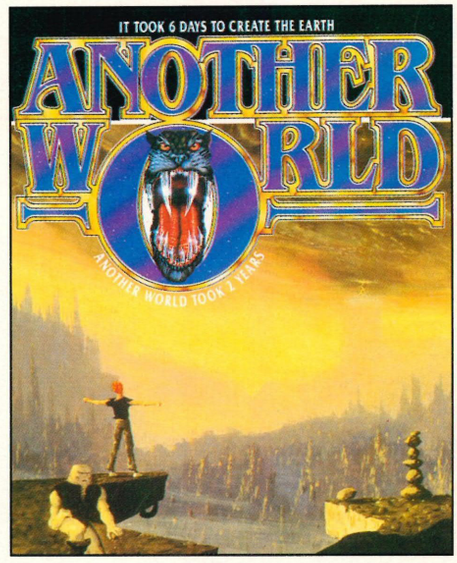
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ADVENTURE FOR PC

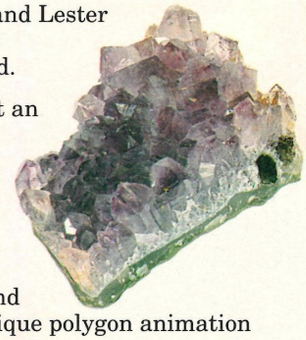
You're about to enter "Another World"

It was a one-in-a-million chance. But it was about to happen.

Young scientist Lester Chaykin was busy experimenting in his laboratory. He'd just reached a crucial point in a test on sub-atomic particles, when zap,



a bolt of lightning struck and Lester was teleported into a different dimension. Into Another World.



He was on his own, against an unknown quantity.

From the designers of Future Wars - Another World took two years to create. And it's easy to see why.

There's zoom, panorama and close-up shots, as well as a unique polygon animation technique for fluidity.



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STRIKE COMMANDER







PC shots shown. Actual screen shots may vary.

Strike Commander™ is here - and with a vengeance. Chris Roberts, the writer/designer of this Action-Flight Simulator, has taken flight realism to a level that is nothing short of cinematic. Strike Commander is the next step in the evolution of the interactive movie.

In this compelling tale of global power politics you command Stern's Wildcats, an elite squadron of mercenaries dedicated to flying straight and true in a crumbling world given over to corruption and deceit. You will experience the thrills of air combat as never before. Chris Roberts' revolutionary Real space system lets you see the ground details develop as you rush towards them. Strike Commander is seriously ahead of any other PC Flight Sim.

Strike now.

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PCreview

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Printed in the UK

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Try your hand at the puzzles in Contraptions in our playable level on this month's 3.5" disk. Also on 3.5", and 5.25" disk is Bill Board VGA, a cheerful colouring and drawing program for younger players. Arj and Mandelbrot Magic make up the 3.5" disk, while 5.25" drive owners can try out Quik Menu III, a PC graphic user interface.

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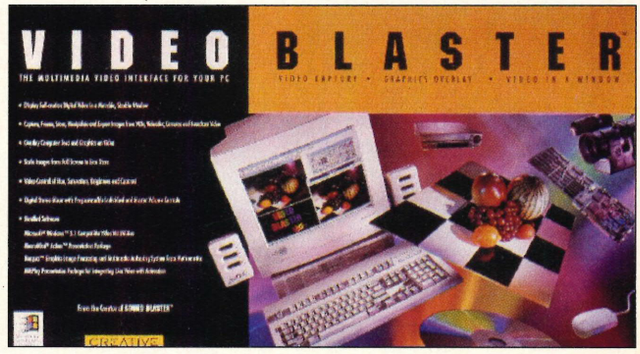
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41 **MS-DOS 6**

The latest upgrade to MS-DOS is due out any day now. Mike James has been using the new version for some weeks now and reports on its new features, addressing the question of whether you should think of upgrading.





The Video Blaster from Creative Lab: create your own video clips.

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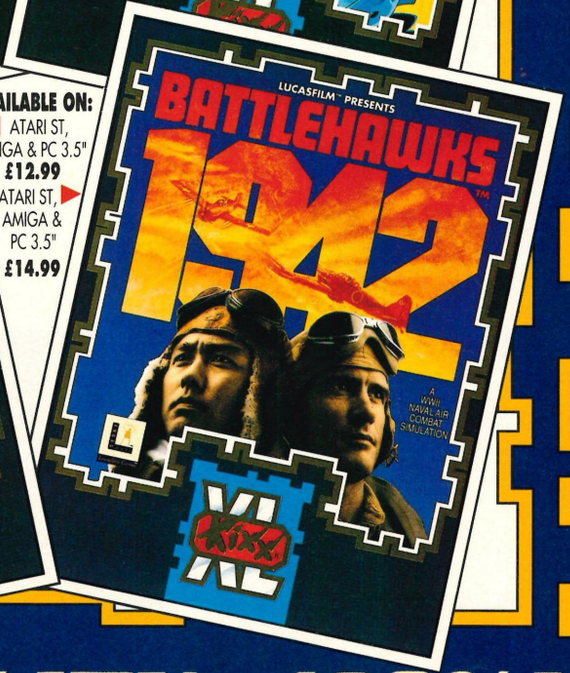


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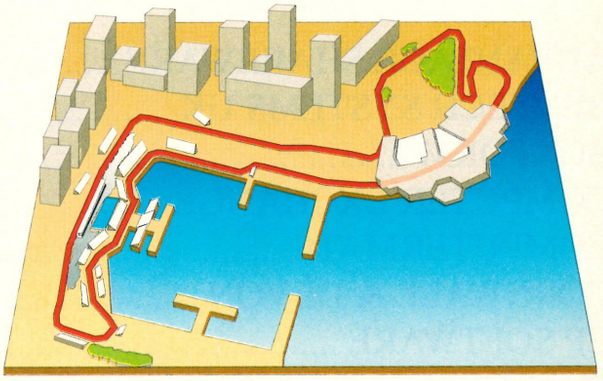


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Take to the wheel and test your driving skills in Formula One Grand Prix and Simulation School.



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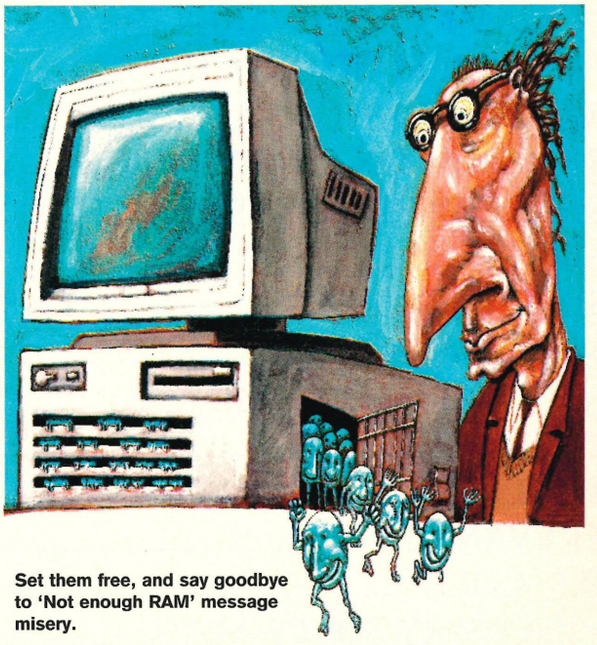
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Set them free, and say goodbye to 'Not enough RAM' message misery.

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EMAP Images, Priory Court,
30-32 Farrington Lane, London EC1R 3AU
Tel: (071) 972 6700 Fax: (071) 972 6710
E-mail: pcreview@CIX.compulink.co.uk
Subscriptions and back issues: (0858) 410510

EDITORIAL

Editor Christina Erskine
Deputy editor John Bennett
Production editor Paula Shields
Contributors Ciarán Brennan, Steve Cooke, Gordon Houghton, Mike James, Sue James, Wayne Legg, Sam Mackenzie, Robin Matthews, Andrew Mitchell, Paul Presley, Simon Shaw

DESIGN

Head of design Jim Willis
Additional design Sara Pruce, Becky Willis, Niki Creed
In-house scanning Sara Pruce

ADVERTISING

Group advertisement manager Nigel Taylor
Advertising sales executive Melanie Costin
Advertising production Tina Gynn

MANAGEMENT

Publishing director Mike Frey
Publisher's assistant Sasha Creasey
Marketing manager Marc Swallow
Product manager Sarah Ewing
Marketing assistant Fiona Malloch
Managing director Terry Pratt

PC REVIEW EUROPE

European production manager Paul Boughton
Production editor Alan Dykes
International sales manager Tony Gray
France Jean-Michel Blottière
Germany Tom Schmidt
Italy Riccardo Albini
Spain Oscar del Moral

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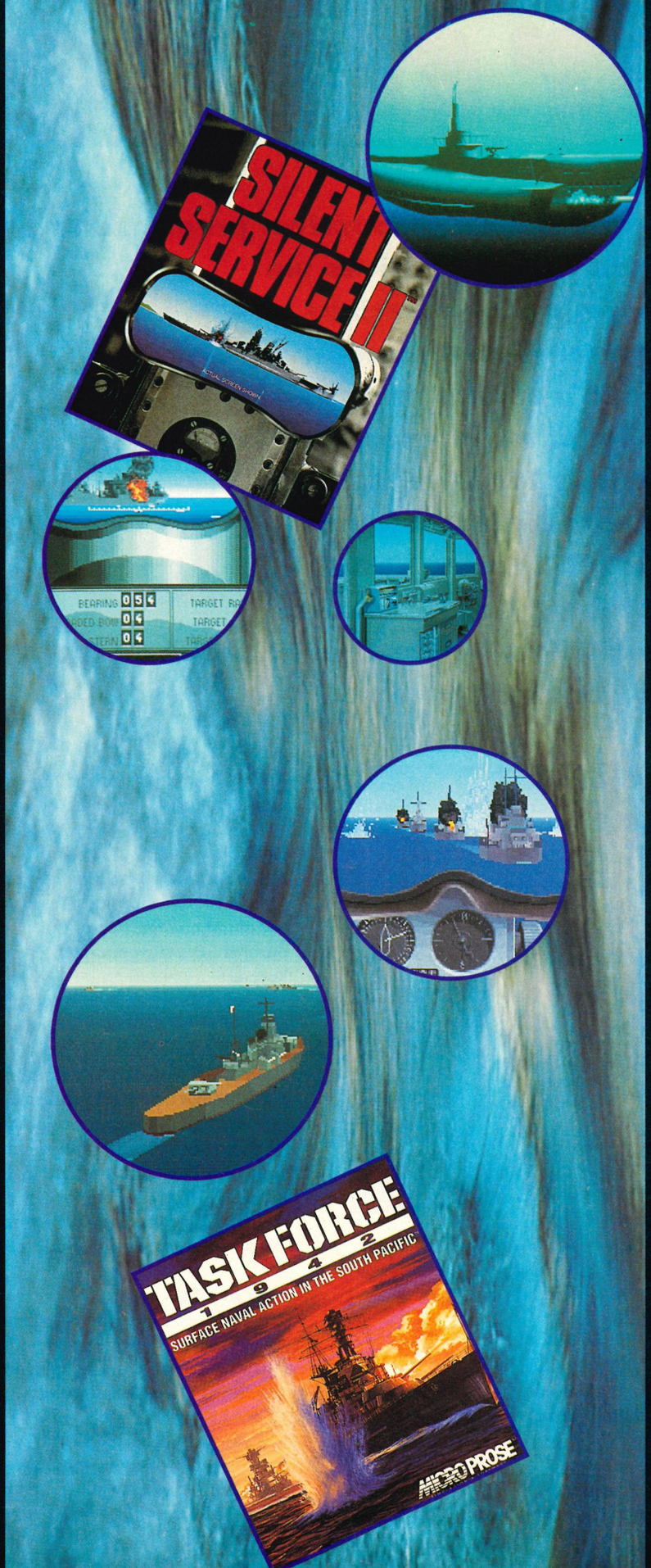
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Duck and Dive, Sink or Swim



Submarines or warships? That's your choice when you pit your wits against rival navies in the Pacific ocean during World War II. But beware: your enemy is awesome and ruthless.

Silent Service II provides an uncanny insight into life beneath the waves. The graphics and music conjure up an atmosphere so realistic and lifelike you'll want to come up for air!

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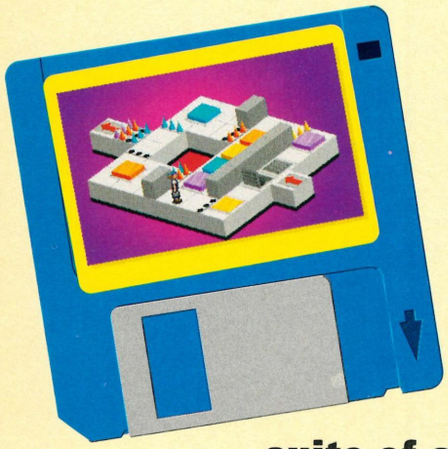
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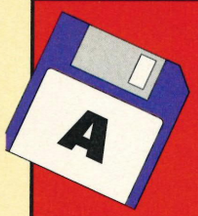
Cover disks

A diverse array of productive (and not so productive) programs this month. For users with 3.5" drives we appeal to their not-so-serious side with a cut-down demo of Mindscape's arcade adventure, Contraptions, while appealing to their artistic leanings with the children's digital colouring book Bill Board VGA. Mandlebrot Magic and the suite of archiving utilities, Arj, is also included on 3.5" disk for the first time.

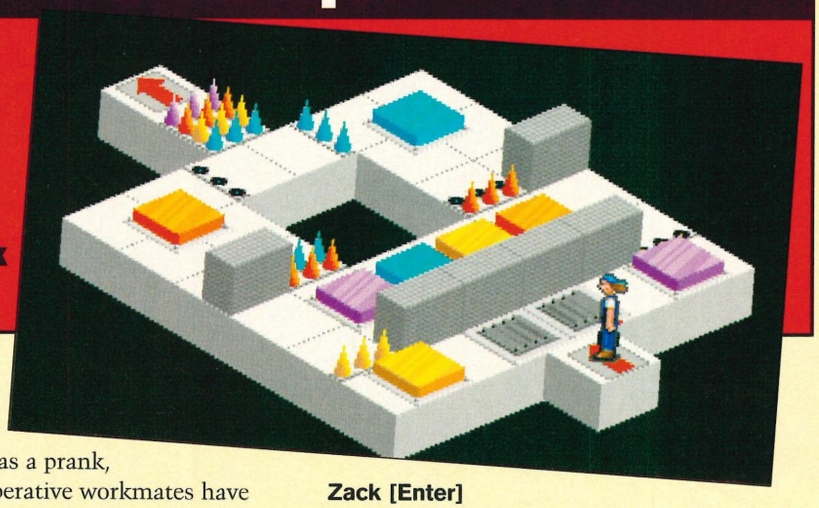




Contraptions



3.5" disk only



Poor old Zack. It's his first day on the shop floor at Gadgetco, and, as a prank, his less than co-operative workmates have hidden his tools. Worse still, the 'suits ' are coming and the production line's down — what a first day!

Still, it does give us a good reason to get out onto the shop floor and help Zack to put things right, in this fully playable cut-down version of Mindscape's latest 3D isometric puzzler (for further details on Contraptions, see the full review in Issue 17).

How to start Log onto the directory in which you have installed the Contraptions demo and type

Zack [Enter]

If you have a sound board fitted (the demo supports AdLib, Roland and Sound Blaster), activate one of the batch files in the game's main directory.

How to quit

While playing the game, press Esc to reveal an options menu. Move to the Quit option and press Fire.

Hardware required

At least a 286-based PC with VGA graphics. Ad Lib, Sound Blaster and Roland sound cards are all supported, though not essential.

Control

Move Zack in any one of eight directions around the three-dimensional landscape by use of either a joystick or the number keys surrounding the '5' on your PC keypad.

Zack will automatically jump on buttons or activate wall switches when he's simply moved towards them (for a demonstration of Zack's abilities, leave the running demo to play through before taking control).

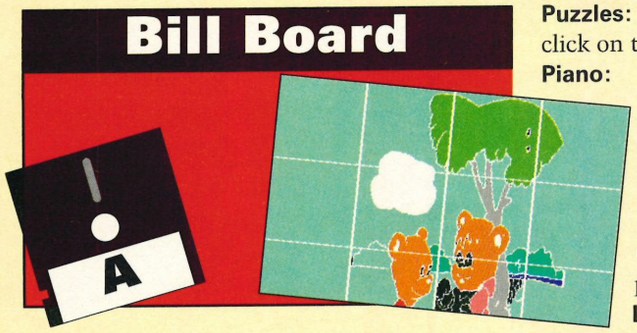
Pressing Esc calls up an options menu, while pressing Enter or Fire confirms your selection. The options menu includes information on how well you're performing alongside options to alter the music and sound effects, joystick control and so on.

How to play

The object of this demo is to help Zack get the Gadgetco factory running smoothly by repairing all non-working machinery. To do this, he must first explore every room and collect his missing tools.

Colour-coded switches on the floor and walls operate gadgets and remove obstacles — although it's up to you to find out what's connected to what. Best of luck ...

Bill Board



Bill Board is an interactive colouring book and drawing package, designed to be both entertaining and educational for younger PC users. The program also encompasses puzzle and music-making aspects.

How to start
Log onto the directory in which you installed Bill Board and type
Bill [Enter]

How to quit
Pressing Esc at any time returns the user to Dos.

Control
Bill Board is entirely controlled via either the mouse or keyboard.

There are a number of control icons situated below the main screen. These are accessed by placing the Bill cursor above the chosen icon (by use of the mouse or arrow keys) and either pressing shift or clicking the mouse button.

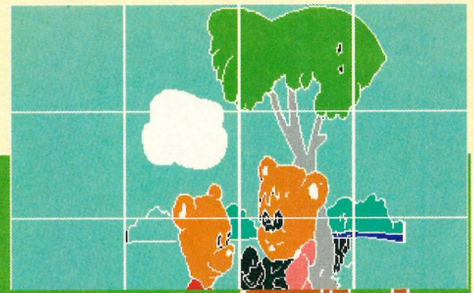
Here are some of the basic controls...
To colour:
move Bill around the screen and either press Shift or click the mouse button.
To draw:
either hold down the mouse button or shift key while moving Bill around the screen.
Puzzles:
click on two squares to swap them.
Piano:
not implemented in this version.
Music:
to switch on the background music, simply click on the musical note icon.
Clear:
provides a blank page for drawing.
Left and Right arrows:
switch between pages.

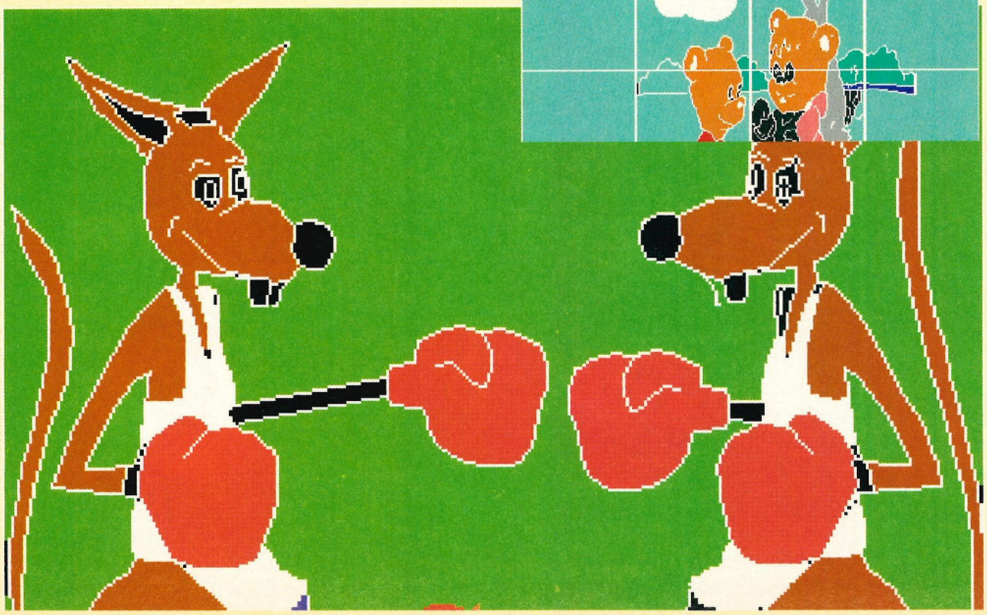
Hardware required
Any PC with a VGA display. A Microsoft-compatible mouse and Sound Blaster sound board are recommended (AdLib is not supported by this version of Bill Board).

How to play
Bill Board is an interactive colouring and drawing package for young children which includes a library of 10 ready-made pictures to get the young artist moving. The program can be used by either one or two players (simultaneously).

Control of the program is carried out by moving the Bill character cursor around the screen and by using the bank of icons situated below the screen.

Use of Bill Board is extremely instinctive and requires very little instruction. However, if would like a little more complex set of guidelines, the program contains a comprehensive manual in Ascii format (Manual.doc), which can be accessed via any word processor, or on-screen by typing Type Manual.doc | more (Enter) at the c:\bill prompt.





Mandelbrot Magic



3.5" disks only*

Mandelbrot Magic generates colour displays (slides) of the Mandelbrot Set and Julia Sets on IBM PC-compatible computers with colour graphics adapters.

The Mandelbrot Set is perhaps the most famous of a fascinating group of mathematical structures known as fractals. Fractal geometry is a complicated mathematical field, but Mandelbrot Magic is easy to use and will automatically create spectacular slides when you specify a few simple parameters.

How to start
Log on to the directory in which you have installed Mandelbrot Magic and type
Mm [Enter]
Following the appearance of the title screen, a shareware information screen is displayed. Once you've digested this information, press a key to access the main control panel.

How to quit
You can only quit Mandelbrot Magic from the main control panel, where pressing Esc returns you to DOS (you will be asked to confirm that you do, in fact, want to quit).

Should you wish to quit while a slide is displayed, first return to the control panel by pressing Esc and confirming that you want to end the display, then press Esc again.

Hardware required
Any PC with CGA, EGA, or VGA. A hard disk is recommended, as is a maths co-processor.

How to use the program
Using the control panel, its possible to enter all of the parameters necessary to create or display slides (the parameters for each slide are stored with that slide). Specific functions such as loading files, displaying slides or creating new slides are invoked by pressing the Function keys (F1 through F10).

The control panel is divided into two sections — a parameters section on top and a

Installing your cover disk: details on page 15

JOIN THE SQUAD... PLAY THE QUALITY



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As a Divine Being you have a group of followers from whom you derive your power. The more followers you have and the greater their achievements, the more power you wield. Unfortunately, there is another group of people who follow a different deity. Since there's barely enough room in the world for your own magnificence, two won't do. You must rid the world of the opposition. To do this, you will use your great power to move the earth and your devout followers to crush the misguided.

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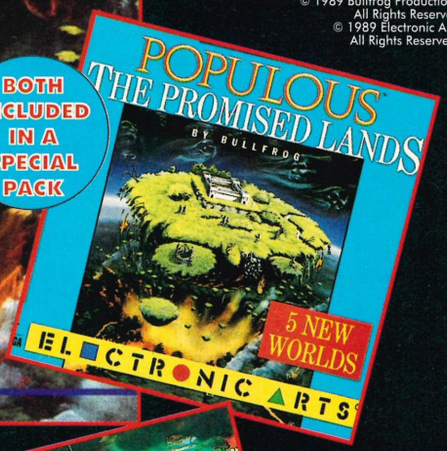
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"Classic Game" PC REVIEW

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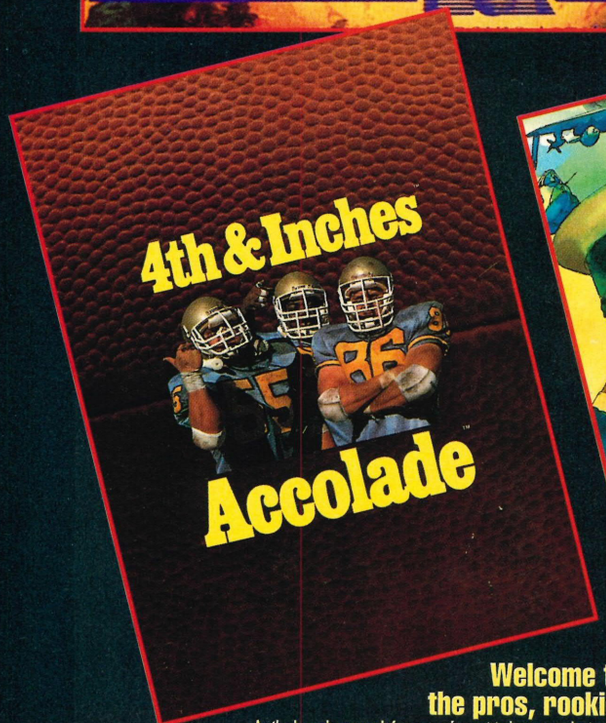
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function key menu below. The top section contains two types of field — data fields where you enter values for use in generating and displaying slides, and status fields which simply display information.

The arrow keys, Home, End and Return can all be used to move among the data fields, while pressing Backspace deletes the last character or digit entered.

Error messages and prompts appear in boxes in the middle of the screen. Most messages and prompts can be cancelled by pressing Esc.

This program comes with several sample slides. Two of these, **m1-cga.pic** and **m1-ega.pic**, are complete and can be displayed immediately. The others are incomplete; you can finish them by loading the appropriate file into the program (F9), then pressing F8 to finish creating them.

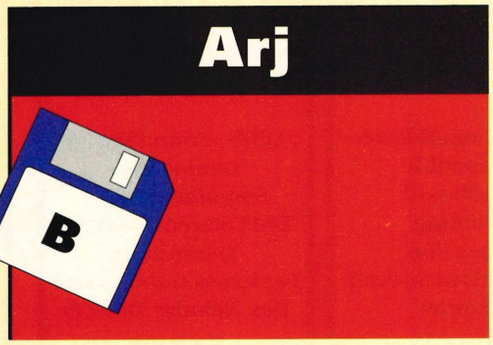
For more detailed instructions, and a discussion of Mandelbrot and Julia sets, log on to the directory in which you have installed Mandelbrot Magic and type

list mm.doc [enter]

To obtain a printed copy of the documentation, set up your printer and type

copy mm.doc prn

**Mandelbrot Magic was included on the 5.25" disk with the February 1993 edition of PC Review*



3.5" disks only*

Arj is the latest and best suite of file compression programs available. Using these you will be able to squeeze much more on to your disks, and reduce the time spent sending files via the telephone network.

How to start

For security reasons, Arj is supplied as a self-extracting module. So, before you can use the programs you must expand them to their correct form. To do this, log on to the directory in which you have installed Arj and type

Arj220 [enter]

Before Arj220 gets to work, you will first see several lines of text describing the program and then a line asking if you wish to continue extraction – enter 'yes' or 'y' to continue (should your disk already contain any duplicate filenames to the ones to be expanded, the program will once again prompt you for a 'yes', 'no', or 'quit' response before proceeding).

Once the files have been extracted you may, if your wish, erase the file {+bold}arj220.exe{-bold}.

Arj is a powerful suite of programs, and you are strongly advised to read the supplied documentation before attempting to use them. Do this by logging onto the directory in which you have installed Arj and, having already run the self-extracting module, type

Type arj.doc | more

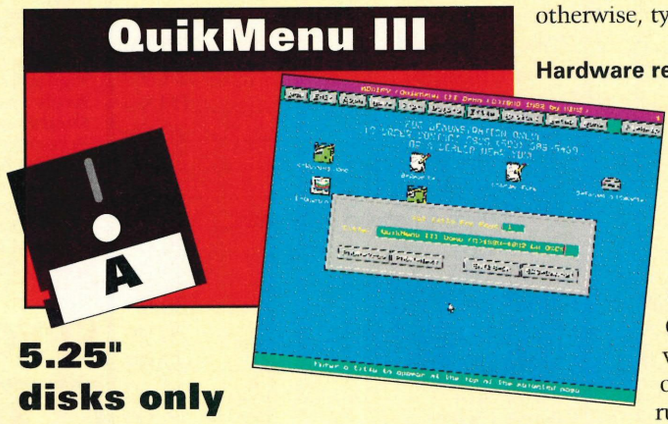
To obtain a printed copy of the documentation, set up your printer and type

Copy arj.doc prn

Hardware required

Arj should work with any PC.

** Arj was included on the 5.25" disk with the February 1993 edition of PC Review.*



5.25" disks only

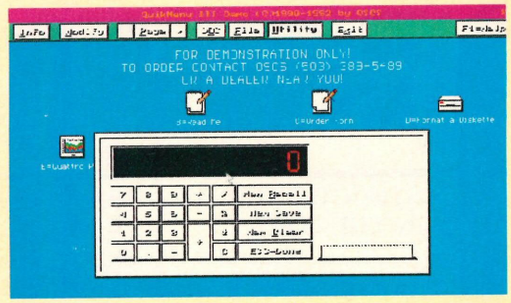
This is a working demo of QuikMenu III, a graphical icon-based PC menuing system and file manager.

QuikMenu III includes many advanced features such as Automatic Installation, Single Keystroke Access to software and DOS options, Point and Shoot File Management, Multi-Level Security, Usage Tracking, User-Defined Prompting and File Selection, Built-In Icon Editor, Full Mouse/Keyboard Support, Integrated Batch File Editor, Screen Savers, Menu Macros, Phone Book/Dialler, Calculator, Calendar, Context Sensitive Help, and more...

This is a fully-featured working demonstration copy of the complete program (the only differences from the commercial version are listed in the table above).

How to start

Log on to the directory in



which you originally installed the QuikMenu III demo and type

Install [Enter]

When the program prompts you to enter the directory to install from, delete 'a:' and replace it with the full path of the current directory (if you have chosen the default settings, this will be 'c:\qm3demo'). From here on, follow the on-screen prompts.

How to quit

If using a mouse, click on the Exit icon; otherwise, type Alt-x.

Hardware required

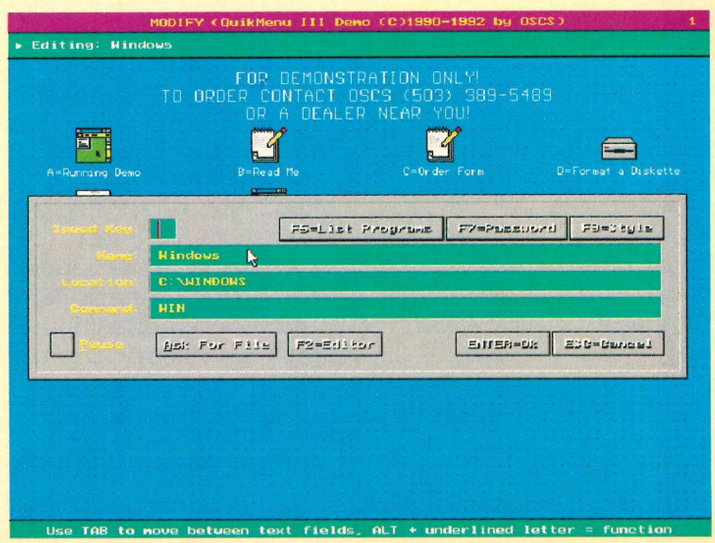
QuikMenu III should run on any IBM-compatible with Hercules, CGA, EGA or VGA graphics. While a mouse is highly recommended, it's not strictly necessary.

Controls/How to use

QuikMenu III is best controlled via the mouse, by simply clicking on the desired icon. However, if running the program from the keyboard, you can still access all of its functions, by simply pressing the underlined letter of each command along with the Alt key. This demo only allows 100 uses of QuikMenu

FUNCTION	DEMO	COMMERCIAL
Pages (Sub Menus)	5	50
Items Per Page	68	68
Icon Images	50	32000 *
Nag Screens	Yes	No
Limited Usage	100 Times	Unlimited

** Subject to disk capacity*





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How to use the cover disk

1. Put the cover disk in any disk drive and log on to that drive. For instance, if you have put it into drive A: type:

A: [Enter]

2. Now type

PCR [Enter]

to load the installation program.

3. There may be a menu asking you to select which language you wish to have the installation messages displayed in. To make your selection use the mouse or cursor keys to move the highlight bar and then click the left mouse button or press the Enter key.

4. A list of programs on the disk will now be displayed. To select the program you wish to install or run, use the mouse or cursor keys to move the highlight bar and then press and release the left mouse button or the Enter key.

5. If the program is of a type that runs directly it will do so now before returning you to the menu and step 4.

6. If the program has to be installed to another disk you will now have to tell the program where you want it to be installed.

7. The program will suggest a drive and directory to install the program to. If you are happy with the suggested location, press the enter key and installation will begin.

8. If you would like the program to be installed to a different drive and/or directory, backspace over the suggested pathname and enter another one. You cannot install the program on the cover disk itself.

9. If there is insufficient space on the disk you have specified, or if the directory you have specified cannot be created, the program will inform you of this and give you the opportunity to enter an alternative location.

10. All being well, the program will now be decompressed and installed at the specified location. You will see a series of messages on the screen as this happens.

11. Once the program has been successfully installed you will see a message reminding you of where it was installed to and telling you which command starts the program. Press a key to return to step 4.

12. When you have installed or played all the programs that you wish to, press Esc to exit to DOS.

Important note for users without a hard disk.

1. Providing that the programs will fit, you can install them on to another floppy disk.

2. If you have a twin drive system you should leave the cover disk in one drive and install each program to a blank formatted disk in the second drive.

3. If you only have a single disk drive, you can install the programs to a blank, formatted disk using the same drive. You should specify drive B: when asked for an install path. DOS will now prompt you when you need to swap the disks. When it asks you to insert the disk for drive B: you should insert the blank disk. When it asks you to insert the disk for drive A: you should put the cover disk back in. You will have to swap disks several times during the installation process.

4. On some occasions you may be asked to insert a system disk. In this case you should insert a system disk instead of the cover disk, and then swap them again when prompted to do so.

Important note for users with mono, LCD or plasma displays

1. The installation program should automatically detect whether you have a mono or colour display and run in the appropriate mode.

2. If you have a grey scale LCD or plasma display you may prefer to run the program in mono rather than colour. You can do this by starting the program with the command:

PCR M [Enter]

3. If you have a non-standard colour display which the program fails to detect you can force it to run in colour mode by starting it with the command:

PCR C [Enter]

Helpline

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

Disk Helpline: (0685) 350505

The helpline operates between 10.30 am and 12.30 pm weekdays.

Please note

PC Review's cover disks are rigorously checked at each stage of production for all known viruses and duplicated under strict quality control.

However, cover disks are used at the reader's own risk. PC Review can accept no responsibility for damage to either data or hardware caused by use of our cover disks.

We also make every effort to ensure that the contents of our cover disks are exactly as advertised. If, however, circumstances should dictate that we are unable to supply the stated programs we will endeavour to provide alternative software.

PC Review, its distributors and retailers will not be held responsible for any unnotified change to the contents of the disks

Faulty disk?

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

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

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

GET READY F



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Featuring sound effects and speech created by **LENNY HENRY**, and superb cartoon style animation.



"Makes Sonic look like a hedgehog. You'll want to take a bite out of this"
Lenny Henry

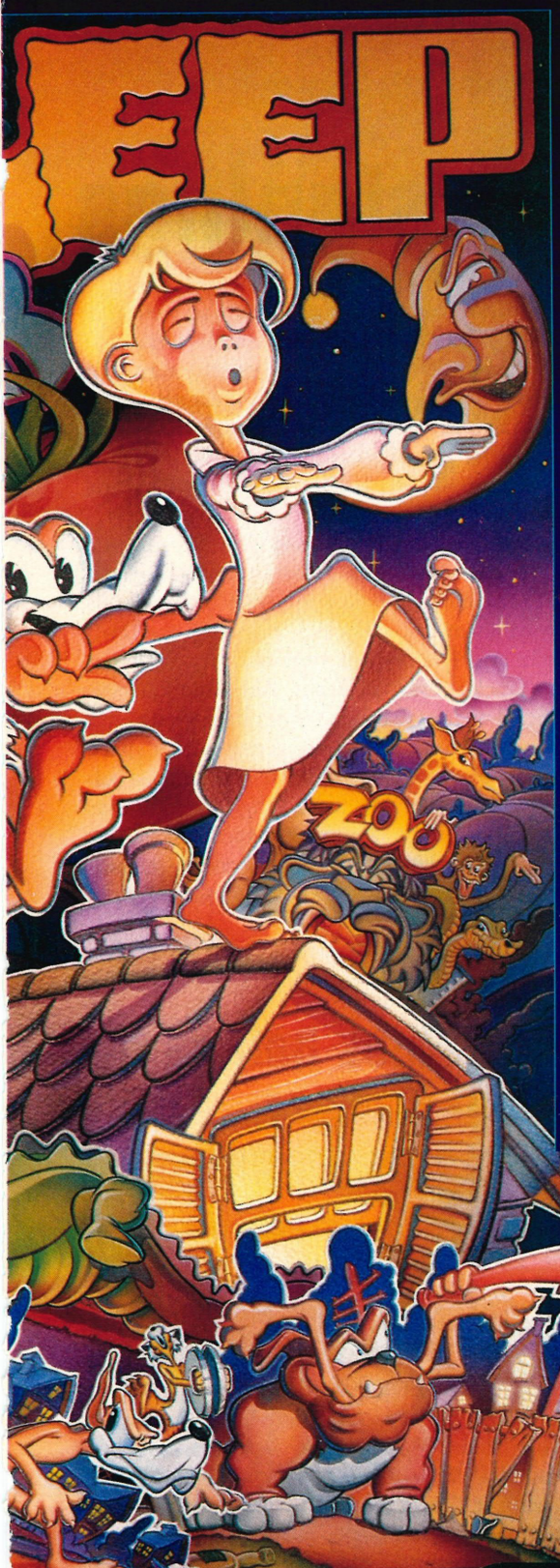


"So brilliant it's left me speechless"
Mr. Bean

"More amusing than something so amusing that when people see it they say that's amusing!!!"
Edmund Blackadder

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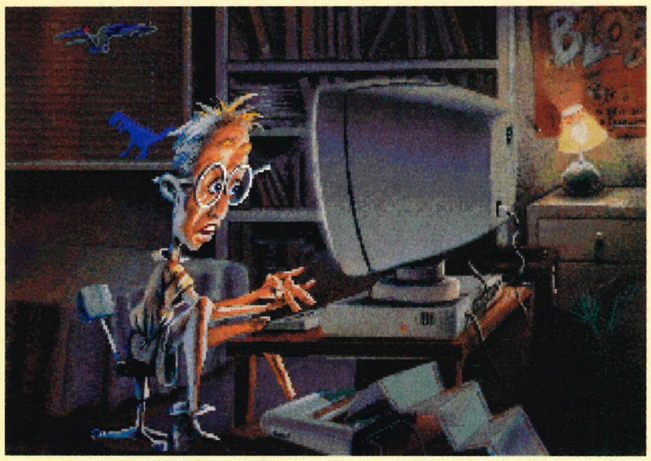
And remember: all your efforts will help Comic Relief to fund projects in Africa and the U.K. Every penny raised by Comic Relief in public donations and through the sale of merchandise is allocated to a specific charity project.

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NEWS

Accolade scores with new signings



Having spent the last six months in apparent hibernation, leading PC software publisher Accolade has awoken with a vengeance, announcing a number of new releases and a tie-in with fellow Californian developer, Tsunami.

Best known for its Ringworld games (based on the science fiction novels of Larry Niven), Tsunami makes use of a number of advanced development tools, including 'roto-scoping' and digitisation in its creative process.

The firm is already involved in the development of a number of multimedia products, and has stated its aim of eventually bringing virtual reality to the masses.

Discussing the new world-wide distribution arrangement between the two publishers, where Accolade will add Tsunami's line-up to its own product roster, Accolade's vice president for sales says: "The experience and creative talent behind the Tsunami team ensures an outstanding line-up of PC-compatible products for the coming year and beyond."

Although not quite as up to the minute, Accolade's other major announcement concerns an licensing agreement between the publisher and the greatest soccer player ever, Brazil's legendary Pele.

As well as leading the most exciting team in the history of the game to World Cup victory in 1970 (who could forget that team's 'total football' and Pele's own contribution including that remarkable near miss from the half-way line), Pele also did more than any other man to bring the world's most popular sport to the USA during his stint with the New York Cosmos between 1975 and 1977.

The tie-in with Accolade should result in a Pele-endorsed soccer game seeing the light of day in time for next year's World Cup finals tournament, which is to be hosted by the USA.

In a slightly less newsworthy vein (in European terms at least), Accolade has also signed up top ice hockey player Brett Hull to put his name to a simulation of that winter sport.

The first fruits of the Accolade Tsunami collaboration are likely to be Ringworld: Revenge of the Patriarch, Wacky Funsters (an 'outrageous, no-holds-barred parody of computer gaming'), Blue Force: the Next of Kin and ProtoStar: War on the Frontier.

An Accolade spokesperson can be quizzed on any of the above by calling (081) 877 0880.

IN BRIEF...

The million-selling computer program which has made more comebacks than Frank Sinatra, Maxis' Sim City, has undergone yet another bout of cosmetic surgery, this time for its reappearance as Sim City De Luxe. Comprising the original program and two add-ons, Terrain Editor and Architecture 1 - Future Cities, the de luxe city builder is available now, priced at £35.99.

MFT (call (0532) 738244) has announced a Windows-specific version of its Tempus software package, which is designed to monitor how much time its user spends at his or her keyboard. Intended to limit such computer-related disorders as repetitive strain disorder (RSI), Tempus for Windows is available now, priced at £40.

The age of the commonplace 'talking' computer draws ever closer, as the appropriately-named Talking Computer Company has added three 'entry level' machines to its hardware line-up. With prices starting at £2,995, the new range offers systems with vocabularies ranging from 200 to 1,000 words (which don't compare too well with the company's high-end machines , which work with far larger vocabularies starting at 25,000 words). To talk to a human being about talking computers, call (0734) 473737.

Users of 386-based machines (with either SX or DX processor) can now upgrade their system to a 486 with the new 'Powerup' kits from Powermark. Prices start at £145 for the 33Mhz configuration, and rise to £295 for the 40Mhz version with maths coprocessor. Further details from Powermark, on (081) 951 3355.

Gremlin's Zool (the 'Ninja from the Nth Dimension') has achieved the ultimate accolade afforded to any computer game character with his recent promotion from PC star to arcade game hero. Zool the coin-op was unveiled at the recent Amusement Trades Exhibition in Earls Court, and is due to make his public debut in the early summer.

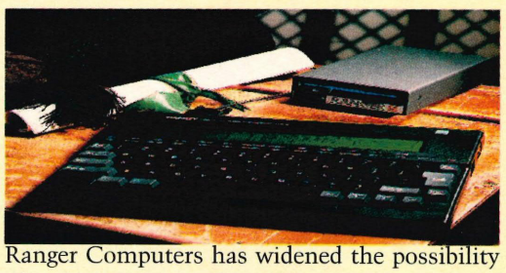
The largest consumer computer event in the UK, the Computer Shopper Show, will take place between May 20th and 23rd at London's Olympia exhibition centre. Planned features at this year's spring event include a PC upgrade centre, and education centre and a multimedia zone. For further details, call organiser Blenheim Online on (081) 742 2828.

Kuma's latest printed offering to the PC user, Spreadsheets Made Simple, is a practical guide to all aspects of spreadsheet applications and functions. Written by Paul Bocij, the book is available now from all usual outlets, priced at £12.95.

The price of PC computing has reached an all-time low, as Silica Systems has cut the price of Atari's MS-DOS-compatible palmtop computer, the Portfolio, to just £99 (plus VAT).

Complete with built-in text editor, Lotus 123-compatible spreadsheet, address and phone book and communications software, the Portfolio is compatible with DOS versions 2.2 and higher. For more information, contact Silica on (081) 309 1111.

Portables helped by Lone Ranger



Ranger Computers has widened the possibility of real IBM-compatible computing for users of both Tandy's WP-2 portable word processor and Amstrad's NC100 Notepad Computer, with the launch of the all-new RangerDisk external 3.5" floppy disk drive.

The new drive, which incorporates its own DOS, carries out all normal disk housekeeping facilities (including disk formatting, creation off sub-directories and so on) and is compatible with both 720K and 1.44Mb formats.

The RangerDisk is priced at £229 (exclusive of VAT). For further information, contact Ranger Computers on (0604) 589200.

Logi no longer quiet as mice

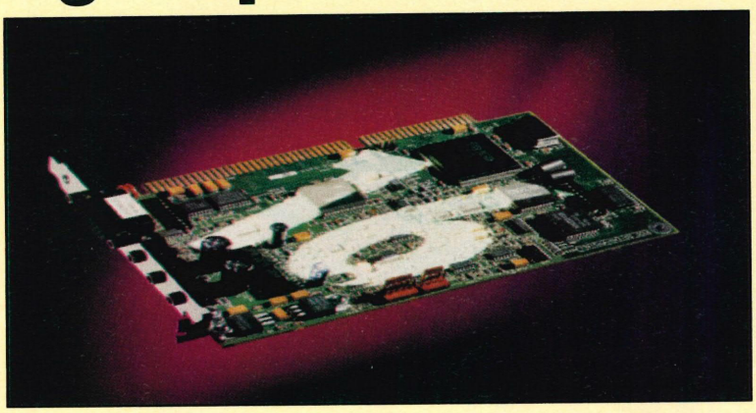
Logitech, the self-proclaimed world leader in computer input devices (that's mice to the rest of us) has broadened its horizons somewhat this month with the delivery of its first ever sound card.

Boasting ease of use and installation, the SoundMan 16 is fully compatible with both the AdLib and Sound Blaster standards. In addition, the card offers musicians compatibility with the MIDI and MPU-401 communications protocol, while CD users are catered for by adherence to the MPC standard.

Commenting on the new launch, Brendan MacFerran, general manager of Logitech's UK subsidiary, Logi, says: "There is no doubt that the area of most meteoric growth for PC sound is in the games and multimedia markets.

"However, many sound card users have complained about the lack of real stereo output, and especially the difficulty in installing current boards on the market. Users can now enjoy the comfort and security of using a Logitech board and will also be able to depend upon Logitech's quality and support."

MacFerran also points out that worldwide sales of sound cards are likely to double in 1993 from last year's total of 2,000,000.



Compatible with both internal and external CD drives, the SoundMan 16 records and plays sound in 16-bit stereo, while incorporating a sampling frequency of up to 44Khz. The integrated amplifier works through both external speakers and headphones, while its Yamaha OPL-3 synthesiser chip offers capacity for the playback of up to 20 voices simultaneously.

The card's selection of input ports supports microphone, line-in, speakers (both four and eight ohm), IBM joystick and standard MIDI connectors.

Like all contemporary sound cards, the SoundMan 16 comes complete with a suite of software. This includes drivers for both DOS and Windows 3.1, recording utilities and a variety of sound effects and music files.

Scheduled to hit the high street in April, priced at £199 (exclusive of VAT), the SoundMan 16 is designed to work on any PC equipped with a 386SX processor or better, a minimum of 640K or RAM (4Mb is recommended), a hard drive and at least one floppy disk drive.

A full review of the SoundMan 16 (and many of the other recent arrivals to the sound hardware scene) will follow in a forthcoming issue. Until then, further information is available from Logi on (0344) 891452.

Waddingtons goes to the board

Board games giant Waddingtons, the firm responsible for such perennial Christmas favourites as Monopoly and Scrabble, has formed its own computer games offshoot, Supervision.

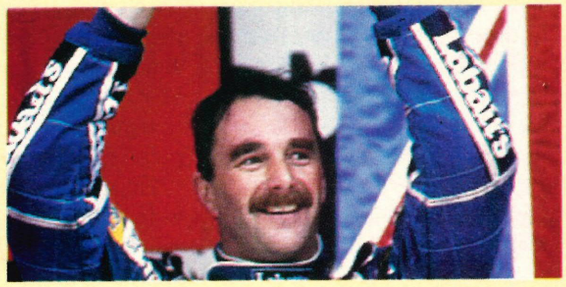
Although the parent company has licensed a number of its bigger names to other publishers in the past (the most recent tie-in being with US Gold for its version of Scrabble), it's believed that the company now intends to publish software versions of its hit board games in its own right from now on.

The first game to appear on the new label is likely to be the age-old extravaganza of financial wheeling and dealing Monopoly, which is due to make its PC debut this month.

Following this will come FIST, a role-player devised by Steve Jackson, the renowned creator of the Dungeons and Dragons board games.

Perhaps the most interesting title of all, however, will be the firm's adaptation of The Lovers Guide, which is due to appear (on CD only) in September of this year.

No details on this final offering are available as yet, but rest assured that they'll be with you as soon as we get them.



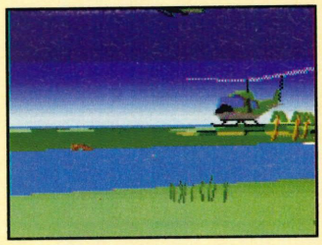
Racy Gremlin opts for just Williams

Before its long-awaited Nigel Mansell tie-in has even reached the starting grid, Gremlin is already racing ahead by signing up the entire Williams team for a series of games in the forthcoming season.

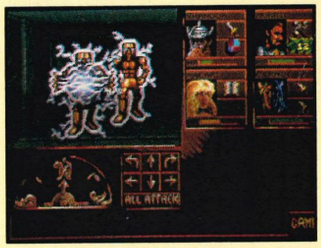
With Mansell having quit the F1 scene for pastures oval in the USA, Gremlin's game will probably concentrate on the team's new driving partnership of Alain Prost and Damon Hill. "It's terrifically exciting," comments Gremlin director David Martin. "The technology of the car is developing at pace and there's a great deal of interest in the new drivers."

Gremlin's forthcoming F1 games are the latest in a long line of successful driving games produced by the firm. Previous licensing deals have included those with Lotus, Toyota and Suzuki.

COMING SOON



Join one of the US Navy's legendary SEAL teams in action in the Vietnam war in EA's Seal Team, a squad level combat game which makes use of state of the art 3D flight simulation technology. Featuring 80 missions, Seal Team will be available in June, priced at £39.99.



Perhaps the most eagerly-awaited role-player of recent times, SSI's Eye of the Beholder III promises to be the grand finale to the successful 3D dungeon-based adventure series. Fifty per cent larger than either of its predecessors, EOTB III is due for release next month.



Ultima VII, part 2, Serpent Isle, should be released 'real soon now', as you get to take on the indefatigable Guardian yet again. Following comparatively hard on the heels of Ultima VII, Serpent Isle has a similar user interface to its predecessor, but a whole new set of terrain to explore.



Following more than three years of development, Gremlin is set to introduce what it claims to be the most ill-tempered computer game character of all time in his eponymous debut, Little Divil. The antics of this miniature monstrosity will be available to PC gamers from next month onwards.

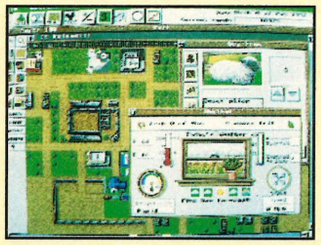
COMING SOON



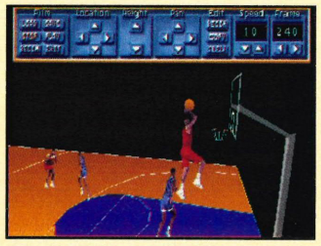
Set in Pressis, New England, The Legacy from MicroProse casts its player as the sole survivor of the Winthrop family, caught up in a terrifying nightmare. Developed by the infamous Magnetic Scrolls team (The Guild of Thieves, Wonderland) this 3D RPG is due for release in the very near future.



Following its debut with Putt Putt Joins the Parade, Humungous Entertainment is to continue its series of interactive adventure games for kids with Fatty Bear's Birthday Surprise, a talking 'point and click' affair due for release this month on both floppy disk and CD-ROM.



Maxis keeps 'em coming: SimFarm is the latest of its world creation programs, this time testing your agro-economical flair, on a perhaps agreeably smaller scale than the complex SimLife. Sim Farm is due for release in the autumn, at a price yet to be decided.



Become the greatest living basketball star in Electronic Arts' Michael Jordan In Flight, a new-style sporting simulation featuring fully digitised video footage. Based around a 'three on three' shoot-out, Michael Jordan in Flight not only feaures the 'signature moves' of the sporting superman, but also some of his finest contemporary opponents.



Virgin goes to the movies

Virgin Games is taking the link between video and PC games a step further than normal this month with the launch of a long-term promotion offering a selection of videos to regular purchasers of its MS-DOS games.

In a 'buy two, get a video free' deal, Virgin is offering a number of feature films and music video titles to purchasers of the following titles: KGB, Reach for the Skies, Jimmy White's Whirlwind Snooker, Legend of Kyrandia, Dune II and Shuttle: Space Flight Simulator.

According to UK sales manager Peter Ball, Virgin has "...picked a range of classic videos that will appeal to the PC computer game buyer."

The feature films on offer are American Werewolf in London, Angel Heart, The Evil Dead, Letter to Brezhnev and Mississippi Burning, while the music video line-up includes Complete Madness, Genesis' Visible Touch, CV from Peter Gabriel and Prince's Sign o' the Times.

In order to avail of the offer, buyers should watch out for the specially stickered boxes, which include vouchers and complete details on how to collect the videos (there is a charge of £1.80 for the postage and packing of each title ordered).

The games for videos offer is due to run until July of this year. For more details, contact Virgin on (081) 960 2255.

Psygnosis draws first CD blood

Liverpool-based publisher Psygnosis chose the recent Consumer Electronics Show in Las Vegas to preview its initial contributions to the ever-increasing pool of CD-ROM entertainment software, and at the same time announced its first ever film tie-in.

A joint venture with Imagesoft, Dracula is based on the Columbia Tri-Star film of the same name, and will feature 15 minutes of actual footage taken from the movie, all of which will be interactive.

In addition, the game's designers used original blueprints from the film set during the construction of the game environment.

Like Dracula, the second CD title, Microcosm, is also specific to the optical format. Like the films Inner Space and Fantastic Voyage, Microcosm is an action adventure set within the human body.

According to a spokesperson for Psygnosis, both titles "...will set new standards for on-screen entertainment worldwide."

Both titles are due for release on "all viable CD formats" (including PC CD-ROM) later this year. For further details, contact Psygnosis on (051) 709 5755.

Humans evolve

Fans of the prehistoric arcade puzzler, The Humans (rated 7, Issue 17) can now take a further step up the evolutionary scale, as Mirage has released its first data disk for the program, The Human Race - The Jurassic Levels.

Featuring a further 80 levels of problem-solving skullduggery, The Jurassic Levels is available in two separate forms, either as a standalone program (priced at £29.99) or as an add-on for use with the original program disks (priced at £19.99).

Both versions are available now. For more details, contact Mirage on (0260) 299909.

Is there a doctor in your house?

While you undoubtedly have always been aware how versatile a machine your PC actually is, did you ever believe that one day it might replace your family doctor?

That day may be some way off yet, but a new US-import software package, Doctor Schueler's Home Medical Advisor 2.0 goes some way towards achieving that goal.

Developed by Dr. Stephen Schueler (an PC enthusiast and emergency medicine specialist) with assistance from more than 40 other doctors, the program offersa total of seven different databases: health and diet, symptoms, diseases, injuries, poisons, tests and drugs.

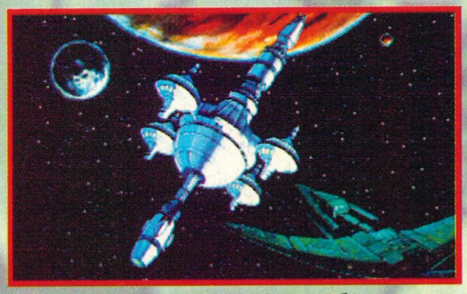
In total there are evaluations and suggested treatments for over 475 diseases, along with information on how to deal with just about any injury imaginable - all presented by use of a graphical interface and multiple diagrams and graphics.

The suggested retail prices for Doctor Schueler's Home Medical Advisor 2.0 are #74.99 (DOS) and #79.99 (Windows). However, as a limited introductory offer, distributor Different Angle is offering the two programs for #54.99 and #59.99 respectively (all prices are inclusive of VAT).

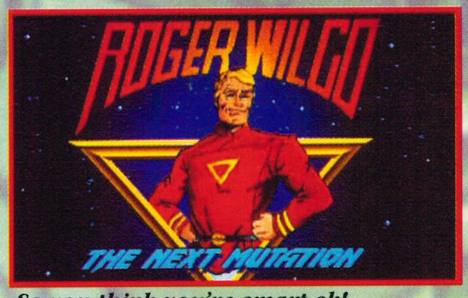
For further details, call Different Angle on (081) 450 0654.

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CD-Rommers unite!

The growing proliferation of PC CD drives has sparked the formation of a new user group for CD-ROM enthusiasts. The CD-ROM User Group UK (CRUG) is a non-profit making organisation based in East Sussex, which aims to provide information technical assistance and even discounted hardware and software to its members.

The group is currently in the middle of a recruitment drive, and invites all interested parties to write to CRUG, 19 Faygate Close, Bexhill, East Sussex TN39 5EE.

Annual membership currently stands at #29.99, which entitles you to an introductory CD title, a 720K shareware disk, and a bi-monthly newsletter.

EA drops into Ocean

Ocean Software's 'budget' range of PC software, which is distributed on The Hit Squad label, is to be bolstered by the addition of a number of back catalogue titles from Electronic Arts.

The first seven titles to appear through this new arrangement will include three simulation titles (Strikefleet, 688 Attack Sub and LHX Attack Chopper) alongside three more action-oriented games (Budokan, The Immortal and Hard Nova).

However, the star of the show, initially at least, is likely to be the combined package of the ground-breaking strategy game, Populous, and its 'Promised Lands' data disk.

The seven titles will retail for between £7.99 and £14.99 and are intended to sell alongside Electronic Arts' own budget range, Star Performers, rather than replace it.

All of the above titles will be repackaged and sold through the Hit Squad's usual channels, which include an exclusive arrangement with the Toys 'R' Us chain.

For further information, contact The Hit Squad on (061) 832 6633.

Warehouse Clubs to cut costs

PC gamers could soon change the way they buy their hardware and software, if a new retailing practice which is currently sweeping the US takes off on this side of the pond.

Warehouse Clubs, which are the fastest growing retail format in the United States, are set to cross the Atlantic through the efforts of a Seattle-based chain, Costco.

The firm's first European venture looks likely to be based in Trafford Park, Manchester, where it hopes to build a 120,000 sqft warehouse.

Warehouse clubs work by charging their users an annual membership fee. Members are then charged close to cost price when purchasing a wide range of goods.

In the US, clubs of this nature have attracted a combined membership of more than 21 million, each paying an annual fee of between £17 and £24. Last year, the number of stores using this system grew from 495 to 632.

According to a recent Sunday Times, a typical example of the savings afforded by a warehouse club would see IBM's entry-level PS/1 computer at £588.50, instead of the recommended price of £749.

Get connected

Direct sales specialist PC Connections has expanded its range of utility software, with the addition of the new Windows-specific version of the best-selling Print Shop program and a new duo of children's educational packages from Broderbund.

Print Shop Deluxe for Windows incorporates more than 300 clip art pictures and 30 specially designed Truetype fonts in a completely updated rendition of the popular design program, which requires a machine equipped with at least a 286 processor running Windows 3.1.

The educational programs included in the new line-up are The Playroom and The Treehouse, two suites of children's learning tools aimed at three to six year-olds and six to 10 year-olds respectively.

The winner of of six Early Learning Awards in the US, The Playroom is designed to improve younger children's computer sills while simultaneously introducing them to other basic concepts including telling the time, counting and reading.

Similar skills are taught in The Treehouse, alongside more advanced lessons including sentence creation, music and more complex object recognition. Both programs will run on the majority of PCs, as long as they're equipped with 640K of RAM and DOS 3.0 or higher.

Print Shop Deluxe for Windows is priced at £59.99, The Treehouse is £39.99 and The Playroom will set you back £34.99 (all prices are inclusive of VAT). All three programs are available from PC Connections' direct sales line on (0706) 222988.



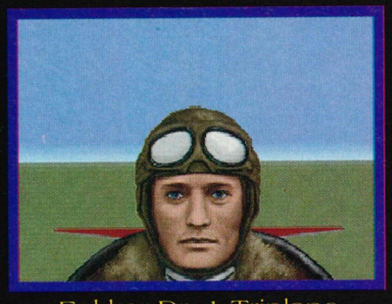
Wizard works magic

Minneapolis-based publisher WizardWorks is to complement its recently-announced line-up of utility software packages (see News, last issue) with a whole new range released under a new brand name, CompuWorks. The CompuWorks roster consists of six new titles — MailWorks for Windows, LabelWorks for Windows, MultiWorks 3.0, The Complete Accountant, Virus Checks and Cures and Compress it! —- and the two utilities announced last month, SoundWav Pro 1 and Screen Saver VGA. WizardWorks is represented in the UK by GST, which can be contacted on (0480) 497622.

DOGFIGHT

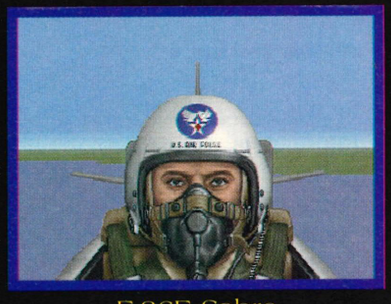
80 YEARS OF AERIAL WARFARE


Sopwith Camel

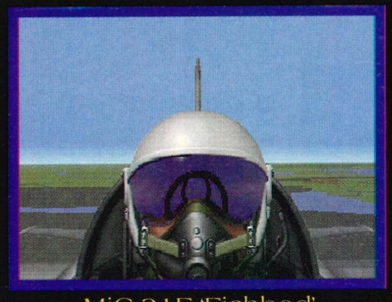

Fokker Dr. 1 Triplane

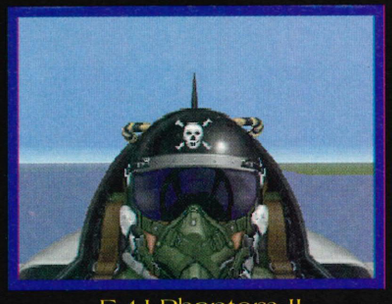

Messerschmitt Bf109E

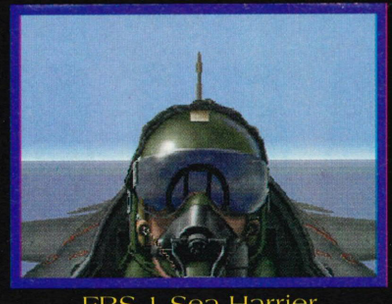

Mk.II Supermarine Spitfire

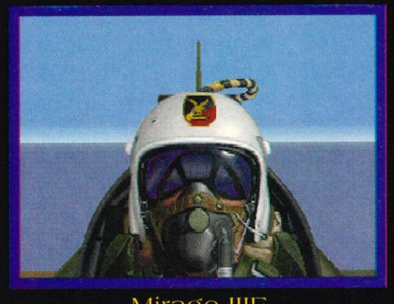

F-86E Sabre

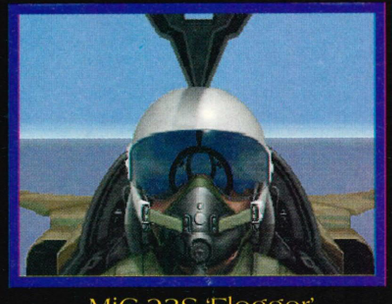

MiG-15

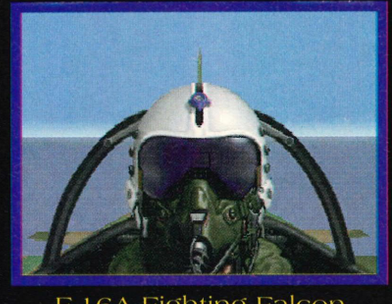

MiG-21F 'Fishbed'


F-4J Phantom II


FRS 1 Sea Harrier


Mirage IIIE


MiG-23S 'Flogger'


F-16A Fighting Falcon

Face to Face Air Combat

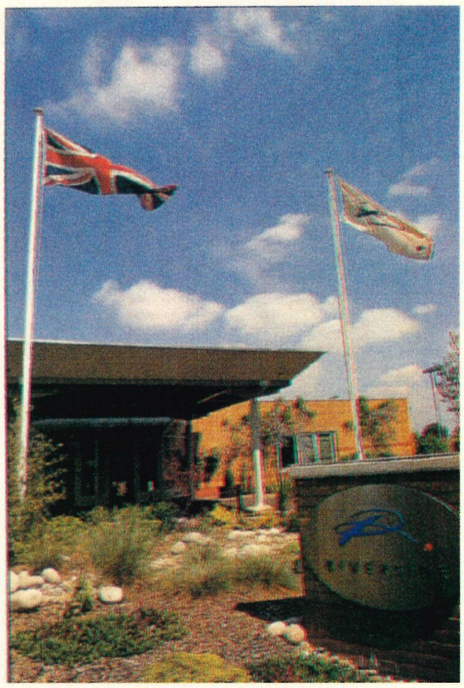
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WIN A sporting courtesy of Empire Software

To link up with its current sporting compilation Sports Masters publisher Empire Software and PC Review have joined forces to offer some top sporting prizes in – as ever – an absurdly easy-to-enter competition. Winners can choose between the four days out detailed below, which cover golf, tennis, motor racing and football.

All this and more

We also have five excellent runners-up prizes for those who should happen to miss out on the major goodies: a copy of Sports Masters (reviewed in this issue on page 90), the compilation pack which includes PGA Tour Golf, Advantage Tennis, Indianapolis 500 and European Championship 1992 – a complete sporting compendium for your PC.

The prizes

The Belfry Experience

A day out no golf player will want to miss at the course which will host the 1993 Ryder Cup. You'll arrive in time for coffee, get a golf lesson on video, and receive a special gift pack. Then you will play a round of golf on the Brabazon course with a professional, followed by lunch at The Belfry's restaurant.

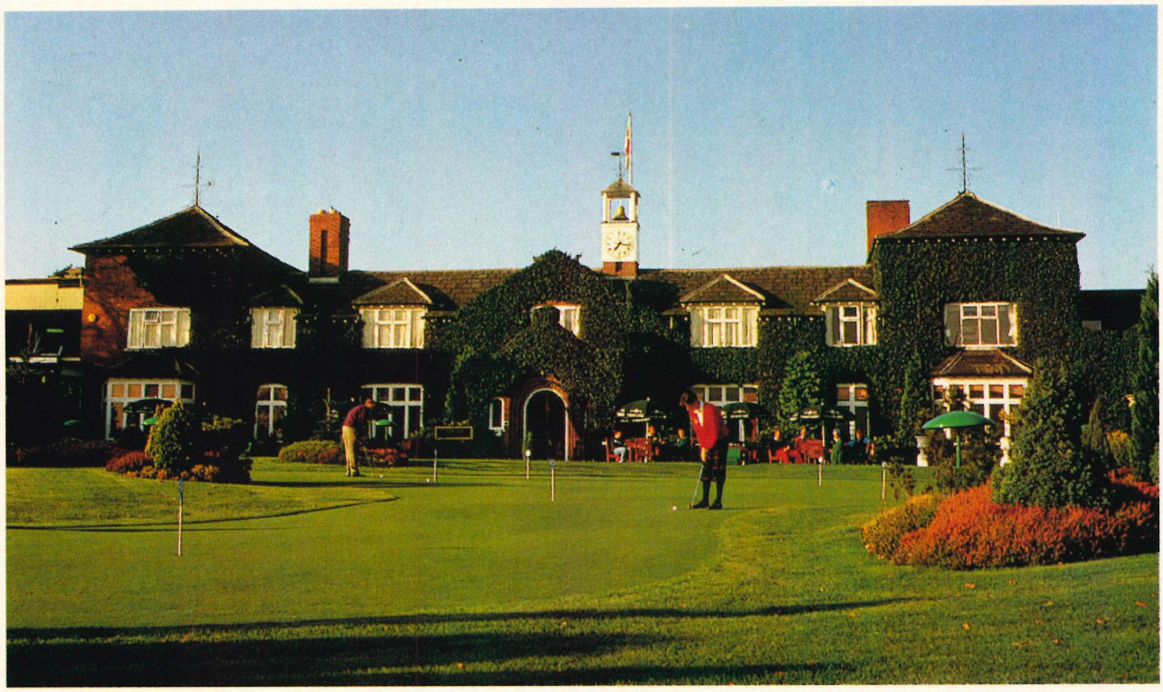
* NB prizewinners must have a golf handicap of 24 or under.

Brands Hatch

Two tickets are on offer to the British Touring Car Championship at Brands Hatch on August 21-22. These tickets also include two passes into the Paddocks for a superb view of the race.

The Riverside Racket Club

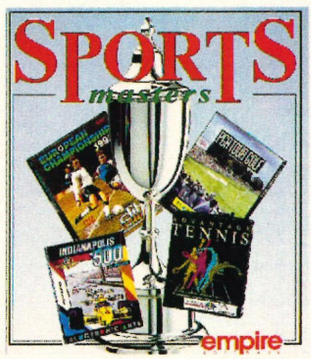
Continuing the sporting theme with tennis, the winner plus one guest will spend a day at the luxuriously appointed Riverside Racket Club in Chiswick, London W4. You'll both have full use of the facilities all day, including the tennis



Far left: the famous twin towers of Wembley Stadium, where our winner, plus family, will be taken on a special guided tour. Centre: the Riverside Racket Club in Chiswick welcomes one PC Review winner for a day's use of its extensive facilities. Left: the Belfry, venue for the Ryder Cup, and location of our winner's courtesy round of golf, followed by a gourmet lunch at the Belfry's restaurant. Below left, Empire's Sports Masters package.

day out and PC Review

courts, gymnasium, swimming pool, and the winner will also get an hour of tennis tuition from a professional player.



New Wembley Stadium Tour

Why not take the family on this superb tour of Wembley Stadium? The lucky winner will be permitted to take one adult and up to two children on this guided tour behind the scenes at Wembley. Sit in the Royal Box, explore the changing rooms and emerge from the players' tunnel to that famous Wembley roar.

How to enter

It's all oh so simple. Just answer the questions below on the form supplied (or a photocopy will do equally as well if you don't want to spoil the magazine), and stick the completed coupon on to a postcard or the back of a sealed envelope.

Send this to

Sports Days
PC Review
Priory Court
30-32 Farringdon Lane
London EC1R 3AU

to arrive no later than April 30, 1993. We'll announce the results in the July edition of PC Review.

Questions

1. Which team currently holds the Ryder Cup?
2. Who became the youngest ever winner of the Wimbledon Men's Singles title in 1985?
3. Who was the last British winner of the Formula One Drivers' Championship before Nigel Mansell?
4. Where will the 1996 European Football Championship take place?

Rules

No entries received after the closing date will be considered.

Only ONE entry per person, please.

No employees, or their relatives, or associates of EMAP Images, Empire Software, or any companies involved in ownership or management of the prize-winning locations are eligible to enter the competition.

The editor's decision in all these matters is immovably final.

Prizewinners will attend the days out as detailed above at their own risk.

Sports Days

The answers are:

1. .....
2. .....
3. .....
4. .....

Name.....

Address.....

.....

.....

.....

If I win, my choice of first prize is
The Belfry Experience ❑

I confirm that I have a golf handicap of 24 or under ❑

Brands Hatch ❑

Riverside Racket Club ❑

Wembley Premium Tour ❑

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

Closing date: April 30, 1993

PC Review April 1993

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PC review goes west...

It was raining in South-East London, so we went to Las Vegas. And it was raining there too. Steve Cooke gets swept away on a flood of new PC technology that will change your life ...

Twice a year, the American widgets industry gathers for the Consumer Electronics Show (CES) — the largest of its kind in the world. Porn stars rub naked shoulders with computer nerds, in-car audio freaks do battle with hi-flying hi-fi executives. For any normal person, it's the place not to be seen ...

But you go there anyway, because if the West Coast of the USA has anything to offer apart from surf and film stars, it's the very latest in technological innovation. Every day brings a new story: of how so-and-so in Carlsbad has developed a chip that casts astrological charts; of how such-and-such a company in Ventura has gotten a contract to supply eight minutes of computer generated film for a new Spielberg movie and they're doing it all on a PC using Deluxe Paint. If it's possible to do it with computers, someone in California has done it. If it's not possible, they're working on it. And if they're not working on it, it's because they're at CES ...



This is the technology that's going to change our lives. That was the overwhelming impression I came away with this year. In past years, visiting Silicon Valley, there have been cheap modems, good software from the likes of Lucasfilm and Electronic Arts, and a few madcap ideas from the lunatic fringe. One programmer last year assured us with profound solemnity that his next project was an intelligent suitcase. "Just imagine!", enthused the company spokesman, "It'll follow you around at airports. All you'll have to say is 'Heel!' and its voice recognition software will analyse the command and activate a small set of motorised wheels! It's going to revolutionise air-travel!"

"Er, what happens if someone else says 'Heel!' and it hurries after them instead?"

But this year was different. This year we saw things that we genuinely believe *will* change our lives.

Couch potato paradise

A recent survey by the American Electronic Industries Association revealed that 36% of adults thought that rented cassettes or videodisks were the 'most enjoyable' way to watch movies. The next most popular was to watch them on cable TV. Only 16% could bear to drag themselves out of the front door and off to the cinema.

(Left) No need to be a couch potato after all. With the Virtual Vision Sport, you can be a pavement potato, or a lobby leek, or just a plain old weirdo. The system works on the same principle as the old Private Eye head-mounted virtual monitor. Using a small reflective lens, the headmount bounces an image from a tiny video display so that it fools the eye into seeing an image 'floating' in space. Neat idea, but don't give your conventional TV to Aunt Martha if you're concerned about image quality. Expected in the shops in May at around $800.



It's easy to shudder at such statistics, but in a world of muggings, poor transport infrastructure and high unemployment, the couch potato is sitting as pretty as a potato can. Here in the UK we're still hot to trot out for the evening, but things are changing. As a result, the entertainment industry that once put its money into venue promotion is now looking ever more greedily at your sitting room. What's it going to do with it?

First, home theatre — or big tellies to you and me. The television, however, is not designed to grow like Topsy. Building ever larger cathode ray tubes is very expensive, so the search has been on for some time to find an alternative technology. You'll have seen the projection-style units with three colour guns and rather fuzzy pictures, and you may even have seen some of the newer machines which use LCD projection systems.

Although they're still expensive, these LCD systems are now really beginning to look exciting. Sharp demonstrated a new ceiling mounted model that costs a whopping $10,000, but the quality was absolutely superb. With technology like that, no wonder that another survey revealed that over 70% of retailers at the show were targetting home theatre as *the* growth area of 1993, and cheaper LCD projectors were starting at around £700.

But there's more to this sitting room thing than big, pretty pictures. Sound technology is also zooming ahead. Of course there's the existing surround sound technology from people like Dolby (whose THX system uses four or, optimally, five speakers), but the latest whizz is 3D sound from only two speakers.

These systems use clever recording technology to fool the ear into hearing not simply a left-right stereo image, but also a front-rear orientation. Which has big implications for home theatre and, of course, PC games.

Imagine a 3D adventure in which you actually hear events which you can't see because they're 'behind' you. That'll be old hat by the end of this year, thanks to systems like Gravis' UltraSound 3D. 'Immersive virtual reality audio' is the name of the game here: a technology (developed by a guy called Bo▶



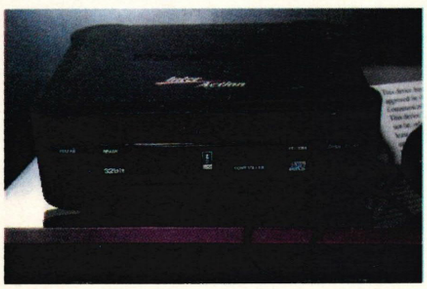


Panasonic's Check Printing Accountant drew crowds every day at the show, which says something about the preoccupations of CES attendees. It's basically a glorified calculator with a built-in printer that keeps tabs on your finances and saves you that terrible physical trauma of actually writing cheques. It does not, however, sign them for you. You may disagree, but I can't help thinking that this is almost as stupid as that 'intelligent' suitcase. Give me a Switch card any day.

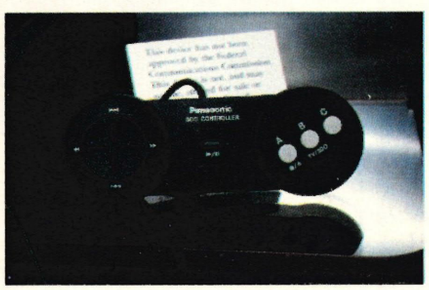
Bering in New York and licensed by Gravis) that creates a complete wrap-around sound effect from two speakers.

Most people were rabbiting on about how this 3D sound technology would benefit virtual reality (when we finally get into it), but in fact it has tremendous implications for game playing. Gravis's Grant Russell points out that, for a flight sim enthusiast for example, the game experience is really going to change: "As a fighter zooms past, the sound will now follow the jet and ...Watch out! He's shooting at you from behind!"

Of course, the question is how many software companies will support these new 3D systems as and when they appear on the market. Gravis' product should be available this Easter for $249, with the UK price to be yet announced. Accolade and EA have already promised 3D sound games; others should follow.



The world's first 3DO standard machine, marketed by Panasonic in the US.



The Panasonic 3DO controller suggests that this state of the art hardware may be used for good old shoot 'em ups ...



The 3DO hardware spec can marry computing power with good colour and resolution, so expect to see a resurgence of 3D software. Prototype 3D software and glasses were on show at CES.

Playing the movie

Once you've got your 150" TV display up on the living room wall, connected to your PC and displaying Strike Commander with full 3D sound, do you really need anything else?

Trip Hawkins, the man who started Electronic Arts, certainly thinks so. He's now abandoned his protege and started a new company called 3DO. In collaboration with some of the world's largest and most powerful organisations (including Matshushita, Warner Brothers, and AT&T) he's collected some of the industry's foremost development boffins and produced a rather startling little black box.

The box is effectively a multimedia engine that uses powerful custom chips and a CD drive to deliver everything you ever wanted from a multimedia computer and then some. It can decompress video signals from a CD in real-time, giving you digital movies. It has prodigious graphics powers: 32 million colours on-screen at once, for starters, and the ability to move pixels about at a truly alarming rate. The sound is as good as your average CD deck, if not better. Put together by a team that includes the legendary 'R-J' Michael, the man who dreamt up the Amiga a few decades ago, the idea is to create a new

BUBBLE BOBBLING UP

Who wrote the PC conversions of those classic Taito games Bubble Bobble and Arkanoid? Who programmed The Rocketeer for Disney? Answer, Novalogic – the same company responsible for the awesome Comanche, Maximum Overkill helicopter combat flight sim. Started by programmer John Garcia eight years ago as a development house, the company plunged into publishing with Comanche and now they're planning a host of impressive releases.

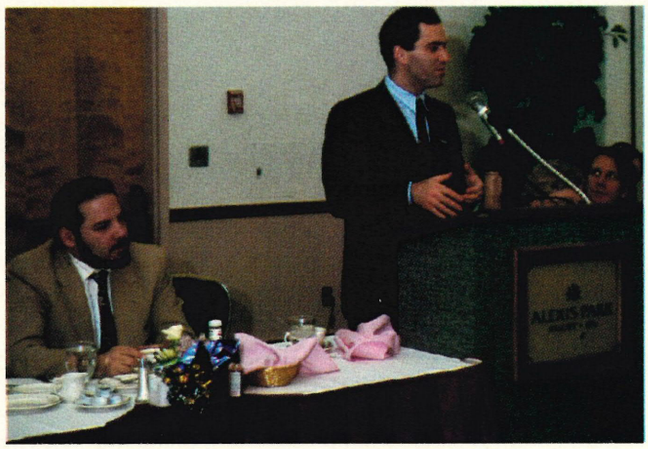
We were lucky enough to get a sneak preview of some of these at their office in Ventura Boulevard, just a few stone throws away from Hollywood. Watch out for add-on disks for Comanche (including a truly superlative alpine scenario). But perhaps the best looking of all was Ultrabots, to be released through EA (and for a fuller preview, see page 44). The game has you piloting massive robots around an alien terrain, waging war on other metal mickeys who are out to destroy the earth. Stunning graphics and gameplay that leaps from close quarters hi-tech combat to resource management and careful strategy.

Also very promising was Armoured First, a tank simulation that allows you to create your own missions and features the same graphics engine as Ultrabots (which in turn was a spin-off from development work done on Comanche). Battlezone fans eat your heart out. Missions only take up about 12K on disk, so expect to see Armoured Fist scenarios breeding on your local bulletin board when the game comes out.





'We've always been a leading edge technology company,' he says, 'and we believe that good software is driven by hardware that programmers like. We're talking to 3DO, because we're always on the lookout for good machines. Meanwhile the games are going really well: the public is voting with its pocketbook. In eight weeks we sold over 100,000 copies worldwide of Comanche, and now we have the base technology we can evolve it and include even more detail.



So who made the most deals at CES? This man is no rank outsider; it's world chess champion Gary Kasparov, discussing the philosophy behind Kasparov's Gambit, launched by Electronic Arts at the show. "It plays Kasparov's game," he declared, "... as far as is possible." More interesting, however, was his insistence that the program used educational features not seen before. "Gambit can help you understand not only the rules of the game, but the different styles of play," Kasparov told us. "If you use Gambit to examine Fischer's games in 1972 you will see that he was 10 years ahead of his time. But if you use the program to examine his games in 1992, you will see that he is perhaps 10 years behind. Chess has not stood still ...".

Meanwhile Saitek was showing new Kasparov chess machines, while Interplay showed the latest Battlechess version and Spectrum Holobyte took the mickey with National Lampoon's Chessmeister 4000.

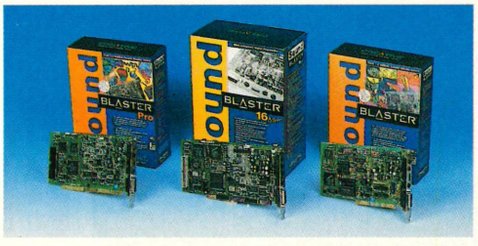


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Not content with having you watch TV at home with LCD projectors and on the move with headmounted displays, the big boys also want you to watch it in the back of your car. As LCD display costs drop, expect to see Coronation Street on every street corner, in every cab, in every bank queue. The possibilities are horrendous ...

worldwide standard for home entertainment. Anyone can build a 3DO machine — they'll even give you the money to do it. And anyone can produce software for it, provided that they pay a royalty.

The royalty, however, is small (around $3.00 a unit) and declining, so the world's software suavies are already committing to 3DO development. The first 3DO machine will appear in the States under the Panasonic brand name this year at a price of "around $599", at which point, you'll be able to plug it into your LCD projector and have huge dinosaurs from Jurassic Park (one of the games under development) stomping across the wallpaper.

Write me a phone call

Just as the tyrannosaurus tiptoes up behind you (3D sound, remember), the telephone rings. Typical.

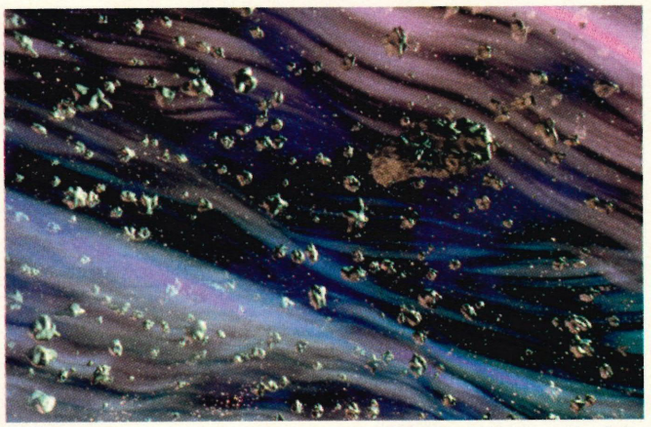
The phone you pick up, however, will look very different. IBM stole the show this year not, as you might expect, because it planned to sell it to someone else in a desperate fund-raising activity to make good its $5bn loss, but because it (honestly) managed to produce something truly extraordinary. Its Personal Communicator, developed at the IBM R&D centre in Boca Raton, Florida, is a whole office in the palm of your hand. First, it's a 286 PC. A 286? So what, we hear you cry. This 286 PC, however, is on a single chip. Together with 1MB of RAM and 2MB of built-in applications, it sits inside a palm-sized portable phone.

One side of the phone features a 14 line by 70 character LCD display. This gives you access to a whole range of features including a built-in cellular fax, e-mail, calendars, address books, remote database access, world time and games software. And of course, it's also a standard cellular telephone.

If this widget makes it to market — and IBM promises that it will "as soon as possible" — everyone is going to want one.



Virgin was busy touting beta test copies of 7th Guest at CES, but a visit to its new offices in Irvine, south of Los Angeles, revealed a serious lack of PC games under development. "We're mostly going after cartridge in-house now," admitted PR exec Seth Mendelsohn (in picture), "but we'll be getting PC stuff from Trilobyte and other companies." This is a pity, because Virgin has evidently put a lot of effort into building a very impressive US operation. It has great offices, tons of hi-tech equipment, and some excellent talents to draw upon.

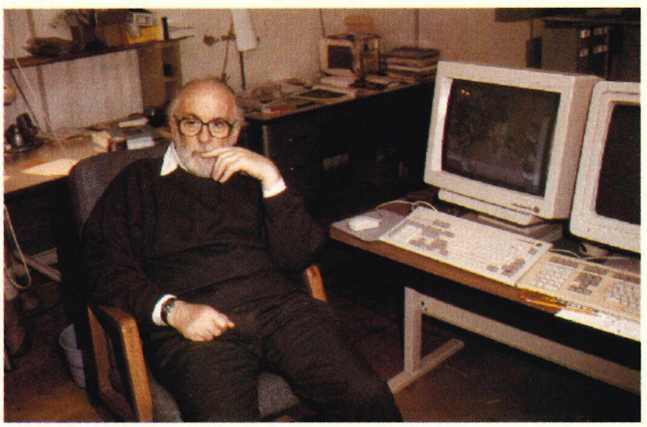


Angel Studios — the company who produced all those astonishing computer graphics for The Lawnmower Man movie — is now hard at work simulating the Big Bang itself, for EXPO '93 in Korea. Not only do you see the birth of the universe, but you see it in stereo — the computer images are rendered on to 70mm film, run through dual projectors and viewed using polarising glasses. When I visited its studio, director Brad Hunt told me that, "The Lawnmower Man proved you don't have to spend a lot of money to get photorealistic computer-generated displays. What we're moving towards here is the ultimate creativity machine. A system where a director or a screenplay writer can just give a verbal command and pull up a whole scene, then edit it by asking for more wind, for example, or bigger waves." You'll be able to gauge its progress when Lawnmower Man 2 hits the screens later this year.

The beauty of it is that it is totally 'soft'. That LCD display (which appears very hi-res, due to a .18mm dot pitch) can become, at the touch of a button, anything from an electronic Rolodex, to a map of Soho, to a picture of your blind date.

Together with 'personal digital assistants' like Apple's Newton and new pen-driven units from companies like Toshiba and Sharp, IBM's Personal Communicator represents powerful enabling technology that shouldn't cost an arm and a leg. Definitely a candidate for the 1993 Christmas present list, though prices and availability are still shrouded in mystery.

1993 could be the most exciting year in home electronics since the launch of the Sinclair Spectrum. PC-phones, much improved home video, 3D stereo, and a 3DO machine on top of your hi-fi. All you need now is a suitcase that follows you around ...■



"But is it art?" Computer programmer/artist Harold Cohen ponders the nature of automated painting in his studio at UCSD, where he has spent years teaching a computer to paint. Programmed in Lisp, the system progressed through a disturbingly human-like learning sequence, graduating from meaningless squiggles to stick figures to powerful portraits set against vivid backgrounds. Originally, the machine would simply throw up images on a display, but Cohen has now given it an arm, a paint brush, and paints. "I've taught it to sign its name," says Cohen, "but when people buy the paintings they always want my signature on them." His protege has had exhibitions at the Tate and the Pompidou Centre and is now an acknowledged 20th century master painter.

ULTIMATE MULTIMEDIA

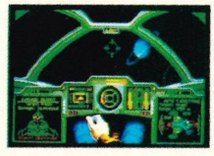
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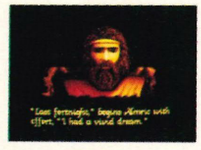
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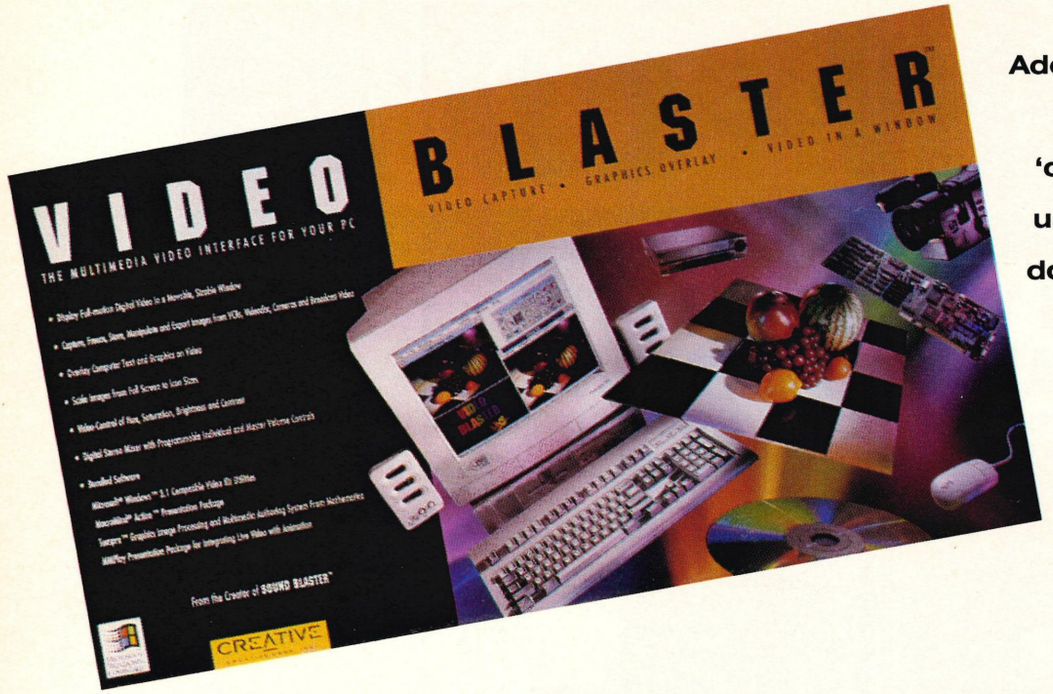
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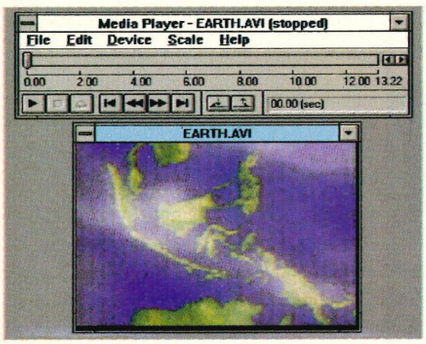
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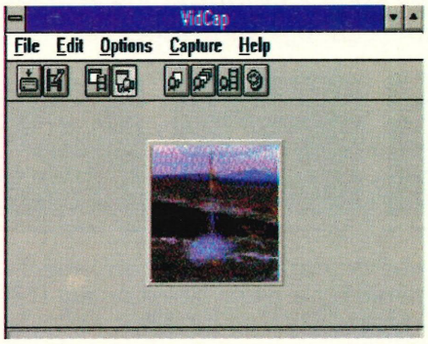


Adding a sound card to a PC makes it a different machine and really 'opens the ears' of the people who use it. Will adding a live video card do the same? Creative Labs, which brought you the popular Sound Blaster card, thinks so and to prove it has added the Video Blaster to the family. Is this going to be an equally large revelation, or is the time still not right for the video-capable PC?

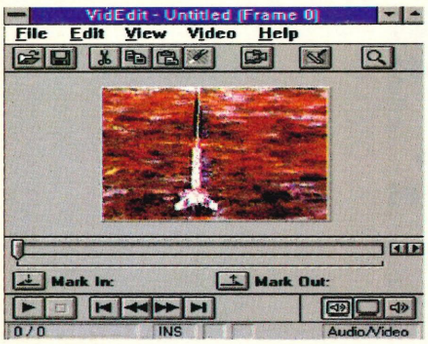
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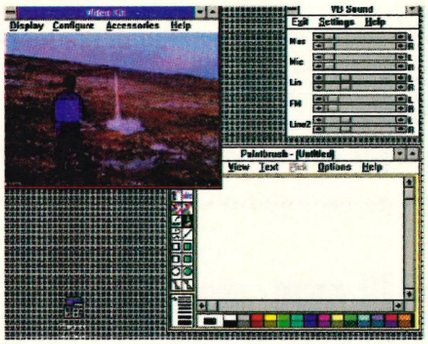
The Video Blaster screen capture program showing live video in a resizable windows.



The MVW Multimedia player running a clip taken directly from video. Note the necessarily small size.



MVW video clip capture — unlike Video Blaster's capture, it will save single frames and sequences.



The MVW editing utility. You can cut and splice sound and vision to create a synchronised sequence.

What's a video card?

Your machine already has a graphics card which, as long as it is VGA or better, produces stunning coloured images, so why would you want another video card? The Video Blaster is an image capture and video overlay card, and in this sense it is more like the microphone input on a Sound Blaster card than the audio output. Putting it as simply as possible, with a Video Blaster card installed you can watch TV on your PC's video screen and save any images that take your fancy to disk. In addition, you are able to record and play back moving pictures — but this is a slightly more controversial claim and you will have to read on to discover what the 'ifs and buts' are ...

I suppose at this early stage I should give you some ideas as to what you might use these new capabilities for. This is a little like trying to say what you might use a multi-channel digital synthesiser for in the days before games software started to make good use of sound cards! You can, of course, couple up a Video Blaster card to a video recorder, camera or TV tuner. With this simple set-up you can see the video output in an on-screen and resizable window. At the most trivial level this allows you to watch recorded tapes, set up surveillance systems and, as long as you remember to connect a TV aerial to the video recorder, then you could also watch broadcast TV.

This is called 'video overlay', and you need to be clear what is going on here. The Video Blaster card intercepts the video signal from your standard VGA card and electronically splices the live video signal into it. There is no sense in which your computer is being involved in the video

Getting going

Installing the Video Blaster is simple enough as long as your machine is suitable. The first requirement is a full length 16-bit (AT) expansion slot. So if you have a slimline machine that only supports short cards the Video Blaster isn't for you.

Secondly, it needs a VGA card that has a 'feature' or 'pass through' connector. This is usually a small edge connector at the top of the card but it is sometimes provided as a ribbon cable plug. The Video Blaster needs the expansion connector to intercept and control the VGA signal. In principle there is no reason why you shouldn't use the Video Blaster with an SVGA card that has a feature connector but you need to check that the frame rate is within the range that is acceptable. I tried the Video Blaster with a 'flicker free' SVGA card only to discover that while everything worked the live video display rolled like a badly adjusted TV set. If you are in any doubt about the compatibility of your video card, check with Creative Labs first.

Once you are sure that your PC will take a Video Blaster it is just a matter of plugging the card in and connecting the feature ribbon cable to the existing video card. That's all – unless you want to connect the audio output of a Sound Blaster or CD-ROM drive to the Video Blaster — in which case you need to connect two other small cables. (The audio connector cables are not supplied as standard.)

The final configuration of the card is carried out entirely by software. There are no jumpers or DIP switches to set. You still have to specify the address and interrupt that the board has to use but this is now a matter of accepting the suggestion of the installation software and waiting for it to test if your selection is correct. In practice, this is simple and you shouldn't have any trouble with it.

Slightly more of a problem is the connecting up of the Video Blaster to your video and audio equipment. The card itself comes with a cable that ends in five phono sockets and what looks like a VGA connector. The VGA connector has to be plugged into the output of the VGA card, the socket that the monitor cable was connected to, and the monitor cable has to be plugged into a VGA style socket on the Video Blaster. The five phono sockets are three video inputs and a stereo audio pair. These aren't meant to be plugged directly into video equipment — for one thing they are only five inches long! Video equipment uses such a range of connectors that it makes sense to buy a universal video connecting kit containing every lead, plug and socket combination known to man. Video Blaster will work with both PAL (UK) and NSTC (USA) video standards. Finally, you can plug a pair of speakers and a microphone into the jack sockets on the back of the card. If everything is connected correctly you will see a live video overlay in just a few minutes of completing the software installation.

_ASTER

and the campaign for real video

processing. It's as if a little bit of the display screen has been hijacked to show a standard TV picture. Now this isn't to say that you can't do some interesting tricks with the overlay — because you can. The Video Blaster allows you to move the window around the screen and resize it as you please. The resizing is the clever part because the video signal is squashed to fit the available window. The same rescaling function can be used to zoom in on a part of the image, although it can't add detail that isn't there. If you zoom too much the result is a blurred, but larger, view of the original image.

Don't fall into the trap of thinking that overlaid live video is the same as the rest of your PC's video because it isn't. For example, if you try to screen-dump it all you get is a purple patch where the live video was! This is because the purple colour is used to key the live video into the VGA signal as it is passed through the Video Blaster. It works exactly like ChromaKey, the method that they use to get the weather men and others standing in front of video backgrounds.

Multimedia

The video overlay ability sounds very nice, but without something extra the novelty of being able to watch TV while sitting at your PC soon wears off unless you have a serious reason for doing it! As the live video is overlaying the VGA screen and you can mix PC-generated graphics with it, an obvious application is to create edited video presentations. You can indeed mix live video, graphics and sound card generated audio to create a very effective presentation. There is a demo provided which does just that. The only problem is that there is no way for the Video Blaster to control the video source that is mixed with the graphics and sound. In other words, it is up to you to start the video recorder, or whatever, at the correct moment to synchronise the live video with everything else!

To create multimedia presentations with a live video component you can either use the Mmplay program that is included or the Windows Multimedia control library. Neither are difficult to use, but they are tedious because you have to make lists of what is supposed to happen.

Without the ability to control the video source — to start and stop it, to be more precise — the possibilities for multimedia presentations are severely limited. This doesn't mean you can't do them but it seems a shame that you cannot automatically cue video sources and cut from one to another as required. The most you can do is select which of the three video sources is displayed and pipe any audio track through. The Video Blaster card doesn't have any sound capabilities of its own so if you want to play digitised sound you will need a Sound Blaster, or some other audio card. You can't even record the results of a multimedia presentation on another video recorder because, for some unknown reason, there is no video output other than to the VGA monitor.

Video capture

Video overlay looks good on the screen, but its association with your computer is an illusion. It really is just a

convenient and flexible way to watch TV. To get the video image inside the machine what you need is to convert the TV signal into one of the many digital file formats — .PCX, .GIF, Tiff, and so on — that the PC can make use of. This involves digitising the video signal to convert it into a set of numbers giving the brightness and colour values at each point of the image.

The Video Blaster contains image capture hardware that will digitise a frame. You simply click on the freeze frame command or the save to disk command and the image is digitised. You can save the result in any of the standard image formats — PCX, GIF, Tiff, BMP, TGA and IBM Motion MMP. Once you have the frame safely stored on disk you can use it just like any other image file — incorporate it into another application, edit it and print it.

To give you a start on making use of your video captures a copy of Tempra Show and Gif and MacroMind's Action are included. Both of these programs have similar capabilities and the reason that both have been bundled is that one is for DOS and the other for Windows. What they allow you to do is put together a presentation that incorporates sound files, graphics files, and animated sprites. An animated sprite is simply a small graphic that can be made to move around the screen on a predetermined path. You can also incorporate animation sequences created using AutoDesk 3D Studio and the other similar packages.

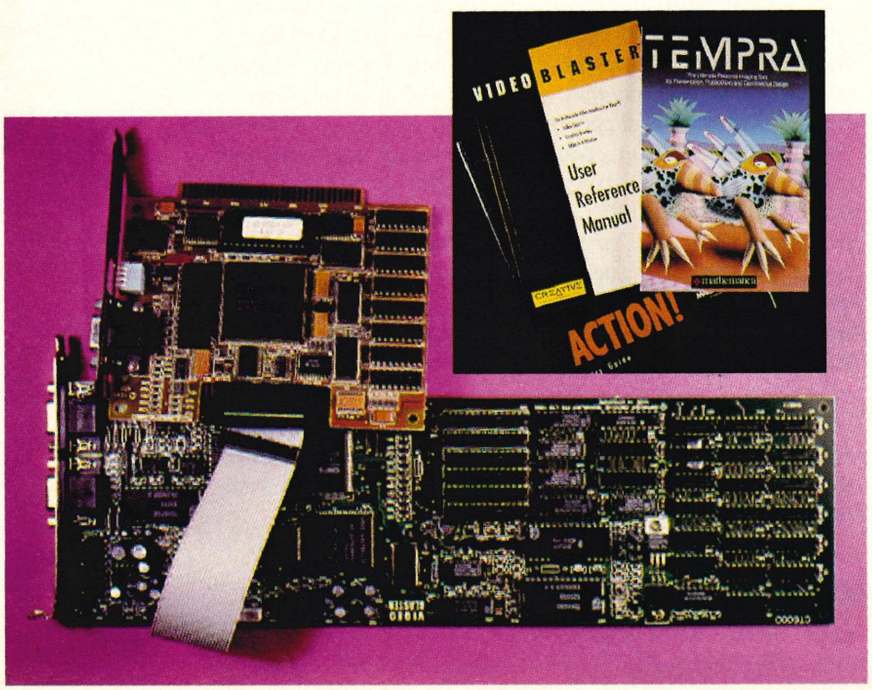
The one thing you cannot do is include a video clip other than as an overlay. The reason is simply that the software to save a video clip to disk isn't included with the Video Blaster. For that you have to look further afield.

In conclusion

You probably would like me to summarise what I think about the Video Blaster and the current state of video on the PC. As to the Video Blaster I'm afraid that it's more of a video squib. Only buy one if you are very clear about what it can do and you are sure that it is what you want to do! If you want to capture and playback video clips you need something better in the hardware line but Microsoft Video for Windows is here to stay.

Video Blaster £249 from Creative Labs (Westpoint Creative on 0743 248590). Microsoft Video for Windows — £139.

Thanks to Unica (061 429 0241) for loan of a sample Video Blaster.



Full motion video capture

What most people are expecting when they take a quick look at hardware like the Video Blaster is the ability to record video clips on to disk in much the same way that the Sound Blaster allows you to store digitised audio files. I have to say right away that capturing full screen motion video to disk is a very difficult technical problem and it will take more than a Video Blaster to solve it! Why? There are two reasons — the large quantities of data needed for even a short video clip and the high speed that the data has to be moved from storage to screen to make the motion look smooth. If you need some facts then one minute of standard VGA quality motion video, ie, 640 x 480 with 256 colours, needs roughly 550Mb of storage. To make the motion smooth also needs just over 9Mb of data to be moved from disk to screen every second. To put this in perspective, a complete CD-ROM would hold just over one minute of video, but it wouldn't be able to show it because it can only move 0.15Mb per second to the screen.

There is a solution to the problem but it involves using data compression. For example, successive video frames are usually very little different from one another unless something moving very fast is in view. As a result sending only the differences between frames reduces the amount of data that has to be stored and the rate at which it has to be sent to the screen. Using compression it is possible to reduce the data rate to something that a CD-ROM can manage and increase its capacity to around an hour of video. The downside is that it takes a lot of processing power to compress, and also to decompress, data in this way.

There are a number of new standards being put together for digitised video and perhaps the most important is Microsoft Video for Windows (MVW). This is a simple extension to Windows that allows compressed video to be recorded and played back. Using the Video Blaster card it is only possible to work with a quarter or an eighth of a full screen, simply because it cannot digitise the video signal fast enough to keep up with large images. If you want to do better than this, you need hardware that, at the moment, costs rather more than the Video Blaster (around £2,000 plus) but the price is falling rapidly.

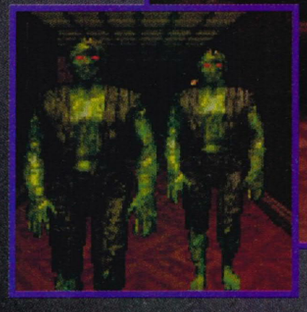
If you do think that quarter resolution and fairly jerky motion is good enough for your application, MVW is certainly what you need to couple with the Video Blaster. It comes complete with a video capture and a playback/editing utility. These aren't wonderful but they work and they represent a starting point. Perhaps more important than these two utilities is the improved multimedia player. This will now play sound files, CD-audio, MIDI and MVW format video clips. This means that any user with MVW can play pre-prepared video clips supplied as disk files or on CD-ROM. Not only this but video clips can be embedded in documents. You double click on the video's icon and it starts playing. This opens up the Windows market to the multimedia revolution that many of us have been talking about for years. In other words, look out for video clips as part of Windows applications, games and of course, CD-ROMs. It's going to be so common to see some video snippet on your screen that it will probably become boring!

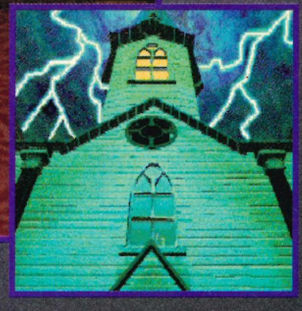
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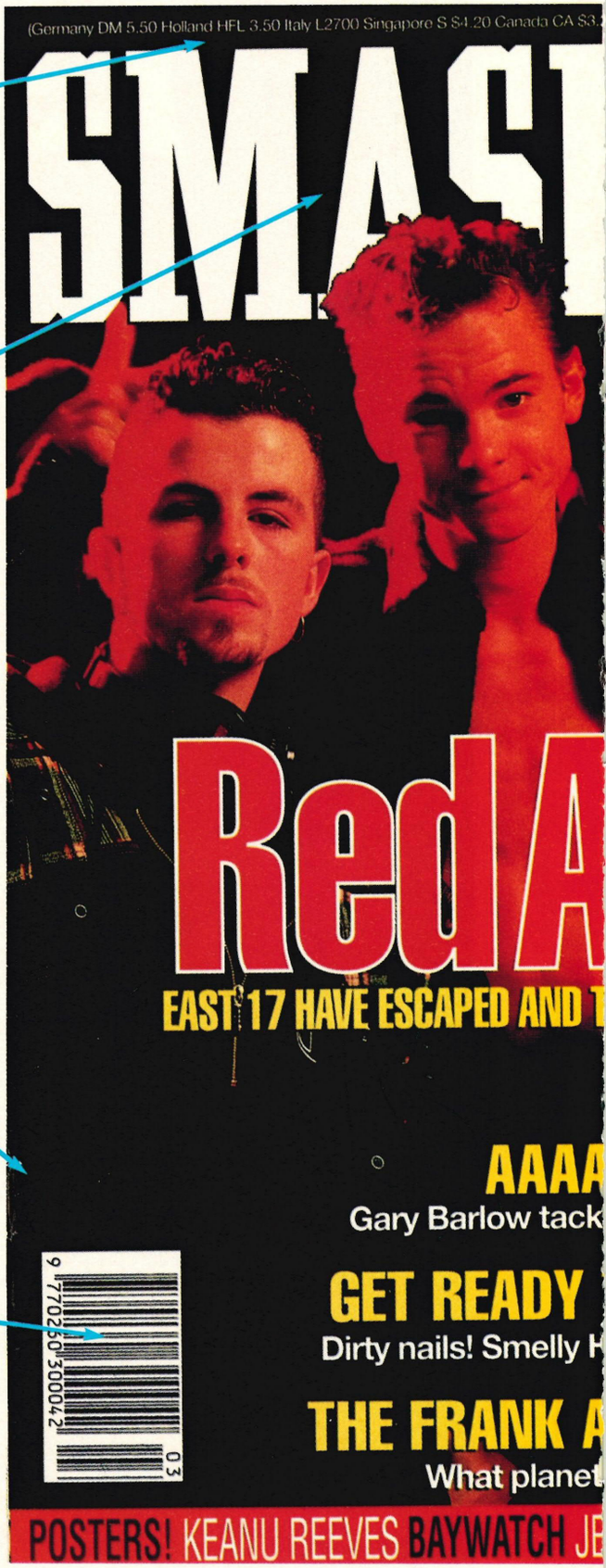
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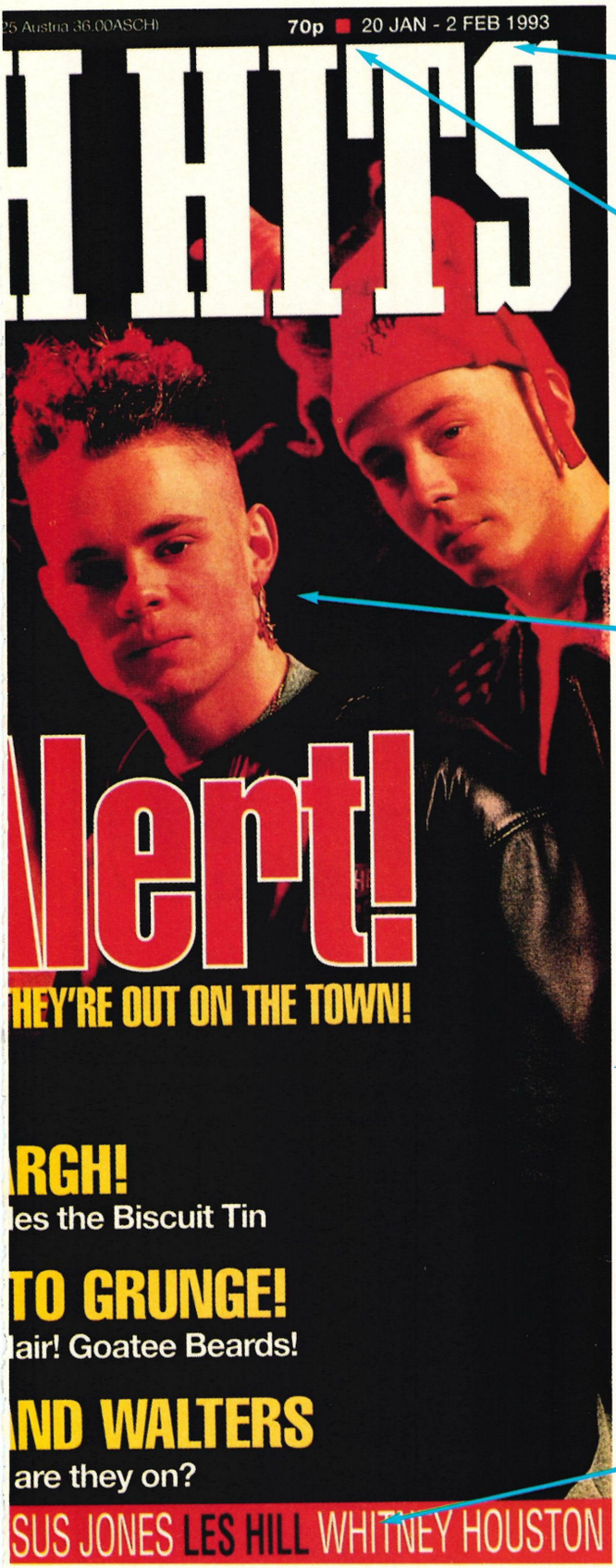
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MS-DOS 6 *should you upgrade?*

The new version of MS-DOS, about to hit the streets, isn't a radical change over MS-DOS 5, but it does bring a new level of usability to the existing standard. Mike James has been using it for some weeks now and reports on its new features

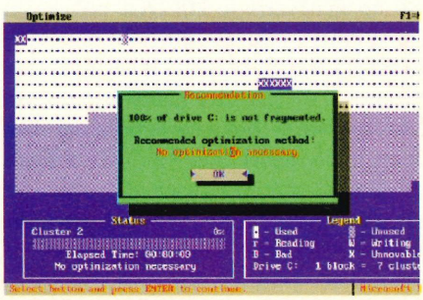
If you have struggled with configuring or optimising your machine, thanks to MS-DOS's obscure and arcane way of going about things, the comparative ease of use of MS-DOS 6 will come as a welcome relief. If, on the other hand, you have spent your hard-earned cash on utilities to bring MS-DOS 5 up to scratch, you may not be so impressed.

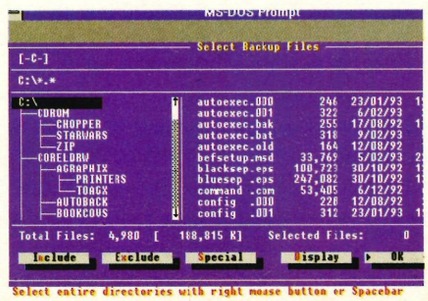
The enhancements included in MS-DOS 6 mainly comprise utilities, which are designed either to make configuration easier, or to maximise your system's performance. If you're a long-term MS-DOS user, you may well have already added a number of programs of this type to your system.

The new modules include the following:

- MemMaker — a new memory configuration program that will automatically optimise available memory
- Defrag — a disk optimiser
- Double space — a disk compression utility
- Virus check — a virus detection and repair utility
- Support for multiple configurations

There are also several minor improvements which I will note as I go along.





Below: the MS-DOS utility Defrag optimises the way in which DOS stores files; below right: the back-up function has been made much easier to use.

Multiple configurations

Of the new features, the only one that was difficult, if not impossible, to add to earlier versions of MS-DOS is the support for multiple configurations. But first a word about what 'multiple configuration' is and why you might want it. Some applications, particularly games, need all the conventional memory they can get, others need special drivers — mouse, sound, CD-ROM, etc. What all this means is that in nearly all cases the optimum machine configuration is different for different applications. The configuration that you eventually end up using is an average, something that works with most applications. However you will still find applications that really need a special configuration even to work at all, let alone work efficiently, and in this case you have no choice but to maintain two or more Config.sys files and this is a horrible way to have to work (see pages 112-117 of this issue for more on Config.sys and memory configuration, and just how complicated it can get).

Well, now you don't, because you can create Config.sys files that allow you to make choices about the current configuration as your machine is starting up. You can add a statement that produces a menu of choices, and include or exclude statements from

the configuration depending on what is selected from the menu. For example, if the Config.sys file starts with the commands

```
[menu]
Menuitem=Windows
Menuitem=CDROM
Menuitem=Games
```

the user is given three configurations for different applications.

When you select an option, only the commands in the Config.sys file that are preceded by the name of the menu option are included. For example, if Config.sys continued with...

```
[Windows]
himem.sys
dos=high
buffers=10

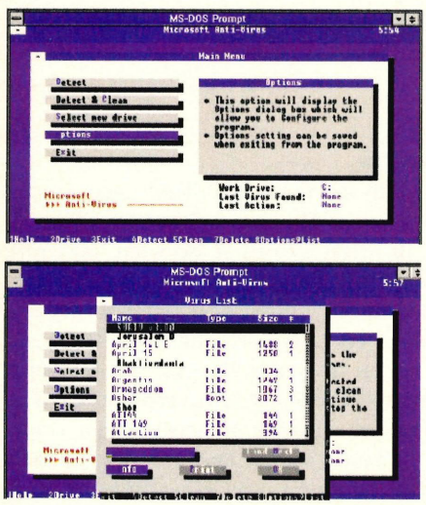
[CDROM]
device=CDROM.SYS

[GAMES]
himem.sys
buffers=25
```

...then only the configuration commands under [Windows] would be obeyed if the user selected the Windows menu option – simple, isn't it? As long as you put appropriate headings in front of the configuration commands it all works. There are a few extra sophisticated features: for example, any instructions that you want to include in all configurations can be headed [common]; you can include one configuration block within another; and you can also set a default configuration and menu colours, etc, but basically that's all there is to it.

In addition, you can also bypass the entire Config.sys file and start up in a basic MS-DOS configuration by holding the shift key down during the start-up. This is helpful when you are trying to modify the configuration and the machine will not start with the current settings. You can also add a question mark to the end of any commands that you are unsure about and MS-DOS will stop and ask you if you want them to be included or not.

The same sort of facilities are available to customise the Autoexec.bat file. It would take too much space to explain exactly how they work, but they are just as easy.



Above: MS-DOS 6's virus checker at work. The program scans your hard disk for well-known viruses and offers to repair files if it finds any.

Making the most of memory

Being able to select from a number of configurations is a big step forward in terms of ease of use, but many users have enough difficulty working out a single configuration, let alone multiple configurations. Now there is MemMaker, and there really isn't much else to say about it!

To configure your machine to produce the largest possible amount of conventional memory automatically (again, see this month's Getting the Most out of Your PC article for more on this) all you have to do is type Memmaker, then sit back and watch.

The trouble with all auto-configuration utilities is that they occasionally meet something new and don't know how to handle it. In this case you have no choice but to attempt to tweak manually. It is also true that a manual configuration might produce a better result but for the few machines on which I have tried Memmaker I couldn't do any better! All I can say is that it seems to work and work well.

Other memory management changes include an improved ability to determine where something will be loaded in high memory, a better Mem command and the MSD utility, which will show you exactly how memory is being used.

A better disk

There are two big improvements in the way that MS-DOS works with hard disks — compression and defragmentation. There is nothing new in either of these facilities in the sense that you could buy products that added both of these to existing versions of MS-DOS. The difference is that these are now included with v6 at no extra cost and they establish a standard. The Doubledisk compression utility has been written from scratch by Microsoft, but it does have the ability to convert compressed drives created by Stacker into its own format. The disk defragmenter, on the other hand, comes courtesy of Symantec and so is likely to be based on the Norton Utilities.

As well as compression and defragmentation, there are a range of other improvements in disk handling. The Undelete facility introduced in MS-DOS 5 has undergone complete revision — it is now easy to use and works under both MS-DOS and Windows. The back-up utilities have also undergone a change that makes them unrecognisable. You can now back up and restore using a menu-driven program that makes it all so easy. The real question is why it hasn't been this easy before!

There are so many other minor and miscellaneous improvements that it is certain that I will miss some out. I should however mention the on-line help: to access this you simply type Help and then work your way through the index or search for the topic or command you are interested in.

Also, there is a command to get user input during a batch file, a virus checker, a file move command, a delete directory and all its contents command, etc, and these last two will certainly save time during everyday disk housekeeping, if you aren't already using Dosshell for these operations as a matter of routine.

If you are using a portable, there are power saving options and a utility that allows you to transfer data and share printers.

Upgrade?

The big question left then, is should you rush to upgrade?

Well, MS-DOS 6 has only one core improvement and that is the ability to define multiple configurations. Every other enhancement can be added to MS-DOS 5 by way of extra utilities.

In short, MS-DOS 6 is just MS-DOS 5 with add-ons: if you already have its utilities (or don't want them), then there's no need to upgrade – unless you really need multiple configurations.

On the other hand if you are thinking about adding disk compression, virus detection, a defragmenter and so on, it would make sense to upgrade to v6, because it is almost certain to set the standards in all of these areas – and for trouble-free computing, standards are more important than the last ounce of performance.

Now we come to the trickiest part of the question: DR-DOS. Many users abandoned MS-DOS, because DR-DOS gave them everything they wanted – everything that is now in MS-DOS 6. If you are happy with your existing DR-DOS system, there is no pressing reason to give it up and return to MS-DOS unless you are plagued by any compatibility problems, due to it not being 'real' MS-DOS. Also, as things stand, there is absolutely no reason to buy DR-DOS in preference to the industry standard. The next version of DR-DOS, if there is one, would have to be better than MS-DOS to give it back the performance edge – but it's difficult to see what DR-DOS could have added to give it that edge. We seem to be quite close to going about as far as we can go down the road of gradual improvement in MS-DOS. The next step has to be a more radical change – but that's quite another story.P

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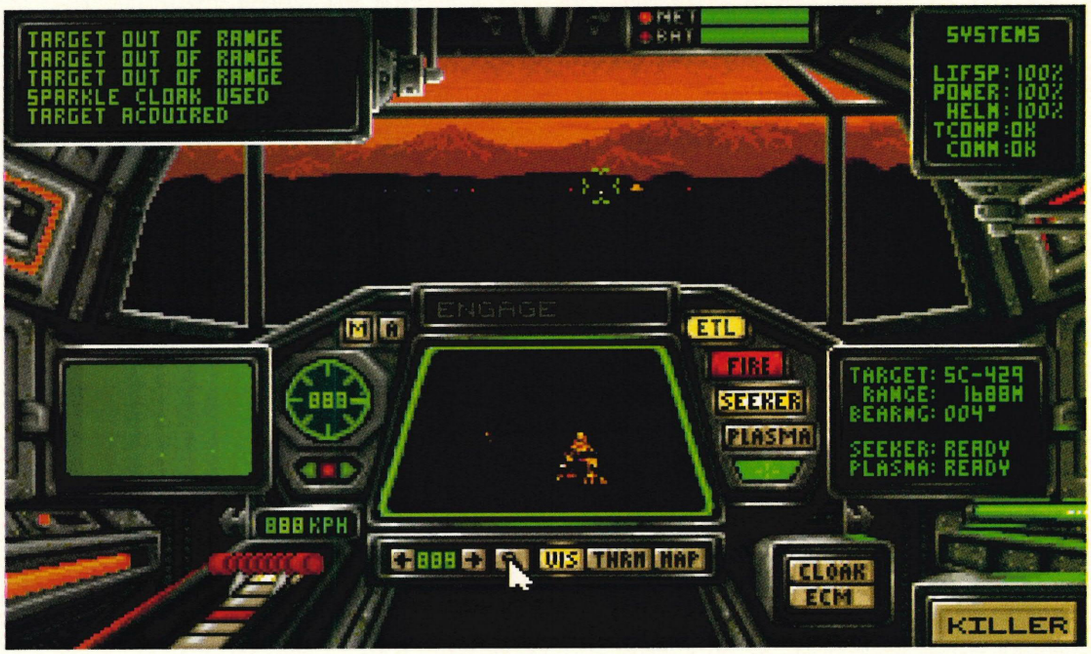
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Ciarán Brennan pulls an exo-skeleton from his closet to join in with Novalogic's mechanised clash of the titans.



XENOBOTS

Title	**Xenobots**
Publisher	**Electronic Arts**
Release date	***22* March**
Contact	**(0753) 549442**
Genre	**3D combat simulation**
Price	**£39.99**

Although futuristic 'flight and fight' simulations seem to be all the rage at the moment – what with Lucasfilm's X-Wing and Origin's Wing Commander III poised to battle it out in the inky blackness of the digital space lanes – there's at least one development team out there who's decided that maybe it might be better to keep its feet firmly on the ground.

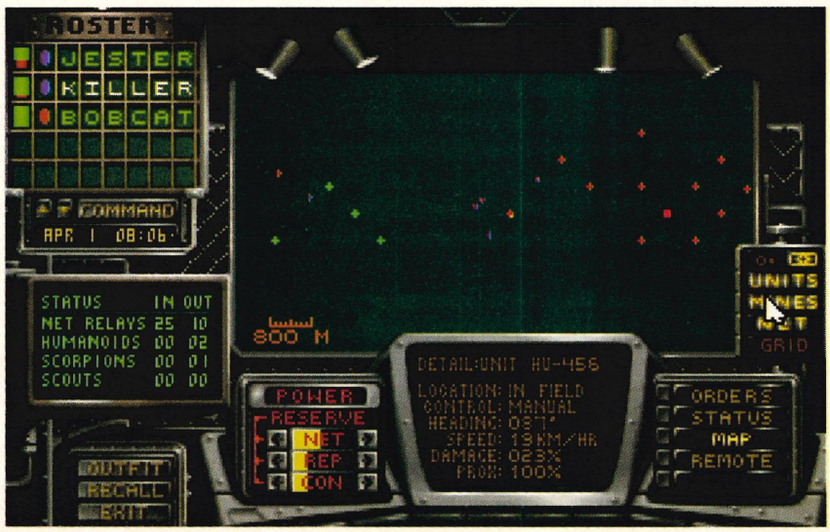
That company is Novalogic, the crew behind Comanche Overkill, whose own addition to the futuristic battlefield is a multi-vehicle, ground-based combat affair.

Designed and programmed by John Butrovich and David Seeholzer (with a little extra design help from John Garcia), Xenobots is set on Earth in the distant future – not that its current inhabitants would recognise it too readily.

Like most current games, Xenobots begins with a scene-setting introduction sequence – this time around it's a calamitous news report which tells how a belligerent alien race has devastated the planet with its army of heavily-armed fighting machines – the Xenobots.

Having only just survived the first wave of attacks, the last few human scientists have taken advantage of the respite offered by the aliens' regrouping to 'reverse engineer' its own army of fighting machines, modelled directly on the enemy's. Now, with the second wave about to begin, the human race's tiny complement of Xenobots is set to take on the aliens' hordes in a last-ditch fight to the death. You, of course, find yourself right in the thick of the action.

Well, not quite in the thick of it, because Xenobots does make an attempt to ease the newcomer gently into its combat action sequences by offering a 'quick-start' guide in its comprehensive manual and a training mode to use it with. And while this training mode is, in effect, just another battle, it does offer the distinct



The picture above shows what the world looks like from within a Humanoid (this particular machine's called Killer, as on his name plate in the bottom right-hand corner). Most of the information displays are multi-function, and are cycled through by clicking on them with the left mouse button.

Campaigns are directed from the Situations Room (right), using yet another multi-function display (currently the colour-coded battle map). From here, all operations management is carried out, including repairs to and deployment of the various 'bots.

advantage that the gains made (and, more likely, losses sustained) within it have no bearing whatsoever on any of the game's later campaigns.

But before you dive even into the relatively shallow waters of the training mode, it's probably best to acquaint yourself with the three machines which you'll find at your disposal: the combat-developed Humanoid, the fleet-footed Scout and the heavier support vehicle, the Scorpion.

Equipped with the heaviest armour and most destructive weaponry, the Humanoid is designed purely and simply for combat purposes. Named because of its close resemblance to the human form, the Humanoid's heavy complement negatively affects its speed and agility. However, it's probably best to get used to piloting this massive beast, as this is the one that you're likely to spend most of your time cooped up in.

Also bearing a little similarity to the human form (that is, if you know any humans with no body, a huge head and long, spidery legs), the Scout is lighter and more mobile than its more powerful stablemate. However, on the down side, it's neither as heavily armed nor as resistant to damage, so it's probably best to confine this one to a reconnaissance role.

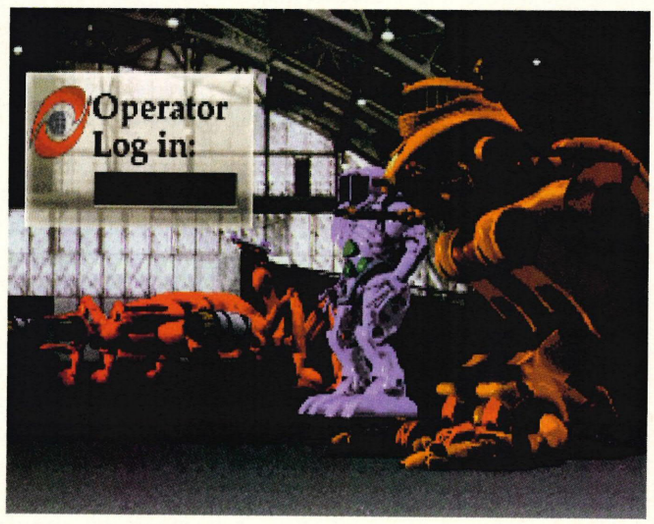
The final Xenobot is the slow ungainly Scorpion – whose appearance doesn't need a great deal of explanation. This workhorse comes into its own when building and maintaining your force's communications network (the 'Net'). However, it has a rather powerful sting in its tail, and can be called into action when required – which is usually as a rearguard when your Humanoids are forced to retreat.

A wealth of technical data on each of the Xenobots is available via the animated review screens. And, as the human race's war machines have been modelled precisely on the enemy's, this information tells you as much about the opposition as it does about your own armour.

Although the display varies from Xenobot to Xenobot (the cockpit below belongs to Meteor the Scorpion), the majority of the controls function in exactly the same way as they do in the Humanoid – as long as you can find where they are, that is.







Rather than relying on the jerky animations which usually pass for game prologues, Xenobots relays its story through a series of still pictures. And very effective they are too, building a 'world under siege' atmosphere similar to that created by H.G. Wells' War of the Worlds.

While all of the three war machines are controlled in roughly the same way (despite the somewhat superficial differences in the cockpit layouts themselves), they do handle remarkably differently, and the developers have obviously gone to a lot of trouble to ensure the way that these beasts feel in motion matches the way they look from the outside – the Scorpion in particular really does move and turn like a six-legged monster.

In a similar fashion to Rainbird's ageing classic Carrier Command, Xenobots is a mixture of tactical management, decision making and face-to-face combat. Those of you out there who like to exercise a little more than just your trigger fingers will therefore enjoy the challenge offered by the unceasing problems caused by power shortages, running repairs and communications breakdowns.

Although the version of Xenobots which battled its way into the PC Review offices wasn't quite finished, it did contain enough to show that there's a great deal of potential in the non-flight combat simulation genre.

The problems that did exist were mostly superficial – such as the landscapes staying identical from continent to continent (the development team would probably argue that this is a natural consequence of nuclear holocaust) and the sound effects being a little sparse – and it's possible that these will be put right by the time the game arrives for a full review.

One word of warning though, Xenobots did tend to chug along quite slowly on the old office 286 – and it's unlikely that the combination of fast-moving polygon shapes and bitmapped graphics employed by the program will allow this to change a great deal in the final release.

Like most current sims available therefore, it looks as though Xenobots would be best left to those with hardware powerful enough to do it justice.



Title	**Dogfight**
Developer	**MicroProse (Leeds)**
Publisher	**MicroProse**
Contact	**(0666) 504326**
Release date	**Late March**
Genre	**Flight simulation**
Price	**£44.99**

The Farnborough Air Show meets Top Gun in MicroProse's historically deviant, combat-heavy, festival of flight.

Dogfight

While the thrills of mastering an unfamiliar flying machine and guiding it safely through a variety of missions are undoubtedly among the major attractions of state of the art flight sims, there's still nothing which gets the adrenaline pumping like a good old-fashioned, one-on-one dogfight.

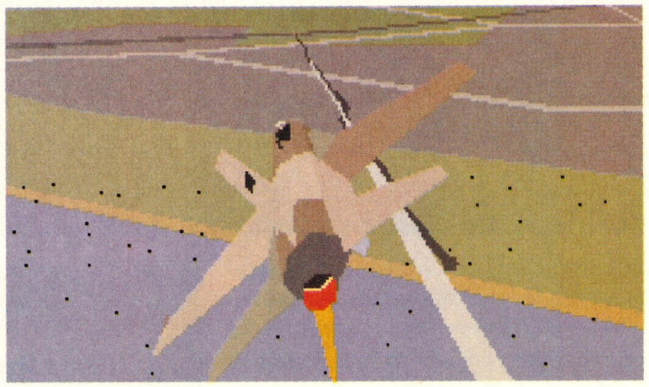
And what better way is there to prove to the world (and yourself) that you have the required quota of 'The Right Stuff' than by keeping your nerve as you twist and turn in an attempt to put one over on an equally skilled opponent – or, better still, to put one over on an enemy blessed with infinitely superior equipment?

Up until now though, this has never really been a viable option, with the majority of sims preferring to pitch well-matched opponents against one another in programs which aim for accuracy above entertainment.

Ever the innovator though, MicroProse has chosen to correct this situation with the development of Dogfight, a multi-aircraft, multi-era affair which offers the digital pilot a chance to take the controls of 12 historical fighting planes, drawn from every major conflict from the Great War to the present day, and to pit them against one another in any conceivable combination.

Currently nearing completion in MicroProse's Leeds office, the main body of work on Dogfight has been carried out by three former Vektor Grafix developers: Ciaran Kultnieks (main programming), Derrick Austin (3D modelling) and Mark Griffiths (bitmapped graphics).

The 12 aircraft featured are the Sopwith Camel, Fokker DR1 Triplane, Messerschmitt BF109E, MkII Spitfire, F-86E Sabre, MiG 15, MiG 21F 'Fishbed', F-4J Phantom II, FRS I Sea Harrier, Mirage III, MiG 23S 'Flogger' and F-16A Falcon. All of these are readily available and can be operated in any of three modes: 'Duel', 'Mission' and 'What if?'.



The changing face of aerial warfare between the 1940s and the 1980s is amply demonstrated by two of Dogfight's main protagonists, the Messerschmitt BF109E (above) and the MiG 23S 'Flogger' (right). Now what sort of a tussle could that pairing generate?

'Duel' is a straightforward head to head contest, where two craft from the same era fight it out in one of six scenarios: WWI (above the trenches in France), WWII (the Battle of Britain), Korea, Vietnam, The Falklands and Syria. The 'Missions' mode makes use of the same historical scenarios, but in addition to dogfighting also asks the player to complete a series of campaigns.

However, it's only in the 'What if?' mode that Dogfight truly comes to life. Any of the planes can be pitted against any other - and although a Spitfire is never really going to stand a chance against an F-16, it's fun seeing just how long it could actually last against that kind of superiority.

In addition to the current 'player against computer' set-up, the development team is also hoping to include a two-player link-up option (via both phone line and null modem) in time for the game's release later this month.

BAD NEWS FOR HEDGEHOGS



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reviews index

Our comprehensive reviews service starts here. Over the next 50 pages, you'll find the latest PC games fully evaluated, with clear comparisons made to similar games on the market. We also try to make it easy for you to see whether a game is suitable for your machine and your tastes, so read on to see how to get the most out of them

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Specifications

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

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

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

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

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

Alternatively

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

Two Minutes

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

Rating system

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



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

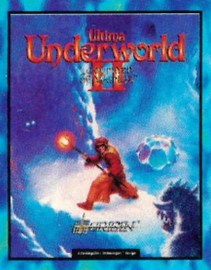
Ratings are not the sole preserve of the author of the review, but are discussed and thrashed out by everyone at PC Review who knows the game in question.

We also practice 'contemporaneous marking' – which means that games are rated to other current games.

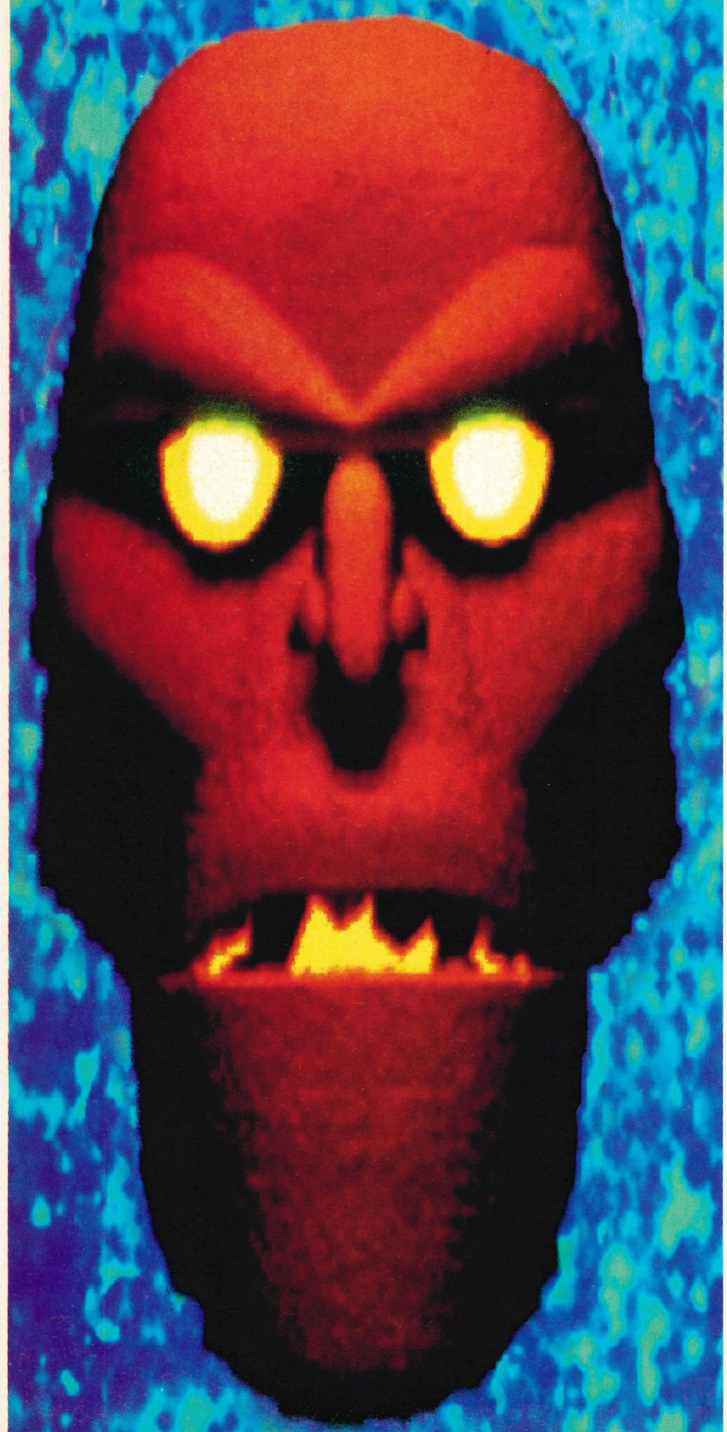
The reason for this is that, while PC programming expertise is improving all the time, and Monkey Island VI will doubtless be miles better than Monkey Island II, that doesn't mean it will have to get 16 out of 10 when reviewed. If it looks excellent compared to everything else around at the time, it'll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

Shareware

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



Title	**Ultima Underworld 2 – Labyrinth of Worlds**
Publisher	**Origin**
Contact	**(0753) 549333**
Price	**£39.99**



Underneath the castle, monsters lurk. Best to take weapon as you wade through the murk. Can you find the exit? I don't think so. At least you can kill some nasties before you go.



Off the ladder the first thing I hear is the squeaking of a bat. The next thing I see is blood as it hits me. I spin round, raise my sword and start hacking away at yon winged beastie.

Ultima LABYRINTH

The most realistic dungeon in the world is back, and this time it's bigger than ever

About a year ago the world of the role-playing game was indeed a simple one. There were two types of game, the viewed-from-above, move-a-party around a landscape game (Ultimas I through VI, the AD&D range, etc) and the first-person, flick screen game (Eye of the Beholder, Dungeon Master et al). These games happily went about their own business, occasionally borrowing ideas from one another, but generally entertaining the public at large and providing a nice little niche for specialist games magazines.

All this was soon to change because of a man with a vision.

Once Richard Garriott unleashed Ultima Underworld there was no going back. One look at this lavish spectacle of game design and the flick screeners didn't stand the slightest chance. All over Aylesbury, copies of Eye of the Beholder were hurled through bedroom windows to make space for this 'second coming'.

It wasn't just the public either. The software companies started to panic too. Soon everyone was trying to match the techniques in Underworld and trying not to make it look as though they were.

We had outdoor versions of Underworld (Legends of Valour), we had shareware versions of Underworld (Catacomb Abyss), we had sci-fi versions of Underworld (Captive) and we had a version of Underworld that took place during World War II and involved large calibre weapons (Wolfenstein 3D).

Flimsy cardboard

And now we've got the second, official version of Underworld, the sequel to the Stygian Abyss and, possibly, one of the most eagerly awaited games since Strike Commander (which people are still eagerly awaiting after a year and a half). It's



With the bat neatly disposed of, I tread warily into the gloom. Almost instantly I'm set upon by a nasty giant worm. These sewers are a dangerous place to be. Best make my investigations quickly.



Moving down into the nearest tunnel now, I walk slowly enough to be wary of anything jumping out at me. Scuffling noises in front attract my attention and cautiously I head towards them.



Hidden within a small alcove is a solitary figure. A thief by the odd name of Fissif tells you how he was trapped here by the evil guardian's magic and what you can expec t to find later on.



Going back down the corridor you notice a second turning. This is where Fissif warned you about the headless one, a monster that, as you'd expect, has no head. Sounds interesting.



Dangerous, too. No sooner have you found the headless one than it's drained half of your energy with a single blow. Time to enforce that age-old battle tactic when things go wrong – run away.

Underworld 2

OF WORLDS

also the first version of Underworld to come from Electronic Arts, a fact immediately apparent from the packaging.

Picture, if you will, the section of my PC games shelf that contains the software from Origin. Huge sturdy boxes with great care and attention to design. Ultima VII with its firmness, rigidity and solid black stone look. The original Underworld box, again with a firmness that means it won't fall apart and scatter its contents to the parallel universe usually inhabited solely by biros and odd socks. Good, tough boxes that you know are going to stand the test of time, wear and tear and clumsy siblings who don't watch where they put their feet.

And there, vainly attempting to blend in at the end, stands the flimsy lightweight affair that is the Electronic Arts box. I've yet to see a game from EA with this sort of packaging which isn't in a tattered state. The box bulges horribly in all the wrong places so that the act of sliding the contents out from under the front cover just doesn't have the same feel of magnificence about it anymore.

It's not just the box either. Upon letting the contents spill on to the desk in front of me I was horrified, nay dismayed, not to find any useless bits of plastic vaguely representing some ancient artefact or another. Ultima games always, always, have useless bits of plastic, fashioned into fake magic runes or holy medallions or sacred key rings or whatever. Nothing was contained herein. With Origin's recent merger/takeover by EA still hanging in the air, I can't help but see the words 'corporate policy' charging over the horizon with all the force of a horde of journalists charging after a free lunch. I hope this trend doesn't continue as I would hate to see the next in the Ultima RPGs without a cloth map and a pouch full of handy-sized oddments. It may sound like a silly point, but this devotion to packaging, this attention to detail has always given us the impression that Origin is more than just a software house. That it cares about its games and takes the time to offer the potential purchaser a good sense of value for money. Plastic odds and ends add to the atmos-



Once you've left the safe confines of the castle area, you're opening yourself up to attack from practically anything with teeth. Depending on your weapon you can hack, slice or chop at the offender until either you or he are no more.

phere of the games themselves and, as we all know, atmosphere is the most important part of any large game. The message to EA is this: "Let Origin take care of its own packaging and the small plastic fiddly bits will take care of themselves".

Yes, but have you played the game at all, Presley?

I won't mention the installation process, save that it was unusually quick and painless and that the game almost worked first time (a very small jiggle of the Autoexec file and I was there). The first thing that really struck me was how poor the intro sequence was. Now I'm not one who judges a book by its cover but the fact that an Origin game doesn't have a particularly spanky intro sequence is slightly worrying. Almost every game that comes over from America these days usually carries with it a two or three disk extravaganza to latch on to the front.

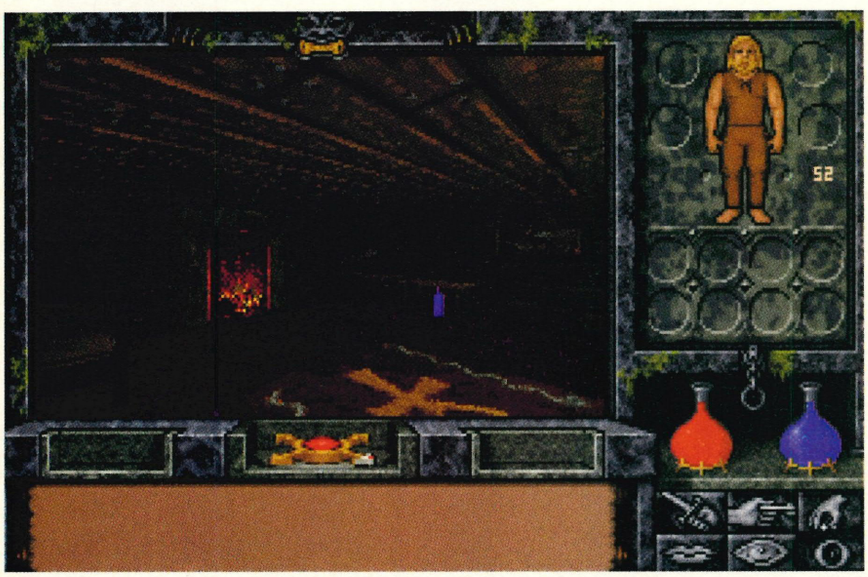
Of all of these 'cinematic experiences', the most flashy are usually the ones from Origin. Seeing this rather humble (I won't say bad, as it was competent enough) offering on the front of what is supposed to be the biggest sequel of all time instantly made me wonder if the rest of the game was going to be just as pale. Well, it wasn't.

Instantly upon playing Underworld II you can see the improvements. One of the main criticisms about the original was that while the backgrounds and dungeon graphics were wonderfully done, the actual object data was extremely basic. Bats were little more than a couple of single colour pixels stuck together, worms were just squiggly lines on the floor that made you wish you were armed with an eraser rather than a sword and whenever you got close to another person their features broke down into a patchwork quilt kind of effect. Here everything is much better. Bats look like bats, worms look like worms and you can actually distinguish between one person and another without having to use the Look At command.

And the backgrounds and dungeon graphics are much better as well. The game starts off inside Lord British's castle so instantly you have an arena not seen before. Plenty of normal rooms (ie, ones that aren't packed with venomous monsters, dripping slime and battle-scared debris) with normal people walking around and bundles of furniture, decorations and anything else you might expect to find in a fantasy-world castle. Conveniently, the castle has been completely enveloped in some kind of evil black rock, thereby eliminating the need for any outdoor graphics.

Of course, it's not long at all before you discover to your horror that the only way out of the castle is through the sewers and so you're once again back in the murky world of the dungeon adventure. Underworld will always be a dungeon basher at heart, since it's inside a dungeon that you can create more atmosphere than anywhere – the dripping of water far off, the odd footstep echoing down the corridor, an eerie wail from somewhere in the distance. Creepy, huh?

This is where the auto-mapping comes in very handy. Underworld I was

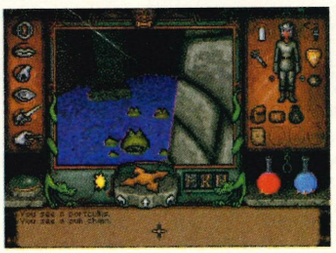


This is the life. A comfortable bed, decent furniture, a table adorned with food, a roaring fire in the hearth. What more could a typical hero of the realm ask for?



Below: dark days in Britannia. The evil guardian, obviously a bit miffed that you put an end to his global domine

Alternatively...



Ultima Underworld – The Stygian Abyss
Origin, £39.99
Rated 9, Issue 8
Original? Ahead of its time? More fun than a night out with Lionel Blair? Underworld I was certainly all of those things and more. Paving the way for the future of role-playing games, it had style, flair, panache and more than a fair share of monsters to slice away at. Not as detailed as the sequel but just as much fun.



Ultima VII – the Black Gate
Origin, £39.99
Rated 4, Issue 9
If you meet a certain criteria Ultima VII is for you: (a) you are a die-hard Ultima fan in search of a complete collection, (b) you don't mind a game that's brimming with atmosphere and playability, but is also jam-packed with bugs and inadequacies, and (c) you don't mind forking out £40 for a game. Otherwise it's not the best that Origin has ever done.



Legends of Valour
US Gold, £39.99
Rated 8, Issue 15
Once Underworld had taken everyone by storm, Britain piped up with its own answer to the three-dimensional adventurer. Taking the concept of Underworld a small step further by including outdoor locations (almost all of the action takes place in the city of Mittledorf), it's as much fun, if not as technically gifted, as either Underworld.

Ultima Underworld 2

the first game to bring auto-mapping to the fore, eliminating the need for huge pencil and paper affairs by automatically charting your progress on screen. Underworld II gives you most of level one of the castle (the ground floor) before you start, then leaves it up to you to fill in the blanks. It's on the mapping screen that you get your first clue as to how big Underworld II is. A red gem appears on the screen, having eight faces that lead to separate maps. Early on in the game you are told that the guardian's magic (for it is he who imprisoned you within the castle) may lead into other dimensions. Eight separate maps equals eight separate dimensions. Ice worlds, haunted castles, enchanted forest areas, bizarre alien worlds. Underworld II is huge.

Idle gossip

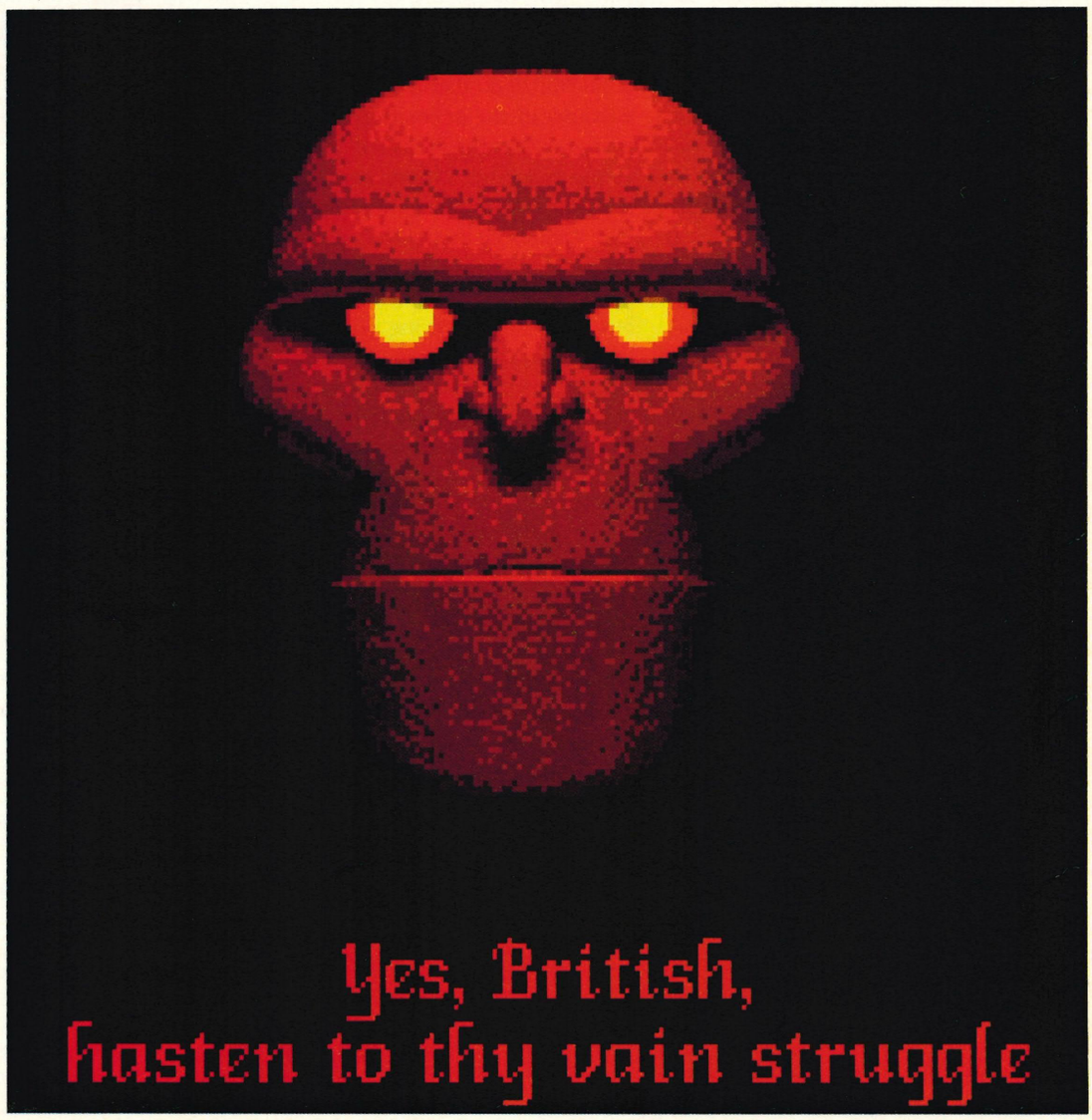
One of the things that set the first game apart from the usual first-person games (apart from the graphics) was the level of character interaction. The formation of different races and intelligent cultures inside the abyss, instead of just people who attack you, helped add to the believability of life below ground. If anything that feeling is increased here, as you are surrounded by people who will be instantly familiar if you've played any other Ultima games. If this is your first time in Britannia there is a brief biography of the characters in one of the manuals.

Curiously Underworld II is set right after the events in Ultima VII and not Underworld I, therefore non-players of the standard Ultima series probably won't know much detail about the fellowship, the reconstruction and the alliances with the gargoyle race.

One thing not dropped from the game's usual packaging is the guide to Britannia. Every Ultima game has one of these books, a sort of tourist guide to the game detailing Britannic history, local information, prominent personage, a bestiary and a description of magic and its functions within a rapidly evolving society.

To help out with this integration into a new society, every time you talk to another of the castle's inhabitants you get the option to ask what they've been up to for the past year (the supposed time between the two games). This gives the newcomer a rough idea of what each character's function for the rest of the game is and it's here that we meet a bit of a flaw in the game design. Trapped in the castle, along with yourself, are your constant companions from the other Ultima games Iolo and Dupre. Now when you tell such stout fellows that you are about to venture unto the holy sewage disposal system, you'd expect them to take up their arms and shout "Huzzah" as they rush to aid you. On the contrary, they seem more eager to stay in the relative safety of their own rooms, put their feet up and relax with a good book. This is the response of most NPCs (Non-Player Characters) in the game – while everyone is supposedly devoted to the task of freeing the castle from the guardian's grip, it's you that's doing all the work. Apart from a couple of tidbits of information to get you started in the game, the only useful function of the NPCs is to increase your skill levels when you ask them for training.

You can see the obvious next step for the Underworld series here (apart, perhaps, for the upgrade from PCs to virtual reality machines, "Ultima Underworld III with free Virtuality helmet and power glove inside – rrp £199.99"). Including a basic AI routine enabling several of the NPCs to wander through the dungeons with you would raise the level of atmosphere from merely thick to the kind of density only ever seen in McDonald's extra thick milk shakes. It wouldn't be too hard to do, since you've already got people walking around the place independently of one other. All it would now take is some sort of basic combat intelli-



Dark days in Britannia. The evil guardian, obviously a bit miffed that you put an end to his global domineering ways in Ultima VII, has decided to envelope the castle of Lord British in solid rock while he wreaks havoc outside.

Ultima Underworld 2

gence and the ability to follow people around and blindly obey orders to check out that dark bit of corridor ahead, just in case there's anything lurking there.

Being there

You want to know why Underworld II is such a good game? There are a number of reasons. The first, as I've already said, is the atmosphere it creates. Throughout gaming history there has always been one game that has stood head and shoulders above the others by making the player feel as though he or she is actually 'there'. The earliest examples are the classic Infocom range, the latest being Alone in the Dark. Ultima Underworld also falls into this category and so, naturally enough, does the sequel. Now I freely admit that I am the type of person that falls neatly into the 'nervous disposition' category (I can barely sit through an episode of The Munsters without cowering behind a cushion), but these games really do scare you, especially if you play them in the right setting (lights off, curtains drawn, complete silence, etc).

The other thing that Underworld II offers is a constant challenge. Underworld I suffered in that every so often you'd come to a part where you just didn't feel like carrying on. You knew that whatever you would encounter next was just going to be more of the same but larger and harder to kill. Underworld II is different. Every time you explore an area you find something that counts as a clue to the overall puzzle. Something is going on but you're never quite sure what. The inclusion of other dimensions also means that there's plenty of variety and it's not just one dungeon area after another (wait until you encounter the Ultima I section – I'll say no more).

I know what you're thinking. If Underworld I got nine stars and Underworld II only got eight, is the sequel worse? No. If someone were to hand me £40 and say buy either Underworld I or II, I'd take the sequel any time. The reason the original got nine stars is because it was the first of its kind and it did what it set out to do damn well, causing convulsions in the opposition and showing everyone that the PC is still growing as a games machine. The sequel is essentially just more of the same only different. The various elements that go to make it up are ear-wiggingly better (improved graphics, better plot, more imagination), but there isn't anything that takes it to a yet higher plateau to wait for the others to catch up. Underworld II is magnificent and I wouldn't hesitate to run down to the shops, exchange the relevant amount of local currency, run back home again, sellotape some thin card to the insides of the box to give a bit more rigidity and add it to your collection.

■ Paul Presley

PCreview 8

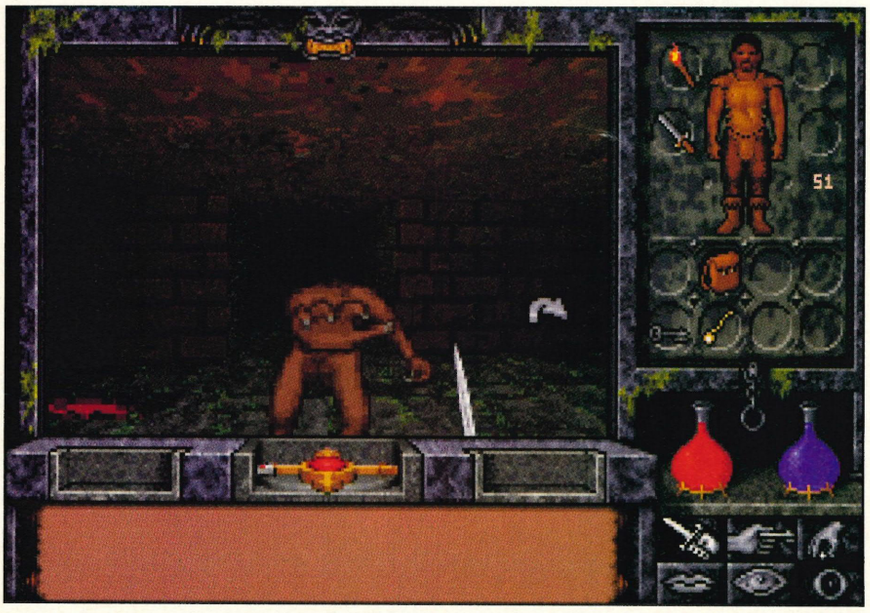
The Ultima story

The Ultima series, and its attendant spin-offs, of which Ultima Underworld 2 is but one, is one of the longest-running role-playing sagas. Conceived by Richard Garriott at the beginning of the 1980s, Ultima began with a rudimentary (by today's standards) RPG featuring stick figures on the Apple II; the graphics and playing interface has been consistently enhanced, with the vast Ultima VII, released last year, boasting 3D-look top-down graphics and a full point and click interface.

Garriott claims that he has the rest of the Ultima series-proper pretty well worked out up to Ultima IX, with Ultima X intended to provide the starting point for a whole new series of Ultima-based adventures, compatible with Virtual Reality technology. Even so, the storylines throughout the series have tended to develop organically: hence the release next month of Ultima VII, part two, named Serpent Isle, and also the companion programs, such as Martian Dreams and Savage Empire, and the two Ultima Underworld releases.

These Ultima spin-offs enabled Origin's developers to use different scenarios and broader plots than the constraints of Britannia and the Ultima saga, but Underworld looks set for a long independent life of its own.

Unlike the Ultimas, Underworld uses a first person perspective viewpoint of the dungeons and the gameplay is based more on exploration and fight-or-flight. The plot is also slightly less convoluted! However, cross-referencing between the games is still in evidence, as in the Underworld 2 sequence where you are transported back to Ultima I times to do battle with the stickmen!



Nasty surprises around every corner — Ultima Underworld 2 has plenty of monsters just dying to drain your energy and beat you to a pulp.

Techspec

The figures given below for memory requirements are for setting up at the minimum level. Adding options, such as Sound Blaster effects, will pump the base RAM figure up to a maximum of 561K.

Disk requirements					
	High density	✓			
	Hard disk only	✓			
	Space taken on hard disk	13Mb			
Graphic modes					
	CGA	✗	EGA	✗	Tandy ✗
	VGA	✓	SVGA	✗	
Soundboards					
	Ad Lib	✓	Roland	✓	Sound Blaster ✓
Control					
	Joystick	✓	Keyboard	✓	Mouse ✓
Performance					
	Optimum speed	25MHz			
	Minimum memory	656K			
	Free RAM required	525K			



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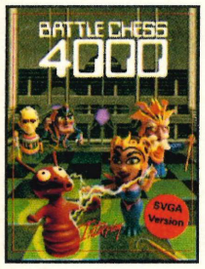
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Title	**Battle Chess 4000**
Publisher	**Interplay/ Electronics Arts**
Contact	**(0753) 549442**
Price	**£34.99**

Battlechess 4000's graphics are undoubtedly its main selling point, and while the animated scenes of slaughter may pall in time, you can't fail to be amused and impressed in equal measure by the sequences when they first appear



Battlechess 4000's options are all accessible from menus, although it's possible to use the keyboard if you're more comfortable with standard chess notation. Otherwise simply click the mouse on your chosen destination square to move a piece.

Battlechess 4000



"Take, me, take me" as the Bishop said to the Queen... but what's that got to do with Interplay's animated version of the oldest strategy game in the book?

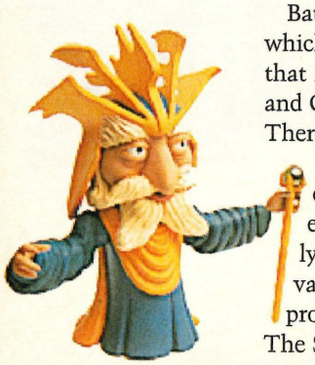
When the original Battle Chess was released back in 1990, every single press review began by comparing it to the holographic chess game played between Luke Skywalker and Chewbacca on board the Millennium Falcon in the original Star Wars movie.

So obviously we can't do that again ...

Or can we?

Battle Chess 4000 is a three-dimensional chess program in which animated pieces actually fight each other – just like in that holographic board game played between Luke Skywalker and Chewbacca in the original Star Wars movie.

There ... that wasn't so bad, was it?



Actually, the Star Wars connection is, if anything, even stronger this time than it was in the original, as this enhanced edition has a futuristic look and feel which instantly separates it from the original's more traditional mediaeval look (although the '4000' referred to in the game's title probably has more to do with a little one-upmanship over The Software Toolworks and its excellent Chessmaster 3000, than the year of the fictional chess tournament referred to in the manual's opening pages).

Before we begin to look at this program though, it's probably best to reinforce the point that BC 4000 isn't, strictly speaking, a sequel. Firstly, there's already been a sequel to Battle Chess (Battle Chess II – Chinese Chess... and what a strange little beggar that was), and secondly chess is chess is chess, so there's nothing that you can really do to the core game to make producing a sequel a worthwhile exercise.

Therefore it's probably best to think of this as a 'K-reg' edition of the original idea, an animated chess game produced to take advantage of the major strides forward which have been made in PC games technology throughout the early 1990s.

And if that was the Interplay development team's goal, they've achieved it with remarkable success: the initial glimpse of the static board which greets the first-time player (especially one equipped with Super VGA) almost makes a convincing case that sitting through the 30-minute installation is a worthwhile exercise.

They say that first impressions are lasting impressions, and if this were true then BC 4000 would now be the proud possessor of the first ever PC Review 10 rating. There may be other 256-colour productions which radiate the same physical beauty, but I can't think of one – everything looks just right, from the 'solidity' of the pieces to the translucency of the chess board and the understated panache of the background graphics.

And what a pleasant surprise it is to discover that this standard of presentation remains intact throughout even the longest



The Queen makes things difficult for her opposition's ruler by placing him in check. Although you should know when you're in such a position, the program still thinks it necessary to remind you by saying 'check' and altering its cursor.



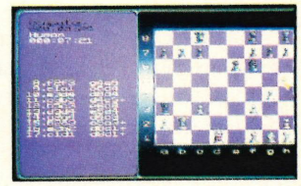
Mere seconds later, and the battle hots up with the red Knight and the blue Pawn facing up against each other and swinging their dukes – the whole thing started, apparently, when the cocky red devil knocked over the lowly blue foot soldier's pint.



Hang on a minute... what's happened here. Someone's obviously got bored with playing chess properly and decided to set up a new game just to watch the better animations. Not a bad idea either, as it's always a joy to watch the Rook in action.



My word, but this little battle certainly goes on a bit. The biggest problem with Battlechess 4000 is that the animations which are worth seeing take so long to load into memory and so long to execute that they soon begin to pall. Which leads to...



That's right – it rarely takes too long before even the most comitted Battlechesser gives up the ghost and either switches off the animation, or (even more drastic) abandons the 3D board altogether for the more traditional fare offered by the 2D display.

of playing sessions: the pieces look as good in motion as they do standing still (in fact, some look even better), while the clever use of spot sound effects adds to the overall air of realism.

Glowing praise so far... so surely the user interface (or the 'feel' as we reviewers like to put it) must be something of a let-down?

Well no actually, BC 4000 feels just as good as it looks: the control of the pieces (whether through the keyboard or the mouse) is completely intuitive, and the system of pull-down menus is just about as straightforward as you'd like it to be (there are a couple of exceptions here, but we'll come to those later).

All in all, if you were simply looking for a text-book example of how to present a computer game, Battle Chess 4000 is probably as fine a model as you're likely to come across at the moment.

Which leaves us with one all-important question... how does it fare as a chess game?

Ahhh! There's always a problem, isn't there?

Right from the start, the Battle Chess games have only ever had one attraction: the pieces move and fight as if they were alive.

This is no bad thing. In fact, it's a very clever way of using new technology to add a little spice and humour to an age-old game – and what an air of humour it adds to this particular release. Whenever two pieces move into combat, they face up to one another in opposite corners of the disputed square and battle it out.

Because the outcome of the battle is always inevitable (whoever moves on to the square wins), an element of surprise is added by each combination of pieces fighting it out in a completely different manner – and usually with hilarious consequences.

It would be really silly to list the events of each different battle, after all, half (if not more) of the program's attraction is seeing what happens from move to move. However, one or two of the combat sequences deserve special mention: the Rook's method of finishing off the King with a massive mallet is particularly nice, as is the '2001 – A Space Odyssey' sequence which occurs when a Queen takes a Knight.

The trouble is that because these sequences are so beautifully animated, there's no way in the world that the developers could have added any variety (13Mb of hard disk space is already quite enough for one game to fill up), so every time a Bishop takes a Bishop or a Knight takes a Rook, the ensuing fight is always exactly the same (just consider how many times a pawn takes another pawn in any given game, and you'll see just how repetitive this can get).

There's no doubt that, in certain cases, repetition can be very funny indeed (take, for example, the infamous 'don't call me Shirley' gag from the Airplane movie), but this definitely isn't one of those cases. Some of the gags which are hilarious the first time around don't even raise a chuckle on second viewing ... and just imagine how 'entertaining' they are 200 times later.

Inevitably, anyone playing this game will sooner or later choose the 'sliding' option, which effectively switches all of the animation off, and it's at this very moment that BC 4000 loses all of its attraction.

I suppose that anyone considering buying this package would have to ask themselves just exactly why they want it – do they just want to look at the animations and show off how good their computer's display is (which is as valid a reason as any I suppose), or do they want to play chess? If they choose the latter, then there's very little reason why they would go for BC 4000 as opposed to any one of the many alternatives.

Because so much attention has been lavished on the graphics and animation, there's very little room left within this program's code for any of the nice little optional extras which computer chess players have come to know and love. There are a few options, but any chess program which can explain its major functions within a 32-page manual (eight pages of which are accounted for by the cover, a superfluous fictional scenario and the contents page) can't help but be left behind by the competition.

Moving swiftly along the menu bar, BC 4000 offers four major options: file, view, control and special.



Rising to his full height, the Transformer Rook battles it out with Flash Knight.



• File covers all of the general game parameters, including saving, loading, printing and quitting.
• View switches between two-dimensional and three-dimensional displays, as well as offering some control over the movement of the pieces (how 'intuitive' the program is and so forth).
• Control allows the player to swap sides, rewind and fast forward the game, take back moves and so forth.
• Special takes care of everything else, including setting the difficulty, asking the program for hints and suchlike.

And that's about it. OK, there are some clever little options hidden in there, including one which allows the player to test his or her own ELO rating – this is used to determine whether a player is a novice (1,000 points) Kasparov (2,750 points), or just an average kind of guy (1,400 points) – but even this isn't enough to allow BC 4000 to hold its head up against the likes of Chessmaster 3000.

However, one feature which I found particularly irritating – even above all of those already mentioned – was the huge gap in the middle of the program's difficulty setting. The package has two basic difficulty settings, weak and strong. In weak mode, there are 10 separate levels (one being the lowest and 10 the highest), while in strong the computer's ability is set by increasing or decreasing the amount of time which it's allowed to take over each move.

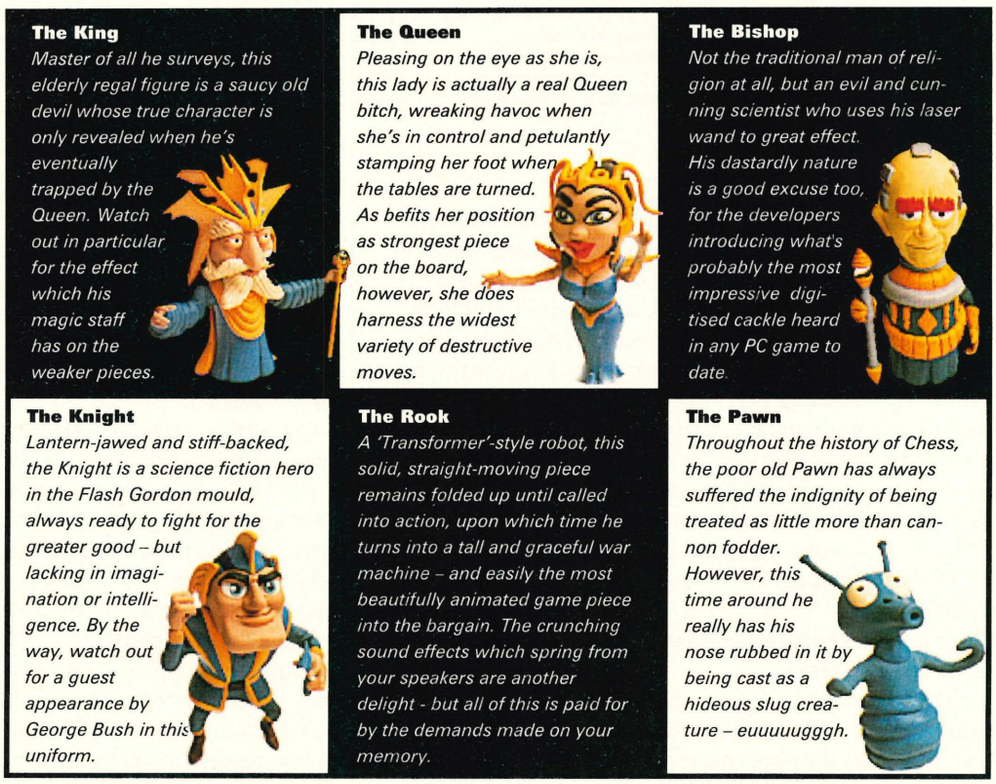
This is all straightforward enough, but neither option catered for the below average player such as myself – even the strongest weak level was far too gormless (I could beat that one in eight moves, and I'm hardly Nigel Short), while the strong opponent could wipe me off the board at will – even when only allowed one second per move.

In his review of Chessmaster 3000 (PC Review, Issue 4), Steve Cooke took the following line on the levels of play in computer chess programs: "There's a lot of argument about this, but I subscribe to the view that unless you're a very strong player, strength of play really isn't a consideration when you're considering programs at this level. Most of today's games will give the average player a good game within and acceptable time limit. What matters are the bells and whistles. Chessmaster has these with a vengeance."

My own view is that people choose their computer opposition in exactly the same way as they choose real-life opponents: basically, we're all looking for someone that we have a chance of beating occasional-

THE CAST

Although Battle Chess 4000 does limit itself to a single piece set (presumably to spare your hard disk from any further punishment), its individual members are both beautifully rendered and highly amusing. And while it would detract too greatly from the game's biggest asset to divulge what each character's best or most surprising move is, it does help to know a little about each one's character ...



The King
Master of all he surveys, this elderly regal figure is a saucy old devil whose true character is only revealed when he's eventually trapped by the Queen. Watch out in particular for the effect which his magic staff has on the weaker pieces.

The Queen
Pleasing on the eye as she is, this lady is actually a real Queen bitch, wreaking havoc when she's in control and petulantly stamping her foot when the tables are turned. As befits her position as strongest piece on the board, however, she does harness the widest variety of destructive moves.

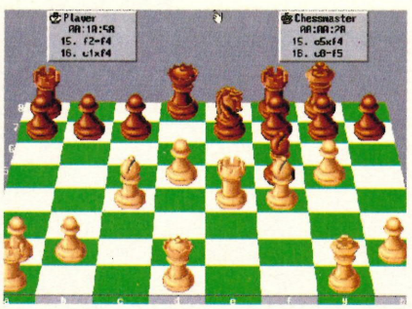
The Bishop
Not the traditional man of religion at all, but an evil and cunning scientist who uses his laser wand to great effect. His dastardly nature is a good excuse too, for the developers introducing what's probably the most impressive digitised cackle heard in any PC game to date.

The Knight
Lantern-jawed and stiff-backed, the Knight is a science fiction hero in the Flash Gordon mould, always ready to fight for the greater good – but lacking in imagination or intelligence. By the way, watch out for a guest appearance by George Bush in this uniform.

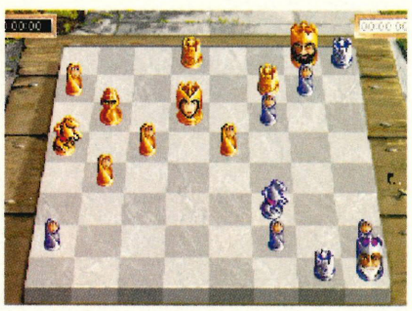
The Rook
A 'Transformer'-style robot, this solid, straight-moving piece remains folded up until called into action, upon which time he turns into a tall and graceful war machine – and easily the most beautifully animated game piece into the bargain. The crunching sound effects which spring from your speakers are another delight - but all of this is paid for by the demands made on your memory.

The Pawn
Throughout the history of Chess, the poor old Pawn has always suffered the indignity of being treated as little more than cannon fodder. However, this time around he really has his nose rubbed in it by being cast as a hideous slug creature – euuuuugggh.

Alternatively...

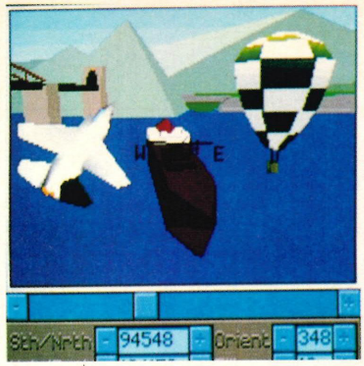


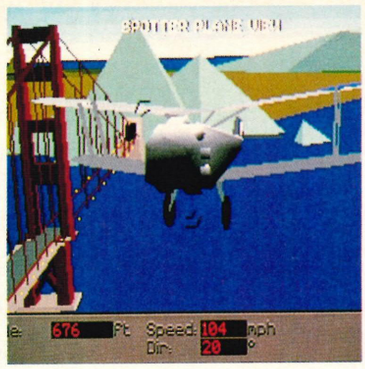
Chessmaster 3000
Mindscape, £35.99
Rated 9, Issue 4
Sporting more bells and whistles than a convention of one-man bands, the most recent edition of Software Toolworks' constantly developing chess family drew high praise indeed in its original review, mostly for its easy interface and strong game. It may lack Battle Chess 4000's 'wow' factor, but if it's a more lasting experience that you're after, this is still probably the one to go for.

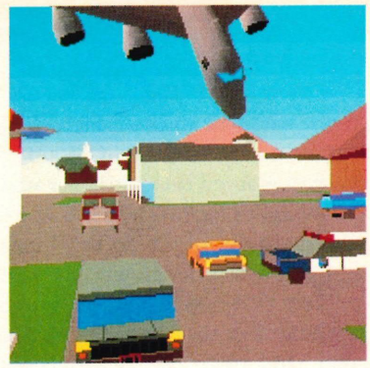


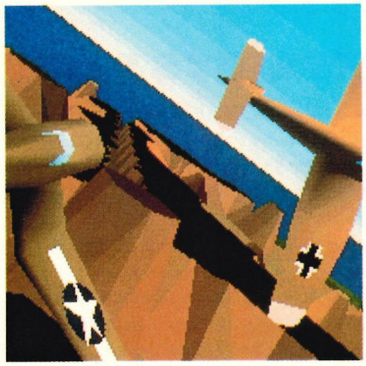
Sargon 5
Activision, £35.99
Neither as amusing as BC 4000, nor as versatile as Chessmaster 3000, this one does however occupy a niche as probably the most taxing chess offering from one of the major software companies. Claiming an extraordinary ELO rating of 2200, Sargon 5 is obviously not for the beginner or faint of heart. On the other hand, it may be the only sensible choice for those who consider themselves nearing Grand Master status.











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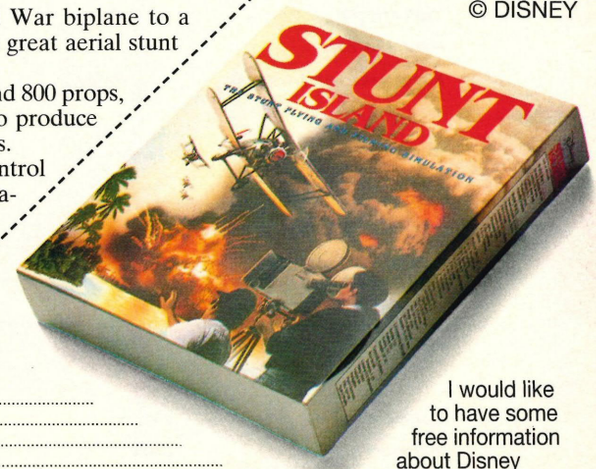
Created with the help of Hollywood professionals, STUNT ISLAND combines aerial simulation and film production for the first time ever. On STUNT ISLAND not only can you pilot a plane, but also film your own progress, edit and add sound to your own pictures to create breathtaking action films.

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ly, but who will always offer a challenge. Unfortunately, none of BC 4000's 'players' ever granted this particular wish.

It's hard to see just where Battle Chess 4000 actually fits in to the scheme of things. If you're an ardent chess fan, it's unlikely that you'll find its distractions anything other than an irritation. If, on the other hand, you're just a casual chess player who likes 256-colour games (of which this is arguably the finest example to date), you're equally unlikely to want to squander 13Mb of hard drive space on something which is only likely to be wheeled out to impress visiting friends and relations.

There is a good argument which says that an animated chess game is just the thing to tempt younger players into what looks to be a difficult and forbidding game. But if BC 4000 was to have fulfilled this function properly, it would have to have paid more attention to explaining the basics of the game, both within the manual and in some form of on-line help.

This is undeniably a beautifully conceived and executed PC game – some would even say a masterpiece – whose good looks and sense of humour are only matched by the polish of its gameplay. But really, it's much more suited to CD-ROM, the medium on which the companion program Battlechess Enhanced can be found. I for one will struggle to justify the disk version taking the place of three more useful programs on the hard drive.

Which, I suppose, is something of a stalemate really.

■ Ciarán Brennan

Techspec **Battle Chess is one of the most power-hungry programs yet featured in PC Review, gobbling up every available byte of RAM that even the most spectacularly over-specced machine has to offer. However, as long as you have the base level of 600K and 1024K EMS, it will run smoothly (although some sound effects may be lost at this minimum spec). Although it plays perfectly adequately when controlled via the keyboard, it would be a strange PC indeed which offered this level of memory and didn't have a mouse.**

Disk requirements

High density				✓	
Hard disk only				✓	
Space taken on hard disk				***13Mb***	

Graphic modes

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

Soundboards

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

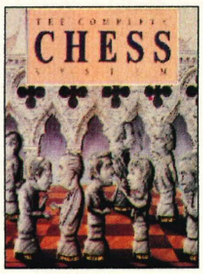
Control

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

Performance

Optimum speed	***20Mhz***
Minimum memory	***640K***
Free RAM required	***600K***

PC review 6

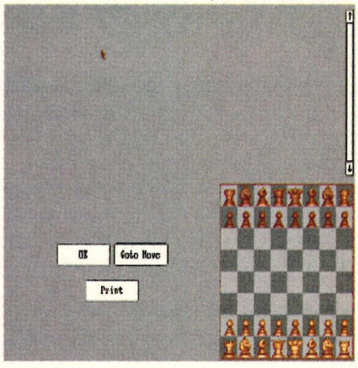


From	**Oxford Softworks/Kompart**
Contact	**(0727) 868005**
Price	**£34.99**
Requirements	**hard drive, 640K, DOS 3.3, CGA (386 with EMS, VGA and mouse recommended)**

THE COMPLETE CHESS SYSTEM









If Battle Chess 4000 is the Julia Roberts of chess programs, this latest entry into the fray from Oxford Softworks is probably Kathy Bates – but then looks aren't everything, are they? (Well, at least not as far as chess programs are concerned.)

As the name would suggest, this is pitched at the more serious end of the market, and hopes to compete more with 'pure' chess programs such as Fritz and MChess than with its more mainstream opponents, such as the Chessmaster series.

And although by the time we went to press we hadn't had time to test it out fully, this combined database and game package would seem to have some claim to be among the elite of commercially available chess programs.

To give you some idea of its abilities, CCS gained an ELO rating of more than 2200 in a recent series of European tests (more than 100 points above Sargon 5 and almost 200 over Chessmaster 3000). To put this in perspective, this places it somewhere close to the levels achieved by a county standard player.

So much for the hype – what's it like to play? Well, once inside, this performs very much like many others of its type – and, in fact, its operating system bears many strong similarities to that used in Battle Chess (some of the menus are identical in every way).

However the two programs' priorities couldn't be more different: CCS supports a database of more than 15,000 Grand Master games for the player to try his or her hand at, along with an opening library of more than 300,000 positions.

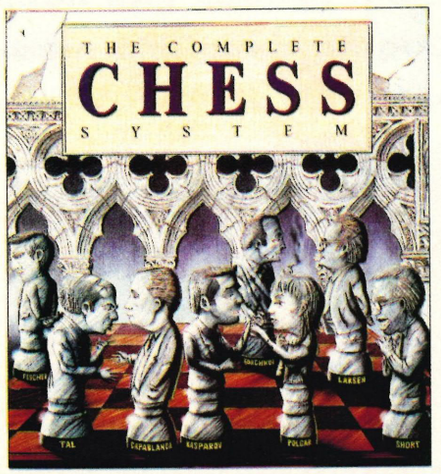
However, what you gain on the black squares, you lose on the white, and CCS loses out by being a particularly unattractive piece of kit – even in VGA mode. In its three-dimensional state, the standard piece set includes the ugliest Knight ever seen outside of the House of Lords, while the alternative set (made up of children's toys) is silly in the extreme.

That said, it's likely that the type of player attracted by this program's claimed play strength will probably play in two-dimensional mode anyhow, making this problem slightly less jarring.

Strangely enough, for a package which claims to care little for the aesthetic side of the game, CCS does include an option which allows its users to create new sets of their own (as long as they have access to a paint package such as DPaint). Bizarre!

As far as a potential audience goes, it's far easier to see who the Complete Chess System will appeal to than Battle Chess 4000. If you're the sort of player who can beat Chessmaster 3000, Fritz, Sargon 5 and any other computer chess program with one eye closed and one arm tied behind your back, this is probably worthy of your attention.

exercise your mind



The Complete Chess System

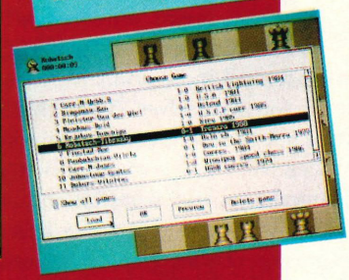
A New Kind Of Intelligence - Ten years in the making - unique intelligent beta-search strategy - a brand new development in computer chess that learns (and teaches) as it plays! *2260 ELO grading, thrashes ChessMaster and Grandmaster.*

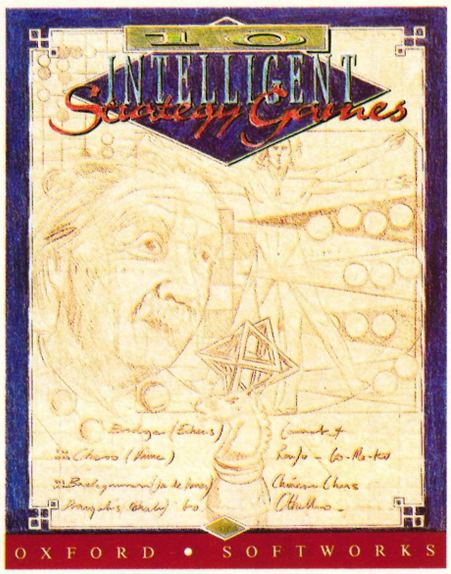
Fully Integrated Database - with the Classics of Chess History - monitor and improve your play; save and explore play scenarios; call from the database of tens of 1000's of classic games to test yourself against actual play; program will assess your play and make suggestions; text analysis gives deeper understanding; add to and save games at any stage with analysis and logic branching.

Seamless and Friendly to Use - stunning graphics with choice of chess sets, 2D, 3D and War-Room views, fast, highly intuitive point-and-click user interface and totally versatile play options give you complete control. 300,000 opening moves; infinite play levels.

Power - Strength - Intuition - Flexibility







Intelligent Strategy games 10

Oxford Softworks have searched the world to assemble a complete compendium of fascinating strategy games - ancient conundrums, for you to pit your wits against the modern world's most cunning computer opponents.

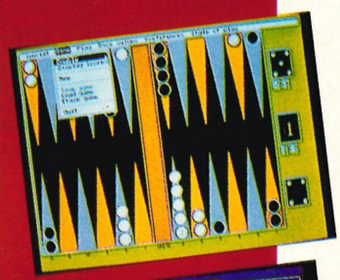
Includes **Chess, Draughts, Go, Backgammon, Othello, Connect-4 and Bridge** and brings you...

Gomoku: a streamlined battle game played on a Go board, but with cleaner and faster endings.

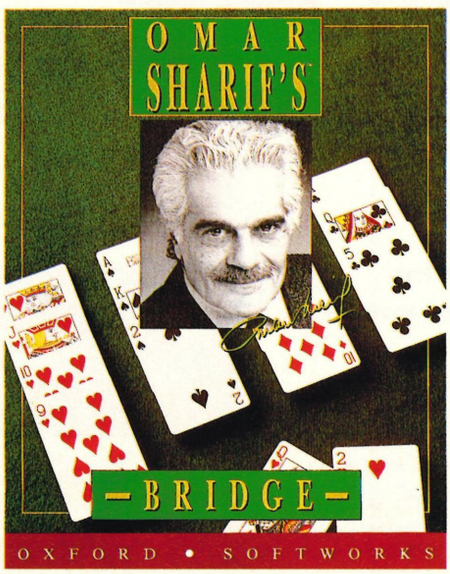
Renju: the Japanese version of Gomoku, requiring considerably more skill.

Chinese Chess: the old oriental version, reflecting Chinese culture and philosophy.

Definitely the world's finest strategy collection







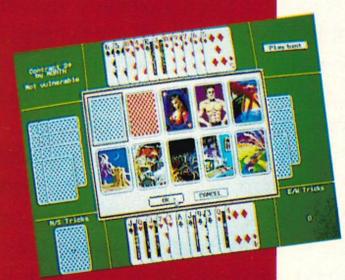
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10 Intelligent Strategy Games ***PC £34.99***

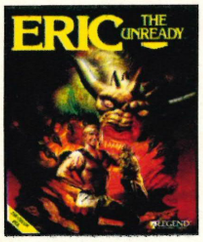
5 Intelligent Strategy Games ***PC/ST/Amiga £29.99***

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Credit card hotline: 0993 82 3463, Fax: 0993 82 2799

Screenshots shown are from different machines, other machine versions may differ.



Title	**Eric the Unready**
Publisher	**Accolade**
Contact	**(081) 877 0880**
Price	**£34.99**

In December, Legend released Spring Break, a mix of seaside postcard humour and self-parody. Now it proves that nothing is sacred, sinking its teeth into mediaeval myth and magic



ERIC

You might say there are two schools of thought as far as adventure games are concerned. There are those publishers which, like Lucasfilm and Sierra, are constantly pushing towards the ideal interactive graphical adventure, aiming to minimise textual input and letting visual power and a strong plot speak for themselves. Then there are the programmers who still hark back to the halcyon days of text-only adventures, but realise the need for sophisticated menu systems and the demand for visual stimulation, too.

This latter group includes Legend, whose attempt to compromise text with graphics is resulting in some unusual and interesting – if not always successful – games. Bob Bates, a veteran designer from the now-defunct Infocom, and, most recently, programmer of Sherlock! The Riddle of the Crown Jewels, Arthur: The Quest for Excalibur, and Timequest, has built a solid reputation on clever, involved and well-structured puzzles. Eric the Unready's system architecture is partly his responsibility, and he has put it to good use here to create a story about mediaeval England.

The plot is uncomplicated. Eric the Unready is, basically, a very silly person. He's dim, accident-prone and, to the eternal shame of chivalry, a Knight of the Rhomboid Table. After running through a minor mission to liberate a pig from a perilous pit (see the Two Minutes panel), Eric embarks on his main quest to rescue the beautiful Princess Lorealle from the clutches of the evil Queen Morgana and her lover, Sir Pectoral. On the way he encounters, amongst others, dragons, dwarves, unicorns, gods and the dreaded attack turtles.

Mission impossible

On loading you're treated to a brief animation sequence which establishes Eric's character: after accidentally defeating the terrible Knight of the Black Cauldron, he inadvertently sets fire to the castle which was hosting a banquet in his honour. The next day, the shop steward of the Knight's Union awards him a minor mission, and you begin.

Enter Legend's hybrid of text and graphic adventure systems. As you can see from the screen shots, this consists of a small graphics window (which can be replaced by text description of the location, your inventory, the score, or a map), a compass, a text window (where you type in or construct commands), and a couple of menus containing verbs, nouns and prepositions. You can customise this set-up to create a world without graphics, a half-page of text and some menus, or full-screen text-only mode (for nostalgia fans only). Additional screens are used throughout for sub-games, reading things, talking to people, or for cut-scenes.

The most positive aspect of the system is its flexibility. Apart from the various modes discussed above, inputting commands, travelling around and examining things can all be done using the keyboard, pointing-and-clicking on the graphics window or compass, or by constructing sentences with the verb/noun menus. Each, unfortunately, also has its drawbacks: clicking on

Eric The Unready is the worst, but luckiest, knight there is. His victories are a triumph of accident over intent, and he is the laughing stock of the Rhomboid Table. Who would trust him with a knight's errand?



The Knight's shop steward, that's who. This lusty fellow occasionally girds his loins to entrust our hapless hero with a mission of great importance. However, this time he asks Eric to visit a local farmer and kiss his pig.

the graphics only allows you to examine or 'do the obvious thing' to an object, the parser offers no innovations whatsoever, and the menus can be a little slow to use — particularly when, later on in the game, you have to scroll laboriously down the list to find the word you want.

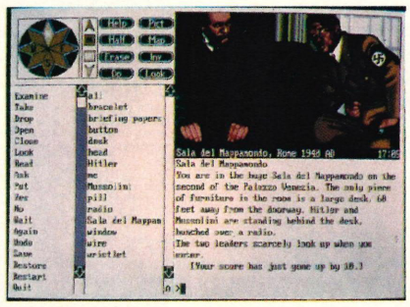
It doesn't really matter whether you use mouse or keys to give instructions. Fanatical purists will insist on typing every single word, and virgin adventurers will probably opt for the somewhat cumbersome process of rolling the cursor around the screen. In truth, you get the best from the system if you use a combination of both. For example, if you just want to examine a series of objects, using the mouse on the graphics window is easiest; if you want to give an object to someone, the keys are easiest; if you're not sure about the right form of words, using the mouse on the menus will help you out.

Inevitably, trying to provide a complexity of interfaces involves a trade-off. In this case, the mouse control is nowhere near as effective as, say, the Lucasfilm or Sierra systems because (for me) the graphics aren't as impressive and interaction with them isn't as succinct. Nor is the parser good enough to stand alone — the main problem with it is that the multiple-command sentences haven't advanced much since the days when 8-bit computers were king. You can say 'West. Pick up book. Read it', but shouldn't programmers be aiming for something a little more innovative and natural than that, these days?

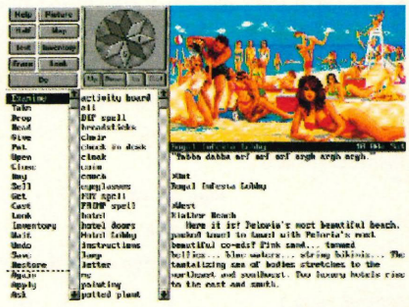
Building blocks

Half of a text adventure is the input and half involves the program's descriptions of characters and locations. This is where text-only adventuring can score points over a purely graphic adventure, allowing much greater scope for lengthy, sophisticated narrative and reams of interesting text. Eric is certainly more than impressive in this area, with masses of description, cross-referenced jokes, lampoon, detailed conversations and subtle puzzles. It doesn't always work, of course, but it does make you wonder if graphic adventures are failing those of us who still like to read a little.

Alternatively...



Timequest
Legend/MicroProse, £34.99
Bob Bates' previous game for the PC (he also wrote Eric) is a 21st century detective story. Zeke S Vettenmyer has ignored the laws of time travel by going back into history and altering key events. You must stop him. Using an early version of Eric's point-and-click text/graphics system, the game features slick absorbing puzzles in places such as Ancient Rome and 13th century Peking.



Spellcasting 301: Spring Break
Accolade, £34.99
Rated 6, Issue 14
Legend's latest stab at 'interactive fiction' is, like Eric the Unready, an attempt to unify the text adventure with its graphical equivalent, in a nerdy story of wizardry and sex. The graphics, a loose collection of laughable pseudo-erotica, are reinforced by sixth form humour. As self-parody, it works; take it on that level and you'll get some enjoyment.

The plots are very involved as a result of this textual richness, introducing a mass of characters and giving them life with text that is always concise, if not always funny. You can even talk to some characters via a separate screen, which offers a somewhat limited choice of half a dozen phrases, most of which invoke a flippant response. They are well-written, but for my money not as memorable or detailed as Guybrush Threepwood's exchanges in Monkey Island 2. The characters as a whole are unable to decide whether they should be authentic, well-researched representations of mediaeval life or modern, cynical cartoon figures — this sets up a slight conflict in tone.

The narrative usually lets you explore your surroundings freely, which gives you plenty of scope for trying out weird and

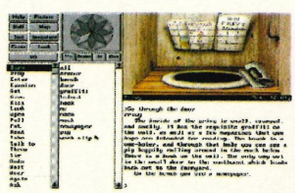


the Unready

Two Minutes *of hunt the pig*



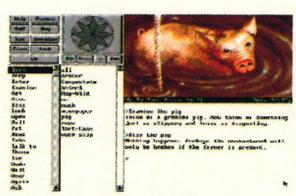
The farmer believes that a wandering witch has cast a devilish spell on his daughter, transforming her into the animal Eric finds on arrival at the farm. Unfortunately, as Eric stoops to kiss the beast, it scurries away to the privy.



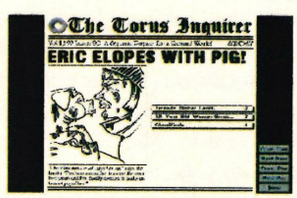
Our hero's worst fears are realised: the porcine plonker has plunged head first down the bowl and into the cesspit. How can he possibly get a pig out of there? That newspaper is certainly no help. Maybe the farmer knows something?



Eric switches to talk mode and asks the farmer a few questions. He perseveres, despite a good deal of flippancy, until he finally discovers that he can take anything he wants from the barn. Is that a hint?



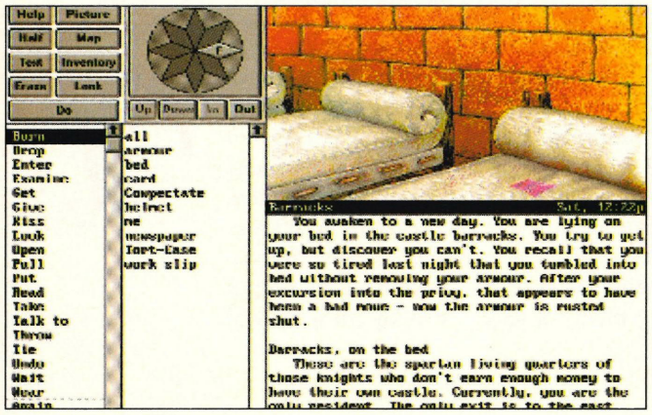
It certainly is, and in next to no time Eric finds himself wallowing in dirt with his porcine pal. A little aphrodisiac does the trick, and before he can say 'forsooth, my tooth is looth', the task is done.



Having completed the mission successfully, Eric returns to his barracks, where he spies a newspaper. News travels fast in these parts: the errant knight is already the headline hero. Some of the facts have been distorted, though.

Techspec **Four graphics modes are supported, though EGA is hi-res and Legend only claims SVGA compatibility with 'most SVGA adapters'. With Sound Blaster you hear music and sound effects at the same time; with Ad Lib you can't hear effects while the music is playing. If you have a mouse which isn't Microsoft compatible the programmers have thoughtfully provided a substitute driver to override Mouse.com. A mouse isn't essential anyway, since there are plenty of alternative key commands.**

Disk requirements					
	High density	✓			
	Hard disk only	✓			
	Space taken on hard disk	*7Mb*			
Graphic modes					
	CGA ✗	*EGA* ✓	*Tandy* ✗		
	VGA ✓	*SVGA* ✓			
Soundboards					
	Ad Lib ✓	*Roland* ✓	*Sound Blaster* ✓		
Control					
	Joystick ✗	*Keyboard* ✓	*Mouse* ✓		
Performance					
	Optimum speed	*16MHz*			
	Minimum memory	*640K*			
	Free RAM required	*570K*			

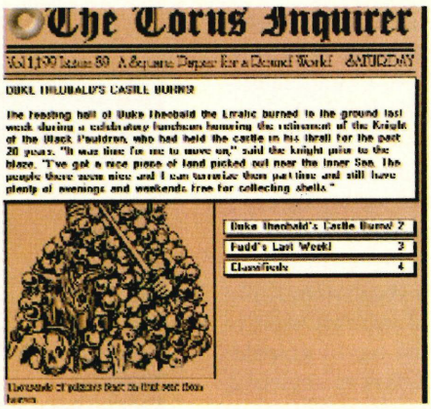


The EGA graphics are barely distinguishable from their VGA cousins. Compare this picture with the one in the Two Minutes panel.

wacky things. Interaction is a pleasure, because there are few combinations of verbs and objects which Bob Bates hasn't thought of, and even if you do get things wrong there are 128 simultaneous save files to fall back on. Unfortunately though, there are occasions when the story drags you along despite yourself — for example, after completing your first mission you can't get your armour off; after a couple of unsuccessful attempts your squire comes along to do it for you. I wouldn't have minded if I'd asked him first.

The plot is varied and always interesting, using a subtle system of hints to help you along. Many of the puzzles have weird solutions, but once you're tuned into the game's humour things do get easier. It's not one long sequence of different graphics and locations, either: at points throughout the story you get sucked into sub-games, such as controlling a raft and playing a card game. These are a neat diversion which add that little bit extra to your enjoyment.

Atmosphere is provided by the visual and aural effects. The graphics suffer from the same drawback as the characters: there are several different styles, ranging from a cartoon-like dragon to beautifully accurate castles. Again this sets up a conflict in tone, and you aren't quite sure whether the artists exchanged blows over whether the pictures should be accurate or consistently funny. The music is somewhat more consistent, with appropriately mediaeval strains running throughout — though you do sometimes wonder where the tune is going. Sound support is good: even if you haven't got one of the three major boards supported, the Realsound (TM) effects make good use of the PC's crackling speaker.



Newspapers are just one of the anachronisms enriching the game's humour. They're also pretty useful for keeping you informed.

Eric the half a bee

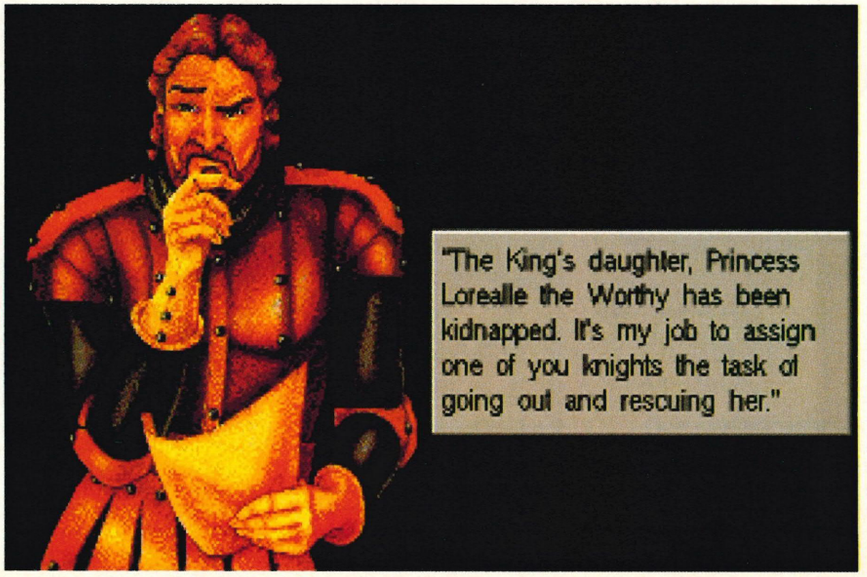
As you've probably guessed from what you've read so far, Eric The Unready is a mixed bag of good and bad points. On the whole, the good outweigh the bad: for every minor irritation there's usually a good laugh or an interesting puzzle to keep you going. You can while away many an enjoyable hour, despite the system's drawbacks.

The core of the game is its humour and, like everything else, this has more hits than misses. It's a multi-faceted mixture of parody, pastiche, anachronism, slapstick, and subtle, self-referential comedy. The anachronistic inclusions in the plot tend to work well on the whole, particularly the newspapers, which serve a double function of informing as well as entertaining. The constant Americanisms can grate, though: it does become boring listening to characters who can think of no more interesting response than, 'and monkeys might fly out of your butt' and the cynicism soon becomes predictable.

The rest of the humour is generally well up to scratch, though occasionally it can be tiresome, particularly the Python influence and the references to Monty Python and the Holy Grail. Bob Bates is much more entertaining when he lets his own brand of humour filter through well-written scene descriptions.

Legend's comprehensive text and graphics adventure system aims to please everyone, but only goes to prove that pleasing everyone is impossible. Eric The Unready's text-only mode is not complex or sophisticated enough to be compelling, and the control interface has too many limitations for it to make a successful graphic adventure. As a combined text/graphic adventure it is at least interesting, with reams of entertaining prose and plenty of excellent puzzles. Despite the occasional conflict in tone and the system's drawbacks, there is still enough substance and humour here to keep you involved.

■ **Gordon Houghton**



(Below) The shop steward of the Knights Union is in charge of handing out your missions. For some reason, the Stygian Dragon is constantly on people's lips ...

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El-Fish

Russian programmers, an American publisher and a pseudo-Spanish name — all this international effort has gone into an aquarium design program, of all things. Something fishy is going on here ...

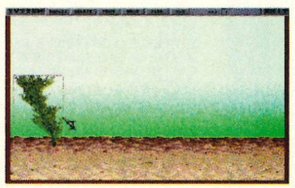
El-Fish is definitely one of the more unusual PC programs to come the way of PC Review so far this year. It first leapt to everyone's attention because it comes from the Russian programming stable Animatek, and the Russians have earned a name for a refreshingly original approach to computer games (well, they did give us Tetris). 'Refreshingly original' is one way to describe El-Fish, although really it's a lot easier to explain what the program isn't, rather than what it is.

Firstly, it isn't, despite some misconceptions over the pre-publicity, a genuine screen-saver. Secondly, it isn't really even a game, and it's only sort of a simulation. The best way to sum El-Fish up in a nutshell is to call it Sim Fish Tank and have done with it, except that this won't please either Maxis or Mindscape much — Maxis, in particular, must be getting fed up with having *all* their products nicknamed Sim this, that and the other.

Broadly speaking, there are two parts to El-Fish. In the one, you get to catch fish, 'evolve' them so that they mutate into sub-species, cross-breed them with other fish until you get an interesting (whether from an evolutionary or purely aesthetic viewpoint) version and finally, animate them. In the other, you design your own aquarium, mixing and matching objects, coloured backgrounds and stock animations from an impressively large set of libraries provided by the program, until you have something pleasing to the eye.

The ultimate object is then to let your fish loose in your fish tank, and, er, watch them swim about. And that really is the

Since this column is called Two Minutes, rather than Two Days, we'll concentrate on the aquarium itself for this walk-through. First, you get a bewildering choice of backgrounds and floor coverings to choose from ...



... and having picked something suitably clashing, you can start adding the furniture, or in this case, houseplants. Having chosen your preferred seaweed, you can place it anywhere on the floor of the tank.

ultimate object: the fish swim about in a suitably piscine manner, nibbling decorously at the vegetation you have thoughtfully provided for them, and make a rather pleasant backdrop on your PC screen. A PC-generated Landscape Channel, really, a talking point at dinner parties, or just something soothing in the way that a real aquarium is.

It's at this point that you begin to think in traditional computer games terms and wonder about missed opportunities. Why not, for example, once you have a tankful of fish you particularly like, be able to load that tank as a Terminate and Stay Resident (TSR) program, so that it could indeed be a screen saver? What about the fishes' chance of survival in your tank — is there enough oxygen, or vegetation? Might you not, over time, see the fish breed and proliferate, or mutate further, or die off, or even start eating each other?

It appears not. El-Fish's aims are purely aesthetic.

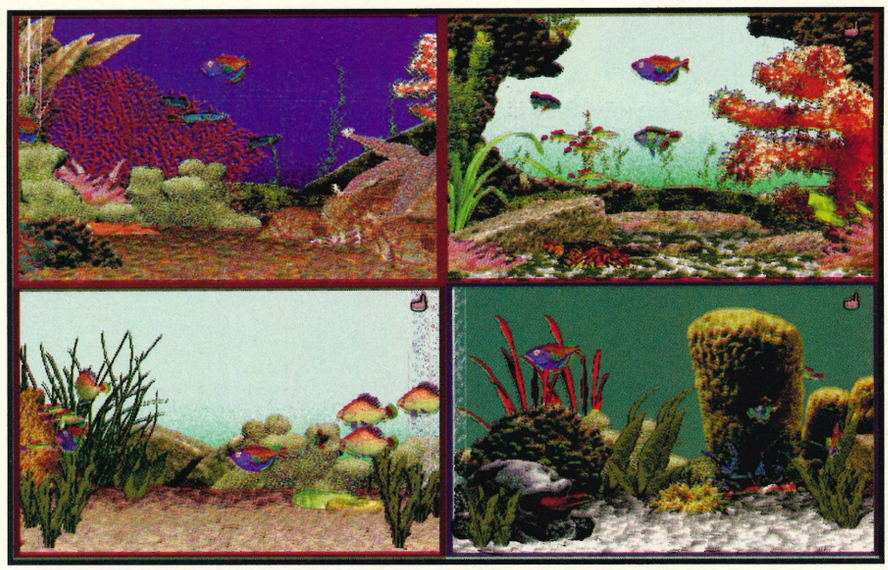
Gone fishing

Before we get down to the pros and cons of using your PC screen as 'wallpaper', we'll look at the creative side of El-Fish. The program comes with a couple of ready-made tanks and four ready made species of fish, so you can load up a finished tank straightaway and either modify that or view it as the end result. However, generating your own from scratch is more satisfying.

To source your fish, you need to go fishing. From a little map showing seas and islands and an agreeable mix of shallow and deep water, place your hook, and wait to see what your catch looks like. It is at this early point that one of El-Fish's major drawbacks manifests itself. For a program operating on such seemingly simple concepts, it requires a disproportionately powerful PC. Or rather, it requires a PC with a maths co-processor, something that not too many home users will have unless they have a 486DX. We did the bulk of our testing on a 40MHz 386DX without a co-processor, and found pauses every time you access or exit from a menu, and worse to come when you start trying to do things with these fish.

Having caught an attractive looking fish, you can then opt to 'evolve' it (ten minutes, minimum, for the program to calculate its evolution). You can choose whether it should evolve mainly in terms of shape or colour, and the documentation goes into some explanation about genetics.

Now that the fish has evolved into a thing of beauty and ergonomic prowess, you can then take another fish, either the program's or your own, and breed the pair. Breeding is a comparatively quick process (which is good news for the user, if perhaps less satisfying for the fish), say, two minutes, and you now have a hybrid to add to your collection. Each fish has its own genetic code; when you breed a pair, these genetic imprints determine what the finished result will look like.



This should give you some idea of the possibilities for the well-dressed aquarium. Top left is the 'blue' tank provided by the program, with the oxygen tube with the oxygen tube. Top right is the program's 'light' tank, with the sea horse and hermit crab making up the animated creatures. The remaining two are my own works of art: the tank designed in the Two Minutes column and an early attempt, which crammed in so many animations that the fish staggered around as though on Valium.

Unfortunately, none of these weird and wonderful fish will ever swim in your aquarium unless they are animated, and it is the animation process which really is unacceptably slow. On the admittedly maths co-processor-less 386DX, it took *three hours* to animate each fish. On a top-whack 486DX (with integral co-processor) this reduces down to a matter of minutes. Frankly, the co-procesor isn't much recommended, as essential.

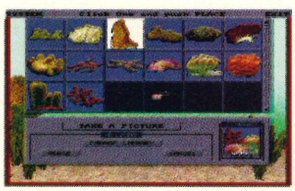
Interior design



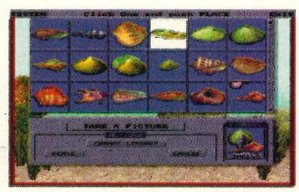
OK, so you've been fishing, created an elite stock of mutated, bred and animated fish, and now you want somewhere to put them. Designing the aquarium, thankfully, is an altogether speedier process.

The array of options for decorating your aquarium is bewildering. You can choose from the full range of 256 different frame colours, 60 background colours and 48 floor designs — and that's just the tank walls. Next you can place rocks, coral reefs, shells and seaweed in the tank to give an impression of depth and terrain. The seaweed can be scaled and redrawn, giving you an almost infinite variety of vegetation. You can also add water plants, which cannot be edited, and thus tend to dwarf the seaweed so that the aquarium begins to look like a dense forest.

Then there are a host of other objects, either static ornaments, such as a model pirate, frog, or shipwreck, or animat-



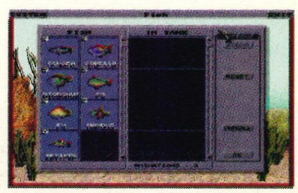
Next you can bulk out the design and add some landscaping with rocks and/or coral reefs. Be warned, some of this coral is overpoweringly big (not to mention garishly coloured), and can't be resized on screen.



Still, a full aquarium always looks better than a bare one, so we'll add some shells to the decor as well. These plain, but giant, cockles should add some variation to the floor pattern, without dominating the tank.



Well, Terence Conran wouldn't think much of it, but I think there's enough here to keep the fish happy. The oxygen tube adds an authentic touch, but doesn't appear to be essential for your fishes' survival.



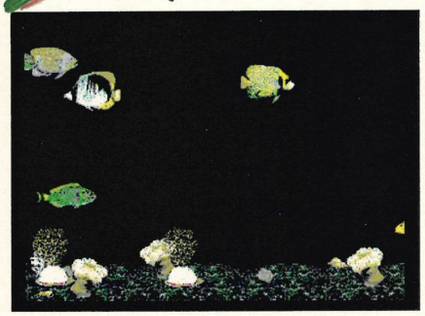
The four fish with Latinate names are provided by the program; the F0-F4 set is my own motley crew of interbred mutants. Your shoals can be as big as you like, but if you crowd the aquarium, you'll slow the animation down.



The end result: the fish swim happily in and out of the fronds, and I've just thrown in some fish food to attract their attention, while the cat looks as though it just might catch one of them this time. Sit back and enjoy.



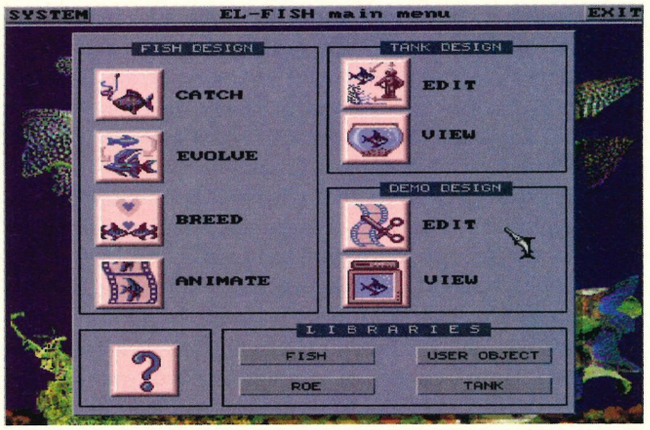
Alternatively...



Any screen saver
Various
Other programs which look pretty on the screen without doing anything interactive act as screen savers, supposedly protecting your monitor from burn-in (although that's actually more of a risk with mono monitors). Most screen savers work exclusively with Windows, but nearly all of them include an aquarium module, in which a series of fish will randomly wander around the screen, until you press a key, in which case you are returned immediately to your current application. They are generally less time-consuming to create than El-Fish, and also memory-resident. There will be more on screen savers next issue.



SimLife
Maxis, £39.99
Rated 6, Issue 17
If it's the evolutionary aspect of El-Fish that interests you, SimLife may be more in your line. This puts you in charge of the animal kingdom, creating an appropriate environment for animal species so that they go forth and multiply, or, indeed, creating your own species to experiment with their survival in a range of habitats. Events which can affect chances of survival include starvation if a food supply isn't readily available, existence, or lack of, of predators, climatic changes, or overcrowding. Complex, worthy and educational: the least 'gamesy' of Maxis's Sim sims.



This is the main menu screen, where you can access all the program options. A mouse is by far the best means of control; cursor keys work, but oh, so slowly.

ed objects, such as the skull inhabitated by an eel, the clamshell or anemone. Further, you can add free-moving items, such as a jellyfish, water snail or even a deep sea diver. The favourite among these has got to be the cat: every so often a large paw swishes down from the top of the screen.

However, these objects don't appear to have been drawn with regard to comparative scale: the deep sea diver is about a pico-millimetre tall, and a tenth of the size of the skull, the water snail and cat's paw are enormous compared to the fish. I don't really understand, either, why the seaweed can be edited for size, but nothing else can.

Anyway, once you're happy with the look of things, you can finally introduce some fish into the aquarium and sit back and enjoy watching them swim around their new home. It has to be said that all the processing time spent animating the fish pays off to some degree: they do look very fishy indeed, bobbing and weaving around the tank, and pausing to nibble at the foliage every now and again.

All that's left for you to do now is to amuse yourself by turning the light off occasionally, plunging the tank into gloom in what appears to be a particularly pointless exercise, or 'feeding' the fish, if that takes your fancy, which sets off another nice set of animated movements as the fish gather around the fragments of fishmeal.



There are fish provided by the program, if you don't wish to go through the process of catching and evolving your own. You can store as many fish as you like on hard disk, and compress the files ("reducing them to roe" in El-Fish's argot), decompressing them when you feel the need.

Whether this is supposed to be the computer equivalent of a pet rock, or a substitute for the real thing for people who can't be bothered to clean out real fish tanks, it has to be said that one of the drawbacks is that nothing unexpected ever happens. The water snail squidges its way across the screen, the sea horse makes regular left to right forays, fish wander in and out. Just occasionally, you'd like to see the cat catch something, or some sort of cause-and-effect event take place.

For a program with no plot, no quest, no famous characters nor explosive sound effects, El-Fish has attracted an extraordinary level of passing interest around EMAP Towers. And it's aroused strong reactions: some people, notably the die-hard games players, have left in disgust after learning that you can't shoot the fish; others, generally not games specialists, have said how wonderfully inventive and clever it all is.

For myself, I'm left feeling that El-Fish's undeniable appeal is rather short-lived, as though the end result isn't really worth the sum of its parts. As it stands, El-Fish looks beautiful, provides an interesting talking point for a short while, and then, well, just sits there, doing nothing very much.

■ Christina Erskine

PCreview **5**

Techspec **A 386 or better only, and you could get away happily with an SX if you have a maths co-processor (strongly recommended). Note that every fish you create, and tank you design, will be stored on hard disk and take up a further 200K each for a complicated aquarium or fully finished fish. On the memory front, El-Fish will crash if any of your memory is configured as expanded, so make any extra memory is configured as extended before loading. Finally, keyboard control is possible, but not recommended.**

Disk requirements						
	High density				✓	
	Hard disk only				✓	
	Space taken on hard disk				***5.9Mb***	
Graphic modes						
	CGA	✗	***EGA***	✗	***Tandy***	✗
	VGA	✓	***SVGA***	✗		
Soundboards						
	Ad Lib	✗	***Roland***	✓	***Sound Blaster***	✗
Control						
	Joystick	✗	***Keyboard***	✓	***Mouse***	✓
Performance						
	Optimum speed				***33MHz***	
	Minimum memory				***640K***	
	Free RAM required				***570K***	

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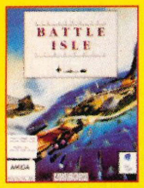
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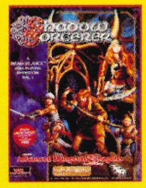
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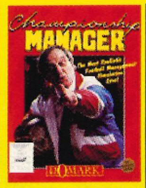
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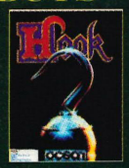


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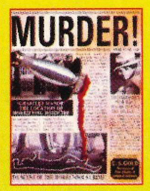
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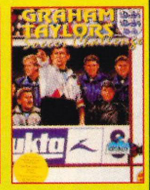
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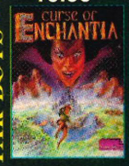
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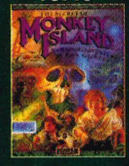
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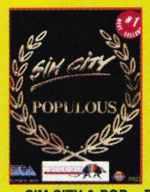


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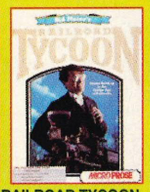


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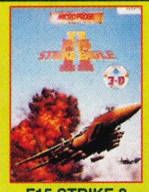
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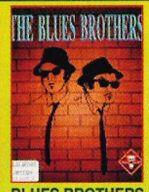
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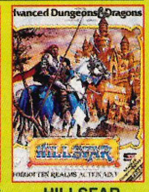
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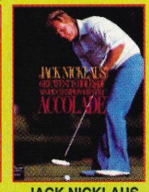
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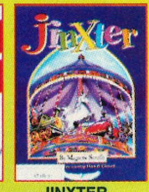
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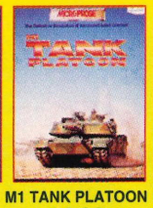
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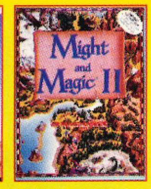
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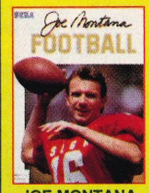
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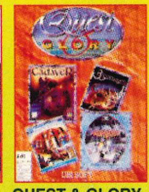
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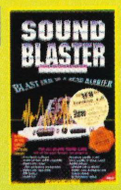
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Title	**Daughters of Serpent**
Publisher	**Millennium**
Contact	**(0223) 844894**
Price	**£39.99**

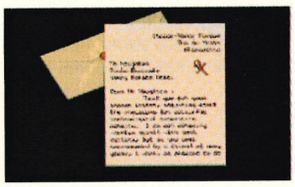
Alexandria is the setting for this 1920s cinematic adventure. A dockside murder and rumours of an ancient manuscript are just a taste of things to come

Daughter of Serpents

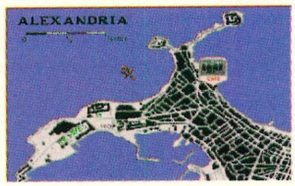
After generating your own character or selecting one of the six predefined people, you find yourself standing in the lobby of the Savoy Palace Hotel, Alexandria. What you do from here is your own affair.



Moving the cursor around the lobby, you click on a man standing at the reception desk. This is the hotel manager, Emil Gruber. After an obligatory introduction, he tells you he has a letter with your name on it. You take it ...



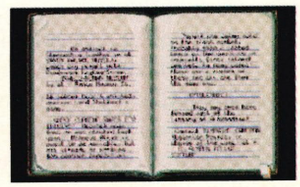
... and read the contents on the reading screen. It is from George Leyton-Stone, and he has bad news about your request for an archaeological permit. It could take several weeks — and in the meantime he'd like to talk to you.



Professor Leyton-Stone works at the museum, and a quick scan of the map of Alexandria shows you where to find it. Other locations appear here as the game progresses, but, for now, all you have to do is point and click to get there.



While you're waiting for the permit, Leyton-Stone offers you the chance to investigate some suspicious black market papyrus deals. He suspects that the papyrus may include recently discovered texts from the Library of Alexandria.



The professor had a lot to say, and you aren't sure that you can remember it all. Fortunately, you made a few comments in your notebook to remind you of the course of events so far. Next stop: Gumruk police station.



This is Bimbashi Cameron, the chief of police. He suggests that you act as a buyer of manuscripts and contact the woman behind the black market trading. Since you have nothing else to do, you agree. The real adventure starts here!

HP Lovecraft appears to be programmers' flavour of the month. Alone In The Dark publicly acknowledges its debt to the author of the Cthulhu novels, and Infogrames has recently secured official rights to produce games based on Lovecraft's work. Daughter of Serpents makes no such overt links, but there is a decidedly reptilian edge to its plot and more than a whiff of ancient mythology in the air.

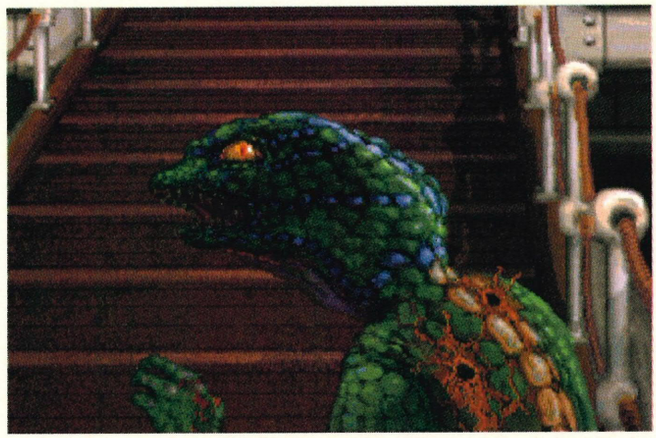
The story is this: in his search for an ancient alchemical manuscript, the Book of the Serpent Staff, a paranoid, middle-aged Turk called Kamuran Imran, has been embroiled in all manner of strange goins-on, including a dead sheik, an alchemist's workshop, and a spot of goddess-worship in the Alexandrian catacombs. Having witnessed some kind of terrible rite, he panicked and fled abroad, where he rapidly lost his marbles. Some days after he promised to return, a Turkish man (possibly Imran) was killed disembarking from a cruise ship, and the killer was something green and scaly. Here the adventure begins.

All this is covered in more detail by one of Daughter of Serpents' more unusual features — a stand-alone pen-and-paper role-playing game which doubles as an introduction to the story. It's a mite tough for the RPG-uninitiated to get into, but will no doubt provide a few happy hours of dice-rolling for experienced players. Don't worry if you're not one of these — the bones of the tale are interesting anyway.

After installation, the first thing you have to decide is whether to select one of the game's half dozen predesigned characters or create your own. If you design yourself, you can choose your gender, name, age, date of birth, title and nationality, and you're given a random personality. In addition, you can allocate funds to your chosen profession — these include traveller, Egyptologist, sleuth, mystic, private eye and occultist. Each category has its own set of abilities — for example, you may assign to a traveller knowledge of Arabic myths, local customs and Eastern travel, as well as the ability to speak Arabic and haggle. Once you're happy with your choices, you can consolidate them with more funds or select additional skills from other professions. Finished characters are saved to disk.

Life in Alexandria

After your character has been formed, you're more or less left to get on with the action. The brief manual provides a quick-start guide (if needed) which leads you through the first steps and teaches you how to play, and the character generation system is well supported by the documentation; but once the



An introductory animation sequence shows the SS Dacia docking in the Eastern Mediterranean in 1925. But why does this half-man, half-lizard get shot in the back?

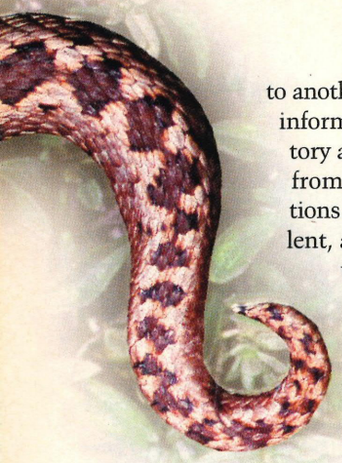
lengthy introduction sequences have finished you're on your own. This is where the SIGNOS (Scripted Interactive Graphic Novel Operating System) comes in. It's a fancy name for an easy-to-use way of interacting with other characters and your environment, and it works using a pyramid structure.

The apex of the pyramid is known as the communication screen — basically a first-person view of the location you're in. By moving the cursor around the screen you can talk to people, move to different locations, give, receive and use objects, and examine your surroundings. The cursor automatically transforms into one of 18 appropriate icons, including move to, ask, pick up/drop, look at, consume, give and operate.

Talking to people is usually a case of listening to what they have to say: their words appear in speech bubbles, and if you have to make a choice or want to know more information, key words are highlighted. It's a simple system but it usually works effectively. In fact, the only problem occurs if for some reason you have to go through the action again (ie, you may have forgotten to save your position), in which case it's a bit of a chore clicking on the mouse button to accelerate the conversations.

From the communication section you can select the manipulation or inventory screens. The manipulation screen allows you (oddly enough) to manipulate a variety of objects, such as examining them and finding out what they do, or reading them. You can store objects in your inventory, which comes complete with a map of Alexandria, a cook's guide to the city, and a notebook — all particularly well designed elements of the game. The map is marked with important locations (more are added as you discover clues) and is used to travel from one place





to another. The cook's guide gives background information on the city and details the history and mythology of Egypt; it can be read from cover to cover or as individual sections. Finally, the notebook feature is excellent, automatically recording a summary of what you have discovered so far — and saving you the trouble of doing it yourself.

Interactive drama

Daughter of Serpents claims to be an 'interactive drama' in the style of a graphic novel, rather than a true interactive movie. This is about right: the action is quite linear in structure and limited in scope. Much of the appeal comes not from solving puzzles but from discovering new locations, listening to what people have to say and acting on their advice. The plot is limited but always interesting, and you can spend many a happy hour just enjoying the story.

This enjoyment is increased by the graphics and sound, both of which are first-rate throughout. Some of the graphics especially are quite breathtaking: the first example you'll probably come across is the museum entrance, but there are others. You might think from looking at the screenshots that they look a little lifeless, but interacting with objects, doorways and people brings them to life. The music is subtle and faintly evocative of the early part of this century, an understated accompaniment to the graphics and action.

Both visual and aural effects consolidate the 1920s feel of the game and, coupled with the meticulously researched detail and understated music, produce a vivid, realistic atmosphere. The only graphical drawback is on the animation side: many of the animations load in information frame by frame, and if you have a slow machine movements such as a lift descending or a character gesticulating with his hands can take a while to load. Naturally, this isn't an issue if you have a high-end PC, but the animations aren't always crucial to your enjoyment, and it would have been a good idea at least to have had the option to turn them off.



A more serious problem occurs with the mouse (discussed in the Tech Spec panel) and with disk caching compatibility. The program is incompatible with disk caching systems such as Smartdrv, which can cause the graphics to corrupt. However, Millennium assures us that if you have a hardware-based cache, such as those on the 80486 chip, the problem shouldn't apply; in any case, they provide instructions for cancelling the Smartdrv function. There were several occasions on which either the graphics corrupted or the mouse froze, and it's frustrating to have to sit through the introduction every time you reboot. If you follow the programmers' instructions faithfully and have a true Microsoft-compatible mouse there should be no difficulties whatsoever, but is this something games players should have to deal with?

The game's drawbacks are more a matter of substance than style. There is a lot to explore but you tend to be guided rather than given a free rein. For example, the first sequence of puzzles blatantly hints that you should travel to various locations around Alexandria, adn if you try to go anywhere else you don't get much joy. This obligation to follow the clues is relaxed the more you progress, but the hints are occasionally a little on the obvious side.

Replaying with different characters provides welcome variety and adds depth to the action once you've completed the game: because their skills differ, the places you visit often yield different information. It can be annoying unravelling the mystery again, because you inevitably encounter situations where one character fails to see what a previous one has revealed. All in all, Daughter of Serpents is a good, imaginative game which, though its story doesn't leave quite enough room for manoeuvre, will certainly provide sufficient entertainment to satisfy casual adventurers.

■ Gordon Houghton

Techspec

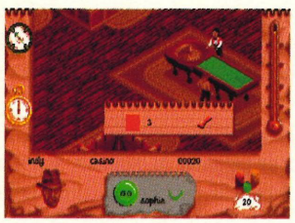
Get ready to clean your hard disk out: Daughter of Serpents has 17Mb compressed on to six high-density floppies, which take just over an hour to install. Mouse control may cause problems, too: if it's not 100% Microsoft compatible (even if, like the Amstrad mouse, it claims to be) it will make the game crash occasionally. Keys help, but the only other thing to do is save the game often.

Disk requirements						
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	Minimum memory					***640K***
	Free RAM required					***550K***

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Heart of China
Dynamix/Sierra On-Line, £39.99
A brave, early stab at the 'interactive movie' style of game, Heart of China doesn't have the gameplay to match its impressive graphics. Its 1920s plot is reinforced with airbrushed, animated backdrops, digitised actors and superb cinematic scores to create a convincing atmosphere, but the paucity of quality arcade sections and a basic plot-branching design leave you too little to enjoy.



Indiana Jones and the Fate of Atlantis
Lucasfilm/US Gold, £37.99
Rated 9, Issue 11
Lucasfilm's interactive SCUMM system gets better and better, and Indy's latest adventure is the finest available for the PC. The roving archaeologist is battling the Nazis to find lost element Orichalcum, and, as usual, gameplay consists of interactive scenes and action sequences. It may be easy for hardened players, but very few could fail to enjoy it.

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NED . 93



Title	**Clouds of Xeen**
Publisher	**US Gold**
Contact	**(021) 625 3388**
Price	**£39.99**

CLOUDS OF XEEN

Although you are initially set down inside the town of Vertigo, there is nothing to prevent you nipping outside for a quick expedition to meet the locals.



The cobbled path leads off into the sunny countryside and pastures new, but before you go rushing blindly off to seek fame and fortune first take a look inside that colourful tent.

Sitting around the roaring log fire in Lady Gwendoline's Inn are six worthy adventurers. They all have come in answer to a strange compelling dream which has disturbed their sleep and roused them to wakefulness, sweating with fear. As each of them tells their story it becomes clear that the dream is a desperate cry for help from Crodo, the King's magician. The time for decision is now at hand. They could return to the safety of their own cities, or they could band together as brothers, (and sisters) and undertake the perilous journey across the Land of Xeen to find and confront the evil which threatens the kingdom.

The kingdom is huge, and within its boundaries are many dangers which must be overcome before they can confront the evil Lord Xeen in his lair.

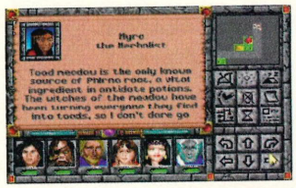
The question which faces the gallant team is not unlike the real life question facing the potential buyer of this epic role playing game. Are you prepared to give up a sizable portion of your future to lead a group of disparate adventurers through a game which could possibly last for months? A quick glance at the A3 size map which accompanies this game gives a graphic illustration of the problem you are being asked to take on. The trail leads from the Forest of the Walking Dead, through the icy wastelands of the Land of the Giants, and then on to the Desert of the Sphinx. And there doesn't appear to be a single mile of road which isn't littered with bands of warlike orcs everywhere, or one village which isn't being menaced by a local dragon!

The quest begins in the town of Vertigo which is currently suffering from a plague of bugs and slime monsters. The local Rento-Kill operative seems to be as useful as a chocolate teapot, and the Mayor is at his wit's end. To earn your place as a latter-day Pied Piper you need only find the storeroom where the bugs are being bred, kill the bugs, then find the incriminating document in a packing crate which proves who is behind the plague. You can now return in triumph to the Mayor to be most handsomely rewarded. With your pockets packed full of gold, your heroes can set out for the journey to the Red Dwarf Mountains which is the start of the second quest.

Within a few moments of entering Vertigo, I decided the place should have been renamed Déjà Vu. Although someone has obviously repainted the city walls, and gangs of Irish trolls have been hard at work moving the street map around, this is none other than the town of Fountain Head which I so painstakingly trudged around in Might and Magic



There are lots of gaily coloured tents around, and most of them contain people with problems of their own. A click of the mouse and someone is sure to come and see who is at the door.



A gypsy greets your knock with a request that you find her some herbs from the nearby pasture. Bring back the greenery and she'll reward you handsomely with greenbacks.



A few courageous steps into the unknown and the first of the heavy mob turns up. Someone really is going to have to tell this unattractive orc about his breath — it could knock out a horse.



More monsters join the fray and things start buzzing. While your front rank hack and slash, your priestess in the back rank takes a vicious blow. Hopefully someone has got first aid or she'll be out of the next round.



A little sadder and wiser, you decide to head for the town again. Perhaps you should try knocking out the small fry within the safety of the town walls before you risk another day in the country.

There are few dungeon legends which can match the real life legend of the Might and Magic games. Clouds of Xeen is the fourth instalment in this mighty saga, and if you are not already hooked on this epic series, perhaps it's time you were

III. The giant rats of yesteryear have been magically transformed into doombugs, and the tavern is under new ownership, but there is no mistaking the place. All your old haunts are here, thinly disguised behind new graphics, but you'll soon recognise them. The Temple of Healing, the armoury, the magician's guild, the training ground and, of course, the tavern where you can replenish your team or pick up a new one, if necessary. The



In the fair town of Vertigo there is a well. The sun may be hot, you may be thirsty, but do yourself a favour and avoid it like the plague. On the other hand, if you fancy slurping a bucketful of slime monsters, be my guest.

...of XEEN

game's main screen and all the associated icons and controls have also been lifted bodily from the previous game and transported magically to the land of Xeen without the slightest hint of change.

The game is controlled by mouse or keyboard and there is no need for text input. Some digitized speech sections have been inserted at critical points and there is a computerised notebook which is useful for scribbling a log. An option to add notes to the map (similar to Ultima Underworld) would have been nice, but that's not available.

I must confess that I was initially downhearted by this duplicate game system, as we have become used to major leaps forward with each new release in the series. If you have already played and enjoyed Might and Magic III (Isles of Terra) then this game brings another large helping of the same mixture to savour, but the lack of anything unexpected can make for a slow start as you try to conjure up the excitement which should have come with a new game. What we have here is an addition to the previous game rather than a new one.

A well balanced mixture of adventurers is instantly available for those who like 'ready mades', but if you'd sooner play God and 'roll your own', you can take a trip to the tavern and try your luck there instead. The standard mixture of Middle Earth races are on hand with all the skills and characteristics you would expect. Ready-made swimmers, pathfinders, map-makers and thieves are available off-the-peg, so you'll have no difficulty finding the balance you require. If you are wise you'll ensure that someone in the group knows how to draw maps as this enables you to turn on the automapping feature which is essential in a game like this. A small map window can be made available at all times, but you can also select the large version when you've got the time to stand and stare.

PCreview 7

Techspec **Some very early versions of the game have difficulty running on a 2Mb machine — if you have problems, call US Gold for a patch disk. Otherwise, you'll need as much free memory as you can dredge up. Sound support also includes Sound Master, Pro Audio and Sound Source.**

Disk requirements

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

Graphic modes

CGA	✗	EGA	✗	Tandy	✗
VGA	✓	SVGA	✗		

Soundboards

Ad Lib	✓	Roland	✓	Sound Blaster	✓

Control

Joystick	✗	Keyboard	✓	Mouse	✓

Performance

Optimum speed	16MHz (286)
Minimum memory	2Mb
Free RAM required	ca600K

Once a monster is spotted you may have time to shoot off a few arrows and spells before it closes for hand to hand combat, but at other times it simply appears with a bang in your midst. Fighting takes place over a number of rounds during which you can decide what action each member of the team should take. Members can elect to fight, cast spells, use an item, or 'leggit'! This type of combat is more leisurely than fast action games such as Eye of the Beholder where the devil takes the hindmost, but it can be just as much fun as it enables you to plan your moves.

As with most RPGs the basic principle of this game is quite simple. Beginning with a lowly qualified team you have to move around the game world fighting all the monsters in your path until you find some missing object and take this to some other location. Having carried out that task you will be told to make your way to some other point directly where you will encounter another computer controlled character who'll request a similar exercise.

A mixture of simple puzzles and monsters with bad attitudes will stand in your way and these must be overcome by consistently building up the skills and powers of your team. To make this process enjoyable, the game should use the power of atmospheric graphics and novelties to suspend your disbelief and make you care about your team. Carefully using the experience points gained through combat, you can decide whether a team member becomes a trained champion warrior or a cunning thief.

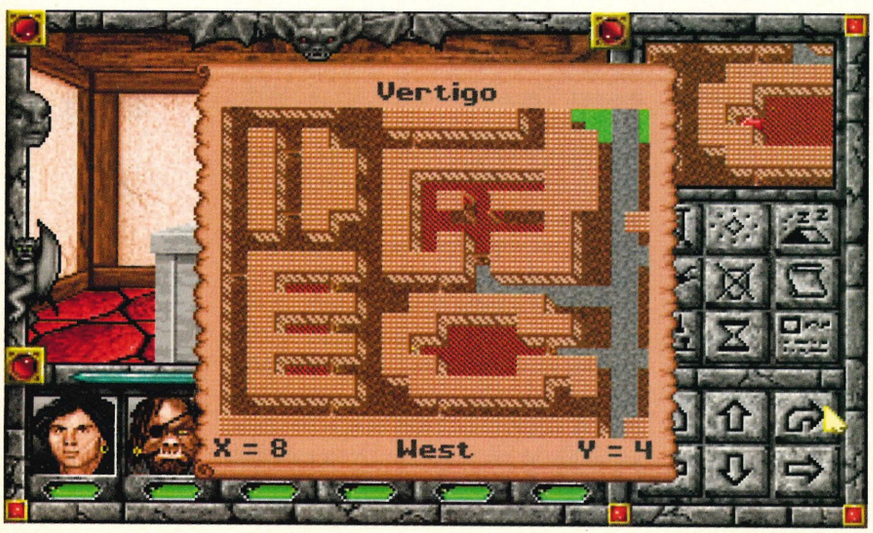
Most role-playing games have an inbuilt addictive quality which will get you in the end if you persist, but the mark of a good game is one in which you can't see the joins. The difference becomes apparent when a monster turns up. If your heart beats faster when you see the glint of dragon scales, the game has succeeded, if instead you only see 10 experience points, the magic is missing.

I find the squeaky clean, computer generated world of Xeen uninspiring, and the cartoon monsters so completely lacking in menace that they are a constant reminder that it's just a game. There are games where the arrival of a monster will make you screw up your face with sudden shock, and your features contort as you struggle to overcome its attacks, but not Xeen. These monsters look like refugees from Roger Rabbit's Toon Town, and all they extract is a wry smile.

Another feature which helps to ruin the illusion is that the game will allow you to sleep unharmed in a room full of monsters to recover your strength — not very credible, somehow. You are also free to steal everything in the armoury display cabinets whilst in full view of the blacksmith, without him raising a grunt of protest. You can then add insult to injury by selling the goods back to him. Try that in some other games and you'll be shown the door.

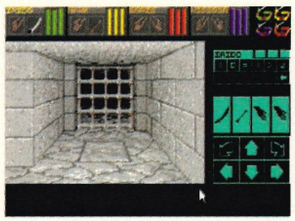
Xeen is big, bright, colourful, and contains lots of interesting noises, but it also has a computer's heart. The recipe could be improved with a large spoonful of menace and more credible graphics. A single town which looks battle-scarred and lived-in is preferable to a galaxy of computer generated worlds. That having been said, it is an enormous game, and if its looks don't offend your sensibilities, it will repay you generously with weeks, nay months, of hacking and fun. The official clue book for the previous game Might and Magic III was 238 pages long. You have been warned.

■ Andrew Mitchell

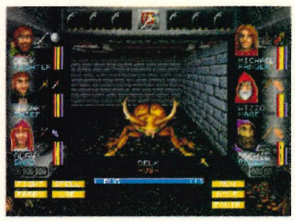


Provided you have a cartographer in your ranks you can call up a map of the surrounding area to help work out just where you are in the maze of streets.

Alternatively...



Dungeon Master
FTL Psygnosis, £34.99
Rated 6, Issue 12
This grandaddy of RPGs still has what it takes when it comes to monster bashing. When the red dragon lets fly with a blast of flame you'll feel the heat. The action happens in real time, so nimble fingers are required, but feel the atmosphere – you could cut it with a knife. No-one ever packed so much game on to one disk with something exciting round every corner.



Crusaders of the Dark Savant
SirTech/U.S. Gold, £45.99
Rated 8, Issue 13
This game – seventh in the Wizardry series – has much in common with Clouds of Xeen. Both stress the aspect of developing your team's skills as their principal attraction, and give you a massive game world to explore. There is lots of interaction and a useful mind read spell if you can't worm the information out of awkward customers.



Feeling tired and hungry? A visit to the tavern will enable you to fill your packs for the journey, and give you a moment to rest between encounters. Make sure you chat to all the customers as many of them will let drop a vital clue to what's going on out there.

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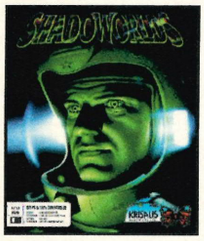
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20 x	14.50	11.99	10.99
50 x	35.00	26.00	23.99
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3.5" DISKS DS.DD

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20 x	19.50	15.50	13.50
50 x	47.50	37.50	32.50
100 x		72.99	62.99
200 x		141.99	121.99

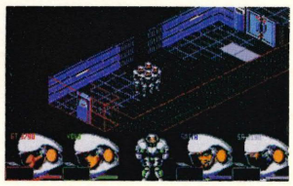


Title	**Shadoworlds**
Publisher	**Krisalis**
Contact	**(0709) 372290**
Price	**£34.99**

Shadoworlds

Teque's innovative 'photoscaping' system returns for a second outing. In Shadowlands it worked wonders in the dungeons — this time it's lighting up the darkness of deep space

The weapons research facility orbiting an obscure planet in the Magna 6 system has gone silent. A crack squad of efficient (but expendable) warriors has been chosen to find out exactly what has happened.



After their cryogenic sleep the team is a little groggy, but they might as well get on with the job. First of all they must choose a team leader and decide whether to travel individually, in pairs, or in group formation.

Shadowlands — Shadoworlds' predecessor — caused quite a stir in RPG circles when it was released last year. It was a rare British role-playing adventure, it incorporated a couple of innovative design features ('photoscaping' and line-of-sight), and it was good. There were faults, but the strength of the fantasy storyline, a competent isometric 3D display and a good deal of depth combined to create an enjoyable RPG experience.

Shadoworlds makes use of the same system — including the original's design and control faults — but transfers the plot to deep space. A deadly strain of plant-life appeared on Earth in the early 21st century: it was strong and brutally evil, but the United Nations managed to throw it off the planet. A complex sequence of events (detailed in Shadoworlds' bizarre novella) led to it crash-landing somewhere in the Magna 6 system. Unfortunately, this is also where a spot of clandestine weapons testing is being carried out and, as you might guess, the plant doesn't like being disturbed. No one has heard from the Magna 6 research facility for a couple of months, and the powers that be have decided to send an expendible four-man team to investigate. What all this means is that you control a quartet of characters involved in a puzzle-solving, enemy-bashing, exploration extravaganza. Or, put more simply, you have a typical role-playing scenario. You start by exploring a huge orbiting space station but eventually have to find your way around the other planets in the Magna 6 system.

Space relations

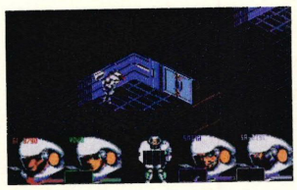
So now you know why you're doing what you're doing, how do you go about doing it? You start with the character selection screen. You can opt for a default squad if you like, but there are 18 soldiers to choose from and some will fit your playing style better than others. The character descriptions and attributes aren't sophisticated by RPG standards, but the variety of characters is good — select anything from a dog to a robot.

After you've chosen your team you're advised to save it. It's also a good idea to save your game regularly until you've got the hang of the controls, since after the first 10 minutes life can get very tough indeed. This has its negative side, though, since the game flow is interrupted if you save often.

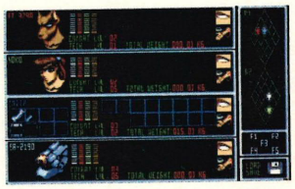


Before starting the game you can opt for a default team or pick your own from Shadoworlds' cast of 18 characters. This list includes a mutant dog, a security droid and a host of natural killers.

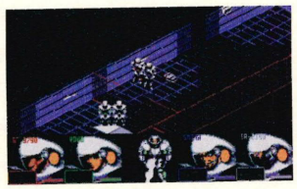
The action is displayed in isometric 3D, with a control panel at the foot of the screen allowing you to command your characters, access the inventory and set formations. As in Shadowlands the 3D works well, because it gives the role-playing element a strong arcade edge, and any walls that might get in the way of your view are shown in X-ray mode — in effect, they become transparent. The control panel is slightly more cumbersome. It is divided into four heads (representing your soldiers) and a 'control character' — a body made up of two arms, two legs and a head, which is used to convey commands to your team.



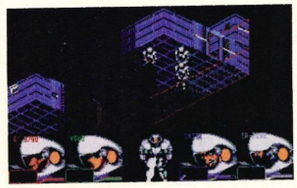
It's not long before the explorers encounter their first enemy. If they've picked up a weapon along the way, they should be able to make light work of this droid. Other foes are not so willing to let their defences down.



The droid dropped a battery — useful for the team's helmet-mounted lamps. Checking the inventory, it seems that this battery and a solitary light sabre are all they have. A few more powerful weapons wouldn't go amiss.



There are many ways to open doors — pressure-pads, wall-switches, light-sensors and key-cards. If you're having trouble early on in the game, one of the many wall monitors should provide a clue. This time the card fits ...



Having explored fewer than half a dozen rooms the team reaches the first teleport. A quick tap on the control panel and they disappear to the next stage. That doorway looks a bit tight, though — maybe they should travel in pairs?



This is what lies on the far end of the teleport — the first main level. Apart from this huge space station, the team also has to explore the other planets in the Magna 6 system. It looks like their troubles have only just begun.

Techspec **Shadoworlds comes on a couple of low-density disks and can be played from floppies or installed to a hard disk. Installation takes about a minute, because the game uses a measly 0.7Mb of hard disk space. The action is perfectly adequate at 12 MHz, but if you're worried about smooth scrolling (which you shouldn't be, because it barely affects your enjoyment) you'll get the best results at 20MHz and over.**

Disk requirements

High density	✗
Hard disk only	✗
Space taken on hard disk	**0.7Mb**

Graphic modes

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

Soundboards

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

Control

Joystick	✗	**Keyboard**	✓	**Mouse**	✓

Performance

Optimum speed	**20MHz**
Minimum memory	**640K**
Free RAM required	**540K**

Right-clicking on any character head reveals the inventory. Every soldier has 16 slots for carrying objects, although they can each carry an unrealistic 96 items if they use containers. You can also scroll through the entire range of objects on the main game screen, but if your memory isn't good you can easily lose track of exactly where everything is. Setting the team formation is as flexible as it was in Shadowlands. You can move characters individually, in pairs or as a group; in addition you can arrange your team in a line, in a square or any other combination in two 4 x 4 grids.

The 'control character' is a unique and simple way to direct your soldiers, though it does border on the simplistic. Clicking on each part of the body gives a different order: the head, for example, is used to examine objects and switch on/off lamps, whereas the left arm will use a held object. There are two problems with this. The first is that, initially, you can get confused about which parts of the body you should click on — particularly when it's a choice of left or right. The second is that when you have got used to them, the range of functions this control method offers is quite limited.

The design and control faults don't end there. The idea of giving characters a line of sight is a good one as your soldiers can only shoot or pick up what they see, but in practice it's implemented quite literally. The action would be a lot less frustrating if your characters had a little independent common sense: as it is, they don't have the wit to walk, unaided, through doorways or around objects.

You shouldn't get the impression from these gripes that Shadoworlds is a bad game — that would be far from the truth. The puzzles are neatly graded, there are a huge number of aliens to blast away (enough to keep both arcade fans and role-players happy), and the shoot 'em up overtones are refreshing. You never know what's lurking around the next corner, and the tension created by the combination of the characters' line of sight and the lighting effects is excellent. The game design, apart from criticisms mentioned above, is good, with a well-implemented difficulty curve and constant surprises. Just when you think you're in real trouble, you often find a place to rest, a food supply or another gang of marauding aliens.

Space doubt

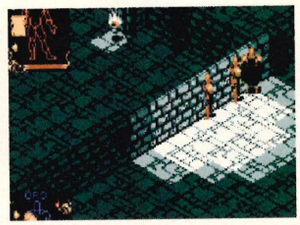
Shadoworlds' outstanding feature, though, is its use of 'superphotoscaping', a clumsy term for a simple and very effective atmospheric tool. Unlike most RPGs, Shadoworlds doesn't assume that because you have light you can see everything around you. Instead, any light you generate is only able to penetrate the gloom according to the method you use. You can switch on wall lights and flares or just turn on your helmet lamps and the lighting effect is unique every time. The main function of superphotoscaping is to generate a superb atmosphere, but it also transforms the game into a good quality adventure. The same can't be said of the sound effects, unhappily: the sounds you do hear are very good, but there is no background hum or any other surprise to break the usual silence.

The size of Shadoworlds is impressive, but it isn't everything. If Teque could tighten up the control system and do something about the criticisms which have been levelled against this game and its predecessor they could create some genuine classics. As it is, they've got a good game on their hands, but not an outstanding one.

■ **Gordon Houghton**



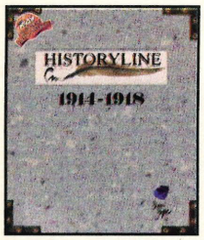
Alternatively...



Shadowlands
Domark, £29.99
Rated 8, Issue 9
Innovative home-grown RPGs are something of a rarity in a market dominated by American imports, so Teque's first role-playing adventure was a welcome surprise. The plot, a standard tale of fantasy and magic, includes photoscaping, which makes good use of limited light sources to give the game its eerie atmosphere. Certainly well worth a look.



Legend
Mindscape, £30.99
Rated 7, Issue 9
Renegade's excellent Cadaver aside, this comes closest to Teque's isometric 3D exploration. Sub-elements involve multiple-choice interaction with characters above ground, but most of the action involves wandering around dungeons, solving puzzles and killing things. If it's outer space you like, watch out for EAs' forthcoming conversion of Space Hulk.



Title	**Historyline 1914-18**
Publisher	**Bluebyte**
Contact	**(0727) 868005**
Price	**£39.99**

Historyline is a fast-moving game, but two minutes in which to break the stalemate of trench warfare might prove a trifle optimistic ...



The Germans (in grey-green) are squaring up for the big push. Their fire phase and their artillery units (top of left hand map) select their targets. The French player, on the right, looks at the colour coded strategic overview.

Historyline 1914-18



Allied torpedo boats launch an attack against a German destroyer. Land, sea and air units are all represented in Historyline. Many scenarios offer scope for combined arms operations.

Think of 1914-18 and the images that immediately spring to mind are of rat-infested trenches, the Flanders mud, lions led by donkeys to the slaughter, a generation of doomed youth dying on the barbed wire. All this might make a perfect antidote for the meretriciousness of military glory, but you'd be forgiven for thinking it a lousy subject for a computer game. Two points, however, need to be borne in mind. The first is that Historyline is a quite superb product; the second is that the history element in the title is almost redundant. In fact, this game is about as accurate a representation of the First World War as Indiana Jones and the Temple of Doom is of 20th century archaeology.

Why, then, is the game so good? The graphics are excellent, the sound support above average, the atmosphere terrific and the standard of presentation generally first-class. These all help, but what really makes the whole thing tick is the engine in the boiler room: the gameplay mechanisms are original, fluid and in all respects outstanding. This is the best military strategy game I've yet seen on the computer. Just don't expect to replay the first day of the Somme.

Load up the game, and after some atmospheric scene setting you're ready to test your generalship, as the first of 24 maps appears on the screen. Each of these scenarios is meant to last the equivalent of two months' real time, a device which allows for the gradual introduction of new unit types (armoured cars, tanks, planes, etc) as the war and technology progress. At the beginning things are therefore kept simple, with the choice confined to cavalry, infantry and artillery units. These are automatically deployed, you simply have to move and make them fight, either as the Germans or the French.

Control is exercised by mouse, keyboard or joystick, or a combination of all three. All functions are performed by repositioning the cursor and clicking, thus obviating the need for



Once you've plotted your fire it's time to switch to a gunner's eye view. This French light battery has already lost two of its guns (see the strength bar in the top right corner). At this rate they'll soon be softened up.



Now it's the German movement phase. Place the cursor over any unit, click and all destination squares will be highlighted. On the right of the screen the French player checks out his heavy artillery unit, another excellent utility.



On the left the Germans burst out of their trenches, while the French plan their response: the closed fist icon, indicating the fire phase, is over the light artillery unit, and all enemy pieces within its range are highlighted.

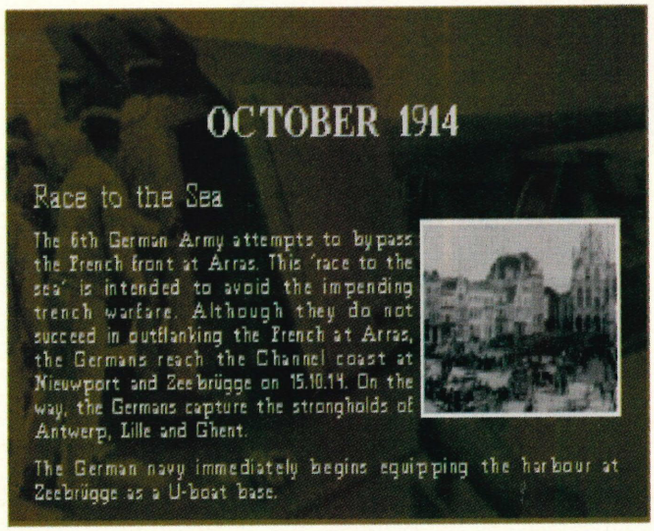


The German infantry swarm over the depleted French battery (already down to two strength points). At this rate it'll all be over by Christmas. On second thoughts, looking at the landscape, perhaps it's Christmas already ...



It's victory at long last! The enemy HQ has fallen! In reality it will take you rather longer to get to this end-of-scenario screen shot, and there'll still be plenty more gameplay to come – in fact, 23 maps and four years' worth ...

Between scenarios you can catch up on your education, courtesy of fact-filled pages like this - though what, if anything, they have to do with the game is another matter.



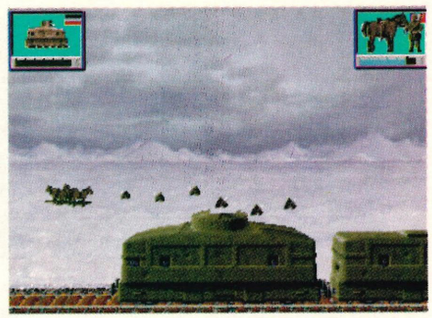
unsightly menus and leaving the screen uncluttered. A turn is divided into two phases, movement and fire, both of which are naturally affected by unit characteristics: cavalry will move rapidly, but they won't have the range or hitting power of the artillery. The aim is to destroy all the enemy's units or to capture his headquarters, at which point you will be given the password to the next level. So far so conventional, but the environment in which the game is played is anything but.

The screen is split down the middle. The halves are identical but under separate control, a technique pioneered by Bluebyte in Battle Isle. What this means is that both sides can perform actions at the same time. Say that it's your fire phase and your opponent's movement phase. Instead of waiting for him to finish, you get on with planning your attacks. At first this process may seem a little odd: there you are moving your cursor about giving your orders, while at the same time the other half of the screen seems to be lurching crazily up and down with the enemy whizzing all over the place, but you quickly get used to it. When you have finished the computer will automatically execute movement and determine the effects of fire before switching the player modes. It's an ingenious system which really speeds up gameplay.

Once all the attacks have been plotted, a series of arcade-style sequences pop up to illustrate the outcome. If you're impatient you can skip through them, but the graphics are charming and add considerably to the atmosphere. Charm may seem an inappropriate quality in the context, but the pictures have a kind of cigarette-card air about them. There's something about the game's style which reminded me of the venerable board game Dover Patrol and its antecedent L'Attaque (which, incidentally, predates the 1914-18 War). The definition of the original Kriegsspiel also springs to mind – 'chess with a thousand pieces'. The maps are not strictly realistic, and the combat characteristics of the units are largely notional (the manual makes an analogy with the values of chess pieces). Thus, although Historyline is a war game, it is most definitely not a blood-and-guts simulation; the emphasis is more on game than war, which brings us back again to the issue of historical accuracy.

Rather perversely, this is an aspect of the game which Bluebyte seems keen to emphasise. At the beginning and between each scenario we get interludes in the style of newspaper reports, regaling us with such snippets as the date on which the U-Boat claims its first victim and who has just broken the 100 metre record in Copenhagen (he was British actually; one up for the anti-Maastricht lobby). Trivial Pursuit fans will no doubt be delighted, but the authenticity of the background details is not reflected in the essentially generalised nature of the game.

This is apparent in both the strategical and tactical aspects of gameplay. Let's deal with the strategical side first. There are three types of building in the game: depots, factories and the two HQs. New units can be constructed in factories, and damaged forces can be repaired in any of them. Each turn you will be allocated a number of resource points, depending on how many buildings you control, and you can spend them as you choose on the various construction and repair functions.



This armoured train is one of the more colourful units encountered in the scenarios. And despite the fact that it's confined to the railway network it's immensely powerful - as demonstrated by its effect on this unfortunate French cavalry unit.

This is a perfectly good system, and it works well in practice, but what has it to do with the First World War? The method of allocating resource points is arbitrary, as is the choice of HQs as strategic targets. Capture a depot or factory and all the units in it, whatever their origin, become yours. Racing to capture them is fun, but it doesn't have a lot in common with Verdun or Tannenberg.

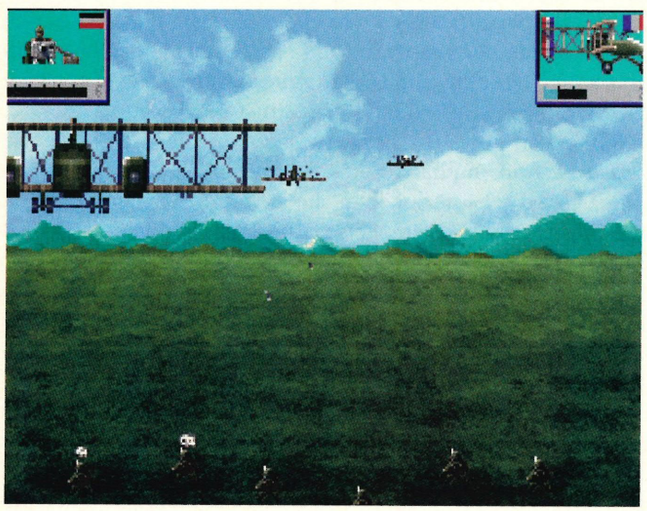
Now let's return to the tactical sphere and consider in greater detail what happens when two units face up to each other.

Units have both an attack and a defence factor. The former indicates how much damage they can inflict, the latter – quite reasonably – how much they can withstand. As the war progresses powerful new types of unit begin to appear to add variety to these equations, but in reality the ostensibly precise combat factors are non-specific. By this I mean that an anti-tank weapon will attack a tank with exactly the same effect as



Allied torpedo boats launch an attack against a German destroyer. Land, sea and air units are all represented in Historyline. Many scenarios offer scope for combined arms operations.

French Voisin bombers swoop in low on a crack unit of German infantry. They may look like flying cardboard boxes, but they pack a meaty punch.



Techspec

You'll need a 286 minimum to play Historyline but other than that it isn't too power-hungry.

Disk requirements					
High density	✓				
Hard disk only	✓				
Space taken on hard disk	***7Mb***				
Graphic modes					
CGA	✗	***EGA***	✗	***Tandy***	✗
VGA	✓	***SVGA***	✗		
Soundboards					
Ad Lib	✓	***Roland***	✗	***Sound Blaster***	✓
Control					
Joystick	✓	***Keyboard***	✓	***Mouse***	✓
Performance					
Optimum speed	***16MHz***				
Minimum memory	***640K***				
Free RAM required	***580K***				

it will attack any other ground unit; the attack factor is just a blanket value.

Although there is a distinction between units on land, sea and air, this doesn't go quite far enough, and the method of combat resolution is as arbitrary as the strategic system. In no way does it specifically recreate the conditions of 1914-18, because the relative attack/defence values could just as easily be applied to Sherman tanks versus Flak 88s, or even to cyborgs versus laser guns. In the circumstances, Bluebyte's concern to invest the game with an authentic period appeal seems rather bogus.

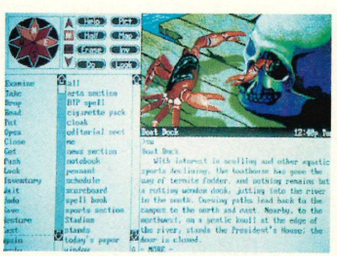
This ought, I suppose, to be a damning indictment, but it just doesn't seem to matter. The game is too challenging, absorbing, and, above all, exciting (especially in two-player mode). I would, however, strike one note of caution. I think it's obvious that we haven't seen the last of this gaming system; in fact, I'd be surprised if it didn't spawn a whole generation imbued with its style. My reservation is that it would be all too easy just to change the maps, colour in some new unit pictures and turf out any old historical conflict under the guise of something new. And perhaps Historyline would be better if it were more authentic, if, for example, the German strategic target was Paris, not an HQ, or if, say, an anti-tank weapon was deadlier against armour than any other type of unit, but ineffectual against infantry.

Did I say better? I should say even better, because fundamentally Historyline is an outstanding and original game. Moreover, it's so accessible and such fun to play that I suspect it will appeal even to those who generally steer well clear of war games. It is also genuinely mould-breaking. In the past strategy has been frequently synonymous with dullness, but there'll be no excuses in future, and for that all credit to Bluebyte.

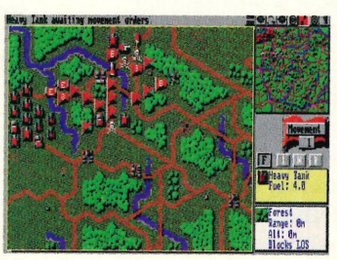
■ Simon Shaw

PCreview **8**

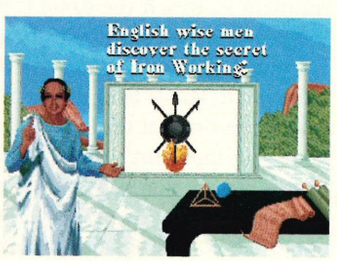
Alternatively...



Battle Isle
Ubi Soft, £29.99
The not inconsiderable forerunner to Historyline, Battle Isle introduced many of the concepts then developed more fully in the later game. The most obvious difference is one of scale: the maps in the new game are twice as big and the amount of detail correspondingly greater. All the same, Battle Isle is still an excellent game, but Historyline does put it rather in the shade.



Perfect General
Ubi Soft, £34.99
The best of the competition: a very playable, hypothetical modern war game that bears many similarities to Historyline, although the scenarios (ie, maps) are more limited in number and moves are strictly alternate, in conventional fashion. What both games demonstrate above all is the perhaps revolutionary truth that strategy games can actually be tremendous fun.



Civilization
MicroProse, £39.99
And talking of fun strategy games, you can't exclude Sid Meier. Civilization isn't a war game, although it has conflict in it, but it is without doubt the richest and most absorbing strategic challenge going. If only it could boast Historyline's excellent graphics and all-round attention to detail and atmosphere it would probably be the nearest thing on the market to a perfect 10.

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Ricoh, the world's second largest manufacturer of laser printer engines, have used their expertise to produce a 'first' in laser printers for the world market, the LP1200 with FLASH ROM. HP LaserJet III™ compatible, the LP1200 employs industry proven laser technology. Unlike LED printers, which use light emitting diodes, the LP1200's laser light source is able to produce the most accurate and intense printed images. It has a fast efficient processor and engine, together with a straight paper path design which allows printing at a full 6 pages per minute and, it can address a range of print resolutions up to 400 dpi. The 2Mb RAM version can print a full A4 page of graphics at 300 dpi and a full A4 page of text, or A5 page of graphics, using standard resident internal fonts and the alternate controller firmware supplied, at 400 dpi. A free Windows driver supplied enables the 2Mb Ricoh LP1200 to print a typical page of text at 400 dpi from Windows 3.1, using the alternate controller firmware supplied on the Windows Driver Disk and standard internal resident fonts. The 4Mb RAM version has the added advantage of being able to print a full A4 page of graphics at 400 dpi and makes full use of the LP1200's 400 dpi printing capabilities, such as using Microsoft Windows fonts.

Unique additional standard features include FLASH ROM 'future proof' technology and LAYOUT - a powerful document description language. The LP1200's unique internal FLASH ROM, which holds the printer controller firmware, can easily be updated as new developments in technology occur. This protects the investment you make in buying a Ricoh LP1200. Other manufacturers would require you to buy a new printer! Internal FLASH ROM and industry standard FLASH ROM IC cards can also be used to permanently store fonts, macros, graphics and extra emulations. Again, unlike the competition, the LP1200 includes LAYOUT a powerful document description language as standard, which offers unique opportunities to develop custom made printing systems. Forms and document templates can be designed and stored electronically in the LP1200's FLASH ROM, alleviating the need for pre-printed forms!

The LP1200 comes complete with a 100 sheet A4 paper tray and the facility to feed single sheets of paper and card up to 157gsm. An optional extra universal feeder provides the facility to automatically feed up to 150 sheets, from sizes of 98mm x 148mm to 216mm x 356mm in size, at weights of up to 158gsm. It can also feed up to 15 envelopes, overhead transparencies and labels automatically.



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THE LP1200 IS A GENUINE LASER PRINTER AND NOT AN LED PRINTER. MAKE SURE YOU CHECK THE COMPETITION!

See how the Ricoh LP1200 compares to its Laser Printer Competitors

FEATURES	EPSON EPL4100	HP L/JET IIIP	M'MAN TALLY MT904+	IBM 4029 Model 010	RICOH LP1200
Average Street Price (excl. VAT) (*expected)	£569	£699	£699*	£750	£699
Official RRP (excl. VAT)	£945	£1,179	£1,099	£1,099	£1,195
Maximum resolution in dots per inch	300 x 300	300 x 300	300 x 300	300 x 300	400 x 400
Windows 3.1 Driver @ 400 dpi	-	-	-	-	YES
Print Speed	6ppm	4ppm	4ppm	5ppm	6ppm
Straight Paper Path	YES	-	-	-	YES
PCL 5 Printer Command Language	-	YES	YES	-	YES
HP-GL/2 Vector Graphics included	-	YES	YES	YES	YES
Resolution Improvement/Enhancement	YES	YES	YES	YES	YES
Standard RAM	0.5Mb	1Mb	1Mb	1Mb	2Mb
Full A4/300 dpi graphics with standard RAM	-	-	-	-	YES
Warm Up Time	<45 secs	<60 secs	60 secs	33 secs	45 secs
First Page of Text Output	<20 secs	<40 secs	34 secs	20 secs	<15 secs
Document Description Language included	-	-	-	-	YES
Flash ROM	-	-	-	-	YES
Upgradable Firmware	-	-	-	-	YES
IC Card Slot	YES	-	-	YES	YES
Scalable Resident Fonts - in HP LJ III Emulation	-	8	8	0	8
Resident Bit-Mapped Fonts	11	14	14	16	14
AGFA Intellifont Scalable Font Technology	-	YES	-	-	YES
HP LaserJet III Emulation Included	-	YES	YES	-	YES
EPSON FX Emulation Included	YES	-	YES	-	YES
IBM ProPrinter Emulation Included	-	-	YES	-	YES
Standard Tray Capacity	100	70	100	200	100
Protective cover on standard tray	YES	-	YES	YES	YES
Cost per copy**	1.65p	2.00p	1.71p	1.64p	1.65p
Min-Max Paper Weight in gsm	60-157	60-105	60-120	60-131	60-157
Able to print on OHP Film	YES	YES	YES	YES	YES
Able to print on card (157gsm - Manual Feed)	YES	-	-	-	YES
Standby -Noise Level	<40dB	31.7dB	<35dB	38 dB	<38dB
Printing -Noise Level	<50dB	43.3dB	<46dB	50 dB	<48dB

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

All Trademarks are acknowledged

IT'S A WINNER!

Shortly after its launch, the LP1200 had scooped accolades from most of the major press reviewers . . .

"The winner is the Ricoh ... its graphics performance is staggering".
Shopper Labs Best Buy
COMPUTER SHOPPER - AUGUST '92

COMPUTER SHOPPER BEST BUY AUGUST '92

"We liked the Ricoh's speed, extra memory (useful for graphic printing) and full HP LaserJet III emulation with scalable fonts ... running costs, ease of use and documentation are all also good, so this is a well rounded package".
PC PLUS VALUE VERDICT ■■■■
PC PLUS - AUGUST '92

"Compact, quiet and hassle free ... excellent value ...".
PC DIRECT - OCTOBER '92

PC MAGAZINE UK EDITOR'S CHOICE OCTOBER '92

"The Ricoh stormed ahead of the other printers in mixed page tests ... was consistently the fastest non-PostScript machine in all the tests ... it produced the most impressive pages, with prints consistently clear and well contrasted ... produced some very fine prints at 400dpi".
'WINDOWS' MAGAZINE - JULY '92

AMIGA FORMAT GOLD Dec '92

PC TODAY BEST BUY OCTOBER '92

LASER PRINTER AWARDS
What to Buy for business
A "BEST BUY" DECEMBER 1992

Consumables + Accessories

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

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*Note: A4 paper tray is already included in the printer price. More A4 trays can be purchased to feed different coloured stationery.

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- ***UNIQUE FLASH ROM*** *For controller upgrade and storage*
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- ***EXPANSION BOARD SLOT*** *For improved connectivity eg. Coax/Twinax, PC-LAN etc*
- ***LAYOUT*** *Document Description Language*
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Before you decide when to buy your new laser printer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or consumables, or help and advice with your new purchase. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. We have been established for almost 14 years and, with our unrivalled experience and expertise, we can now claim to meet our customers' requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest FREE literature and begin to experience the "Silica Systems Service".

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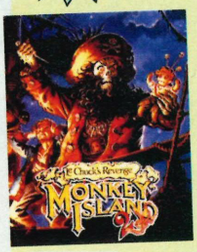
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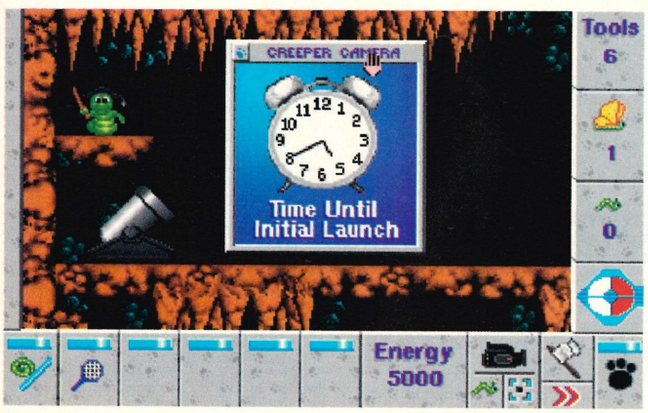
Title	**Creepers**
Publisher	**Psygnosis**
Contact	**(051) 709 5755**
Price	**£39.99**

CREEPERS

As if lemmings weren't enough, Psygnosis now gives you the chance to save another set of suicidal creatures from self-destruction

Lemmings, Psygnosis's superlative combination of puzzle and platform action, is unique. However, to anyone who's played Lemmings the similarities between it and Creepers are quite striking: both are puzzle-cum-platform games featuring levels made up of individual, scrollable screens; both feature creatures who self-destruct unless you stop them; both make use of a menu of tools to overcome hazards; both have restrictions on the number of tools you can use, and both boast cute characters and bold, colourful graphics.

What's the point of these comparisons? Simply that, without Lemmings or The Humans pitted against it, this would be one of the more original and interesting combinations of platform and puzzle action to appear on the PC. As it is, it has some pretty stiff competition. As you make progress through the game you discover that Creepers has enough innovative features to make it an enjoyable experience in its own right, but it's hard to shake off that first impression that you've seen it all before.



(Below) The early levels feature helpful tips from the professor. If you're really stuck (and hardened arcade fans shouldn't be), you can ask his advice.

The aim of the game is quite simple. The creepers — a rare species of caterpillar devoted to eating, creeping and making little caterpillars — have a terrible sense of direction. This is unfortunate, because once every year they are obliged to make a trek to the Butterfly Bowls, where they are transformed into beautiful butterflies. The journey itself is a hazardous one, and many a creeper has ended its days trapped, mashed, bashed, frazzled, drowned or shredded. Thus they badly need outside help — and you've been selected as the ideal creeper helper.

There are 70 stages in all, spread across four difficulty levels: easy (18 stages), moderate (15), challenging (20) and brutal (17). The first half dozen screens are woefully simple and will make you wonder why you've spent £40 on something so easy — they will probably only interest novices and small children, though there is an on-screen tutor which offers a couple of handy tips for the rest of us. Thankfully, the remaining stages do get gradually more interesting and much more difficult, occasionally to the point of frustration.

On every level you have a specific number of creepers to rescue. After a preset time limit, which varies from screen to screen, the creepers emerge from a variety of orifices, such as the barrel of a gun, a tap, a fish's mouth or a flower. They then proceed to wriggle or roll around until you guide them to the Butterfly Bowl or they unwittingly commit suicide. You haven't got unlimited resources to finish the job, though — if your energy runs out you have to start all over again.

Ten tools are available to help the creepers avoid endless pitfalls and reach their goal. A swatter is used to knock the caterpillars around the screen and cunningly coax them from their hiding place, three

Creepers are stupid — they'll happily fall off cliffs or into mincing machines if you let them. This is just one of a mere 70 ways you can help them complete their annual trek to the Butterfly Bowls.



Every level is prefaced by an introduction screen which details how many creepers you have and how many butterflies you need. On some levels you must find a way to produce more creepers than you actually start with.

kinds of girder can be used to bridge yawning chasms, two types of fan to blow the creepers around, magnets attract them, trampolines bounce them, and bombs blow huge holes in just about anything.

The final tool turns a rolling creeper into a strolling one. A creeper will curl up in a ball and roll quickly if you encourage it with a gust of wind or push it down a slope; otherwise it simply wriggles slowly in whichever direction you point it. If you want to quicken the pace a little, an icon enables you to accelerate the creepers' strolling speed.

Everything would be oh-so-easy if you had a complete set of tools on every screen. You don't: some screens give you a choice of only one and at most you can have six. Additionally, how many tools you actually use is controlled by a 'tool limit' and your energy level: every time you use the swatter, for example, you lose 200 points from a maximum of 5,000.

The presentation as a whole is nicely done. The manual is colourful and beautifully simple, you have a choice of music or sound effects, the on-screen displays are clear and make playing the game easy, and each level has an introduction screen. In addition, not everything about the game is revealed in the manual. On later levels you often come across surprise puzzles — for example, how do you go about converting three creepers into eight butterflies? The game becomes more a question of finding out what works and planning ahead than simply wielding tools.

Creepers is beautifully packaged with big, cute and colourful graphics, 16 different tunes (which are jolly almost to a fault), clear presentation and a good deal of variety — and as such, it should be an instant hit with younger players. Older players might want more from the gameplay itself, though: later levels occasionally cross the border that divides challenge from frustration.

The major problem is that £40 is a little expensive for what's on offer. I felt no incentive to play a screen again once I'd completed it, because there's no scoring structure which saves record times or offers efficiency or style bonuses for different approaches. The appeal lies chiefly in discovering the next password — and that's not really enough.

Creepers is an enjoyable, if occasionally frustrating, combination of platform and puzzle action. Lemmings is the best game in this genre, but if you already own it and can't wait for Lemmings 2, Creepers will provide temporary comfort.

■ Gordon Houghton

PCreview 5

Techspec

One high-density disk is all you need. You can play from floppy disk, but installation shortens the loading which accompanies every level. The box recommends a processor running at 20MHz, but the game is easily playable at 10MHz. A full range of soundboards is supported: apart from the usual three, you can use Tandy 3-voice and Pro Audio Spectrum. The PC speaker sound effects are a bit of an earful, the Ad Lib card produces music but no effects, but Sound Blaster produces good tunes and decent effects. Joystick (a little sluggish in response), keys (clumsy), and mouse (the best control method) can all help your creepy crawly chums become beautiful butterflies.

Disk requirements						
	High density	✓				
	Hard disk only	✗				
	Space taken on hard disk	0.9Mb				
Graphic modes						
	CGA	✗	EGA	✗	Tandy	✗
	VGA	✓	SVGA	✗		
Soundboards						
	Ad Lib	✓	Roland	✓	Sound Blaster	✓
Control						
	Joystick	✓	Keyboard	✓	Mouse	✓
Performance						
	Optimum speed	20Mhz				
	Minimum memory	640K				
	Free RAM required	560K				

Alternatively...

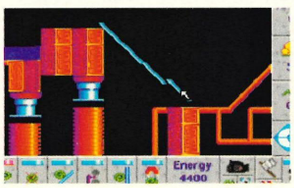


Lemmings
Psygnosis, £34.99
This is one of those rare, truly original and brilliant games which actually gets the recognition it deserves. The simple aim is to stop a gang of cute, green-haired lemmings from stumbling into all kinds of torture, by using tools designed for the job. Its superb puzzle and platform action has been successful enough to inspire a data disk (Oh No! More Lemmings — £25.99, rated 7 in Issue 5) and a sequel, the imminent Lemmings 2.

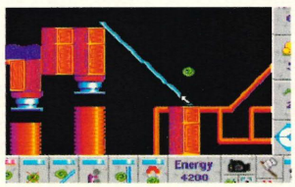


The Humans
Mirage, £29.99
Rated 7, Issue 17
If you prefer a more sedate pace than Creepers or Lemmings, The Humans might be more to your taste. It has in common with both a combination of puzzling and arcade skills, and the need to accomplish your task with limited tools. It also features evolutionary progress through 100 levels as you try to do a variety of tasks. It's entertaining, if eventually repetitive.

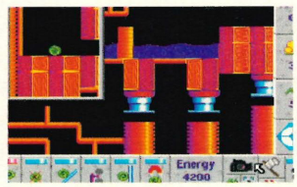
Two Minutes *of jeepers creepers*



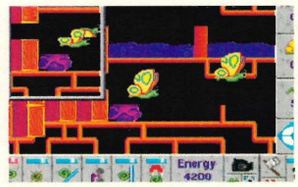
But this is level 19, and life is easier here. It's a good idea to pause the game at the start of each stage and scroll the screen to reveal the problem areas. Here the major difficulties are a chasm and a trio of mashing machines.



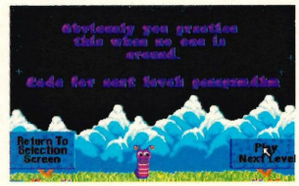
The chasm is simple enough: build a trio of ramps to bridge the gap. Your creepers come rolling out, bounce over the water and drop into the Butterfly Bowl. That's the plan, anyway — if it goes wrong, you're in trouble.



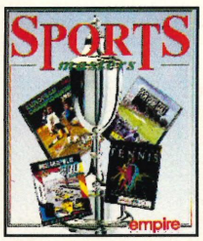
One of Creepers' excellent presentation features allows you to use a couple of cameras to follow your creeping chums to their destination. It's not always useful, but it's a nice alternative to watching a single screen.



This is what you've been waiting for: at last the creepers emerge from the Bowl as fully-grown butterflies. If you've saved them all from self-destruction and you still have energy left, you can travel to the next, harder, screen.

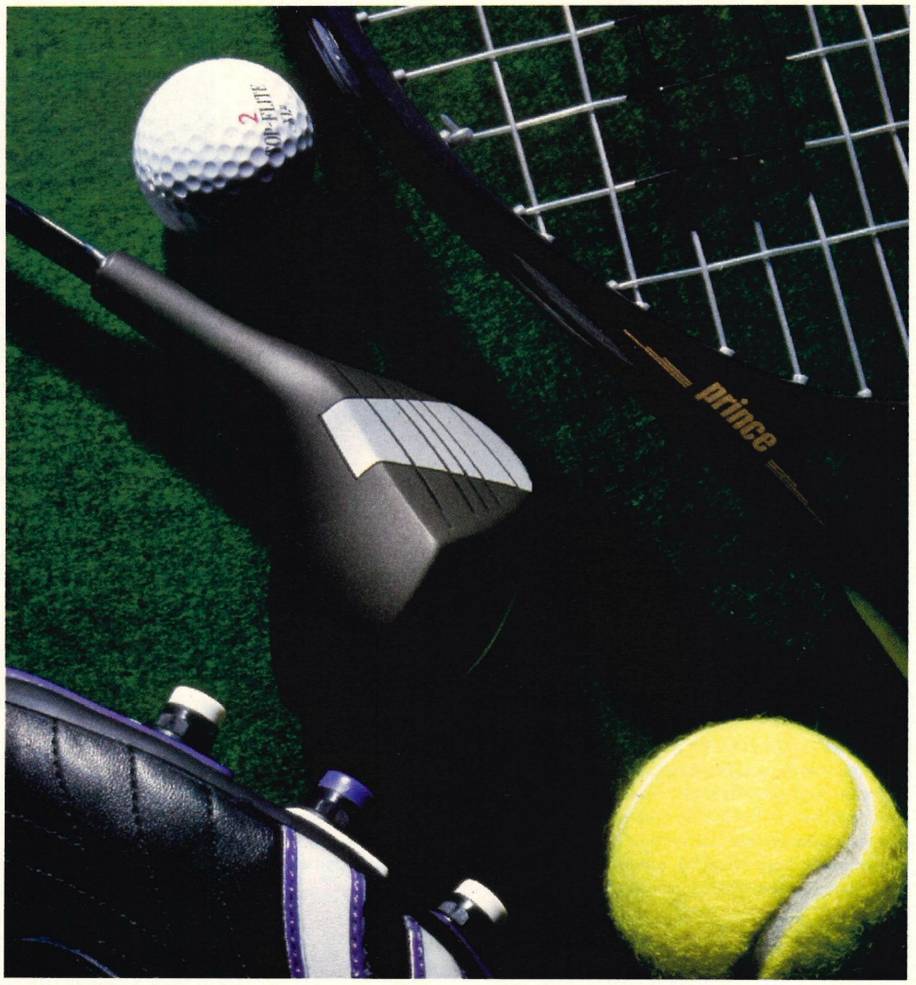


Each level has a password which you can use at the main menu to avoid repeating stages you've already completed. You can also skip immediately to stages 19, 34 and 54 by selecting one of the four difficulty settings.



Title	**Sports Masters**
Publisher	**Empire Software**
Contact	**(0268) 541126**
Price	**£34.99**

This must be the computer equivalent of the triathlon: play a round of golf, race the Indy 500 circuit, take part in the European soccer championships and finally serve up a few aces — all in one package



Sports MASTERS

All four of the games included in Sports Masters — PGA Tour Golf, Indianapolis 500, European Championship 1992 and Advantage Tennis — received much critical acclaim when they were initially released. However, due to the advancement of computer technology, some games that were declared "best buys" in 1990, can now be re-classified as "best of the rest", especially when compared to similar games that are currently available.

That said, some games stand the test of time admirably — and PGA Tour Golf is one such game. True, games such as Links 386 Pro may have surpassed it as far as graphic capabilities and playable options are concerned, but PGA has a whole host of other facilities that more than compensate. For example, it is one of the only games that allows you to play a tournament against the entire PGA tour and gives professional advice at every hole — from the world's top golfers — if you want it.

On the surface, PGA looks easy to play, but it contains enough hidden depth to keep even the most enthusiastic golfer quiet. Some factors to take into account include the lie of the ball, the gradient of the green, the ability to over-hit shots, the wind-speed factor as well as multi-angle viewpoints. The game also contains a choice of four courses, over which various 72 hole tournaments are played.

Overall, PGA Golf Tour has lasted well. It has lost none of its atmosphere and fast gameplay that helped win it the praise it won when it was first released.

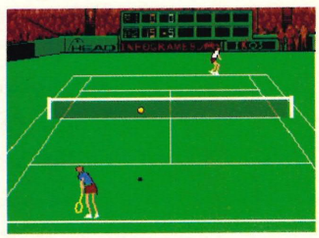
Upon playing Indianapolis 500, I immediately noticed that the graphics were somewhat dated. The oval track turned from straight lines into zigzags on a regular basis and rival the cars looked very blocky on occasions. Nevertheless, the game still retains all the excitement and gritty realism it has become famous for. The computer controlled opponents continue to provide a real challenge and act in an uncannily human fashion, cutting you up, getting in your way and generally making your driving life a misery.

Your car also reacts as it would if you were really driving it, so when you skid off the track at 150mph you don't come to a gentle stop on the grass — you bounce off walls, run straight into other competitors and generally smash the car to smithereens. Masochists should note that they can watch their spectacular crashes via an excellent six-view replay option that details the last 20 seconds of any part of the race.

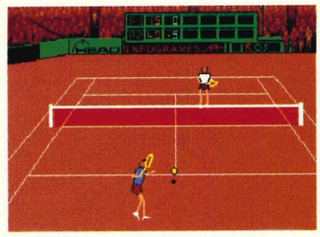
PC*review* 7

Two Minutes *of tennis elbow*

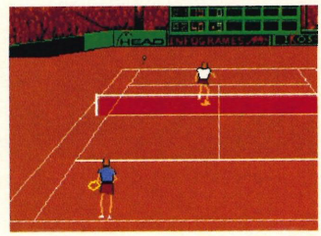
Learning to play tennis on the computer is no mean feat, but Advantage Tennis offers a wide range of shots on both grass and clay to help you along. Here are some tips to help you clear the net.



Following the shadow of the ball is an essential part of success in Advantage Tennis. Note that the receiver is already in position to return the ball and it is not even in his half.



This game was played on a clay court and the bounce of the ball is noticeably different from that on grass. Here the computer has left itself open for the cross-court half-volley — if it can be played!



After a really good point has been won or lost, either the victor spins and catches his racquet in a nonchalant loop-the-loop or the loser stamps on his racquet, as he does here!

Techspec **Only three of the four games run under CGA (European Championships requires EGA as minimum) while two, tennis and golf, run under Hercules. If sound cards are to be used for Indianapolis 500 you must edit the Menu.bat file as per page 40 of the rule book to include the relevant sound card suffix.**

Disk requirements					
	High density			***x***	
	Hard disk only			***✓***	
	Space taken on hard disk			***2.7Mb***	
Graphic modes					
	CGA	***✓***	***EGA***	***✓***	***Tandy*** ***x***
	VGA	***✓***	***SVGA***	***x***	
Soundboards					
	Ad Lib ***✓***		***Roland***	***✓***	***Sound Blaster*** ***✓***
Control					
	Joystick ***✓***		***Keyboard***	***✓***	***Mouse*** ***✓***
Performance					
	Optimum speed			***16MHz***	
	Minimum memory			***640K***	
	Free RAM required			***512K***	

To stand any chance of success a lot of practice is required. You must also customise your car, as altering your car's wings, gear ratios and turbochargers, to name but a few factors, make all the difference. Good luck — you'll need it!

There aren't many tennis simulations on the software market and it's easy to see why — learning to play tennis on the computer is very difficult. The main problems are judging the speed and distance of the ball and getting the timing right when attempting a shot. In an attempt to combat these problems, Advantage Tennis has simplified the game's controls, thus making shots easier, and introduced limited computer assistance, so your character is not caught completely flat-footed all the time.

Furthermore, this game allows you to mould your character to your own specifications, giving you total control over their statistics and specialist shots. Once you have designed your character, you can let him take part in extended training sessions plus a series of exhibition matches before you take the plunge and enter him into the tennis circuit, where he will play the best players in the world.

Advantage Tennis is subtly addictive. True, the graphics are very nondescript, but the fluid scrolling and wide range of shots more than make up for this. In the end you are concentrating on the ball so much, the background graphics become immaterial.

Eventually, when you fully come to terms with the game's controls you can appreciate the extensive command you have over the angle, power and placement of your shots. Be warned though, moving a player one way, then swiftly moving the joystick in another direction to direct his shot takes a lot of getting used to — but the results make it definitely worth persevering with.

European Championship 1992 is tricky to evaluate. On the one hand, this arcade version of Italia 1990 has coarse grainy graphics, slow cartoon-like animation and terrible sound effects. The players who are eligible to possess the ball wander around like chickens with their heads cut off, and controlling the goalkeeper is a nightmare.

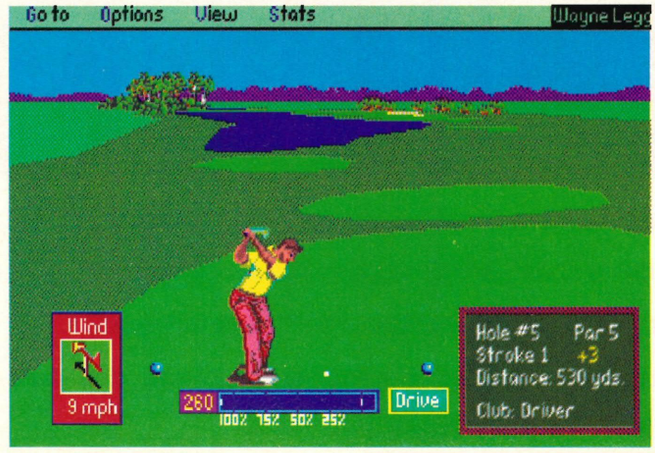
On the other hand, European Championship 1992 is currently the best soccer sim on the PC (since we're still waiting for the PC version of Sensible Soccer). Even more positively, it does have a couple of spectacular special actions, which allow the players to perform scissor kicks as well as head the ball, plus the ability to save and watch all the goals scored. Compared to the PC version of Kick Off, it's great, but its features are just not enough to put it in the same league as the other three games in this compilation.

Sports Masters is a well balanced package that should provide hours of exciting entertainment for armchair sports fans. Three of the games included are well worth the asking price alone and after spending over 50 hours reviewing this product I can confirm that Sports Masters is indeed "superb value" for money.

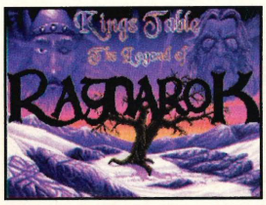


■ **Wayne Legg**

Seen this scene somewhere before? The goalkeeper is in no man's land, the defenders are all over the shop and the centre forward is given a free header into an empty net. 2-0!



After checking the green surface and finding it flat, all that is needed is a straight, evenly weighted putt.



Title	**Ragnarok**
Publisher	**Mirage**
Contact	**(0260(299909**
Price	**£39.99**

Ragnarok is an adaptation of an ancient Nordic board game known as King's Table. White's aim is to help Odin, the central piece, reach the safety of a corner; black's aim is to prevent this.



This is the starting line-up. There are two games you can play: King's Table is the original Nordic version and Ragnarok adds a collection of special pieces to it. Whichever one you choose, black has first move.

Ragnarok



It's not chess, it's not draughts, and it's certainly not your average strategy release. So what exactly is Ragnarok? It's a whole new board game based on an ancient Viking pastime ...

Ragnarok, in Norse mythology, is the final cataclysmic battle between the gods and the forces of evil, from which a new order will emerge. Ragnarok, in this review, is a spiced-up adaptation of the ancient European board game known as King's Table. King's Table is similar in style and substance to chess and is at least 1,500 years old.

Mirage gives you two games for the price of one in this package: the original King's Table and the more exotic Ragnarok. Unless you're a student of Old Norse culture or blessed with the gift of prophecy you won't know much about either game, so here's a brief run-through of the rules.

Black and white

King's Table is played on a board measuring 11 squares by 11. There are two sets of pieces, black and white, which — as in chess and draughts — are pitted against each other in battle. In chess and draughts the pieces attack each other from opposing sides, but in King's Table the white set (consisting of 13 pieces arranged at the centre) is surrounded by the black set (consisting of 24, six on each side of the board). White's objective is to guide its king to one of the four corners; black's objective is to prevent this from happening.

Black, whose team consists entirely of pawns, always has first move. White's team has a dozen pawns, and a solitary king in the centre of the board. Obviously, both sides' position is improved by reducing the enemy's numbers, and much of the initial game strategy involves jockeying for space in which to make a successful capture. Capturing one of your opponent's pieces involves sandwiching it between two of your own. It doesn't matter if, in capturing a piece, you place yourself directly between two enemy pieces: the fact that you're making a positive move to take an opponent is more important.

The only way black can win is to immobilize the white king — by surrounding him on four sides. If the king is on the edge of the board, black only needs to cover the surrounding three



There are several in-game features which can help you decide your next move. Different keys reveal basic information about a chosen piece, detail all its available moves and even suggest what you should do next.



Novices soon learn that most of the computer opponents are too smart for them. There have only been a few exchanges in the game so far, and already the enemy is surrounding one of your pieces ...



... and the action cuts to a 3D conflict animation, which shows your piece being shamelessly bullied and killed by the opposition. This type of cut-scene caters for arcade fans, but serious strategists will probably soon disable it.



As if seeing your piece massacred wasn't enough, your opponent then takes time out to cast a load of abuse your way. Like the animated death throes, this feature can be disabled, — but it does add atmosphere.



It looks as if the game's up for Odin. If you're playing black this is good news, but if you're white it's disaster. Luckily there are twelve opponents to choose from — and if you can't beat them, try a friend instead.

squares. White also loses if its king is surrounded on three sides and the remaining fourth side is the board's centre square.

If this sounds a little confusing, don't worry: it's actually very easy to get to grips with once you start playing, and in no time at all you'll be sliding pieces around the board like the Vikings of old. Whether or not you'll win anything is a different matter: King's Table is a deceptively simple game which convinces you that any fool can play, before teaching you that any fool can lose.

Gods and men

Ragnarok is played on the same board as King's Table and is very similar in style, with the exception of a few subtle amendments to the playing pieces and rules. The scenario is this: Odin, the king of the gods, knows that he's going to die at Ragnarok. Naturally, he's determined to avoid this fate at all costs — and his plan combines the game of King's Table with a few special pieces (representing his fellow gods), to create a simulation of Ragnarok on the King's Table Board. Knowing that mankind is nature's most devious creation, he has descended to the world of man to play a few games with the locals, in the hope that he may learn some tactics that will help him cheat destiny.

So much for the story. In practice, this allows Mirage to add half a dozen special pieces to the basic game of King's Table, thus enhancing its complexity, and to create a decent tournament structure. Whether or not this creates a 'strategy contest to rival chess', as the manual claims, is something only time or a mathematical genius will tell — but on first impressions it's not the most plausible statement ever made.

So, you have the basic King's Table set-up with 13 white pieces and 24 black. White's king is now known as Odin, and the pawns are called Einherirar, reincarnated warriors who fight for the gods. Before beginning play however, Ragnarok allows white to exchange four of its pawns for a quartet of special divinities. There are six gods to choose from: Thor (who can move to an opponent's square at any time and exchange lives), Frey (diagonal moves only), Vidar (two squares horizontally or vertically), Heimdall (any direction one square at a time), the Valkyries (two squares horizontally and vertically, and may leap over an opponent), and Tyr (unlimited moves horizontally and vertically). Black faces the same choice, picking any four similarly special pieces from a list of six.

Once you've completed initial selections, Ragnarok throws you into a tournament. There are 12 opponents, each with a different playing style: Bodvar War-Tooth is the thump-first-ask-questions-later type, Halfred Lace-Cuff is thoughtful but timid, and Ljot the Wise is an expert player who also cheats. To prove your worth against all of them you have to play two games in every round: one as black, one as white.

The difficulty is well graded, ranging from the initial, relatively weak challenge offered by the first few contestants to the frustratingly impressive tactics of the last three. However, even if you should finally defeat Ljot there's a two-player mode to fall back on with all the choices of the solo game. In addition, a built-in practice mode allows you to pit your skills against any of the computer opponents at any time.

(Left) Should you actually have a run of good results in your own private tournament with the locals, it's likely that your reward will be an animated endgame sequence, like this.

(Below) Beginners who are really stumped can watch the computer play itself and pick up some playing tips. It's a good idea to turn off the presentation extras first, though.

Good and evil

Seasoned board game players who are intrigued by what's on offer in Ragnarok will probably be asking one important question: what about the program's bells and whistles? These are divided into two parts — the game's arcade enhancements and its strategic assistance.

The arcade enhancements include animated battle scenes every time pieces come into conflict, and messages from opponents when you win or lose. The battle scenes appear in 3D, and anyone who's seen Battle Chess on the Amiga will know what to expect: characters being sliced in two, dragons destroying pawns in a spectacular fiery assault, stabbing, mutilations, disembowelment, and so on. In truth, these have limited novelty value to anyone who's interested in the strategic side of the game — nice to look at, but the appeal soon wears off.



Techspec Ragnarok comes on two high-density floppies which must be installed to a hard disk. It runs pretty well on anything from an 8086 upwards, but if you want to cut down on disk accessing time and speed up animations 12MHz or faster will help. The pieces are controlled using mouse or keys, but the lack of an overhead view and/or a flashing border for selected squares sometimes makes movement clumsy. The music — a brief collection of haunting Nordic themes — suits the action well, but if it really gets your goat there's an option to disable it.

Disk requirements

High density	✓
Hard disk only	✓
Space taken on hard disk	2.8Mb

Graphic modes

CGA	✗	EGA	✗	Tandy	✗
VGA	✓	SVGA	✗		

Soundboards

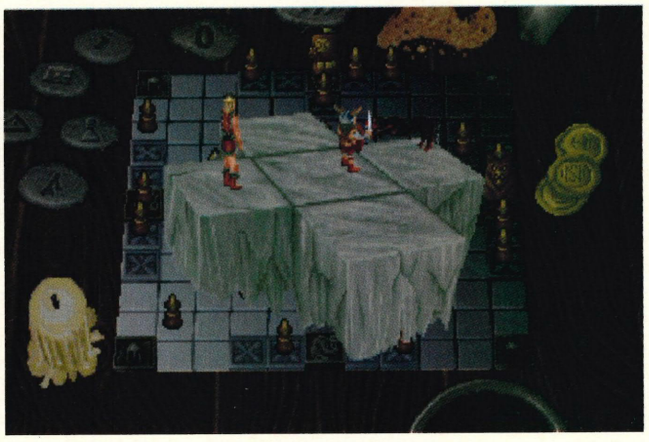
Ad Lib	✓	Roland	✓	Sound Blaster	✓

Control

Joystick	✗	Keyboard	✓	Mouse	✓

Performance

Optimum speed	12MHz
Minimum memory	640K
Free RAM required	540K



Take a good look at this 3D view, because it's the only one the game supports. There is no overhead mode to help your strategic planning.

If you're the kind of gamesplayer who enjoys sampling new board games and you're a little tired of endless varieties of chess, Ragnarok is certainly tactically demanding and engrossing in the medium term. However, the technical superiority and presentation strengths of other board game releases (such as Chessmaster 3000) might make you feel that, ultimately, Ragnarok just doesn't have the strength to compete.

■ **Gordon Houghton**

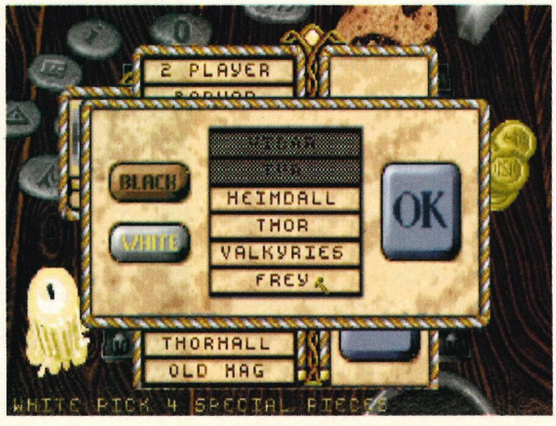
The strategic assistance comes in three forms: help keys, information about a chosen piece, and movement details. The last two are basic, functional aids, but the first offers (sometimes unhelpful) suggestions for your next move. The whole game is reinforced by an understated soundtrack (which can be turned off), effects in the animated battle scenes, load/save options and a good manual; and to emphasise further the arcade elements of this strategy board game there's also an animated introduction for added interest.

My main gripe with Ragnarok is not with the game itself. I've little doubt that a board game enthusiast could enjoy the subtleties both of King's Table and Ragnarok for a long time, if they were presented well. Unfortunately, good presentation is something Mirage have failed to achieve.

The most serious omission is that of an overhead view: unlike virtually all existing chess programs, the 3D mode is the only one you get. OK, so Ragnarok isn't chess and there's undoubtedly a distinct arcade feel to the action — but the arcade element is only a decoration for the vital core of strategy, and, in my view, a two-dimensional overhead view is essential for uncluttered tactical planning. The 3D mode is pretty but it can be confusing at times: the cursor looks as if it might be pointing at the square above (and there isn't a flashing border around your chosen square to guide you), pieces are sometimes masked by others, and there's a slight bias towards moving around the 'near' side of the board at the expense of the 'far' side. If you're completely at home with 3D, forget these criticisms; to me, though, the addition of an overhead view would have been worth a mark or two more.

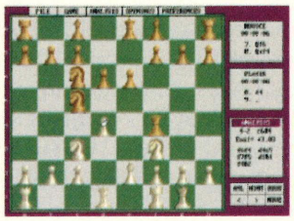
The other problem you might have is with the obscurity of the original game. Ragnarok has strong novelty value which will appeal immediately to anyone who likes playing chess, but whether or not you'll still be returning to it on a regular basis after a couple of months is debatable. It will take some considerable time, but once you've conquered the tournament opponents there may be little incentive to return — unless you have a friend who's as keen on the action as you are.

PC*review* **5**

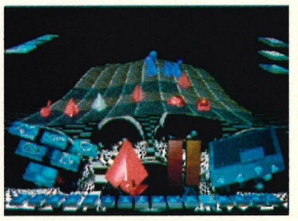


Ragnarok's special pieces are the major difference between it and King's Table. Both white and black can choose any four from six, and all have unique powers.

Alternatively...



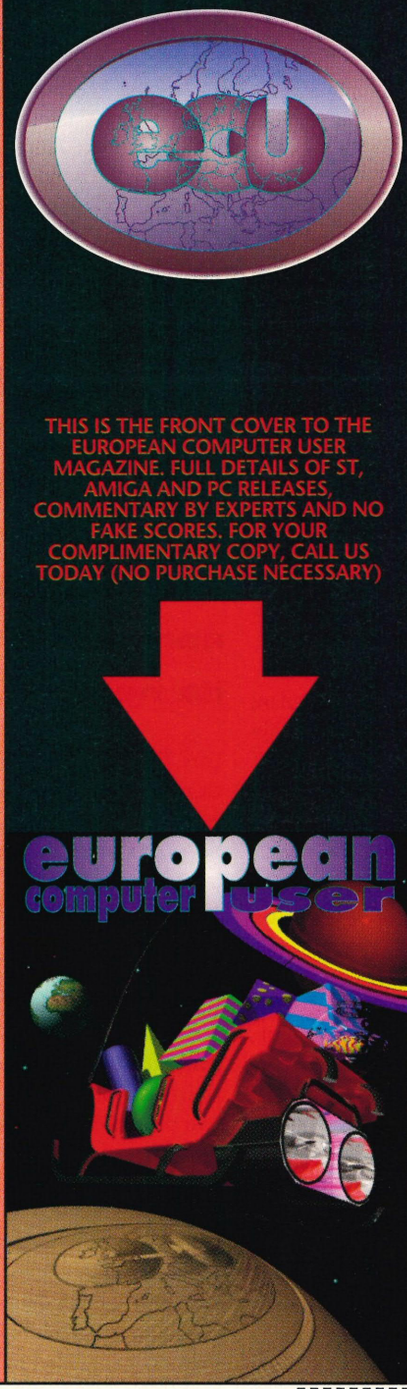
Chessmaster 3000
Mindscape, £35.99
Rated 9, Issue 4
Ragnarok isn't a chess game, but it's more like chess than anything else, and a couple of chess programs provide a decent alternative to the ancient Norse board game. The first, Chessmaster 3000, isn't the most difficult version available, but it has all the bells and whistles any novice could wish for. Excellent documentation, a strong advice facility and a wealth of options compensate for an ultimate lack of power.



Theatre of War
360/Electronic Arts, £34.99
Rated 6, Issue 12
This was definitely one of the more bizarre strategy releases last year, and it would have made a first-rate board game but for one major fault — frustratingly, the action is played in real-time. Its title belies its links with chess and King's Table/Ragnarok: the game consists of a 'board' (actually a rolling grid), military pieces with differing abilities and the ultimate objective of conquering the enemy.

SOMETHING FOR THE WEEKEND, SIR?

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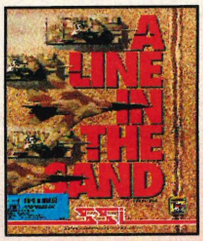
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PC REVIEW APRIL 93



Title	**A Line in the Sand**
Publisher	**SSI/US Gold**
Contact	**(021) 625 3366**
Price	**£39.99**

As the Allied player in the basic two-player game your aim is to liberate Kuwait city. Choose the automatic deployment option to save time and you're ready to unleash the dogs of war.

A Line in the

With the Allied-Iraq conflict in two of its scenarios, SSI can't be accused of dragging its heels in this board game conversion

This is a war game set in the contemporary Middle East and, as might be expected, two of the scenarios are concerned with the ongoing Allied/Iraq confrontation. SSI certainly scores high marks for topicality. It doesn't score highly for anything else.

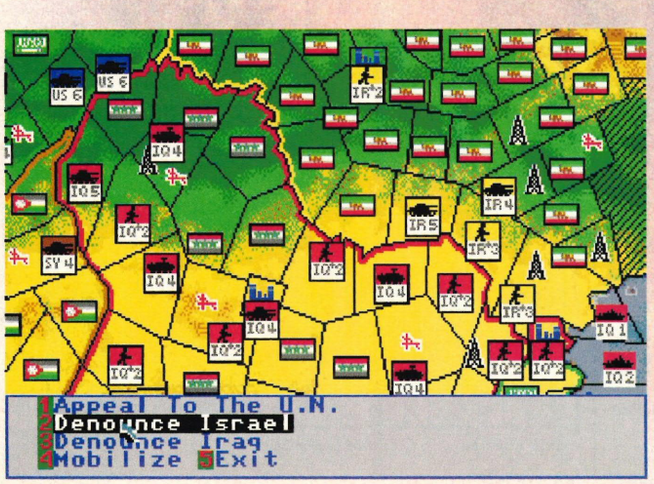
The layout and the style of play will be instantly recognisable to anyone familiar with the board game genre, and for good reason: this is an adaptation of a TSR product of the same name, so it's not a direct descendant of previous SSI military outings. There's no reason why board games shouldn't convert to the computer format, but a little effort is necessary. In this case the effort would appear to have been so little as to be negligible.

Consider this for a moment: conflicts in a board game are regulated by dice throws where results are determined by the odds and various terrain/morale factors. The most complex of these calculations can be performed in the twinkling of an eye by even the meanest computer. So what do we get here? We get the computer rolling a die.

Inspiring, isn't it? Say you want one of your aircraft to attack an enemy. If your plane has an attack factor of five the computer will conclude with lightning mathematical precision that you have a 50 per cent chance of hitting the enemy. It will then 'roll' a 10-sided die and if you score five or less, you win, though as the computer keeps its rolls to itself you'll have to take its word for it. Is this really what computers are for?

This game hasn't really been adapted, it's simply been transferred with scarcely a nod at the change of format. As a result, it's drained of atmosphere. The tension generated playing a board game comes precisely from rolling the dice, whatever the context: whether you need a six to capture Madagascar, or a double one to land on Mayfair, the excitement's all in the flick of a wrist. Why should the computer have all the fun?

When you load up A Line In The Sand you are offered a choice of six scenarios, from an historical two-player Allied/Iraq confrontation to a hypothetical six-player diplomatic war game. You can play against the computer or human opponents, either taking it in turns to face the screen or via a modem. Having chosen a scenario you deploy your air, sea and land units. The map is something like a 'risk' board, with each state subdivided irregularly into territories. There are no complicating terrain features, but some squares contain airbases or cities. These are the main strategic targets.



(Below) In the multi-player diplomatic game your freedom of action can be constrained by public opinion, reflected in the War Fever (US) and Jihad (Arab) ratings. Here the Iranian player elects to denounce Israel during his diplomatic phase — usually a popular move with the folks back home.

Techspec

A Line in the Sand isn't inordinately processor-hungry: a 286 at least is recommended, although not essential. In addition to the soundboards listed below, the game also supports the Thunderboard.

Disk requirements

High density	✓
Hard disk only	✓
Space taken on hard disk	**1.1Mb**

Graphic modes

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

Soundboards

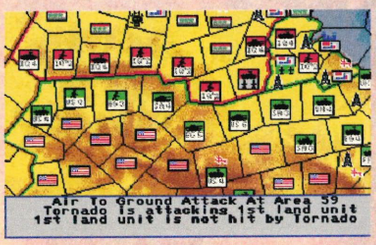
Ad Lib	✓	**Roland**	✓	**Sound Blaster**	✓

Control

Joystick	✗	**Keyboard**	✗	**Mouse**	✓

Performance

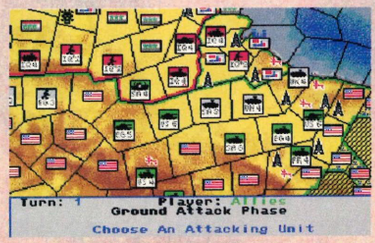
Optimum speed	**12MHz**
Minimum memory	**640K**
Free RAM required	**520K**



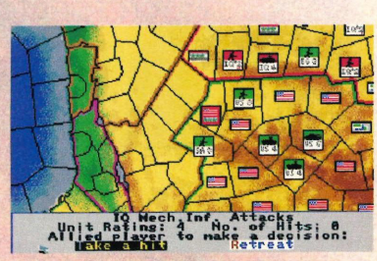
Turn 1 kicks off to a flyer with pre-emptive air attacks. Click on an airbase and choose a target, anything from opposing land units or airbases, to chemical or nuclear sites.



I'm taking out the Iraqi airforce first. Although my first shot's missed I'm not expecting problems. At least the Iraqis are coming out to fight; one up for the historical revisionists.



Meanwhile it's time to start the ground offensive. Units attack individually, never in concert, even when stacked together. One of my Saudi units has already advanced into enemy territory.



But the enemy bites back on my left flank. Do I take a hit and reduce my combat effectiveness by one, or do I beat an ignominious retreat? As this is hardly a crucial combat area I'm off!

Sand

1. Capture Kuwait City and destroy all Iraqi weapons production facilities (4 chemical and 2 nuclear weapon sites).
2. No more than 1 Saudi site (city, airfield, or oilfield) lost.

Kuwait City Captured: No
Iraqi Chemical Sites Destroyed: 2
Iraqi Nuclear Sites Destroyed: 0
Cities Lost: 0
Airfields Lost: 0
Oilfields Lost: 0
Casualties:
Land units: 18 Left Loss- 1 (5%)
Air units: 16 Left Loss- 3 (15%)

The war aims chart is useful for keeping abreast of the state of play. At this stage the Iraqis look ominously intact. Well, no one said that making the world safe for democracy would be easy.

Units have a number from one to six denoting their strength. Air units can operate at long range, but otherwise adjacent squares only may be attacked. All land units, irrespective of type, can move two squares per turn. Turns, consisting of movement and attack phases, are alternate, but aircraft may intercept during your opponent's sequence. Limited stacking — of which more later — is allowed. Surprise, surprise, it's just like a board game, and an unsophisticated one at that.

This is like something from The Land That Time Forgot. I know that war gamers are a quirky bunch, more interested perhaps in the abstract nitty gritty problem solving than in attractive peripherals, but recent developments in software technology have raised expectations to a point where products like this are no longer acceptable. Graphically it's horrible. Ad Lib 'sound support' (inverted commas necessary) consists of a pathetic snatch of martial music accompanying the intro shot. Nor is the game user-friendly: mouse control is fiddly, and while the computer is doing its combat calculations it's impossible to keep track of what's going on. Documentation is basic and uninformative. When you consider what you'd get from the MicroProse stable it's hard to suppress a surge of outrage.

Although there have been attempts to break the mould (see Alternatively panel) the computer war game is in too many important respects still wedded to the mechanics of board play. Why, when so many of these mechanisms are irrelevant out of the original context? Take, for instance, the concept of stacking.

Stacking, the placing of two or more units in the same square, is limited in board games by two considerations, one realistic — the number of troops who might occupy the equivalent area in practice, depending on ground and unit scale — the other pragmatic — ie, how many cardboard counters can be piled up before there's a danger of knocking them all over?

Let's just examine this more carefully in relation to A Line In The Sand, in which the stacking limit is two ground units per square. Clearly this is not for realistic reasons, as each territory represents hundreds of square miles and could therefore easily swallow up dozens of units. Nor can it be for pragmatic reasons, because these obviously do not apply — there are no cardboard counters. Why then is the rule so slavishly reproduced? Couldn't something a little more sophisticated have been devised? Of course we'd have a different game then, but that's precisely the point. It ought to be different.

This criticism may seem like an attack on the game for what it isn't, rather than an assessment of what it is, but I'm afraid that what it is just isn't enough. Still, it's only fair to point out that A Line in the Sand is a departure from SSI's usual house style, that the interface is a one-off and the standard of presentation atypical, so it's not indicative of SSI's war games as a whole. Nonetheless, the suspicion grows that the days of the traditional board-inspired war game must be numbered.

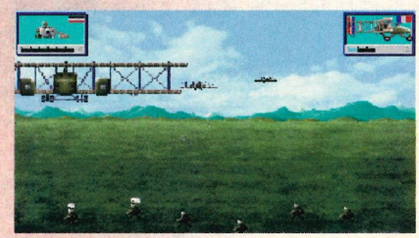
■ Simon Shaw

PC review 3

Alternatively...



Perfect General
Ubi Soft, £39.99
Rated 7, Issue 8
Again clearly showing the influence of board games (it's rather like a cross between Panzerblitz and the old 60s classic Combat) this nonetheless scores highly for playability. It's scarcely realistic, but a rapidly moving grand tactical scale game that's also fun to play. Nice graphics too. War games don't have to look as if someone's just thrown up over your screen.



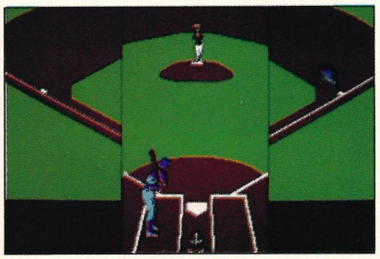
Historyline
Bluebyte, £39.99
Reviewed this issue, Bluebyte's stunning new war game certainly bears some of the marks of the old-style board game (the 2D playing maps; the hex system) but the resemblances are superficial. This game was developed purely with the computer in mind, and it shows in the sophisticated control system and the ingenious use of the split-screen. Hugely playable and tremendously exciting by any standards.

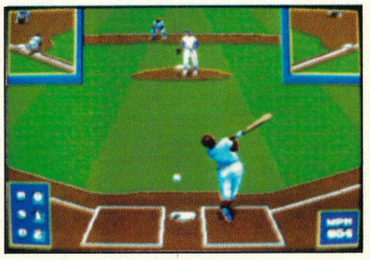
Reviews extra

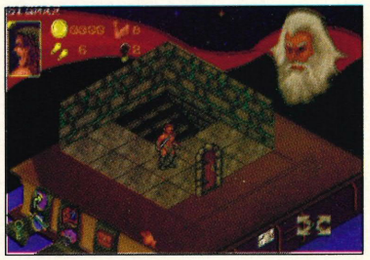
The games that got away



Terminator 2


RBI Baseball Two


TV Sports Baseball


HeroQuest

There are so many games demanding attention that it's impossible to cover all of them in detail, much as we'd like to. So the reviews round-up is where we dive into a quick-fire rundown on the best of the rest.

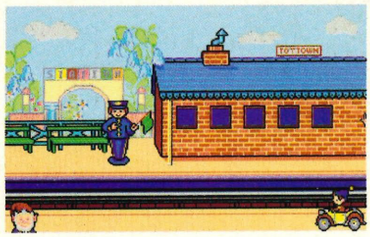
A fistful of budget games, two educational packages for very young games players, classic shareware and the second in the V for Victory wargaming series are on this month's round-up menu.

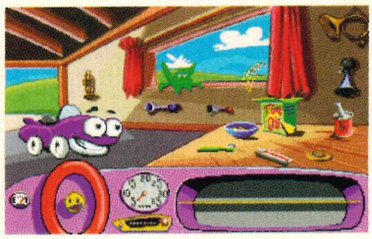
The budget games have all been through the mill once already. First up is Terminator 2, Judgement Day (The Hit Squad, £9.99) which scored a massive rating of two when we reviewed it the first time round. All sorts of adjectives spring to mind for the eight arcade games strung together to simulate scenes from the movie, and none of them are favourable. All in all, a very limited and unimaginative attempt, offering minimum entertainment. The action is largely crude beat 'em up battles with the T1000, and the high spot of the game is probably the bike chase level. Sad to say, if it wasn't for the all-too-brief digitised sequences, it'd be difficult to guess what resemblance this game bears to the action-packed movie.

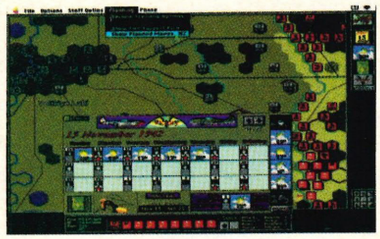
The Hit Squad's second offering, RBI Baseball Two (£9.99), does for graphic quality what Terminator 2 does for gameplay. An EGA display is as good as you'll get from it, the

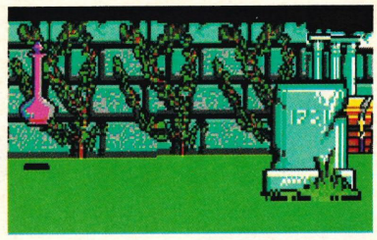
Reviewed this issue

Ultima Underworlds 2	8
Historyline	8
Eric the Unready	7
Daughter of Serpents	7
Clouds of Xeen	7
Shadoworlds	7
Sports Masters	7
Battlechess 4000	6
El-Fish	5
Creepers	5
Ragnarok	5
Line in the Sand	3


Noddy's Playtime


Putt Putt joins the Parade


Velikiye Luki


Catacomb Abyss

animation is crude, and it's supposedly incompatible with anything more powerful than a 286 PC. Needless to say, it subsequently proceeded to run perfectly happily on a 386. This shining example of anything but the latest technology isn't helped by batting techniques which could best be described as a lottery, but the game does have a certain undeniable simple and addictive charm. This is particularly true once you start playing the leagues and master the art of snappy fielding and the demon curve ball.

Almost identical in its approach to the game, TV Sports Baseball (Mindscape Classic, £19,99) has vastly better graphics and smoother, if equally straightforward, gameplay. Hitting the ball with any degree of accuracy is still something of a problem, but there are plenty of decisions to be made about team selection, fielding positions and swapping pitchers, coupled with the same addictive quality of RBI Baseball Two. Baseball fans will love it, and its a fairly entertaining sports simulation for the rest of us.

Moving swiftly on from budget sport to budget fantasy, HeroQuest (GBH, £11.99) is a straight conversion from the role-playing adventure board game. The PC version includes the Return of the Witch Quest expansion disk as a bonus, giving you an extra ten adventures to wade through.

Unfortunately, HeroQuest is an unambitious, rather slow moving game which has missed the chance to make anything out of the boardgame to PC conversion. It's best suited to younger players (10-14 years).

Back in the full-price bracket, Noddy's Playtime (Jumping Bean, £29.99) is the first of two educational games for three to seven year olds. There's plenty of mileage here for the kids, in a series of eight games and puzzles which Nodders gets to by driving around ToyTown.

As well as a painting package, there are memory and observation tests, a simple music tutor, jigsaws, counting games at the Post Office, word games in the Farmyard, and a maze escape from the Police Cell. What Noddy was doing to get stuck in the Nick we can only speculate, but there's bound to be a lesson in it somewhere.

Putt Putt Joins The Parade (Electronic Arts, £29.99) is a game of exploration, shopping and the annual Cartown Pet parade. Putt Putt's a great character, the game is delightfully animated, and it's certainly the more inventive and original of these two games.

Unlike Noddy's Playtime, which leans heavily towards the first stages of the National Curriculum and somewhat serious educational purposes, the puzzles in Putt Putt are more in the adventure game 'find and use objects' tradition rather than blatant tests and quizzes.

Not content with taking up over 10Mb of disk space, the game also comes complete with a colouring and puzzle book, and the absolutely indispensable Putt Putt Junior Adventurers kit (a pencil, sharpener and rubber, to the rest of us!).

Completely unsuitable for three to seven year olds, if only because they'll be 17 by the time they've worked right through it, there's the second instalment in the V for Victory (Three-Sixty, £34.99) war gaming series. Velikiye Luki, on the Russian Front, is the setting for this World War II battle, which uses the same hexagonal grids and troop markers, made popular in the original board game campaigns.

It's possible to play either the German or Russian position, with numerous historical variations, in a series of seven difficulty levels, up to the complete campaign. Velikiye Luki is a detailed and comprehensive simulation for war game fanatics everywhere, but you really do have to be an enthusiast.

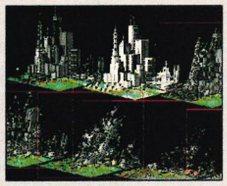
And finally, The Catacomb Abyss which made its first appearance on our January cover disk, is from the creators of Wolfenstein 3D, and probably one of the best shareware games around at the moment. We've already mentioned it in the shareware column, but it's so much fun it's worth mentioning again. The Catacomb Trilogy (Transend, £34.08) brings together Abyss, Apocalypse and Armageddon, providing plenty of puzzles and adventure in this first-person perspective dungeon.

PC Review's best buys

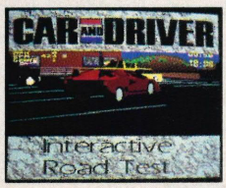
What are the best games currently available? PC Review's Best Buys are taken from the last three months of reviews in order to give you a good idea of what to shell out for.



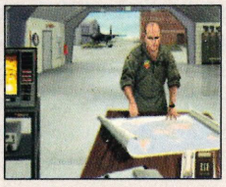
Stunt Island
Disney/Infogrames, £49.99
Wonderfully original stunt flying and filming game: swoop down to the Golden GateBridge, or loop the loopover the desert and preserve your efforts on 'film' which can then be cut and edited. A vast program which should last you months.



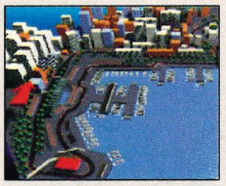
Shadow President
DC True/Empire, £34.99
An in-depth simulation of life in The White House, with you as the president facing turmoil in the Middle East, and potential trouble at home. Not for the faint-hearted, or dilettante games player.



Car & Driver
Electronic Arts, £34.99
If F1GP is the king of the racing simulations, C&D is certainly the best plain driving game. Take the world's top sports cars and drive like there's no tomorrow.



F-15 Strike Eagle III
MicroProse, £44.99
The third in MicroProse's long line of F-15 sims is a satisfying challenge and a half-decent simulation. It may not be the best flight sim the 'Prose has ever done, but it's certainly one of the better ones.



Formula One Grand Prix
MicroProse, £44.99
The long delay in its appearance on PC may have taken the edge off the excitement, but F1GP is still fast, graphically exciting and highly playable. The best PC racer currently going.



AV8b Harrier Assault
Domark, £39.99
MicroProse's forthcoming Harrer Jump Jet is going to have to be very good to topple Simis and Domark's effort. It may be single-mission only, but the attention to detail is without peer, and the combination of strategy and playability is a winner.

Shareware Reviews

This month Sam Mackenzie has been sifting through a giant CD-ROM compilation of games and testing his artistic prowess in Neopaint, a highly impressive graphics program.

Shareware Games Compendium CD-ROM

There are countless collections of shareware becoming available on CD-ROM since it is difficult to find 600Mb of data to fill a CD-ROM any other way! However, not all shareware collections are of the same quality. Some give the impression that the editors of the disc haven't bothered to look at the programs, leaving you to sift through thousands of them in an attempt to find something worth using! Often this is like trying to find a gold nugget among the dross as it can be hard work scanning directories and manually unzipping files.



The Shareware Games disc from Tons of Gigs isn't like this at all. Well researched and organised, you just run the Games batch file and from then on, it takes care of you. The categorised menu of programs has short text descriptions of what they are. You can browse through the listings and, if you see one that you like, move the cursor over its name and press return.

The menu program automatically decompresses the files into a directory on your hard disk and you are presented with a directory listing. You list documentation files by selecting them and pressing L and you run the actual program by selecting the file and pressing Return.

In most cases, the program will run, but just occasionally you will get an out of memory error in which case you have to leave the menu program and run the game from MS-DOS. When you have finished with the program, pressing Esc takes you back to the menu of other programs, but only after cleaning up your disk drive by erasing the files that have just been decompressed. If you want to keep them for later use, you can. What could be easier and it makes looking for interesting things on the disc very easy.

This is all very well, but what's on the disk? Unbelievably, over 2,500 items! Some of course are better than others and the list includes Wolfenstein, a 3D helicopter simulation, lots and lots of scenery and planes for Flight Simulator 4 (FS4 isn't included because it isn't shareware), 3D pin ball, lots of educational games, a collection of chess programs, simulations, Duke Nukem, Commander Keen and so on. I haven't listed all of the good programs because I haven't looked at them all. 2,500 programs at five minutes a look would take over 16 days to complete!

Product:	*Shareware Games Compendium CD-ROM*
Supplier:	*Tons of Gigs Ltd*
Tel:	*(0869) 40463*
Product code:	*CD-G1*
Price:	*£34.95 plus VAT*
Registration Price:	*Depends on individual game*
What you get for registering:	*Depends on individual game*
Machine:	*Depends on individual game*
Disk space:	*Depends on individual game*
Video modes supported:	*Depends on individual game*
Sound cards supported:	*Depends on individual game*
Input devices supported:	*Depends on individual game*

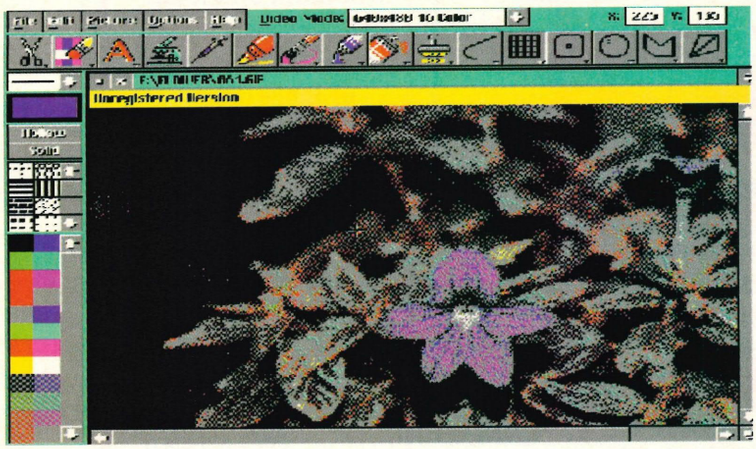
PC Pool

This is a beautiful pool simulation. The table is shown in 3D complete with coloured balls. To take a shot, you rotate the table using the cursor keys and line up the cue with the cue ball and the target.

This works surprisingly well and you really do get a sensation of aiming the shot that is surprisingly like the real thing. When you do make a shot, the balls bounce off each other and, if you're lucky, go into pockets. The only trouble with the game is that the machine also gets a turn and it is good, very good indeed. Still it isn't too bad leaning on your cue watching the machine clean up — and it does make mistakes sometimes!

This is another fairly slight game, but it is fun to look at and play for a while. Since Benetech is a supplier which fills up disks with items you have requested it is worth considering it as value for money.

Product:	*PC Pool*
Supplier:	*Benetech Systems*
Tel:	*(0533) 611231*
Product code:	*PC Pool*
Price:	*Disk full of program costs*
Registration Price:	*£17.00*
What you get for registering:	*Next update*
Machine:	*Fast 286/386*
Disk space:	*300K*
Video modes supported:	*VGA*
Sound cards supported:	*n/a*
Input devices supported:	*n/a*



Neopaint

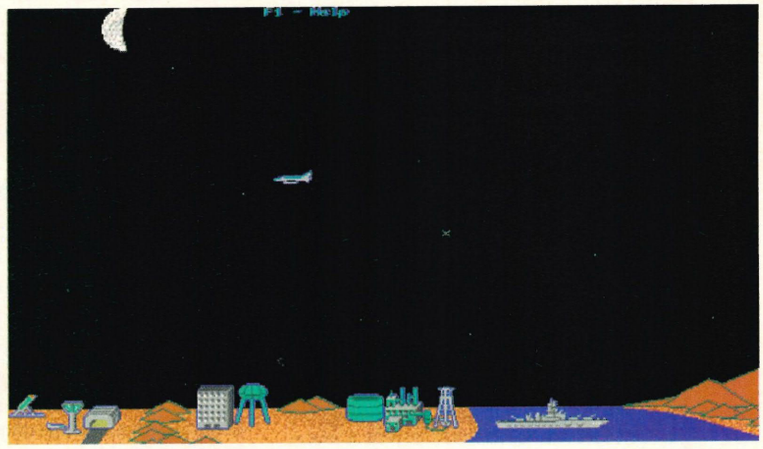
If you are looking for a good painting program look no further than Neopaint — and this recommendation isn't limited to just shareware. Neopaint is a first class program no matter what competition you put it up against. It will work with the standard PCX, TIF and GIF file formats and can cope with 256 colour SVGA resolutions. It will also work with Hercules and EGA but it looks best in SVGA colour! (Notice it doesn't work with CGA and check if it supports your SVGA card.) Its an MS-DOS program but the user interface is similar to a Windows application and you can have more than one painting window open at a time.

The standard drawing tools are all provided, paint bush, spray can, flood fill, and many more that aren't so common. The stamp tool can be used to create duplicates of any pattern or picture you have saved. A set of pre-drawn stamps are supplied to get you going. There is a syringe tool that allows you to pick a colour that is already used in the drawing as the current colour. If you want to work with fancy text then there also a range of standard and imaginative fonts.

If you're still not impressed then try the 3D drawing tools. You can draw a wire frame or filled block or pyramid in on easy operation. Once you have drawn it you can spin it around on any of three axes and this all happens reasonably fast. There are plenty of special effects and quite a few that are only found in high priced image editing packages. You can alter the contrast, smudge, lighten, pixelise and so on: there are also the boring flip, invert and rotate! You also get a nice little screen dump program.

A mouse is essential as is a hard disk. It supports Epson, DeskJet, LaserJet and Postscript printers and compatibles. The program runs fast on a 20MHz 386SX but in principle you could use it on any machine from an XT to a 486. The unregistered version isn't cut down in any way — it just has a habit of reminding you to register every now and again. If this gets irritating you are certainly using the program enough to mean that you *should* register it!

Product:	*Neopaint*
Supplier:	*Transend*
Tel:	*(0247) 622228*
Product code:	*10460 (2 disks)*
Price:	*£5.00 ie £2.50 per disk*
Registration Price:	*£48.83*
What you get for registering:	*Full boxed working version inc manual*
Spec:	*Any with hard disk*
Disk space:	*Just over 1 Mb*
Video modes supported:	*Not CGA*
Sound cards supported:	*n/a*
Input devices supported:	*Mouse necessary*



Sand Storm

With a name like Sand Storm, it doesn't take a genius to work out what this game is about! What with SSI's Line in the Sand (see this month's reviews) and now this, it seems as though publishers of all types are leaping on this particular bandwagon.

The scenario is Kuwait and Saddam Hussein is raining Scud missiles down on cities and military targets. Your task is, inevitably, to try to stop them with patriot missiles.

To play the game you need a mouse with which to steer the missile. As the scuds and assorted planes fly into the scene you click at the point where you want your patriot to target. Of course it takes time for the patriot to reach the spot you have targetted and so the skill is in getting the timing right. You also get different points for intercepting different types of scud.

The game is very nicely implemented and the trick of guiding the missile to the correct spot is fun for a while but not really addictive. The game has a number of levels and you can add more and a tank battle by registering.



Product:	*Sand Storm*
Supplier:	*Testware*
Tel:	*(0423) 886415*
Product code:	*1586*
Price:	*£3.00*
Registration Price:	*£17.00*
What you get for registering:	*Championship version — 6 extra levels*
Machine:	*Any with VGA*
Disk space:	*384K*
Video modes supported:	*VGA*
Sound cards supported:	*n/a*
Input devices supported:	*Mouse*

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WORD FUGUE (2)(HD) Another brilliant WP.
PCTYPE 4 (4)(HD) One of the best.
SIMON (1) Excellent pop-up text editor.
POPSAURUS (2)(HD) Pop-up thesaurus.
SHARE SPELL (1) Stand alone spell checker.
WORD TRANSLATOR (3)(HD) Words/documents.
MR LABEL (1) Flexible label printing program.
LASER LETTERHEAD PLUS (2)(HD) & logos.

DATABASE MANAGEMENT

WAMPUM (1) develop your own relational dBase
ZEPHYR (2)(HD) Menu driven relational dBase.
PCFILE 5 (3)(HD) dBase compat. menu driven.
DATAWORKS (3)(HD) Relational database.
FILE EXPRESS (3)(HD) Easy to use database.
CLUB (1) Simple membership system.

SPREADSHEETS

AS EASY AS (1) 123-style popular spreadsheet.
PC CALC (3)(HD) Menus and online help.
TUTOR 1-2-3 (1) Interactive tutor for Lotus 123.
INSTACALC (1) Pop-up spreadsheet.
EXPRESS CALC (2) Easy to use spreadsheet.
ON-SIDE (1) Sideways printing for spreadsheets.
PIVOT! (1) Print AsEasyAs worksheets sideways.

BUSINESS APPLICATIONS

FORMGEN (1) Form designing program.
TASK-PRO (1)(HD) Project management.
OPTIMA (1)(HD) Organise, shedule a project.
TIME TRAK (1) Display of time dependent events.
ONLINE PHONE MANAGER (1)(LAN) log system.
MANAGEMENT TRAINING (1) Teaches skills.
CONTACT PLUS (1)(HD) Client tracking.
LEADMASTER (2) Sales office system.
MARKET FINDER (1) Follow up sales leads.
MARKETEER (2)(HD) Database/mailshot/WP.
SALESMAN (1)(HD) Client management system.
THE FRONT OFFICE (3)(HD) Sales/suppliers.

MUSIC/GRAPHICS

VECTOR DEMO (1)(HD)(VGA) Awesome!
MODPLAY PRO! (1)(HD) Play Amiga MOD files.
CD MUSIC PLAYER (1)(CD)(MSW 3.1)Play CDs
SOUND EXCHANGE (1) Converts wav/voc/snd/rol files under Windows.
SCREAM TRACKER (1) Advanced version.
STM LIBRARY (3) Music files for Scream Tracker.

MS WINDOWS PROGRAMS

BACKROOM BOY (2) UK Personal Organiser.
PAINTSHOP PRO (1) Popular picture file util.
WINSPELL (1) Checks spelling in any MSW prog.
BIGDESK (1) Increases the size of the Desktop.
ZIP MANAGER (1) Controls, PKZIP, LHAR, etc.
GRAPHIC WORKSHOP FOR WINDOWS (1)
SCREEN PEACE (1) Screen saver.
WINDOWS ICONS (1) Hundreds of icons.
ICON TOOLS (1) Edit, draw or view icons.
WINDOWS TOOLS #5 (1) including WINZIP.
SOUNDER (2) Digitised sounds through speaker.
ACTIVE LIFE (1) Calendar, appointments, dialler.
ORGANISE (1) Personal information manager.
CHOMP (1) PacMan game.
WINDOWS GAMES (1) 12 games, Yahtzee. etc.
WINDOWS BACKGAMMON (1) Very good.
WINCHESS (1) Very good chess game.
BATTLE ON DISTANT PLANETS (1) Combat.
CASTLE OF THE WINDS (1) Fantasy role play.

GRAPHICS

ENVISION PUBLISHER (2)(HD) Fantastic DTP.
PRINT PARTNER (1) Banners, letterheads, signs.
PCX SUPERSHOW (2)(HD) Create presentations..
PCX SUPERTOOLS (1) Edit and manipulate PCX.
GRAPHIC WORKSHOP (2)(HD) Convert/view/edit pics
DRAFT CHOICE (1) Easy and very popular CAD.
EASY DRAW (1) Technical drawing.
CHARTS UNLIMITED (1) Flowcharts, Org. charts, etc.
DESKTOP PAINT 16 (1)(HD) New 16 colour drawing.
NEO PAINT (1)(HD) 256 or 16 colour PCX/GIF drawing.
FINGERPAINT (1) B/W PCX drawing program.
FINGER VGA (1) 256 colour PCX drawing program.
VGA PAINT (1) 248 colour drawing.
COOPER SET (2) Over 1500 pics, choose pcx/img/mac

DOS UTILITIES

POWERMENU 6 (2)(HD) Friendly menus.
PKZIP/PKUNZIP (1) THE file archiver!
PKZMENU & PKLITE (1) Two utilities for PKZIP.
HYPERDISK (1)(HD) Disc Caching.
4DOS 4 (2) Alternative to DOS.
BOOT SYS (1) Set up different boot-up requirements.
FPROT (1) Good virus detector.
DAZZLE (1)(EGA) Favourite 256 colour kaleidoscope.
SAFEPACK (1)(HD) Hard disc de-fragmenter.
FLEXIBAK PLUS (1)(HD) The best hard disc back-up.
MCAFEE VIRUS TOOLS (2) Anti virus programs.

PROGRAMMING

C TUTOR (2) Excellent tutorial with examples.
PERSONAL C COMPILER (1) Best shareware compiler
A86/D86 (1) Fast Assembler/debugger.
TURBO PASCAL TUTOR (2) Very good tutorial.

HOBBIES & INTERESTS

BROTHER'S KEEPER (4) Friendly, popular genealogy.
FAMILY TREE (1) Prints family tree chart or book.
FOOTBALL FORECAST (1) Pools/fixed odds system.
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RACEMATE (1) Horse race ratings.
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ASTROMART (1)(HD) Calculates Astral Charts.
ELECTRIC ALMANAC (1) Astrology, IChing, Tarot.
PALMISTRY FOR ALL (3)(HD) Detailed readings given.
HANDWRITING ANALYST (1) Detailed Graphology.
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LAST HALF/DARKNESS (1)
JUMPMAN LIVES (1)
SANDSTORM (1)
EGA TREK (1)
CAPTAIN COMIC (1)
SPEAR OF DESTINY (1)
BOLO II (1)
MINDCUBE (1)
GOLDHUNT (1)
DOMINATION (1)
BANANOID (1)
COSMO'S ... (1)
DARK AGES (1)
HUGO III (2)
F-117A (3)
ANCIENTS I (1)
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PHYLOX (1)
STARFIRE (1)
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KEEN DREAMS (1)
HOOSIER CITY (1)
CRUSHER (1)
PAGANITZU (1)
BOLOBALL (1)
KILOBLASTER (1)
KUNG FU LOUIE (3)
EGAINT (1)
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HENRIETTA'S BOOK/SPELLS (VGA)(HD)(3.5")
SPELLBOUND! (VGA)(HD)(3.5") Age 7 to adult.
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TOMMYSOFT CAD DRAW (2- 3.5" only) Brilliant CAD program for Windows. Program of the month runner up! Don't miss this one!
ATLUS (1) Atlas program for Windows
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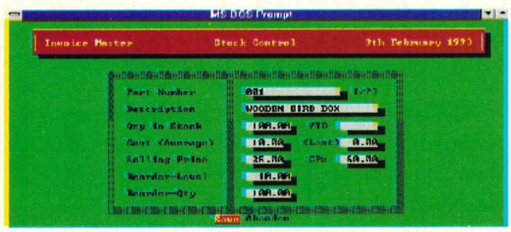
VISA

Invoice Master V23

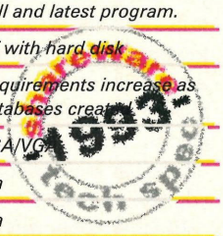
Invoice Master is a professional quality invoicing system suitable for a business that keeps customer accounts and uses stock codes. It is quite simple to set up customer accounts as you go along and the stock code database is equally straightforward to define. Although the shareware version is easy to use, it is intended to serve as a demonstration as it has no documentation or help. Even so I was quickly persuaded that this was a workable and comprehensive system.

The latest version of the software was released in October 1992 and has significant enhancements over previous releases. These include a facility to edit an invoice and to put one on hold. It also lets you store commonly used text items for the invoice and pull them into an invoice from a pop up selection box (Skeleton Invoice). When invoicing from stock, the user can now search by description as well as by part number, something which makes the system much easier to use on a casual basis.

Invoice Master does more than simply generate neat invoices. The system now keeps a record of all invoices that have been produced. This database can be searched on screen so that you can deal with customer enquiries on the spot without having to search through paperwork. It also allows invoices to be reprinted if required. Reports include a stock profit report that shows the user what items have been sold and the profit on those items while a lost sales report shows that items that were invoiced but not in stock, and a bar chart display of monthly sales can be viewed showing the monthly and yearly totals for sales.



Product:	*Invoice Master V2.8*
Supplier:	*Precision Software Publishing*
Tel:	*(0223) 208288*
Product code:	*ACC054*
Price:	*£5 for HD disk, £2.95 for catalogue disk (refundable)*
Registration Price:	*£99 + VAT*
What you get for registering:	*Full and latest program.*
Machine:	*XT with hard disk*
Disk space:	*Requirements increase as databases create*
Video modes supported:	*EGA/VGA*
Sound cards supported:	*n/a*
Input devices supported:	*n/a*



Shareware Finders

I am looking for software to produce estimates/quotations for glazing work. This typically involves prices for labour and material. Items may be priced in a number of ways, ie, quantities can be area, number or linear metres. The program should be able to calculate area in square metres where pane sizes are specified in centimetres, and to calculate price based on area. It should also be able to use cost price with variable mark-ups and profit margins to build-up a cost price from material and labour components. I am using a Toshiba 1000 XE laptop.

John Andree
Hove, Sussex

There is a shareware version of ProQuote, an estimating program that was developed for use in the context of shopfitting and joinery, but which is sufficiently versatile to be used in many other spheres and certainly for glazing work as it is well able to work in terms of area and calculate square measures from linear dimensions. It has facilities for all the requirements outlined. The program works by maintaining two databases — one of codes for each description and its rate; the other a database of standard items. This can be built up by exporting items from previous estimates into the library. As you can export any item from any estimate to the library at any time this gives a quick and flexible method of estimating. The program has a well organised menu and is therefore easy to start to use. The shareware demonstration disk costs £3.00 from the author Ian Lovelock (0707) 873857 and the registered version is £175.00.

Have you any recommendation for the best platform game?

Michael Young
London

The new Apogee game, Major Stryker, is just out and is surely going to be a contender for this title. It will be reviewed in a forthcoming issue. Meanwhile I think we could do with some reader input. If we've overlooked your favourite platform game, let us know in no more than 250 words why you would recommend it.

Major Stryker will be available from all shareware libraries, but Benetech is using it, and the virus checker McAfee Scan, in a promotional exercise which seems a good idea — for them and for you. Send them a £1 coin and in return you get their catalogue plus these two programs on a high density 3.5" disk.

Can you suggest a program that will print badges for conference delegates — taking data from Microsoft Works?

Ken Jennings
Droitwich
Worcestershire

My first thought was surely you do not need any extra software than you already have. Works gives you fonts and you can set pages sizes so you could just use mailing labels and stick them inside those plastic holders — the Blue Peter way! I have even been to an event where the sticky labels were just stuck on people's fronts.

However, there are shareware badge generators and mailing label makes available. Badge-O-Magic is disk UW23 (£2.50) from Shareware Publishing (0297) 24088. This gets its data from any dBase III compatible file so it should handle your Works files. Six badges are printed per page. Perforated badge stock and badge holders are supposedly available from the author, but I do not think you can rely on being able to obtain this either easily or for ever.

The downside is that it is specific to an HP LaserJet II or compatible printer. You might after all be better to think of this as just a variation on printing a mailing label because this widens the scope. LabelMania (3325) includes four programs and Label Maker Supreme (3213) from The Public Domain and Shareware Library (PDSL on (0892) 663298) both seem promising.

Please can you find a piece of software that will speak English words through the internal speaker of my XT through the DOS prompt or in a directory. I have heard a rumour of something called PC Talk, is it any good?

Michael Corlett
Sandbach
Cheshire

Be careful not to comfuse PC Talk with PC Talk III, a shareware communications program! There is a small number of digital speach programs that use the standard PC internal speaker. PC Talk isn't one I have tried, but it works on the same principle as Speech (disk UH2 from Shareware Marketing). All I can say is that the quality is very poor and really you need a sound card or at least something simple like the Covox Speech Thing to do better.

Do you know of software that will set the processor speed to run old AT games, set the keyboard delay and repeat rates and decompile/reverse engineer C executables?

Richard Hodgson
Accrington
Lancs

There are lots of speed and keyboard utilities available and they are often included in collections of utilities. The best known is Slowdown, which is included on CPU/Memory Utilities disk UH2 from Shareware Limited (0297 24088) or on disk Q753 from PDSL (0892 663298). As to keyboard utilities try disk 1448 — Karl's Keyboard Collection (PDSL) which slows keys down, speeds them up, etc.

You final request, to decompile/reverse engineer C executables, doesn't have a simple answer. The reason is that once a C program is compiled, in nearly all cases, it is turned into machine code. This is what a compiler does. So to reverse engineer a C executable, you need a disassembler that turns machine code into readable assembler, well actually, in nearly all cases, into almost impossible to fathom assembler. Converting the assembler back into C is difficult if not impossible unless a human works out what it's doing. So in short you can use any old disassembler — try disk 2593 from PDSL — but you are in for a tough time making sense of its output.

I am looking for software that will draw and print, in scale, detailed layouts and plans, particularly of buildings, possibly also to draw elevations of buildings. I have a Windows system with VGA graphics.

Simon Wigley
Tonbridge

What you are looking for is a shareware CAD system and there is a surprising number, given how much a full priced CAD system normally costs. If you want an MS-DOS system, try TurboDraw which is widely available (disk 2396 from PDSL), but there are about 10 or so others to try if this one doesn't suit. For a luxury approach to CAD try Tommysoft's CADDraw. (Omicron (0702) 710391 This is a Windows program that was sold as a full priced product until very recently. It is as good as anything you pay £500 for and the registration is only £45.00 plus VAT. I can recommend this to Simon who already has Windows and if anyone else has a similar problem, it is good enough to make it worth buying Windows!

QED

Robin Matthews completes his odyssey in FTL's classic game, as this final part of our detailed guide to Dungeon Master continues with the remaining levels and takes us to the final confrontation with Lord Chaos

Dungeon MASTER

— *the adventure concludes* —

Level ten

This is possibly one of the best levels in the game — full of puzzles and some very tough fights. At the beginning of the level, your party must decide whether to go left or right. This choice is fairly academic as once you've disposed of either the beholder or the giant scorpion you'll end up on a similar track.

The scorpions are constantly regenerated and the sheer numbers can be overwhelming, but the skeleton key (needed to enter the central stairway) is found past the main scorpion area. If your characters are not strong enough, or you don't have enough mana, use hit and run tactics to get the key and progress to lower levels.

Food there is a-plenty with up to 10 items, but water is short. Later when you have located the skeleton key you can use the central stairway to fill up as you require.

Scrolls are found in the south east corner (YA BRO = shield potion) and in the north east corner by using a secret button (ZO BRO RA = create pure mana potion). Items include a speed bow, boots of speed and a magnifier. This is to be found in the top middle and will be needed 'in another place'.

Level eleven

Matters now go from bad to worse. From levels 10/11, it gets very combat intensive and many players may fall by the wayside. This level is not one of the worst for fights, but does have some difficult head scratchers.

Monsters vary from giant wasps, ogres and water elementals. Fireballs are particularly effective on the former, cowardice can be the best answer to the latter. Locked doors will not stop these hardy creatures and your combat skills will be well tested. Collect all items.

A tip for some of the mazes from herein is to try walking 'backwards' as this often allows you to reorientate much easier than if you're facing forwards.

The alcoves in the south east corner are opened by the 'gold' coins and will reveal many goodies such as VEN and FUL bombs, magical boxes and another cross key.

No food and no water, little equipment but what is here is good — the swords Diamond Edge and Fury are powerful weapons, but a price must be paid. Make sure that you stand there like a man to take your medicine otherwise the affects will be worse.

The only scroll on Level 11 does not help a great deal.

Level twelve

You can almost sense that you are coming towards the end, but level 12 has defeated more adventurers than any other part of Dungeon Master. Monsters include giant spiders, spell vines and dark knights: if your combat and door-slamming techniques are not up to scratch you will just not survive.

Black knights are unaffected by spells so

save your mana, although some magic boxes may have an effect. The best tactic is to explore the whole level first and then run away from the knights — slowly. It will become apparent that these monsters are rather territorially minded and will not move over certain squares. In this way engage the black knights, run away to the other side of these 'safe squares' and fire away.

Spellvines can cast any spell at any level but you can normally see the spell coming. Quick action will avoid/attack them, and they are susceptible to both fireballs and lightning bolts.

There is plenty of food on level 12, but no water, and there is a stack of potent items — but boy do you have to work for them!

Level thirteen

This is the domain of Lord Chaos, but you cannot defeat him without first completing the level below. Once you have done that, and you have the relevant equipment and you use it in the proper way you can finally complete your quest. (See the last resort paragraphs if you are at the end game and are completely stuck)

Level fourteen

The lowest, but not the final level. You must complete this level and then return upstairs to deal with 'himself'. Only one real monster here, a very big and mean red dragon.

If you manage not to panic, he can be disposed of using classic hit and run tactics, plus the odd fireball or two.

The winged key from level seven will open the central stairway, but be careful how you combine objects on this level (see below). Look through burnt remains and the only scroll on this level should not have you spellbound.

The second and final part of your jigsaw puzzle should now be within your grasp and its back to level 13 and the final chapter.

Only read this as a last resort

To defeat Lord Chaos you will need to have both the firestaff and the power gem that can be found on level 14.

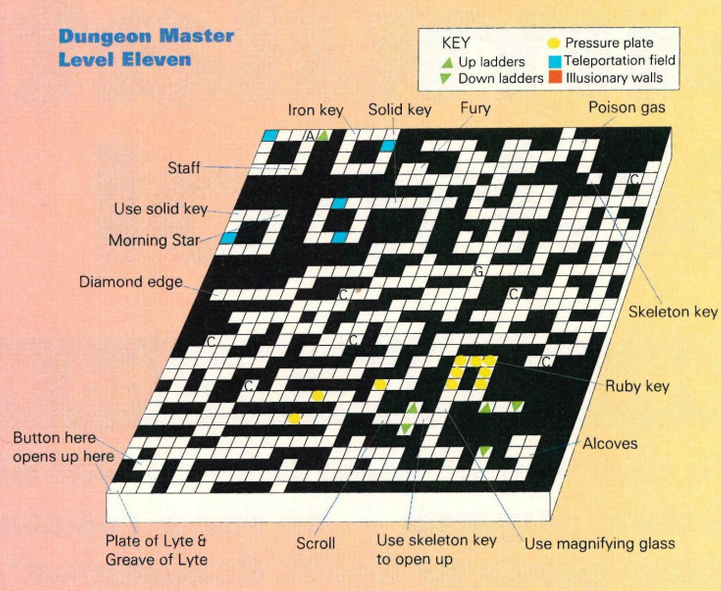
This must be subsequenly placed on the firestaff and will result in the firestaff being recharged and given new powers. These include forcecages and fuse.

With some practice you can cast force cages all around Lord Chaos and then move towards the forcecage in front of him and fuse the cages together. There are some similar techniques but that's for you to find out ...

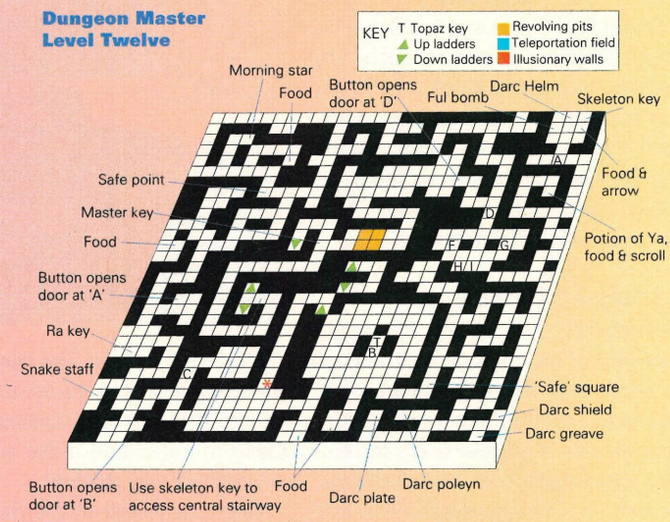
On level 13 you can use the skeleton key to open up the central stairway and return to level eight for food, water, etc. But once you attach the power gem to the firestaff, all stairways above level 13 will be closed off.

If you are not ready for the final showdown then you should return to any levels before assembling the GEM and ROD.

Dungeon Master Level Eleven

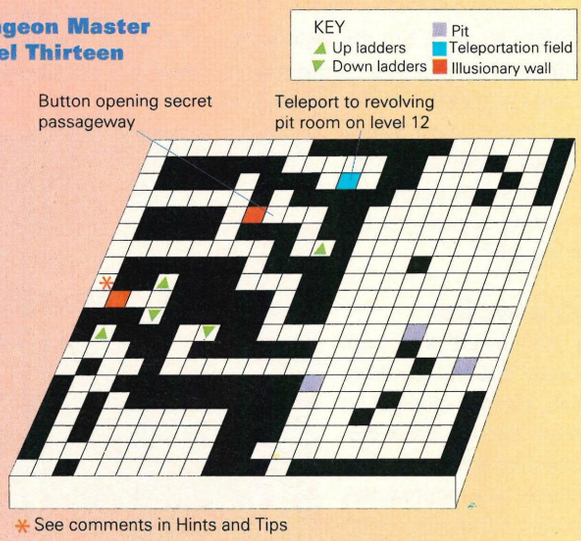


Dungeon Master Level Twelve



* See comments in Hints and Tips

Dungeon Master Level Thirteen



* See comments in Hints and Tips

QED

Simulation School

Lesson 7

Formula One Grand Prix hints and tips

It's the end of term here at Simulation School — for the time being, anyway — so for a rousing send-off, we bring you a players' guide to Geoff Crammond's highly playable racing game

Get in the right mood

Formula One Grand Prix is not a quick five minutes blast – it's a simulation, and as such, you have to be prepared to commit some time to get the most out of the game. That being the case, prepare yourself. Get comfortable. Plump up the cushions, put a 'do not disturb' sign on the door. Oh yes, and take the phone off the hook. This game deserves your undivided attention.

Run the longest race

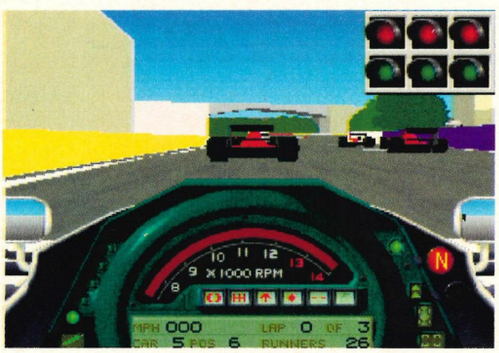
The longer the race the more realistic the result. Running 100 per cent of the entire thing gives you the chance to show your full potential while 50 per cent or less evens the odds up considerably for the computer drivers. A 100 per cent race distance gives you much more of a race challenge, more time to catch up with the race leaders and more of a general sense of realism.

Use real drivers and team names

It takes a little while to do it, but it's well worth trying the real drivers' names and racing teams into the editor, and saving them to disk. It adds to the realism. You can picture Senna and Berger in your mind; they have established histories and personalities. After all, what an achievement to beat Ayrton Senna, eh?

Study the tracks

The 'practise any circuit' and 'non championship race' options are there for a good reason. Use the blue dot on the steering wheel and the track diagram with a white pixel to show where you are and improve your approaches to corners throughout the race. Once you feel confident enough to do away with the training aids it's up to you to improve yourself.



That said though, the manual is choc-a-bloc with excellent point-to-point descriptions of each circuit. It is strongly advisable to study each of these in detail and make yourself familiar with every bend and chicane.

Take advantage of the driving aids when getting to grips with the circuits. Similarly, make full use of automatic breaking and gear change modes and start at the rookie race driving level. You can hardly expect to win a full season in the top difficulty level, driving full length races unless you know the circuits back to front.



Don't forget about teamwork

Running two cars has its advantages. You then have slightly less than twice the chance of winning – the computer has control half the time – and you have the chance to relax for 10 to 15 seconds between car changeovers. This can be very useful in a two hour race, enabling you to launch your attack on the race leaders with both cars. You also have the added pleasure of building up points for your team. After all, if you're running one Honda McLaren in first place all the time, it can be quite frustrating when the other doesn't even scrape into the top 15.

Practice sessions

Use the facility to have long practice sessions. Setting up is vitally important at the high difficulty levels of the game, and with long practice you get fewer cars on the track at once, so you get a better idea of how your car is performing.

The other thing it is important to remember is to make the effort to use the set-up option: don't just accept the default. Adjust one option at a time, eg, front wing, and see just how that affects the performance and handling.

The gears are the key to acceleration, and once you're happy with the wings you can adjust the ratios to give you a starting advantage over the majority of the cars. This takes time, but it is well worth it.

Remember, too, that you can jump back to the pits at any time, so use it to your advantage. Don't select separate set-ups in the race options menu unless you really intend to do it – most often you'll be happy with your qualifying set-up, and want to race with it. If you skip pre-race practice, you'll go into a race with a default set-up, and you'll be wondering why those cars you

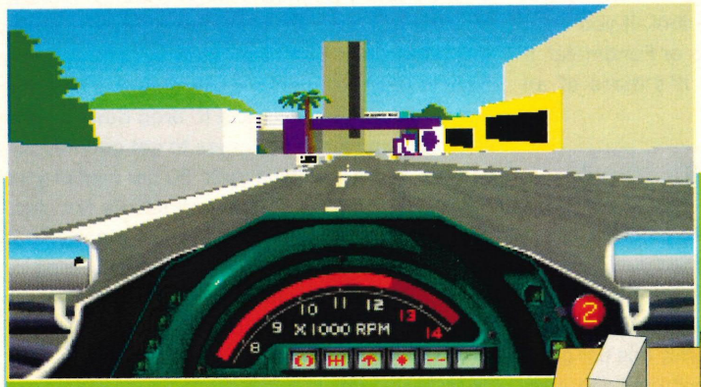
qualified nearly half a second ahead of are leaving you eating their exhaust fumes. Different set-ups are useful at some circuits where you may require much more downforce for the race, eg, Monaco. Once saved, you should never have to set the car up again — simply load in a previously saved set-up.

Qualifying

There are advantages to both long and short qualifying sessions. A five or 10 minute session means everyone is going to try to get in the circuit at once – there will only be time for, at best, two qualifying sessions. Chances are the faster drivers won't get good times because they'll get stuck behind the slow cars. This could work to your advantage if it scuppers your rivals, but it could just as easily happen to you. Basically, you'll have to get out there first and get a good time. With luck you'll be at the front of the grid and the top computer teams will be several cars back.

Then there are the longer sessions. A full session gives everybody a much better chance – the best drivers on Formula One wait to see how the competition is shaping up, then go out and blow them away. To a certain extent, this is what you should do, but don't leave it too late. Watch what's happening in accelerated time out of the 3D. After a good qualifying run, sit back and watch one or two of the other drivers going around – see how they deal with the slower cars, handle bends and chicanes. Once back in the car, remember that cars on their post qualifying lap will not be going flat out. Approaching the pits they will slow down considerably. At circuits such as Phoenix the best line cuts across the pit lane, and it's all too easy to go ploughing into a pitting car and lose that record qualifying time completely.

Similarly, take it easy coming out of the pits – you can't always see what's coming up behind you. If someone happens to trash your car or even just the front wing, that's a set of Q tyres wasted. A qualifying session without one or both wings is pointless.



- **Take time to work out the best set-up configuration for your car. Your performance will only be average compared to the other race drivers if you simply accept the default set-up in the program.**
- **Take it easy coming out of the pits — you can't always see what's coming up behind you. If someone trashes your car, or even just the front wing, that's a set of Q tyres wasted.**
- **Use a good sturdy joystick: some races require something like 3,000 gear changes, and there is a great deal of yanking the stick around.**



The Formula One circuit at Monte Carlo, below, is both famous and infamous for the way it uses the streets of the city itself for extra tight turns and opportunities for hair-raising overtaking.

Choose the right tyres

Qualifying tyres will definitely survive one lap, and may survive a second. It is possible to run some very good lap times on qualifiers after they've been supposedly shot. However:

- 'D's are great for races under 20 laps. Any longer and you get too many pitstops.
- 'C's are perfect for slow circuits and long races. You will generally find you have one pitstop in a long race, eg, Mexico at 100 per cent.
- 'B' and 'A' tyres, because they're very hard in comparison to 'C' and 'D' tyres, will last the whole race, providing you've set up accordingly. This means you may save as much as 25 seconds in a race. This advantage will be lost if you have a wing damaged, as you will have to pitstop for a replacement, and it doesn't matter how much you scream and shout at the crew, they will still change your tyres.
- 'A's and 'B's are for the confident, experienced driver – good set-ups and superior knowledge of the wear and tear at specific circuits are deciding factors in tyre selection. Then all you have to do is stay on the road and keep the tyres warm. The best general advice for most drivers, however, is to stick with 'C's.

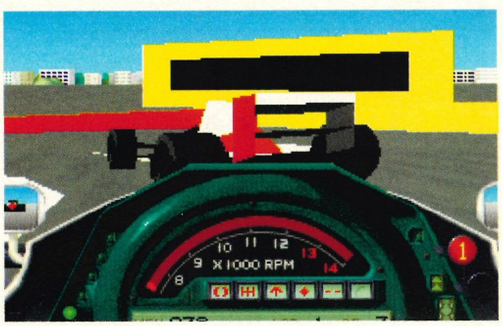
Racing

If you're in pole position, take off! That's why you spent two hours (or 10 minutes) qualifying. There is no bigger advantage than being first on the grid, and leaving the others standing.

If you aren't – if you're 26th on the grid, for instance – you have to take every opportunity to get past the other cars. Some circuits have lots of places to overtake, others barely any. At Montreal, for example, there's a hairpin straight after the pit straight. All the cars bunch up and go along the outside edge, then cut across the apex for the next straight. If you cut them out by blasting into the hairpin on the inside, you can take several places. But it's a big gamble – not only can you still end up in last place, you can lose valuable seconds attempting to return to the track!

Overtaking

If you have a good chance of overtaking someone, take it. On long straights slipstreaming comes



into its own. It's a real thrill to see the speeds surge up to 220mph from 195mph in just a couple of seconds. On the other hand, don't take unnecessary risks that could cost you the race. If needs be, back off — it takes a lot of practice to be proficient at judging out braking at corners. Only do it when you're sure of your skill.

On slow circuits bide your time – there tend to be few places to overtake, and lots of bends to throw you off completely. Phoenix, Monaco and Montreal all have more than their fair share of concrete barriers placed at the road's edge and these are designed specifically to decelerate your car in a picosecond. It's much more fun watching the computer drivers being winched off than your own car, oddly enough! Wait for your own moment, outbrake, slipstream or nudge him, but make sure you do it right.



Backmarkers

These are the four-wheeled mobile chicanes that only qualified because they weren't driving Trabants. Unfortunately, though they appear to be taking their grannies out to the shops, they are in fact trying to win race. Now at least you know why they're there.

They don't tend to do the gentlemanly thing and let you by, either. You have to race them and overtake, like any other in the race. The up side is that you will leave them a long way behind once you do get past, and that means you're leaving the next competitive car behind too. Once again, you must bide your time and then strike. Unfortunately this can give the leading drivers the chance to slipstream you!

Spin gear

You can't always see everything in the wing mirrors. If you come off the track it's important to select spin gear. Next jump to one of the external views so you can see what's coming up behind you. It's bad enough you lose vital seconds running off the course, without being trashed by some backmarker. At least if one of the top drivers hits you, the chances are he's out of the points too. If you can see what's coming out you save all that heartache and only lose a couple of points.

View function

Use the arrow keys and view functions to check out the field. If you want to know where you stand, you can flick back and forward with the arrow keys. 'Home' brings you back if you get disorientated. If necessary, go to replay and find out just what everybody else is up to – you can start to feel very detached from the state of play if you never use these features.

Bigger, better, faster

If you want a serious driving advantage, drive a good car. We all know McLaren, Williams and Ferrari are the best and fastest. They all have better, faster pitcrews, too, so your pitstops are shorter than, say, Jordan or Coloni. If you want more of a challenge, drive Lotus or Fondmetal. If you win in a lesser vehicle, it's more of an achievement.

If at first you can't succeed, cheat!

If you have two cars, concentrate on one as your main driver. Send him out on a good qualifying lap straight away. Immediately you have your laptime, quit back to the pits, where you will take out your other car (on D tyres). Only this car goes the wrong way around the circuit until you spot some Flash Harry speedster. Smash him, trash him, but definitely stop him. Then quit back to the pits, arm the next car with D tyres, to preserve your stock of Qs and go and trash someone else on their qualifying lap!

The quicker the turnaround the better, as you may even manage to get a backlog of smashed cars in the same spot (the marshalls can quite often get confused and pushing cars into one another). Consequently, bigger smash-ups are likely, the less powerful cars get better grid positions, you have pole and there are several slower cars between you and the faster drivers.

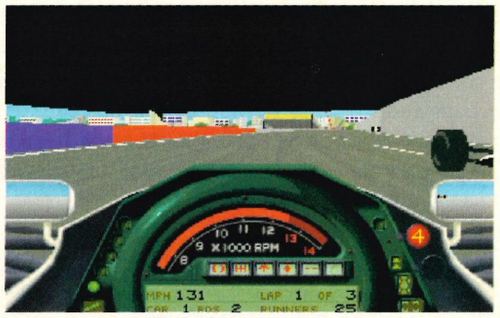
Cheating at Spa

MicroProse says that, "because of a slight flaw, it's possible to start at the back and get to the front in seconds at Spa". The grid layout is such that the back positions are behind the entrance to the pits. Get your best set-up at Spa for both cars. Don't bother to qualify. Both cars end up at the back of the grid. You'll start the race in 25th position. Hit return and head into the pitlane the moment the green light comes on. Once you're in the pit lane, turn the pitcall light off, razz down the pits, brake hard, and come out.

Unfortunately, this does leave your second car in position 26 under the guidance of the computer, so when you change over you will have to work very hard to move up the field. if you don't, you'll be a permanent backmarker.

Cheating with chicanes

Unlike the real cars, the MicroProse Formula One vehicles cannot get damaged unless they have horizontal collisions with walls or other cars. They seem to be able to leap into the air and land without exploding tyres or breaking suspensions or chassis. This makes it possible to jump and drive



over certain chicanes at high speeds. Monza, Hockenheim and Montreal are good places for this. Approach has to be high speed, and you have to judge your entry and exit points precisely. However, it is advisable to drop down a gear or two as you leave the grass to get good acceleration, as you can lose up to 50 per cent of your speed. When it works you can save a few seconds, and even take a couple of places. If it doesn't work you lose seconds, lose a wing or two, or even trash your car. It's a tactic that we only recommend for the desperate.

Nudging

Geoff Crammond's cars are almost infallible. Very occasionally a computer car will stall, but most go out of the race through collisions. Indeed, most races end with at least 20 cars surviving. (In the real 1991 season a good survival rate was 16 out of 26. Often only half the cars finished, and only 35 per cent finished at Phoenix last year, with problems such as blown engines, electronic failure, and gearbox failures.)

What this means to you, as a driver, is that you may find the occasion little nudgette could give you a distinct advantage over the rest of the field, especially if such a slight touch throws another car, such as a backmarker, say, into the path of one of the faster cars.

Get right alongside the car you want to nudge and give it a glancing blow. Don't get ahead of him, though, whatever you do, as you will almost definitely tangle your back wheel with this front one, and get hurled into a barrier.

Using the gears

Use the gears sensibly. Don't go down a long straight in second and don't take a hairpin in sixth. It's all common sense really, but use engine braking to help slow you down. If you haven't got the power under your foot, drop down a gear.

As we said at the beginning of this players' guide, this is the last in the present series of Simulation School. However, we're only taking a short spring break, and a new series of guides to simulations, concentrating on a wide variety of types of game, will start in the summer. Until then ... school's out!

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QED TIPS

It doesn't take long, does it? No sooner does a game reach the shops than PC Review's readers are trying out all sorts of key combinations to get through the trickier patches.

STAR TIP

David Starr's been busy with Mirage's Humans. So busy, in fact that he's able to impart the list of 80 level codes for the game.

Level	Code				
1	DARWIN	27	NICENEASY	54	TIRED
2	ANDIE PANDY	28	GREEN CARD	55	CONSOLIDATED
3	GET A LIFE	29	COOKIE	56	STAY HAPPY
4	CARLOS	30	MALCY MAC	57	AMERICA
5	HOWIE	31	RAVING BURK	58	ANOTHER DAY
6	MOOBLE	32	YOU GOT IT	59	ISOLATION
7	CSL	33	SGNIMMEL	60	PROMISED LAND
8	THE HUMBLE ONE	34	MINISTRY	61	DAEMONSLATE
9	PIXIE	35	MAD FREDDY	62	BIG RAB
10	MILESTONE	36	BIZARRE	63	MIAMI VICE
11	WAR WAR WAR	37	FREE SCOTLAND	64	MARGARET M
12	J MCKINNON	38	APPLE JUICE	65	A34732473
13	UNLUCKY	39	PAYDAY	66	HELP ME
14	BLUE MONKEY	40	BANANNA MOON	67	THE EXILES
15	RED DWARF	41	BONUS	68	EIGHTLANDS
16	BAD TASTE	42	BOUNCING	69	WINE AND DINE
17	THE KITCHEN	43	NO MONEY	70	NIN
18	CJ	44	A S F	71	TECHNOPHOBE
19	SORT IT OUT	45	VISION	72	GETTING THERE
20	SMART	46	SISTERS	73	TIME IS
21	VILLA3BORO2	47	FAST FASHION	74	RUNNING OUT
22	EARLY MORNING	48	CARGO	75	LORDS OF CHAOS
23	BORO4LEEDS1	49	RAB C NESBITT	76	NOW ITS DONE
24	EASY LIFE	50	RANGERS	77	IM OUT OF HERE
25	JIMS TIES	51	RAINBOW	78	HERES TO A
26	PARKVIEW	52	DOODY	79	BETTER LIFE
		53	MIGHTY BAZ	80	BYE BYE BYE

Windows: an encore

In Issue 12, we went a bit left-field with QED by publishing some keycodes for hidden routines in Windows.

This set Andrew Aiken of Slough experimenting, and he's sent in a few others he's found:

"In CorelDraw, hold down Ctrl and Shift, click on 'help', and select 'about' (still pressing Ctrl-Shift). Double-click on the hot air balloon on the left hand side and then click on OK. Repeat the steps. Then you will get another window with a small balloon at the bottom. Release Ctrl-Shift, press the left mouse button, and watch the balloon rise, revealing a list of credits."

Andrew, you must have something better to do with your time!

Caesar

Ian Bendesh of Sale, Cheshire, reckons that you can avoid a whole load of trouble by building wells, not walls, in the town planning section. Saves a lot of money and the enemy can't get past them.

Populous

Ben Thomas of Aberystwyth and Andrew Harding of Shepperton, Middlesex, have evidently been working on the same theories; they both assure us that to get straight to level 999, type 'Killuspal' on the title screen. They also have some other tips.

Duke Nukem

Again from Thomas and Harding, hold down the PgDn and Backspace keys to get all the keys and maximum firepower on this shareware game featured on Cover Disk 15.

AV8b Harrier Assault

Ben also goes on to suggest that you can spray your own graffiti all over the walls if you have DPaint by loading the graphics files from the sub-directories in .LBM format.

When you've finished adulterating the picture, simply resave the file in its original place.

Make back-ups first!

Magic Pockets

This one's from Andrew, or rather, he says, from a friend of his: the first 10 codes for the Bitmap Brothers' puzzler:

1	1053
2	3425
3	8282
4	4476
5	7766
6	5284
7	4757
8	2818
9	1960
10	6331

Commander Keen

A veritable cornucopia of cheats for this ever-popular shareware game from tippers too numerous to mention.

Hold down the keys G, O and D to walk through most of the walls and enemies. In Commander Keen 4, hold down T, A, and B to get extra shots and keys.

The incredible Machine

Scunthorpe's very own Kristian Lee kicks off with some assistance in Sierra's Incredible Machine with the following: "If anyone is stuck trying to fire a rocket, or pop a couple of balloons, and would dearly like to forget it and carry on with the next problem, then now they can.

"If you click on the 'select puzzle' icon, you go to the list of all puzzles, with the ones you have already done in green.

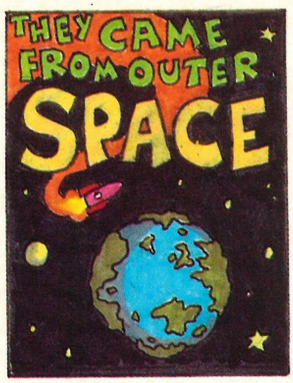
Go to the bottom of the screen, enter the password DOPA and click on the right-pointing arrow: You will now see a list of all puzzles in green and can choose any puzzle you want. The only problem you have now is remember-ing which puzzle you were up to."

Thanks for that information, Kristian, although we ought to point out that it doesn't work with the PC Review Cover Disk version of Incredible Machine, in which any puzzle can be chosen anyway.

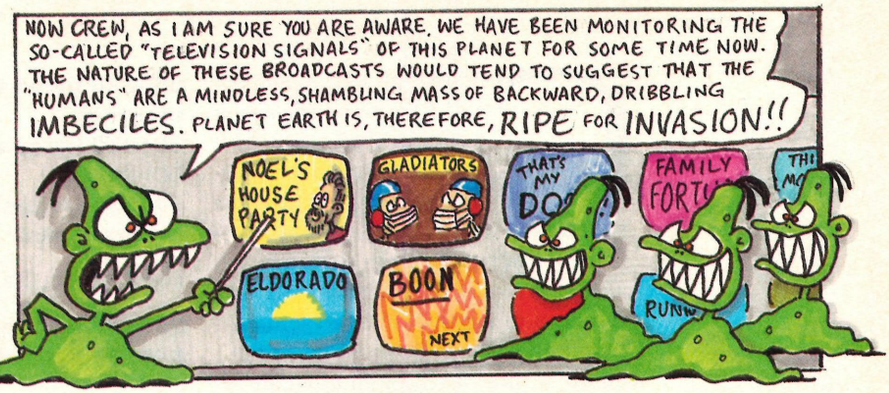
Do not attempt the tips marked with this icon unless you are sure you understand what you are doing. In any case, it's sensible to make back-ups of the files before you start tinkering around with program editors. PC Review is not going to accept any responsibility for damage to data incurred when trying out tips, so be warned!

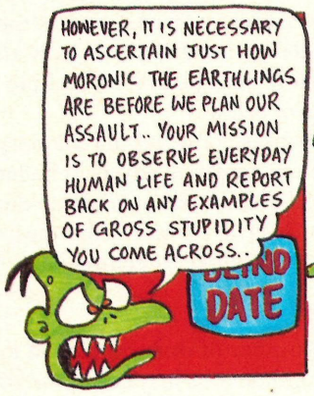
Send all your cheats to QED Tips at the usual PC Review address. We'll print as many as possible each month and the sender of the highlighted Star Tip wins a software prize — so don't forget to include details of your PC's configuration with your letter.

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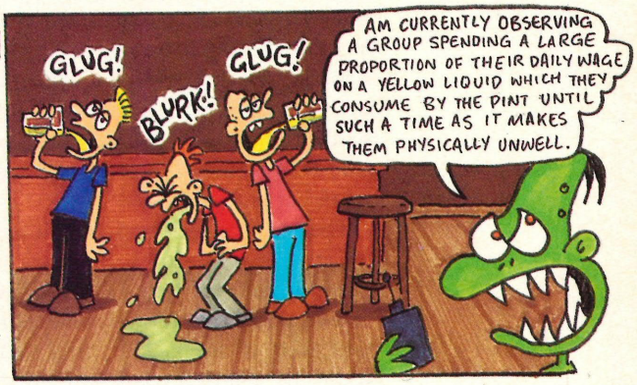


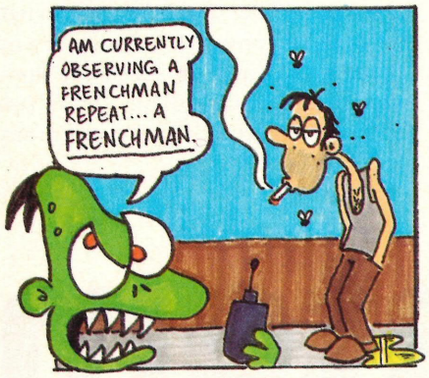


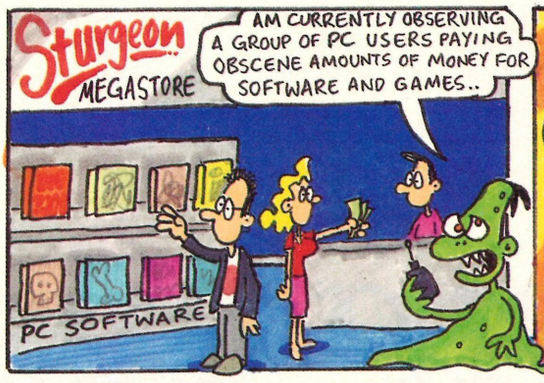






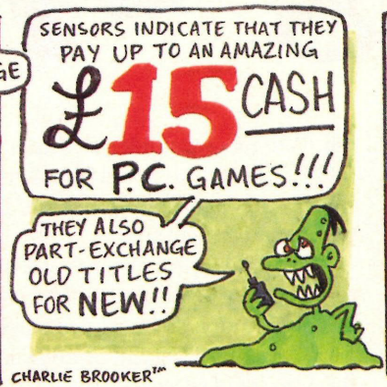






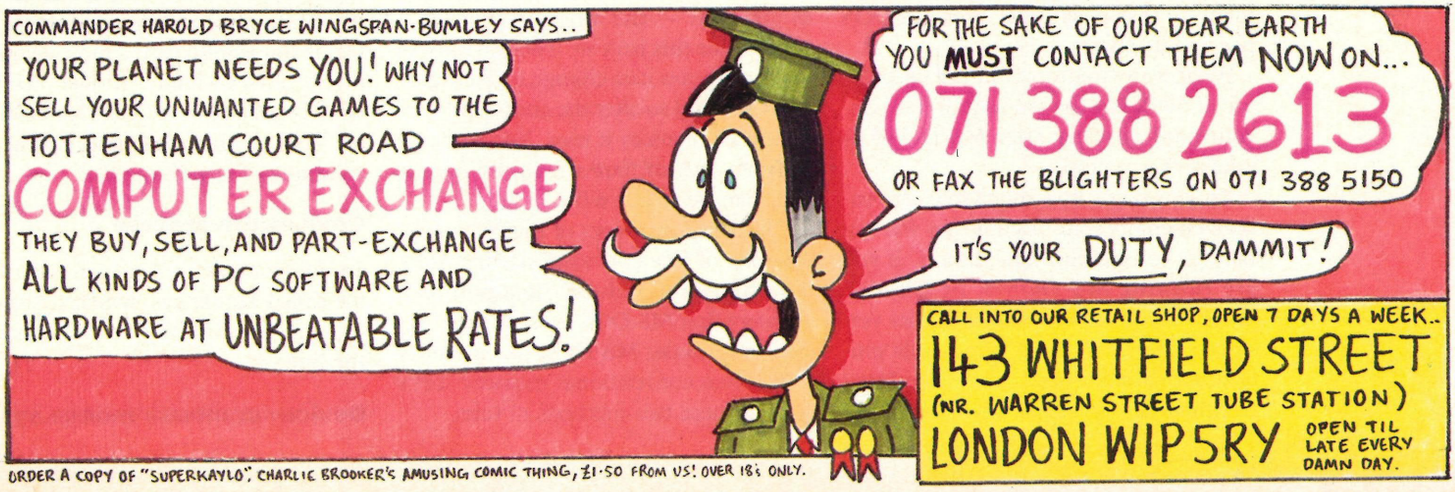








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Freeing system

Configuring a PC's memory can be one of the most technical of all tasks and it is something that is particularly important when you want to the run state-of-the-art programs — and most games software qualifies for this category. To make it all work you need to approach the problem logically and with understanding. It isn't magic — there is reason in it. Before we jump in at the deep end, however, let's be quite clear that we are talking about Random Access Memory, or RAM, here, not the megabytes which make up your hard or floppy disk, and which are probably better referred to as storage capacity, rather than memory.

The first thing to understand is that no matter how much memory your machine has, the first 1Mb is different and very special. Not only this, but the first 640K is unique. The first 640K is generally referred to as conventional memory, and this is the only part of memory that can be used simply and without any fuss by MS-DOS and any MS-DOS program you may be running. When a program claims to need 512K, or whatever, of memory to run, it is this precious conventional memory that it is talking about.

Now at this point you might not see what the problem is. The conventional memory area is 640K and any program knows this and so doesn't ask for any more. This misses the point that the program can only use the conventional memory that is left over after MS-DOS has had its share.

What really matters isn't the fixed figure of 640K but the amount of *free* conventional memory after MS-DOS has taken what it needs.

To see exactly how much free conventional memory your machine has you can use the command Mem (Enter), if you are running MS-DOS 5, or Chkdsk (Enter) if you are running an earlier version of MS-DOS. Both commands produce a lot of information, but from Mem the important part is the three line block:

655360 bytes total conventional memory
655360 bytes available to MS-DOS
545536 largest executable program size

and from Chkdsk the last two lines:

655360 total bytes memory
545536 bytes free

(Incidentally, Chkdsk's main function is to check your hard disk for file indexing errors and you may get some unwelcome error messages in addition to the lines above. If you do, refer to your MS-DOS manual for an explanation.)

The first figure in each case tells you the actual amount of conventional memory your machine has and this should be 655360 or 640K (one kilobyte = 1,024 bytes). If it shows less, then it's time for a memory upgrade. The other important line is the last one, ie, 545536, or just about 533K in this example. This is the free conventional memory and represents the largest program you are able to run. Most programs would run in this particular figure – but not all. Take, for example, Wing Commander II which needs 583K as a minimum and so it would not run on this particular machine, in this particular configuration.

The next question is what can be done to increase the amount of free conventional memory. At first, you might not think that anything can be done because the amount of space that MS-DOS needs is just that — the amount of space it needs! But this isn't so. There are lots of ways that you can change or configure MS-DOS and so alter the amount of conventional memory it uses. You can't get it down to zero, but a memory fanatic can manage to free 620K or so!

There are two ways of increasing the amount of free conventional memory. The first is to reduce the amount of memory that MS-DOS uses, and the second is to make MS-DOS use memory other than conventional memory. Let's look at these two methods in turn.

Reducing memory usage

When everything else has failed, actually reducing MS-DOS's use of memory is the only sure way of freeing conventional memory. However, this gain isn't entirely free because forcing MS-DOS to use less memory usually tends to mean a drop in performance or the loss of some facility. Reducing MS-DOS's memory usage is simple but it is something you should consider as a last resort. See the separate panel for details of how to unload and reload the devices and programs shown below.

MS-DOS uses conventional memory for buffers and for device drivers. A buffer is an area of memory that speeds up the transfer of data to and from your machine. The Config.sys command

Buffers=x

sets the number of disk buffers to x. Normally x should be between 10 or 20 but as each buffer uses 0.5K you can free up to 5K of conventional memory by reducing x to five at the expense of slowing down your disk drive. If you run Windows and have Smartdrv or use any other disk cache then you should reduce the total number of buffers to five, because they don't help when disk caching is enabled.

The largest use of conventional memory is by the many device drivers and TSRs that MS-DOS loads. A device driver is simply a small program that is necessary for MS-DOS and applications to use some piece of hardware. For example, if you want to use a mouse you generally have to load a mouse driver — usually called Mouse.sys. Device drivers are loaded within the Config.sys file using a command something like

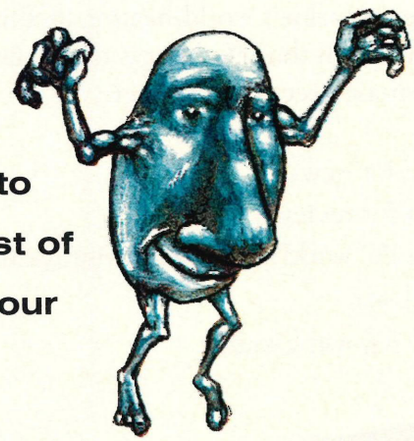
Device=drivername

So, for example, to load a mouse driver file called Mouse.sys, which is stored in the c:\mouse directory, you would include the line

Device=c:\mouse\mouse.sys



memory



Last month, we explained how to add extra memory to your PC. This month, we look at how to make the best of the memory you've already got, and how to free up your RAM to avoid those annoying "Not enough memory" error messages

How can you save conventional memory by knowing about device drivers? Well, simply by not loading a driver for any hardware you are not using. For example, if an application doesn't use a mouse driver, or provides its own built-in driver, remove the line from the Config.sys file that loads MS-DOS's mouse driver — this saves 17-20K. Another driver that can sometimes be removed is the MSCDEX CD-ROM driver with a saving of 15K or more (although it's only of any use if you have a CD-ROM drive which you want to disable temporarily, of course!).

A TSR (Terminate and Stay Resident) program is like a driver but instead of interfacing hardware it simply sits in memory and provides an extra facility. For example, Fastopen is a TSR that speeds up the way disk directories are handled. Like its name suggests it speeds up the opening of files. You generally load TSR programs within the Autoexec.bat file simply by including their name and any specifications for how they are supposed to work. You can even install them after MS-DOS has started if you prefer, by typing their name at the MS-DOS prompt. The following shows a number of ways to load a TSR.

Fastopen c:=40

loads the Fastopen TSR with enough memory to keep track of 40 filenames and it doesn't make any difference if this

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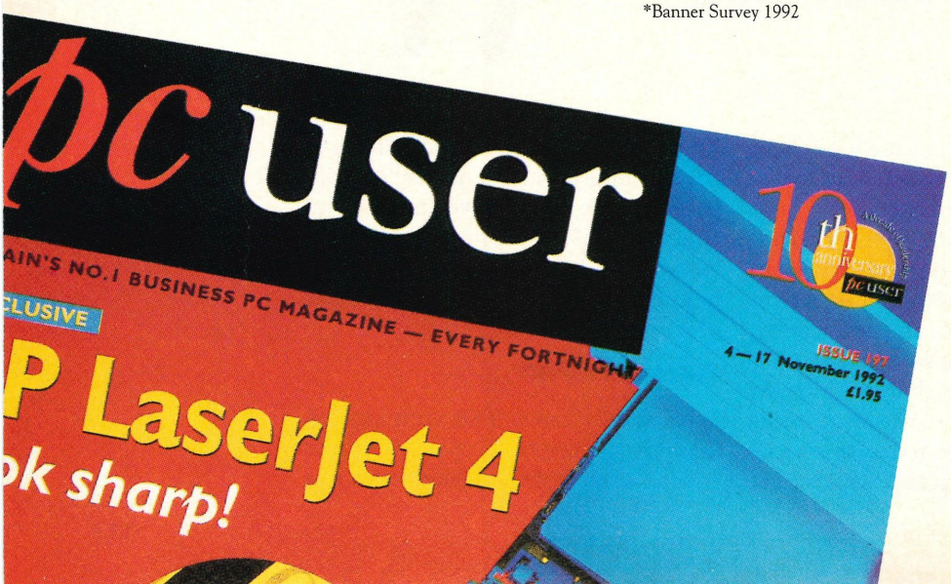
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What are Config.sys and Autoexec.bat?

Many users are confused by the technical sounding Config.sys and Autoexec.bat files that are repeatedly mentioned in most manuals and in articles such as this one.

The Config.sys file contains a list of MS-DOS commands that can only appear in this file — ie, you cannot type them at the command prompt and expect them to work. The Config.sys file is read very early on in the MS-DOS start-up sequence and it determines exactly how MS-DOS will load itself into memory and what facilities it will make available.

The Autoexec.bat file can contain any legal MS-DOS command and it is read and obeyed by MS-DOS at the very end of its start-up sequence. It generally determines the outside behaviour of MS-DOS, details such as the nationality of the keyboard layout, etc. It really should be thought of as just a way of automatically giving a set of commands every time MS-DOS is started.

is included in Autoexec.bat or typed at any time after MS-DOS has started. As an alternative it is possible, and common, to load TSRs in the Config.sys file using

Install=TSR name

This also has the advantage using slightly less memory, so even if you can't get rid of a TSR you could load it using Install. So for example, to load Fastopen in Config.sys, you would use:

Install=Fastopen c:=40

Obviously, if you want to increase the amount of free conventional memory it is a good idea to remove any TSRs that are not being used. The most common that you can get rid of are Fastopen, Share and Doskey.

As well as buffers, drivers and TSRs there are also some other one-off things that you can do to decrease MS-DOS's use of memory:

1) very old programs used FCBs (File Control Blocks) to access files. Modern MS-DOS programs don't use FCBs so in the Config.sys file add or alter the line to read

FCBS=1

2) the number of files that MS-DOS can have in use at any one time is set by

Files=x

Reduce x to 20 or less, but increase it again if programs start to complain!

3) reduce the number of disk drives that MS-DOS expects to work with using

Lastdrive=c

This saves 100 bytes for each drive letter you decide not to use (the example above also assumes that you don't have a drive d:, or e:. If you have a partitioned hard disk with both c: and d: configurations, then you'll have to use Lastdrive=d.)

4) set the number of stacks in use to 0 using

Stacks=0,0

But this one sometimes does cause applications to crash unfortunately, so only do it in desperation, and never do it if you run Windows.

Moving out of conventional memory

The alternative to reducing MS-DOS's memory use is to move the areas of memory used out of conventional memory. The big question is, of course, do you want to? The answer depends on your PC being a 286, or better, a 386/486. If you do have such a machine there are other types of memory in addition to conventional memory namely — extended memory and upper memory.

If your machine has more than 640K of RAM in total, the memory that isn't conventional memory is all extended memory. In normal operation, MS-DOS and MS-DOS applications cannot get at extended memory but there are some exceptions if you are using MS-DOS 5 or later. (The same principles apply if you are using DR-DOS, but the commands are slightly different.)

The first important exception is the so called High Memory Area — the HMA. This is a 64K block of memory that can be used by MS-DOS to shift a whole 64K of itself out of conventional memory. If you have a 286/386/486 this is the single biggest memory freeing thing you can do — but remember it only works with MS-DOS 5 and later. To move MS-DOS into the HMA all you have to do is

1) make sure that first line of the Config.sys file is

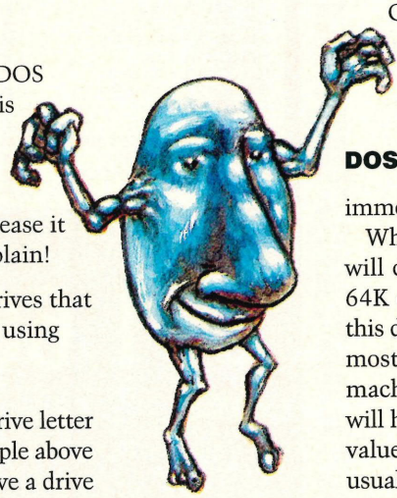
Device=Himem.sys

2) add the line

DOS=High

immediately after it.

When you next start the machine you will discover that you have very nearly 64K of extra conventional memory. If this doesn't work for any reason then the most probable explanation is that your machine type is non-standard and you will have to try adding /Machine=x with values of x ranging from 1 to 16. This is usually only necessary for 286 machines.



Please read this!

Altering Config.sys and Autoexec.bat

To alter the configuration of your machine you have to edit the Config.sys and Autoexec.bat files — and if you make a mistake this can make your machine impossible to start. It is important that before you start altering these files you take two steps:

1) Make a copy of the existing Config.sys and Autoexec.bat files on a floppy disk.

2) Make a system disk that can be used to restart your machine if you do make a mistake (see separate panel on page 117).

To edit Config.sys or Autoexec.bat, use Edit in MS-DOS 5, any word processor which will generate plain text files without any special codes, or, if you don't have MS-DOS 5, you may have to resort to the dreaded Edlin, which will almost certainly drive you weeping to your DOS manual.

Rather than deleting lines wholesale from the files, which you will then have to remember to type in accurately if or when you add them again, you can temporarily disable them by typing REM at the start of the line. Thus, a Config.sys file which reads:

Device=c:\windows\himem.sys
DOS=high
Country=044,,c:\dos\country.sys
Files=20
Lastdrive=d
rem Stacks=9,256
rem Device=c:\ansi.sys
Buffers=20

has disabled the stacks and Ansi.sys. The word 'Rem' stands for 'remark' and turns these lines into comments, so that MS-DOS doesn't act upon them when reading the file. When you want to use them again, simply enter your word processor, or MS-DOS 5's Edit program, and delete the word 'rem'.

If you do want to keep separate copies of your Autoexec.bat and Config.sys files, rename the versions you're not currently using with something mnemonic, like Autoexec.bak, or Config.old, so that you can simply rename them using DOS's Ren command when you want to make them current again (first, you will have to rename the 'live' Autoexec.bat and Config.sys, then change .bak or .old to the correct names).

Important: remember that any changes you make to Autoexec.bat or Config.sys will not take effect until you restart the system (Ctrl-Alt-Del, or the reset button).

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Once you have used the HMA to free 64K you should turn your attention to the Upper Memory Area. This is a block of space between 640K and 1Mb that is normally used for hardware devices such as video boards, etc. However, in practice, there is usually a lot of unused space and if you have a 386/486 machine this space can be filled with RAM taken from extended memory above the 1Mb level. This filling of holes creates Upper Memory Blocks or UMBs. The problem is that UMBs are usually small — 64K is usually the largest but together they can total as much as 128K. To create UMBs you need to add the line

Device=Emm386.exe noems

to Config.sys just after the Himem.sys command and change

DOS=High

to

DOS=High,UMB

After this some extended memory will be used to create UMBs the next time you start your machine.

What can you do with UMBs? The answer is that you can move device drivers and TSRs out of conventional memory into suitably sized UMBs. To load device drivers high to do this all you have to do is change

Device=drivername

to

Devicehigh=drivername

To load TSRs high you have to change the line that loads them in the Autoexec.bat file to

Loadhigh TSR name

(Notice that you have to change from Install TSR name in the Config.sys file to Loadhigh in the Autoexec.bat file.)

Now if you think that this is complicated, I'm sorry but there's one more little twist. The UMBs that are available are of different sizes and so are the programs you are trying to load into them. What MS-DOS does is that it loads the drivers and TSRs in the precise order in which they appear into the available UMBs, using them up in order of largest size. What this means is that how many drivers and TSRs you can load into UMBs depends on the particular order in which you load them.

Suppose, for example, that there are two UMBs, one 10K and one 5K, and two drivers one 4K and one 7K. If you load the 4K driver first it is loaded into the 10K UMB leaving a 6K and a 4K UMB neither of which are large enough to hold the second 7K driver.

On the other hand, if the drivers are loaded the other way round then after the first there is still a 3K and a 4K UMB available and the 4K driver can still be loaded. If there isn't a UMB large enough for a driver that you try to load high, it is simply loaded as normal into conventional memory.

What all this means is that to pack the maximum number of drivers and TSRs into high memory you have to get the loading order right. But how do you know the sizes of the available UMBs? The answer is to use the command

Mem /C |more

which will tell you the total UMB space available and the size of the largest UMB. (The | character is the one which looks like a vertically elongated colon, and should be accessible by pressing Shift-backslash on standard keyboards.) Using this information you should try to load the largest driver into the largest UMB. You should also work one driver at a time and use Mem /C to check that it has really been loaded into a UMB.

Not all drivers and TSRs can reliably run in upper memory and so it is extremely important to test your machine for a while before loading the next driver into upper memory. If your machine fails to work properly or shows an increased tendency to crash you should take a step back and remove the driver from upper memory.

This isn't the end of the story, because there are other considerations such as drivers that are fussy about how they are loaded into upper memory, how expanded memory fits into the picture and how best to use upper memory if you are planning to run Windows — but this is all you need to know if your sole aim is freeing conventional memory.

If you don't like the sound of all of the messing about with the order of loading drivers and finding the best set-up you might like to consider buying a special memory manager utility. These generally include a program that will try to configure your machine's use of memory to get the best.

They are not 100% foolproof but automatic configuration does work in most cases. It is also well worth knowing that both the forthcoming MS-DOS 6 and existing DR-DOS versions include automatic memory configuration utilities.

Buyers Guide

The best known alternative memory managers which you save you heartache fiddling with MS-DOS in an attempt to free up your RAM are:

QEMM 386

A good memory manager with lots of advanced techniques to increase conventional memory including automatic configuration.
For suppliers contact Frontline, tel: (0256) 463344; fax (0256) 479461

386MAX

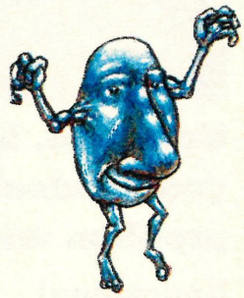
QEMM's main competitor. It has nearly every thing that QEMM has and a few extras.
For suppliers contact IDS, tel: (071) 631 0548; fax (071) 580 1466

MS-DOS 6

Full automatic configuration utilities and 100% compatible with the standard — because it is the standard! See elsewhere in this issue for more on MS-DOS 6.
For suppliers contact Microsoft on (0734) 270000

DR-DOS

An alternative to MS-DOS. Wait for the next version to see if it is any better than MS-DOS 6.
For suppliers contact Frontline, tel:(0256) 463344; fax (0256) 479461



Making a boot disk

We've said this before, but it bears repeating, because making a boot disk is both a simple way of overcoming memory problems — and a number of games virtually require you to use one — and unexpectedly easy to do.

A boot disk is a floppy disk which has the bare bones of MS-DOS on it: normally the hidden system files Io.sys and Msdos.sys (these won't show up on the Dir file listing) and the all-important Command.com.

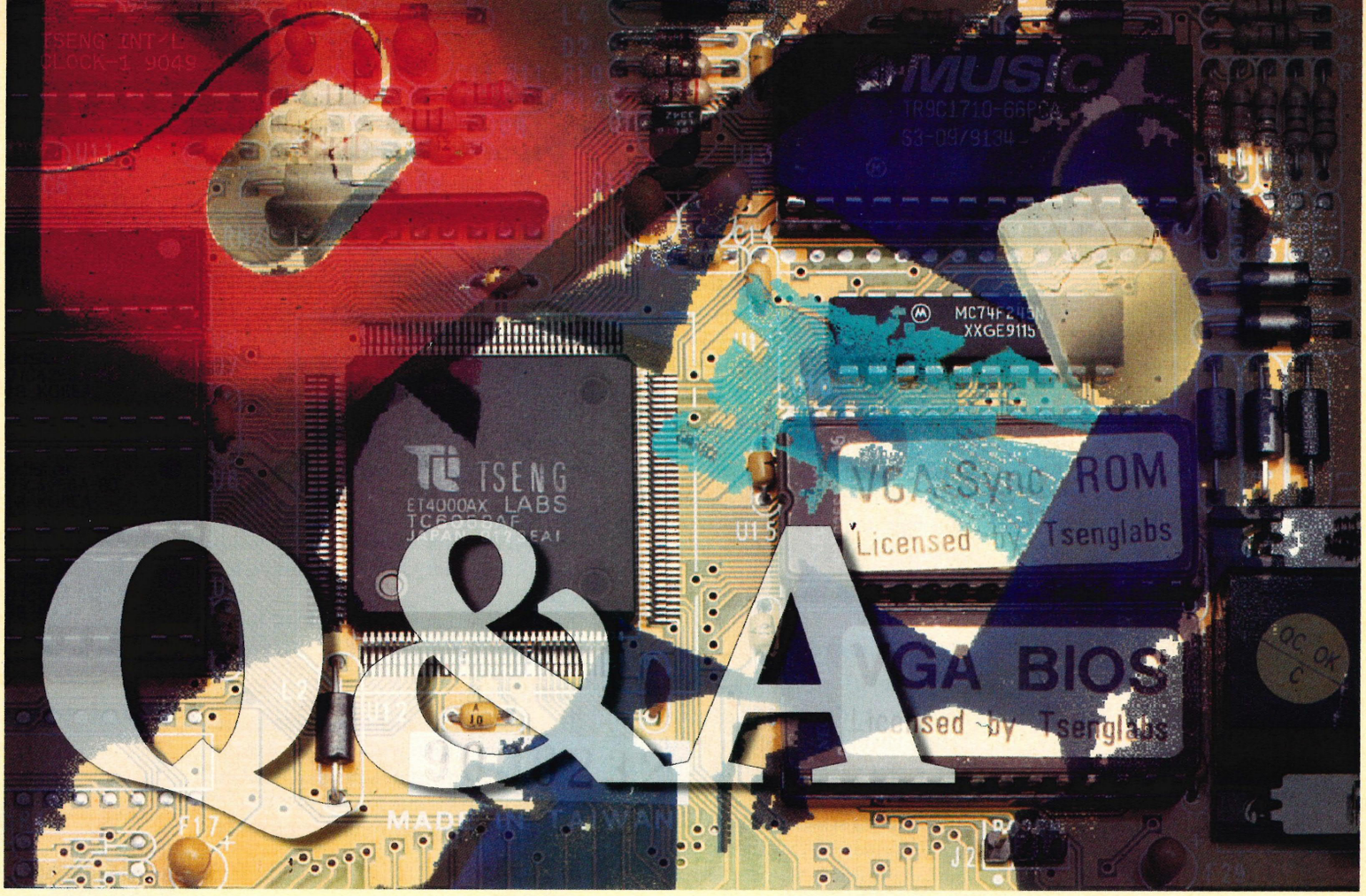
Because the PC will always look for the operating system first in drive a:, and then load it from drive c: if it finds drive a: empty, the system will load from your boot disk in drive a: if you switch the machine on with the disk already inserted.

All you need is a blank disk. Put this disk in drive a: and type the command

Format a: /s

This will format the disk, and transfer the system files on to it, so that your floppy is now a fully-fledged boot disk. You'll probably need to use the boot disk from time to time, so label it clearly and keep it safe.

You can also transfer a mini Autoexec.bat on to this boot disk, with, say, just your mouse driver on it, or load devices such as mice after booting the system with the floppy disk.



Q&A

Bemused, befuddled, or bewildered about your PC? If your hardware gives you headaches and you're stricken with software seize-ups, share your problem with Q&A's Mike James and he'll endeavour to help

Upgrading!

Q I have an unbranded PC that I bought about a year ago. It is a 386SX/25MHz, with 4Mb RAM, SVGA monitor and card, Sound Blaster card, 40Mb hard disk, both 1.2Mb 5.25" and 1.44Mb and 3.5" drives, running MS-DOS 5 and Windows 3.1. I think that it is now time to upgrade. I want to upgrade it to a 486SX, 25MHz machine.

The company that I bought my PC from has gone bust, so I can't get them to do it. I don't want to get rid of my current machine because I am very pleased with it. I think that the cheapest way of upgrading, without replacing my current machine, is to change my motherboard for a new one. I have seen a motherboard that I like for £146. How can I be sure if a new motherboard would fit my machine? And could I sell my old 386SX, 25MHz motherboard? If so, for how much and to whom?

Mark Summerville
Liss
Hampshire

Q I have a 386DX/33MHz PC. I am considering the possibility of upgrading the motherboard to a 486DX/50MHz. Please could you tell me whether this is necessary? If so, what sort of price range am I looking at? Is a motherboard easy to install?

Darren Jones
Newport
Gwent

Q I am currently using a 386SX-16 using 5Mb of memory (EMS) and have a 90Mb hard drive, SoundBlaster and twin floppies of both sizes. I am also thinking of buying a 387 maths co-processor for it.

My problem is this. I would like to buy either a new 486-33 to upgrade my present computer to a 486-33 by changing the motherboard. Is it difficult to do and will you be covering it in any later issues of the magazine as I would like to do it myself, both to cut costs and to learn more about computers.

Michael Hurt
Sutton
Surrey

A *We haven't had a motherboard upgrade question for a while, so why not three in one go? The situation with respect to upgrades has changed a little since I last wrote about it. At the moment, 486SX motherboards are available for less than £200 which puts them in the same price bracket as 386SX boards were about six months ago. Of course this also means that 386SX boards have dropped in price even more but now I would say that any upgrade should be to at least a 486SX. A 486SX is more than twice as fast as a 386SX running at the same clock speed, and we have seen several games already this year which run very slowly on a 386SX.*

If you have a standard PC — standard size and without any extras such as the video and hard disk controller built into the motherboard you should have little difficulty in changing the motherboard. If you are in any doubt, open the case, which you will have to do in order to fit the new motherboard anyway, and measure the old motherboard. Check the size of the new motherboard before you buy. New motherboards are generally a lot smaller and will fit in half or a quarter of the space occupied by the original boards. All that really matters is that the new motherboard has fixing holes in the same place as the old. From a cost point of view it is also important that any memory you have can be fitted to the new board. If this isn't the case, you should add around £30 per megabyte for new memory.

I don't know if you can learn anything about your machine by fitting a motherboard but you do learn a lot in the process of getting ready to do it!

Is it worth it? Well, if you work out the value of each part of your machine I would guess that you will discover that the video card, monitor, disk drives and memory cost much more than the motherboard.

As to reselling a motherboard I have to say that with prices falling the way they are there may not be much value left in a second-hand 386SX perhaps £25-£50. I have an original IBM XT motherboard hanging on the wall as a decoration — any offers?

In defence of DR-DOS 6

Q I have used both MS-DOS 5 and DR-DOS 6 and would like to point out the advantages of DR-DOS 6.

1. Installing and altering set-up is menu driven so you don't have to learn to program the Config.sys and Autoexec.bat file, which makes it overall a lot easier to use.
2. It leaves more conventional memory than MS-DOS.
3. The hard disk compression supplied can double your hard drive space.
4. It has a hard drive defragmenter.
5. It comes on only two disks compared to MS-DOS's three disks.

I have never experienced compatibility problems with DR-DOS on any hardware or software, apart from the fact that Links won't install when the hard disk is compacted. The reason I have MS-DOS is because I wanted Falcon 3. The outer cover and shop assistant both said, I quote, "MS-DOS 5.0 required". When I bought Falcon 3, after getting MS-DOS, the manual said "MS-DOS 5 or DR-DOS 6 required"!

IP Gara
Basingstoke

A I do not argue that there are some advantages to DR-DOS 6, but in my opinion they are slight. You can buy a defragmenter and compression utility to use with MS-DOS 5 so in these respects the difference comes down to cost. The reason why I wouldn't personally choose to use DR-DOS is exactly because of the sort of potential for confusion that you describe. If you had been using MS-DOS 5, even with the extras, you wouldn't have to open the box to discover it if was compatible or not. In a sense the trouble that you had was one of incompatibility even though it turned out happily in the end!

When it comes to using a PC there are enough potential sources of trouble without choosing something that isn't the industry standard. Sometimes it is best to put up with the market leader!

PS I have been testing MS-DOS 6 and after just a couple of weeks' experience, without overstepping my non-disclosure restrictions, it is everything you claim for DR-DOS 6 and more.

● *MS-DOS 6 also has some features of particular interest to game players. To find out more information see page 41.*

Amstrad upgrade again

Q I am a not so proud part owner of an Amstrad 1640 with 20Mb hard disk, EGA graphics, etc. I have seen the main complaints about the Amstrad 1512/1640 and I want to know whether the 1640 could manage a sound board — Ad Lib or Sound Blaster). Also how should I make my machine faster and is it worth it — that is, would it be cheaper to buy a new machine?

James Humphrey
Bedfordshire

A Amstrads can be upgraded with a new motherboard see PC Review Issue 16 and you can fit a sound card if you want to, as long as it is an 8-bit sound card. Personally I would leave the machine as it is and use it for something undemanding like simple office duties. These days the 1640 is so far outclassed by machines that cost less than it did. I'm afraid that my honest advice is to move on to a new machine even though I will probably get letters from 1640 aficionados as a result of saying so!

Memory block

Q I own a 486 33MHz with 8Mb of memory and DOS 5, and I am having some problems with expanded memory and UMB blocks. Programs which I load high, such as the keyboard and display programs, are in upper memory, leaving me with approximately 620K base and about 14K of UMB free. The problems arise when I try to have more than 2048K expanded memory: some of the programs in the UMB region go down to base and my amount of free UMB memory goes down as well. Why? I have the EMM386 line saying '2048 M9 RAM'. Even though my free UMB memory is still about 12K, the program in question is Keyb (6.1K) this goes in to base memory. Is it something to do with the switching memory around for expanded memory?

Some other info that might be relevant is that when I type in Mem/c more, there are four free blocks 0.1K, 0.2K, 0.2K, 12K (this is for the UMB section). I have enough memory so why do some programs go down into base memory when I increase expanded memory to 2048K?

I'd just like to say something on CD-ROMs. I have the Westpoint Creative Pack (which if anyone is still thinking of going into CD-ROM area is still really good value) and have the Sherlock Holmes CD. This CD loads up just like a hard disk and never slows down noticeably, while Sierra's King's Quest 5 does slow up sometimes while playing the game. So why are some CDs slower than others?

On the CD-ROM I have a 64K cache on the CD and also a software cache, which came with it, in which can you allocate expanded memory as cache. Does the software cache make a lot of difference and what do you think is the optimum size for one? And finally, which is faster, expanded or extended?

Andrews Webber
Orpington
Kent

A Your problem with UMBs (Upper Memory Blocks) is an interesting one. The trouble with UMBs is that they are in the plural! The upper memory area is a mess of little holes of useful memory. If you want to load a program into the UMA (Upper Memory Area) you need a UMB (Upper Memory Block) that is large enough to hold the entire program.

The pattern of free blocks depends on what is already loaded into the UMA and what adapter cards are fitted. In particular, when you enable expanded memory a single 64K UMB has to be found for the expanded memory page frame. This generally reduces the number of programs that you can load into the UMA because it takes a huge chunk of memory and fragments what is left.

The puzzling part of your description is that all of this happens when you reach 2Mb of expanded memory. The only explanation I can find, without having access to your machine, is that at 2Mb of expanded memory one of the drivers that you are loading suddenly decides to use expanded memory and as a result takes more upper memory to manage it. I would suggest that you use the command Mem /c to discover what is loaded where in the UMA, before as well as after increasing the expanded memory to 2Mb.

As to your comments about CD-ROM, the difference is how the programs concerned choose to read the data from the CD-ROM. If they read in large chunks you have to wait while they do it. If they read in smaller chunks but more frequently you don't notice because of the buffering. The larger the amount of memory that you allocate to the CD buffers the smaller the effect. Unfortunately the optimum size of the cache depends on the software but the rule is that the bigger the better. When I am looking at animations I usually increase the size of the buffers and then reduce them again when I go back to running programs or data from CD.

In principle, an extended memory cache, or an extended memory anything else, should be faster than an equivalent expanded memory facility. The exception to this rule is if the expanded memory is provided by an expanded memory expansion board but these are relatively rare.

The mystery of the missing megabytes

Q I have a small problem with my PC (386SX). It happened for the first time about six months ago. After using Word Perfect 5.1, I noticed that I had less space on my hard disk — instead of the correct 3Mb, the computer displayed 512K!

By accident, I discovered that if I loaded and then quit Windows 3.0 then the full 3Mb were there again. Confusing, or what?

I didn't really give this incident a second thought, and soon forgot about it, until recently, that is. When my dad had just quit WordPerfect, I felt like burning round the many tracks of Crash Course and decided to install it, but was confronted by a message telling me I needed 1.4Mb, and that all I had was 512K.

I ran Chkdsk and sure enough, I only had 512K left. I remembered my previous problem and just loaded and exited Windows and there were my 3Mb back again. The same thing happened a few days later, and I sorted it out again.

You might say that I should forget about it, as I know how to sort out this small problem, but why

should it happen in the first place, and why on earth does loading and quitting Windows help?

Luke Parnell
Southampton

A The answer is probably that an application is creating a temporary file that it isn't deleting. Although you connect the disappearance of the 3Mb with WordPerfect it could be Windows which is actually causing the problem. Windows creates a great many temporary files while it is running and it deletes them when you shut it down. Of course if you don't shut it down properly and just switch off it can't delete the temporary files and they remain on the disk. The next time you start the machine they are still there but when you start Windows it deletes them. To confirm that this is correct the next time that your 3Mb disappears have a look to see if there are any 3Mb files ending in .TMP or any files with obviously machine-invented names, like VME327~2, etc.

It is also possible that WordPerfect is the cause of the problem if you are using the WordPerfect Shell (something that is automatic and you may not be aware of) and switch off without quitting the shell first. The reason is the same — temporary files aren't being deleted.

The solution to the problem is to make sure that you don't switch off your machine without exiting any application and returning to the MS-DOS prompt.

Finally, I am glad to hear that you are running Chkdsk every now and again, though. You should keep an eye on the health of your disk drive just in case it is a more complicated and serious problem.

Send your queries to Q&A, PC Review, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU, or, if you have access to CIX, the Compulink Information Exchange, you can e-mail us at: pcreview@cix.compulink.co.uk.

Mike James can only reply to your problems on this page, so please don't include SAEs or requests for personal replies.

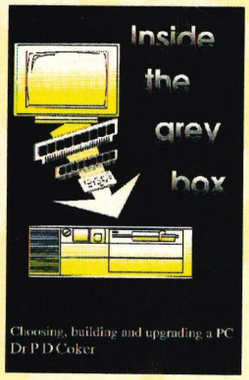
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Q&A update

Focus on disk drives

Disk drives are often the source of trouble and confusion so let's do a fast tour of the basic ideas.

The first thing to say is that disk storage is different to RAM. Even experienced users often become confused about disk and RAM requirements (and if you think you might be one of them, see this month's article on Getting the Most from your PC on page 112).

When a program fails to run with an 'out of memory' error there is often temptation to 'clear more space' by deleting files stored on the disk. Of course, this doesn't help at all! When a program says that it needs 1Mb to run, this isn't referring to disk storage but to RAM memory. Disk storage is where your programs and data live when they are not being used and RAM is that place that they have to live to be active. In other words, to run a program it has to be loaded from disk into RAM. You may have hundreds of megabytes of disk storage and this will hold 10-20 major application programs and data. However, you only need a few megabytes of RAM to run any one of the programs.

Now, if programs have to be loaded into RAM why is it that a disk drive's speed can effect how fast a program actually runs? Disk drives have a bigger impact on how programs run for two reasons. The first is that programs usually need to read data from the hard disk while they are running. For example, the static backgrounds to most games are loaded from disk as and when they are, required. The second reason is that most programs, when taken in their entirety are too large to fit into the available RAM. To avoid asking users to fit 16Mb and more of RAM most programs are split into smaller chunks called modules or overlays. When the program is first started the chunk that deals with the initial phase of the game is loaded. Then, as the game progresses, the next chunk will be loaded and run. Overlays can correspond to different stages, different levels or to different actions within a game — and each time an overlay is loaded the disk comes into action. So while a program is running the disk drive is being used to bring new data and new chunks of program into RAM and if the disk is a bit on the slow side you will notice the pauses when this happens.

For example, the ever popular Wing Commander II needs 15Mb of disk storage for all the program overlays, graphics and sound files — if you install everything. Yet when the program runs it loads no more than around 590K of itself into memory at one go and perhaps an additional 1Mb or 2Mb of graphics and sound data into any expanded memory that is available. You can see the effect that the disk drive has on the program because every time a new mission starts the disk drive activity is frantic and there is a pause while the new data and program overlays are loaded. Of course it attempts to load everything it needs to simulate the mission before it starts because you would not be very happy to suffer a similar pause just when you were about to press the fire button!

Even though a disk drive cannot affect how fast a program runs once it is loaded into RAM it can slow the program down as it uses the disk drive. Now you can see that how much impact a disk drive has depends on the program. If a program is small enough to load all of itself, including any data that it needs, into RAM then the disk drive has no effect after the initial loading. The trouble is that most modern applications software, and this includes games, are huge and they are growing in size as each new release tries to outdo what is already on the market in sophistication.

■ ***Mike James***

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Letters

PC Review welcomes letters on any subject under the PC sun. The editor will chop them to fit if need be, and we'll assume letters are for publication unless you state otherwise. Send your mail to letters, PC Review, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. Star letters win software prizes

Wherefore art thou, Mario?

I have a PC and several games for it, including Flight Simulator, PGA Tour Golf, European Championship 92 and Magic Pockets.

I love all these games but my favourite style of game is that of the Super Mario Bros games available for the Nintendo. Is it possible to buy these games for PC? If not, can you suggest games that are similar?

Michael Edmonds
Crawley

Mario has appeared on the PC in educational guise — Mario Teaches Typing, for instance, and the educational game Mario is Missing. The original Nintendo games aren't available on the PC.

However, if it's a platform/arcade-style game you're looking for rather than one featuring the man himself, then you could take a look at Trolls (reviewed in Issue 17), Gods (from the Bitmap Brothers), Prince of Persia (Hit Squad), or Rick Dangerous 2 (Kixx), all good quality arcade style games on the PC.

Hunting grounds

I read with interest your article on text adventures games and remember playing Hunt the Wampus on the University HP 2000. Steve Cooke says that he cannot remember the point of the game. Well, as I remember, it was simply a kill or be killed game with the player wandering around a maze with the option of shooting arrows into any adjacent room. Arrows were limited and clues were given as to the current location of the wumpus. However, if the wumpus moved into your room you died. I have a vague memory that some of the arrows didn't fly straight.

I would also like to ask for help with Legend. I have played through Treihadwyl and moved on to Fragranc. Unfortunately I am now stuck on the first level. I need a ruby key to go through a door in a room full of teleports (with a chest that I can't open) or a gold, bronze or diamond key to progress through another room. I have searched everywhere (I think!) and have played from the beginning of the game to the same point three times.

Like Howard Roscoe (Letters, Issue 16), I too have played Ultima Underworld on a 286 and it worked pretty well. In fact, the slow speed made the underworld seem truly enormous.

Clive Higginson
Twickenham

Harrier hassles

I am writing regarding MicroProse's attitude over harrier Jump Jet. I telephoned them because my version of Harrier would load the intro screens but then give a 'Could not load the next segment – Harrier needs 613,???bytes of free memory, or something similar!

I explained to technical support that I had actually 625,???bytes of free memory.

It appeared that the problem was because I am using DRDOS 6 and not DOS 5. He did explain that it did say so on the reference guide in the box. (Very useful! All the shops have those on view, don't they?) In actual fact, they mention nothing about DRDOS at all and just say DOS 5 which every new release says now.

After this, I wrote to the managing director of MicroProse and received a letter back a few days later from Bronwen Burnell, Customer Service Supervisor.

In it she explained,
"I can assure you this is something we take seriously and we hope that universal compatibility is an issue which Novell will address in their next release of the product and certainly it is something our programmers are addressing. I am therefore working to get you a DRDOS 6 boot disk made up which should allow Harrier to run."

Naturally, I am pleased and somewhat reassured with her response but did point out that Falcon 3.0 runs very well on my computer using much more memory without problem. If Spectrum Holobyte can do it, then MicroProse should be able to as well! After all, wasn't it MicroProse who corrected all the bugs in Falcon 3.0? Their programmers should have an idea of the code needed.

Michael Hurt
Surrey

Golf goof

Thanks a lot, PCR, for wasting my time and spoiling my day.

Having eagerly awaited the February 1993 issue of PCR, I got stuck in and read it from cover to cover. Your reviews must be second to none and help people like myself who are new to computers to select the correct software. There is, however, one thing I find more irritating than a poorly written magazine and that is a factually incorrect magazine.

On page 110-111 of your February issue, you quoted that the Jack Nicklaus: Signature Edition 'is a relatively recent title to be getting the budget treatment' at £12.99. Of course, I shot out to the shops to buy this as a golf sim nut and spent all day Saturday and two lunch hours searching for the game. Having spent this wasted time I wasted some more if nothing else but to find the truth and pestered a shop assistant who wasted time phoning her head office, then wasted time phoning Accolade who wasted time phoning you to find it was your mistake. I was then informed that I would not get a copy for less than £39.99.

It may have been understandable that Signature Edition was the incorrect version quoted as we all make mistakes but to add insult to injury you even put a nice graphic picture up just to confirm it was a golf sim nut's dream come true.

Next time you decide to print a minor miracle, I suggest you pull your socks up and check your facts.

C C Harman
Bognor Regis

It's a fair cop, and all I can offer are our sincere apologies for an unprecedented rush of blood to the head which led us — quite inexplicably — to confuse Greatest 18 Holes of Major Championship Golf for Signature

Edition. It had better not happen again, and hopefully Accolade now has an incentive to re-release the genuine Signature Edition at a budget price.

Good buy to all that

The question of what exactly is a good buy is a burning question, as I'm sure other readers will agree, PC games ain't cheap! Perhaps therefore the most important service offered by PC Review is good advice, or what I might prefer to describe as good 'critical' advice. Whilst PC Review seems fine at reviewing the actual games, there seems to be a distinct lack of clear opinion about the quality of the software being used to implement those games.

I feel there is an important distinction to be made between the games themselves and the software in which they are housed. I'm tired of the cardboard animation from the likes of Sierra, the Config.sys juggling and general creakiness of Rex Nebular, the awful speed of Star Trek, and so on.

If I need high powered hardware to run a PC game, I'd like to know if this is because it's doing something so exciting that it actually needs all that hardware, or is it because it's badly written. No, I'm not going to tell you how fast my PC is as games should be driven by the excellence of the software and not simply by the processing power of the hardware.

The ever touted Kings Quest series is a good example of the not as good as it sounds software, although I have noted occasional implied criticism of the Sierra engine in PCR, you seem to be embarrassed just to come out and say it. So let's see praise where praise is due, but less fudging when a good bit of criticism would be more appropriate. Use all the numbers in the rating system. Five is supposed to mean average, nine excellent, and one, dreadful: at present there seems to be a distinct skew towards the excellent!

Basically, I feel PC Review is failing to emphasise what makes Indiana Jones look so good, by not describing what makes some other games look so bad. Surely this is the essence of good journalistic criticism.

Mark Benson
Bucks

Starletter

Even better than the real thing?

People are always going on about how 'realistic' today's modern PC based flight simulators are, and I am definitely not one of them!

I would, however, be the first to admit that I really enjoy playing them. But that's about as far as it goes – they are fun! I've had a lot of flying experience in light aircraft and my dad's a qualified pilot and we've both come to the conclusion that they are not very realistic; at least not to the extent that they are advertised as being, for the following reasons.

When you are flying you feel the aeroplane moving, which you obviously don't on a PC.

The control system feels all wrong, even if you do have a flight stick or yoke they don't vibrate or have any feeling of weight in them, and won't move when they would in real life (eg, when in turbulence). Let alone rudders ...

In real life the primary way of checking to see that you are straight and level is to look at both wing tips and the nose, after that you occasionally glance at your instruments (unless in cloud, fog, etc). This is very impractical on a simulator since you have to fiddle about with keys which takes too long (especially in a combat game) compared to a quick glance over your shoulder. You only get a very limited view of the surrounding area in a flight sim.

It's not the hardware (486, lotsa memory, etc), or the software. FS4 is regarded as the most accurate simulator, but there are many serious faults such as stalling in Cessnas at 110knts+(?!) Also, there is very little difference between similar models, eg, Cessna and Piper. FS4 is a simulator made just for realism but it falls way short of its aims so it's not all that much fun or informative.

So come on, just sell simulators as games.

David Inglis
Edinburght

PC Review has always claimed that playability is next to godliness, so if we're not making this plain enough now, we'll certainly shout it loud and clear from now on. Thanks for your comments, Mark, your points have been noted.

Don't give us a clue

I write to say that I must disagree totally with what Mr Malcolm Reade said in Letters, Issue 15. Including cluebooks (or text files on disk serving the same purpose) would totally spoil the experience of adventure gaming.

I don't think I am the slightest bit cleverer than Mr Reade. However, the inclusion of a cluebook defies the purpose of playing an adventure game in the first place. It is solving those devious puzzles the clever programmers has made up for us that makes it fun. A cluebook would reduce the game to a few hours of sightseeing.

Sure, you can say that I am free not to open the cluebook if it were included, but not being among the strongest of character, I would turn to it facing the smallest of hurdles. Without a cluebook at hand, I simply have to keep on trying until I solve the problem myself. The obsessive nature of solving the game is what makes adventure gaming worthwhile. When I slap my forehead yelling "of course" (waking up the whole building as this usually happens around three o'clock in the morning), the thrill is at its peak.

I could discard the cluebook before I start playing, but then again, if I face a really unsolvable problem where do I turn for help? The software house would refuse to answer my plea because they'd think I'm playing a pirated copy. The guys at PC Review would say "Read the cluebook, stupid!"

For the same reasons, I think you shouldn't print those player's guides in the magazine, but rather expand the tips page radically to help Mr Reade, myself and all the other gamesters with those really nasty problems. Reading about how to solve two of the trickiest puzzles won't spoil the fun too much and may save some of us from being put to bed in a straitjacket.

Alf H Jonassen
Norway

A bad patch?

I am increasingly concerned about the quality of games released with regards to bugs that in some create minor difficulties in gameplay and usability, to others that prevent the game from loading at all.

I recently purchased Darklands through the Home Computer Club as part of their introductory offer. With regard to your review of this game in Issue 14, I found the information concerning patch disks and dates of executables invaluable. I would, however, have found further details of how these bugs manifested themselves, their actual effects on the game, very useful.

I duly telephoned MicroProse. It took me four days of trying at various times of day (they inform me they have had problems with one or two of their games and that with the Christmas surge they have had problems with the lines) before I finally got to speak with a very sympathetic, courteous and efficient sounding lady. For your information, they are now on patch disk version 6! Indeed as promised, this disk arrived on my doorstep within 48 hours.

Now for the bad news. Since run-

ning this update I can no longer start Darklands and use a mouse. I suspect a conflict between the mouse and the video card, though I have no problems with any of my other games of this nature. I and a friend who is certainly no patzer when it comes to hacking about with machine configurations, etc, have spent am good couple of hours on this problem to no avail.

I have previously purchased Civilization, Railroad Tycoon, and Global Conquest and have had little to no problems. Up to now I have had an very high regard both for the quality and the make up of games which come from this particular software house.

I also have bought Rex Nebular, I see from an American magazine, that they have upgraded this to version .848. Unfortunately, the magazine does not give the reasons why. I have got stuck in this game and am unsure whether is is due to my poor gameplay, or if it is due to a bug that has mysteriously removed some of my inventory when I wasn't looking. I have written and am currently awaiting a reply from MicroProse concerning this matter.

Heimdall was another of my recent acquisitions through the Home Computer Club. I got into the game and found it thoroughly enjoyable. Having, I suspect, almost completely finished the first level, to my annoyance found the game returning me to the c: prompt whenever I try to go to the last of the islands, or usually if I try to revisit somewhere I've already been. This has been returned to the club, and again I am awaiting a reply.

Please, please, may we have a lot more publicity concerning this type of problem. I must be on of very many annoyed games users. Some advice on what action I should take, and what reactions I should expect, would be useful.

By the way, regarding games with various levels of difficulty, as found on Rex Nebular and Monkey Island 2. In both games I played the easiest level and found myself confused by having items I needed only for the more difficult level.

In Rex Nebular, I obtained a combination for, and opened the safe, only later to use a compact mirror to reflect a laser beam and blow a hole into the lock of the same safe. This type of thing may be common in games of variable difficulty levels, but as yet I have seen no comments on this in your reviews.

Just to finish on a positive note. Kyrandia gets my vote as the best game of its type yet. King's Quest 5 is also in the same league but a little bit too difficult for my personal taste.

Monica S Vann
Bucks

COMPETITION*WINNERS*

Leisure Station competition (Issue 14)

Perhaps not too surprisingly, we received our biggest postbag ever in response to this competition, with the offer of an Opus 486SX-based Leisure Station PC as first prize.

Our stupendously lucky winner is Mr G A O'Hagan, of Epsom, in Surrey, who should be receiving his Opus Leisure Station any day now.

There are 10 more winners, who will each receive a copy of the PC Games Bible, a comprehensive guide to PC games. This will be thudding through the letter box to Alexander Leicester, of Warrington; Johanne Brooks, of Wolverhampton; Russell Quinlan, of Fyvie, Aberdeenshire; C G Deeks, of Alcester, Warwickshire; Jim McCarney, of Luton; Deejay Kistnah, of London SE18; Simon Tennant, of Harpenden, Herts; Stephen Pitt, of Maidenhead, Berks, C Barrett, of Swindon, and Tim Philips, of Earley, Berks. Well done, the lot of you.

Just in case anyone's still stumped by the pictures, the answers were as follows: screen A was from Wing Commander 2; screen B from Legend; screen C from Gods, and screen D from World Tennis Championships.

ON THE SPOT

PC Review arranges regular visits to the UK's top PC companies, taking with us a selection of readers who have filled in the form below. This gives you the chance to talk to various movers and shakers within the industry: interview them, ask them about their PC plans, how they design, write, produce their games, what they hope to be doing in the future. The exact nature of the visit, and the degree of formality, depends on the companies concerned, but you usually get a chance to see some sneak previews of forthcoming products, meet the programmers, and have a guided tour of company HQ.

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

We're currently planning a second trip to Electronic Arts, and we've added the company to the list below. If you want to visit a company other than those mentioned below, tell us, and if there's enough interest we'll try to arrange it.

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

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

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*Landmarks quoted with secondary cache.



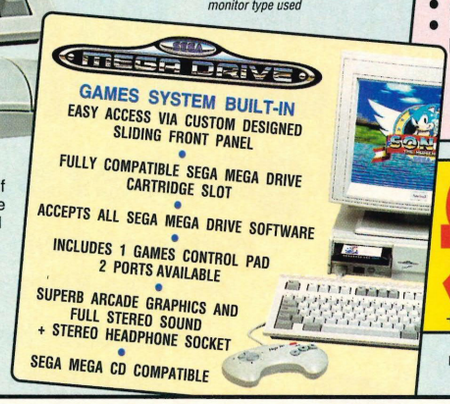
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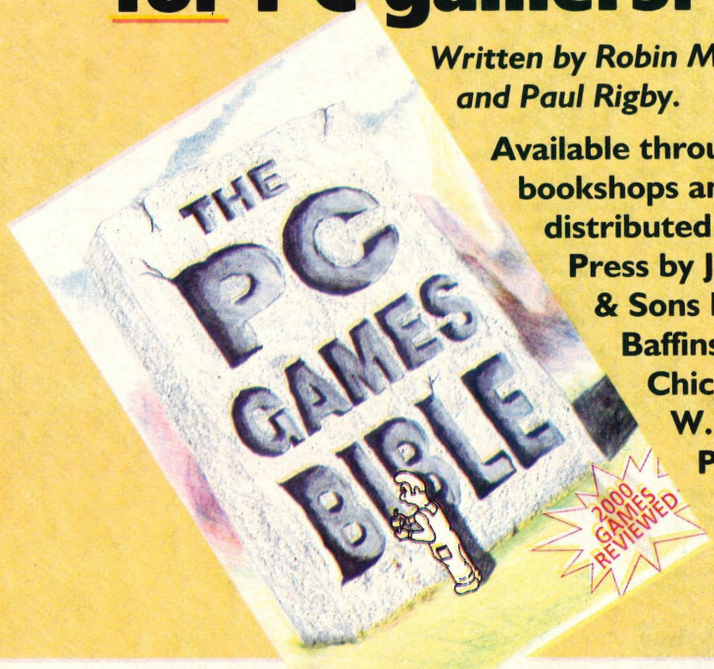
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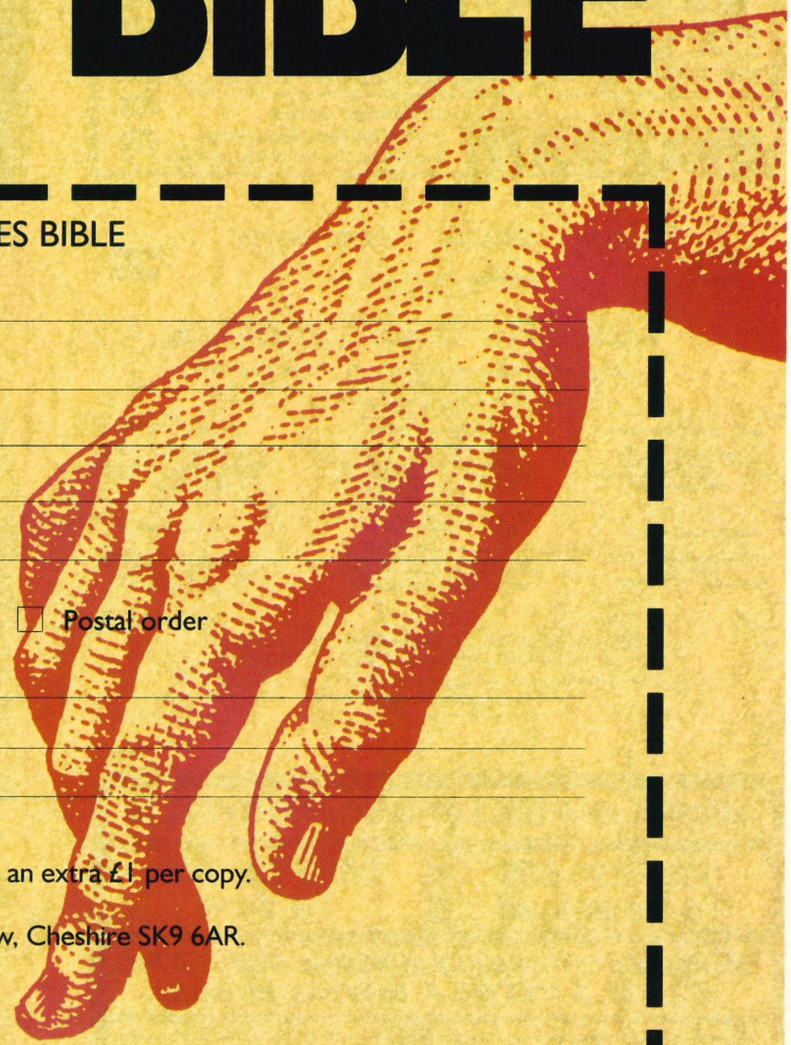


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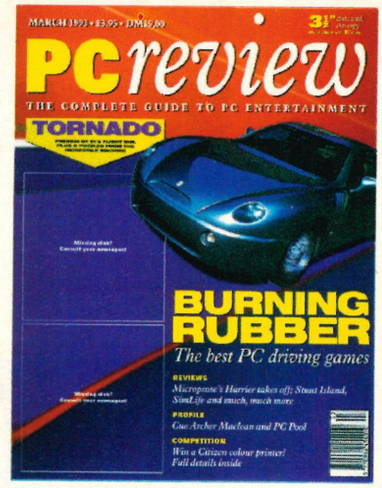
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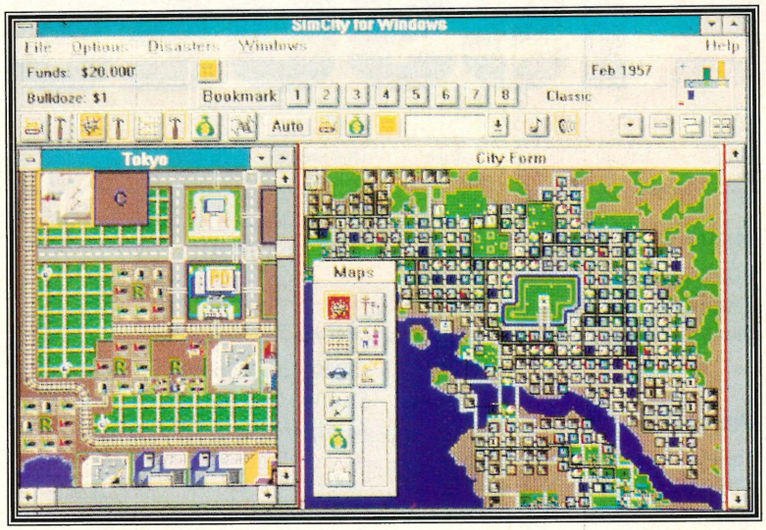
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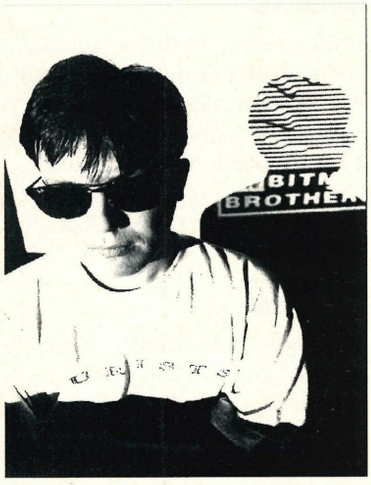
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Eric Matthews' *Classic* GAME OF THE MONTH



Sim City



"This is such a simple idea, implemented in an inventive way, to make a boring subject — town planning — very addictive.

"We used to play this a lot, and had a Sim City competition going in the office. This came to an abrupt halt when Mike, having reached the Megatropolis stage, passworded his cities for fear of someone (me) destroying them overnight. Then he forgot the password and to this day he can't remove 20Mb of cities from his hard disk."

Sim City, originally published by Maxis, is one of the most durable PC games, still selling in significant numbers four years after its original launch. The game centres around town planning: you must develop a thriving, prosperous community from an empty patch of ground, by creating the right environment for the town to grow. This involves ensuring a good mix of residential, industrial and commercial sites, adequate communications and transport between one part of your city and another. You must also build up community services, such as health care and policing, without taxing your 'sims' (city inhabitants) too harshly, if you want to stay in office as mayor.

Sim City was the first Maxis game to reach the UK and heralded a whole series of Sim programs. As well as Sim City add-on disks, SimEarth, SimAnt, and SimLife have attempted to simulate the development of life on earth, an ant-hill, and animal evolution respectively.

PROFILE

Eric Matthews has been working as a computer graphics designer for 10 years. Among his earliest projects were the graphics for Virgin's Scalextric game on the Spectrum, and a paint program on the Sinclair QL. In 1987, he formed The Bitmap Brothers with Mike Montgomery and Steve Kelly. Their first game was Xenon, on which Eric acted as co-designer and graphics artist. He went on to design Xenon 2: Megablast, Speedball 2 and Gods, all of which were highly acclaimed on various computer formats, and with Simon Knight, co-designed the Bitmaps' latest game, The Chaos Engine — which has yet to appear on the PC, but should be available by the end of this year.

Eric is currently working on a new multi-player game, with the working title of Z, and which is something of a Bitmap first: it is being developed on, and for, the PC-compatible platform and should appear early next year.

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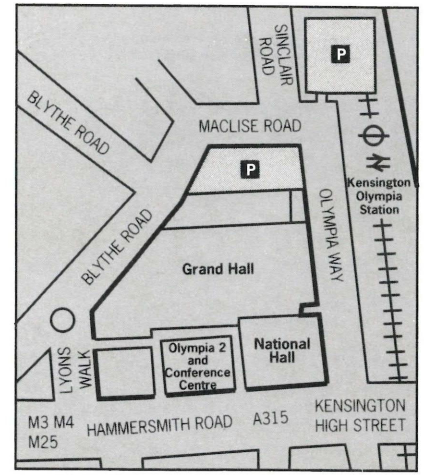
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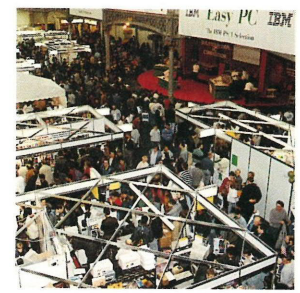
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